

Before a Board of Inquiry  
MacKays to Peka Peka Expressway Proposal

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*under:* the Resource Management Act 1991

*in the matter of:* Notice of requirement for designation and resource consent applications by the NZ Transport Agency for the MacKays to Peka Peka Expressway Proposal

*applicant:* **NZ Transport Agency**  
*Requiring Authority*

Statement of evidence of **Boyden Evans** (Landscape) for the NZ Transport Agency

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Dated: 7 September 2012

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## **STATEMENT OF EVIDENCE OF BOYDEN EVANS FOR THE NZ TRANSPORT AGENCY**

### **QUALIFICATIONS AND EXPERIENCE**

- 1 My full name is Boyden Henry Evans.
- 2 I am a senior landscape architect and a Director of an environmental planning and design company, Boffa Miskell Limited (*Boffa Miskell*). I have a BSc in botany and pedology from Victoria University of Wellington and a post graduate Diploma in Landscape Architecture from Lincoln University. I am a Fellow of the New Zealand Institute of Landscape Architects (*NZILA*) and a Registered NZILA Landscape Architect.
- 3 I have been a landscape consultant with Boffa Miskell since 1986 and have worked on a range of projects for corporate and private clients and for territorial authorities in various parts of New Zealand. This work has involved district and regional landscape assessments and resource studies, assessments for many types of development projects, including rural lifestyle and residential subdivisions, infrastructure projects such as roading, wind farms, transmission lines and quarries. I have also been involved in many site rehabilitation and revegetation projects and have prepared management plans for different types of reserves and other areas.
- 4 I was team leader for the landscape, ecology and recreation assessments for Greater Wellington Regional Council (*GWRC*)'s Future State Highway 1 (Western Corridor) roading investigations in 1989, and in 2002 I undertook a landscape and visual assessment and subsequently presented expert witness evidence on behalf of Kāpiti Coast District Council (*KCDC* or *the Council*) for the Western Link Road appeal. I also provided the landscape input for the 2007 Transmission Gully Scheme Assessment Report.
- 5 The site rehabilitation projects I have been involved in vary in scale and complexity – from the preparation and monitoring of large scale, long term rehabilitation plans for quarries, areas where stands of pines have been removed within the Wellington Town Belt, to revegetation projects for native forest remnants in Queen Elizabeth Park, for sites on private land and planting associated with residential and rural lifestyle subdivisions.
- 6 I was team leader for the landscape, ecology, recreation and land use assessments for the Waikanae and Ōtaki Rivers as part of GWRC's investigation team working on the floodplain management plans for these rivers.
- 7 My evidence is given in support of the Notices of Requirement (*NoR*) and applications for resource consent lodged with the Environmental

Protection Agency (*EPA*) by the NZ Transport Agency (*the NZTA*) for the construction, maintenance and operation of the MacKays to Peka Peka Expressway (*the Project*).

- 8 I am familiar with the area that the Project covers and the State highway and local roading network in the vicinity of the Project. As part of the Alliance Project team designing the Expressway, and in the course of preparing the Landscape and Visual Effects' Assessment Technical Report,<sup>1</sup> I carried out extensive fieldwork in order to understand the Project's landscape and receiving environment.
- 9 I am the author of the Assessment of Landscape and Visual Effects technical report (*TR7*) which formed part of the Assessment of Environmental Effects (*AEE*) lodged in support of the Project.<sup>2</sup> I also provided input into the Urban and Landscape Design Framework (*ULDF*) report.<sup>3</sup> Finally, I am the author of the Landscape Management Plan (*LMP*).<sup>4</sup>
- 10 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 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**

- 11 My evidence will deal with the following:
- 11.1 Background and role;
- 11.2 Description of the existing landscape;
- 11.3 Description of methodology;
- 11.4 A summary of my assessment of the landscape and visual effects of the Project;
- (a) Operational landscape and visual effects;
- (b) Part 2 Resource Management Act 1991 (*RMA*) matters;

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<sup>1</sup> Technical Report 7.

<sup>2</sup> Technical Report 7.

<sup>3</sup> Technical Report 5.

<sup>4</sup> Construction Environmental Management Plan (CEMP) Appendix T, Volume 4.

(c) Temporary landscape and visual effects (associated with the Project's construction);

- 11.5 Proposed measures to avoid, remedy or mitigate landscape and visual effects;
- 11.6 Response to Section 149G(3) reports;
- 11.7 Response to submissions;
- 11.8 Proposed conditions; and
- 11.9 Conclusions.

### **EXECUTIVE SUMMARY**

- 12 The Project will introduce changes in the various landscapes along the 16km route; the type and scale of changes will vary. In places, the scale of the Project footprint, the associated earthworks, scale and elevation of the various structures such as bridges, retaining walls, and noise barriers will have unavoidable adverse landscape and visual effects, even with the substantial mitigation that is proposed. Despite this, the Project does provide opportunities at various locations along the route to improve some aspects of the landscape.
- 13 The Expressway has been aligned to avoid key landscape and ecological areas in many places, such as the continuous dune sequence in Queen Elizabeth Park (one of GWRC's five regional parks), wetlands at Raumati and El Rancho, remnant natural areas at Ngarara, and dunes at various places along the route. Creation of a new ecological wetland at Otaihanga, creation of wetlands to deal with stormwater, riparian planting along waterways, and extending and linking small areas of remnant indigenous vegetation will individually and collectively have positive landscape and also ecological benefits.
- 14 When considered at a broad landscape context, the Expressway traverses the relatively flat topography of the coastal plain. However, when considered at a more local level the Project passes through a variety of smaller landscapes, each with a distinctive landscape character. As part of the landscape and visual assessment,<sup>5</sup> 12 separate landscape character areas were identified and the effects of the Project assessed in relation to these.
- 15 Three interrelated assessment criteria; biophysical, visual amenity, and landscape character formed the basis of the assessment of

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<sup>5</sup> Technical Report 7.

landscape and visual effects. These three criteria address the relevant RMA Part 2 matters in the following manner; see **Table 1**.

**Table 1 – Relevant RMA Provisions**

RMA Provision (relevant emphasis)	Landscape and Visual assessment category
s 6(a) Effects on the natural character of the coastal environment, wetlands and rivers and their margins	Biophysical Landscape Character
s 6(b) Effects on outstanding natural features and landscapes	Biophysical Landscape Character Visual Amenity
s 7(c) Effects on amenity values; and	Visual Amenity
s 7(f) Effects on the quality of the environment (biophysical aspects of the landscape).	Biophysical

- 16 Modification of dune landforms, characteristic along most of the route, will cause the greatest level of adverse biophysical effects. However, re-shaping the dunes as an integral part of the earthworks, together with the creation of a new wetland and enhancing wetland and riparian areas within the designation are important parts of the mitigation proposed.
- 17 Effects on visual amenity will be high, very high or extreme in eight of the landscape character areas, and the effects on landscape character will be high or very high in eleven of the twelve character areas. The greatest level of adverse effects will be in residential areas, especially those where dwellings are close to the designation corridor.
- 18 Many of the 216 submissions that raise landscape and/or visual matters that I reviewed simply reiterate what I have stated in TR7 in relation to the type and scale of landscape and visual effects. Earth bunds, together with extensive planting proposed as mitigation will ameliorate some of the landscape and/or visual effects, but for many of the 40 submitters that live within 200m of the Expressway, and especially those within 100m, this mitigation will be effective only in some locations. Some screening will be able to be achieved but for the residents of some properties there will still be adverse effects on visual amenity and landscape character. For completeness, I record that my review of submissions has not caused me to depart from the conclusions reached in TR7.
- 19 The Expressway bridge over the Waikanae River will introduce a large structure into a quiet, popular recreational environment and

the effects on visual amenity will be extreme and the effects on landscape character very high. Many submissions compare the proposed Expressway bridge unfavourably with the bridge proposed as part of the WLR. In my opinion though, the landscape and visual effects of any vehicular bridge across the Waikanae River would be similar, because of the elevation and length necessary to comply with GWRC's flood protection requirements.

- 20 The route alignment through the rural areas where there are far fewer dwellings and the properties are larger, provides greater scope for landscape and visual mitigation. While mitigation in the form of earth bunds and planting within the designation will be effective with regard to many properties, in some locations, planting of shelterbelts or groups of amenity trees within private properties will need to be considered. The proposed conditions provide for this to occur, where appropriate.

### **BACKGROUND AND ROLE**

- 21 As a member of the Alliance Project team I have been responsible for providing landscape input into the alignment and design of the Project. This has involved the landscape and visual team working collaboratively with other Project team members starting in the initial stages in the design process, through to the review of options, refinement of the proposed Expressway alignment and then development of detailed mitigation solutions. Specifically, I have provided input into the following aspects:
- 21.1 Design philosophy;
  - 21.2 Scoping report;
  - 21.3 Option assessment workshops;
  - 21.4 Alternative route assessment;<sup>6</sup>
  - 21.5 Scheme assessment report;<sup>7</sup>
  - 21.6 Multi Criteria Assessment (MCA) workshops;
  - 21.7 Value Improvement Process (VIP) workshops;
  - 21.8 Preparation of visualisations, animations, cross sections and other graphic material for various workshops, the two public Expos, and meetings with various agencies and organisations, and meetings with members of the public;

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<sup>6</sup> Mackays to Peka Peka Expressway Alternative Route Options Report, 2011.

<sup>7</sup> Mackays to Peka Peka Expressway Scheme Assessment Report, M2PP-SAR-RPT-DL-GE-271.



21.9 Establishment of plant substrate and planting trials;

21.10 Development and refinement of:

- (a) earthworks design;
- (b) noise walls and bunds;
- (c) bridge abutment details; and
- (d) landscape and visual mitigation measures.

- 22 I was involved (with other members of the landscape team), from an initial design stage, in evaluating Expressway alignment options in terms of their potential landscape and visual effects and then helping to shape and refine the Project.
- 23 The landscape team and I have focused on avoiding adverse landscape and visual effects as far as possible through alignment selection and good design, rather than simply relying on landscape mitigation. However, formulating appropriate landscape and visual mitigation has also been necessary.
- 24 The other members of the landscape team and I have worked particularly closely with the ecology, urban design and stormwater teams, as there is a close interrelationship between these disciplines in relation to this particular Project. This has ensured that the requirements of stormwater management, protection and enhancement of waterways and ecological sites, and urban design considerations are appropriately integrated with the landscape and amenity values of the receiving environment.
- 25 I was involved in community engagement through the two public expos that were held in Kāpiti in November 2010 and May 2011, and also in meetings with several community and stakeholder groups (in particular, El Rancho Christian Holiday Camp, Friends of Waikanae River, Takamore Trust, and Waikanae On One). I was involved in meetings and liaison with staff from the Rivers Group of GWRC to discuss issues around where the Expressway crosses the Waikanae River. I also participated in several workshops with landscape, biodiversity and stormwater/drainage staff from KDCD.
- 26 Aspects of my evidence relate closely to parts of the evidence prepared by other witnesses, including, ecology (**Mr Stephen Fuller, Dr Vaughan Keesing, Mr Matiu Park, Dr Leigh Bull**), stormwater (**Mr Graham Levy**), urban design (**Mr Marc Baily**) and construction methodology (**Mr Andrew Goldie**). In particular, the extensive planting proposed is a key mitigation measure for landscape, ecology and stormwater effects. While the planting plans are part of the landscape package, the design of planting areas, and

the species proposed were formulated in close collaboration with the ecology and stormwater specialists. Similarly on design aspects of the Expressway underpasses, bridge abutments and retaining walls, the urban designers and landscape team worked with the Project's structural engineers to inform the design, scale, materials and finishes for these elements. Also, I participated in workshops with **Ms Siiri Wilkening** and other team members to identify noise mitigation measures that would both mitigate noise and integrate well into the landscape.

- 27 In the preparation of TR7, I have also relied on other information prepared by Project specialists and contained in their reports; in particular urban design, ecology, noise, lighting, earthworks and construction methodology.<sup>8</sup> These reports are explained in the evidence of other NZTA witnesses.

### **EXISTING LANDSCAPE**

- 28 The proposed Expressway is situated on a relatively narrow coastal plain between the Tararua Ranges and the Tasman Sea. The Kāpiti coastal plain is part of an extensive coastal sand country land system extending from Paekakariki to Hawera. At a broad scale, the coastal plain topography is relatively flat but at a local level there is considerable variation - a complex of old sand dunes, interdunal hollows, peatlands, drained swamplands and alluvial deposits of the Waikanae River floodplain.<sup>9</sup>
- 29 The area has been significantly modified through drainage, vegetation clearance and development, initially for farming and subsequently for residential, rural lifestyle, coastal settlement and horticulture. The combination of landform, vegetation and land use has created a pattern of smaller landscapes each with a distinctive landscape character. Accordingly, I have subdivided the landscape along the Project alignment into 12 landscape character areas, which provides the basis for the assessment of potential landscape and visual effects resulting from construction and operation of the Project. For ease of reference, a map showing the 12 landscape character areas is attached as **Annexure 1**.<sup>10</sup>

### **METHODOLOGY**

- 30 The steps involved in preparing the landscape and visual effects assessment are described in detail in TR7.<sup>11</sup> At the outset, the key

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<sup>8</sup> Technical Reports 4, 5, 6, 15, 16, 26, 27, 28, 29, 30.

<sup>9</sup> Refer to Technical Report 7, Section 5 for a discussion of the existing environment.

<sup>10</sup> The **attached** map also appears in Technical Report 7, at page 18.

<sup>11</sup> Technical Report 7, Section 4, pages 16 to 22.

issues addressed in developing an appropriate assessment methodology were:

- 30.1 Identifying the assessment area utilising ZTV (zone of theoretical visibility) analyses;<sup>12</sup>
- 30.2 Determining the potential 'zone of influence' of the proposed Expressway in the Kāpiti coastal plain landscape (which identified that areas within 200m of the Expressway should be the primary focus of the landscape and visual amenity assessment);<sup>13</sup>
- 30.3 Determining the 'audience' or receiving population who will be potentially affected by the Project by identifying potentially affected dwellings and then a zone of highest sensitivity, taking into account distance and physical features such as topography. I also considered the potential 'transient' population of pedestrians, cyclists and motorists;<sup>14</sup> and
- 30.4 Deciding on the criteria/factors to be assessed to determine the level of landscape and visual effects and how these should be 'measured'.
- 30.5 Assessments from individual private properties were not carried out nor were any visual simulations prepared from private properties. There are two reasons for this:
  - (a) First, with over 860 dwellings located within 200m of the Expressway and over 300 within 100m, deciding which and how many properties should be selected to provide a representative sample was an issue. In many places, the view from one particular residential property is totally different to that from an immediate neighbouring property because of the effect of buildings and other structures and vegetation.
  - (b) The second reason is that there is good access to the Expressway corridor along much of the route, especially in the urban areas via the street network and other publicly accessible areas, such as parks.

I acknowledge that for individual properties within each landscape character area the landscape and visual effects are likely to vary; that is, the effects for some will be greater

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<sup>12</sup> Technical Report 7, Section 8.1, pages 34 to 37.

<sup>13</sup> Technical Report 7, Section 8.1.4, pages 37 to 38.

<sup>14</sup> Technical Report 7, Section 8.2, pages 38 to 42 and refer also to Figures 11, 24, 36 and 50 in Appendix 7A (Volume 5) for a depiction of the zone of highest sensitivity.

than I have determined for the character area overall, and for other properties it will be less. However, in my opinion, the assessment method my colleagues and I used for this Project is fit for purpose and has enabled fair and representative conclusions as to the level of landscape and visual effects to be drawn for each of the twelve landscape character areas defined. In addition, I consider that the assessment method also provided sufficient information to be able to determine the mitigation required within each of the landscape character areas.

- 31 The landscape and visual assessment focuses on the effects of three interrelated aspects:
  - 31.1 Biophysical change to the landscape;
  - 31.2 How the Project will affect visual amenity;<sup>15</sup> and
  - 31.3 How it will change the existing landscape character.
- 32 The degree of potential change in each of these aspects was assessed to provide a magnitude of change.
- 33 Biophysical effects, effects on visual amenity, and effects on landscape character relate directly to the provisions in the RMA as shown in **Table 2** below.

**Table 2 – Relevant RMA Provisions**

RMA Provision (relevant emphasis)	Landscape and Visual assessment category
s 6(a) Effects on the natural character of the coastal environment, wetlands and rivers and their margins	Biophysical Landscape Character
s 6(b) Effects on outstanding natural features and landscapes	Biophysical Landscape Character Visual Amenity
s 7(c) Effects on amenity values; and	Visual Amenity
s 7(f) Effects on the quality of the environment (biophysical aspects of the landscape).	Biophysical

<sup>15</sup> In Section 5.3, pages 24-25 of Technical Report 7 I have also acknowledged that noise is an inextricable component of amenity. For each landscape character area, I have included in the tables summarising effects against the RMA provisions under Section 7 (c), the increase in ambient noise wherever this occurs.

- Biophysical Effects**
- 34 Biophysical effects refer to the extent and significance of modifications to landform, waterways and vegetation. An analysis of the 3D terrain model and elevation plans was carried out, together with an analysis of cross sections at 20.0m intervals. The landscape team also considered the investigations carried out by the ecologists, stormwater specialists and geotechnical specialists. The scale of biophysical change used is set out in **Table 3** below.<sup>16</sup>

**Table 3 - Magnitude of Biophysical Change**

Degree of Magnitude	Indicative Examples
<b>Extreme</b>	Loss of most key features/attributes
<b>Very high</b>	Fundamental alteration to most key features/attributes
<b>High</b>	Alteration to several key features/attributes- considerably changed
<b>Moderate</b>	Alteration to one key feature/attribute – partially changed
<b>Low</b>	Minor change to a key feature/attribute – similar to before
<b>Very low</b>	Very slight change/change barely distinguishable
<b>Negligible</b>	No discernable change

- Visual Amenity**
- 35 Visual amenity is a component of the overall amenity and therefore contributes to peoples’ appreciation of the pleasantness and aesthetic coherence of a place. This aspect of the landscape and visual assessment considered the effects of the visual change that the Expressway would bring to the outlook and views of the viewing audience.
- 36 Several factors can influence the magnitude of visual effects, and generally, one or more of these factors contribute to the overall magnitude of effects from any one viewpoint. **Table 4** below summarises how factors contribute to the relative magnitude of effect.<sup>17</sup>

<sup>16</sup> Technical Report 7, Section 4.4.1, page 19.

<sup>17</sup> Technical Report 7, Section 4.4.2, pages 19 to 20.

**Table 4 - Magnitude of Visual Effects**

Contributing Factors	Higher Effects	Lower Effects
Size of viewing audience	Higher density populations and well used public space (ie residential areas, roads, and public recreational areas).	Lower density areas such as rural and rural lifestyle areas
Proximity to Expressway	Within 100m	Beyond 100m
Duration of view	Residents	Recreation, road users
Relative elevation of Expressway to viewpoint	Difference in elevation	Similar elevation
Visibility of traffic on Expressway	Traffic visible	Traffic not visible
Outlook/desirable views from viewpoint	Loss of key view/visual focus/open outlook	Partial or no loss of key view/visual focus/open outlook
Primary/peripheral views	Expressway central to primary view	Expressway part of the secondary/peripheral view

- 37 The scale of changes used to determine the magnitude of change to visual amenity is set out in **Table 5** below.

**Table 5 - Magnitude of Change to Visual Amenity**

Degree of Magnitude	Indicative Examples
<b>Extreme</b>	Proposal dominates/ obscures views for most of the viewing audience
<b>Very high</b>	Proposal is prominent and significantly restricts views, for viewing audience within 100m
<b>High</b>	Proposal is a major element of mid-ground view from within 200m
<b>Moderate</b>	Proposal forms a visible and recognizable new element within the overall scene/readily noticed
<b>Low</b>	Proposal may constitute a limited component of wider scene/ may be missed by casual observer
<b>Very low</b>	Proposal only occupies very limited part of view often at distance/ may be scarcely discernable
<b>Negligible</b>	Proposal will not be seen within this view

### Landscape Character

- 38 Landscape character is derived from a combination of landform, land cover and land use that makes one area different from another. The effects on landscape character relate to changes in land use, changes to existing patterns and elements in the landscape, such as vegetation, water bodies, landform, and settlement patterns.
- 39 The introduction of the Expressway into the Kāpiti coast landscape, including the various associated earthworks, structures, planting and traffic, combine to potentially affect landscape character.
- 40 The scale of changes used to determine the magnitude of change to landscape character is set out in **Table 6** below.<sup>18</sup>

**Table 6 - Magnitude of Change to Landscape Character**

Degree of Magnitude	Indicative Examples
<b>Extreme</b>	Significant change to overall landscape character
<b>Very high</b>	Fundamental alteration to key features/ attributes, composition largely changed
<b>High</b>	Alteration to several key elements or features/ attributes, major change to composition
<b>Moderate</b>	Alteration to one key element or feature / attribute, composition partially changed
<b>Low</b>	Minor change to underlying composition, similar to before
<b>Very low</b>	Very slight change to landscape character, change barely distinguishable
<b>Negligible</b>	No discernable change

### Natural Character

- 41 The assessment of natural character applies to the natural character of the coastal environment, wetlands, rivers, streams and their margins that would be affected by the Project (as per Section 6(a) RMA).
- 42 The Project does not lie within the coastal environment.<sup>19</sup> While I acknowledge that the sand country between the foothills of the Tararua Ranges and the coastline results from coastal processes, the active coastal processes and dynamic influences of the coast do not

<sup>18</sup> Technical Report 7, Section 4.4.3, pages 20 to 21.

<sup>19</sup> As defined in Policy 1 of the New Zealand Coastal Policy Statement.

significantly continue to shape the inland area where the Project is proposed.

- 43 Where the Expressway crosses the Waikanae River, approximately 2.0km upstream from the coast, there may be a minor coastal influence on the River (due to migration of some marine fish species). But the water in the River at this point is not saline, the vegetation does not comprise coastal species, coastal processes are not evident, and overall the area has no perceptible coastal characteristics.
- 44 The natural character of the rivers, streams and wetlands potentially affected by the Project has been based on the ecological assessment<sup>20</sup> prepared by **Dr Keesing**, and field observation.<sup>21</sup> Assessment of the natural character of the water bodies, for the purposes of this landscape assessment, refers to just the part of the water body potentially affected by the Project.

#### **Visual Simulations**

- 45 Computer-generated aerial and ground-based photographic visual simulations were used by the Alliance team during the development of the Project as they helped to illustrate the extent and nature of visual effects of some of the road alignment and design options. Simulations were used in the display material for the two public Expos and in meetings with various stakeholders groups. Visual simulations are also helpful in showing the mitigation planting and other mitigation measures proposed.
- 46 The viewpoint locations selected for the visual simulations (which are attached as Appendix 7B to TR7) were based on the following:
- 46.1 Local roads crossing the Expressway;
  - 46.2 Areas highly used by the public, such as the walkway from the end of Ihakara Street adjacent to Wharemauku Stream, and the Waikanae River walkway;
  - 46.3 Key, semi-public locations, such as El Rancho Christian Holiday Camp and the Takamore urupā;
  - 46.4 Key public locations, especially those in close proximity to the Expressway corridor or in elevated locations which may be some distance from the Expressway but from which there will be clear and unobstructed views of it.

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<sup>20</sup> 'Freshwater Habitat and Species – Description and Values' – Technical Report 30.

<sup>21</sup> The existing natural character of the streams and wetlands has been assessed in each of the relevant character area descriptions in Section 10 of Technical Report 7.



- 47 Each visual simulation in Appendix 7B comprises three images:
- 47.1 Existing situation;
- 47.2 The Expressway immediately following construction and without any mitigation planting; and
- 47.3 The Expressway with mitigation planting after approximately 10 years with vegetation shown to be approximately 4.0m tall.

## SUMMARY OF LANDSCAPE AND VISUAL EFFECTS

### Operational Landscape and Visual Effects

- 48 In Sections 10.1 to 10.12 of TR7, I provide a detailed assessment of landscape and visual effects by character area. The findings of this assessment are summarised in **Table 7** below<sup>22</sup> and discussed in the following sections.

**Table 7 – Summary of landscape and visual effects by character area**

Character Area	Biophysical	Visual Amenity	Landscape Character
QE Park	low	low	low
Raumati South	moderate	high	high
Raumati Road	high	high	high
Wharemauku Basin	high	very high	high*
			very high**
Kāpiti Mazengarb	high	high	high
Otaihanga South	very high	low	high
Otaihanga North	high	moderate	high
Waikanae River	moderate	extreme***	very high
		very high****	
Te Moana	high	very high	very high
Ngarara	high	moderate	high
Peka Peka South	moderate	moderate	high
Peka Peka North	moderate	high	high

\* Considered in the context of the proposed future built environment with the development of the town centre the effects on landscape character would be high.

\*\* Considered in relation to the existing open space environment, the effects on landscape character would be very high.

<sup>22</sup> Reproduced from the Executive Summary to Technical Report 7.

\*\*\* In close proximity to the bridge

\*\*\*\* At greater distances where the bridge is visible.

**Biophysical Effects**

- 49 The scale of the Project footprint and required geometric design parameters mean that substantial changes to landforms, vegetation and water bodies is unavoidable in places. The alignment and design has, however, avoided areas of intact dunes, indigenous vegetation and wetland areas wherever possible. In particular, the alignment of the Expressway through the Raumati South character area, which has deviated from the existing Western Link Road (WLR) designation, has avoided a series of large intact dunes with stands of semi-mature manuka, as well as a natural wetland.
- 50 In various places along the route, however, it has not been possible to avoid biophysical effects. Physical change to the dune landforms, floodplain areas and wetlands cause the greatest level of adverse biophysical effects, as these are permanent changes to natural areas. Due to the large scale of the physical changes proposed, little effective mitigation is possible in these areas, beyond integrating the earthworks into the natural landforms as far as is practicable.
- 51 In places, intact dunes within the Project footprint will be totally removed and in other places they will be modified by cuts or the addition of fill to form bunds. Many of the dunes within the existing WLR designation remain today only because of the de facto 'protection' that the designation has provided over the previous decades. This is particularly evident between Kāpiti and Mazengarb Roads, where land beyond the existing WLR designation has been flattened to facilitate residential and industrial development.
- 52 The construction of elevated ramps at interchanges and bridges also requires significant change to the existing landforms, especially where ramps are required in flat or low lying areas such as at Poplar Avenue, Wharemauku Basin, Te Moana Road, Smithfield Road and the Peka Peka interchange overbridge. Conversely, in places, the existing elevation of the dunes is proposed to be utilised to ramp the Expressway over the intersecting road, such as at the Raumati, Mazengarb and Otaihanga Road crossings. The dunes are used in a similar fashion where Ngarara Road crosses the Expressway. While in these situations the dunes may largely remain intact, the integrity of their natural form will still be significantly modified.
- 53 Loss and fragmentation of indigenous vegetation and habitats, while undesirable, can to some extent be effectively mitigated, through replanting, rehabilitation and offset mitigation measures. However, the benefits of such measures will be effective only if they are properly managed and maintained; in some instances this will mean that maintenance will need to be ongoing. A six months defects liability period for all planting is proposed, which will be followed by

a two year maintenance period for the terrestrial mitigation planting and a four year maintenance period for the wetland planting.<sup>23</sup> I consider that these maintenance periods are sufficient to get the planting established. After that the planting will continue to develop and thrive with periodic operational maintenance that the NZTA carries out on all State highways.

- 54 The alignment has avoided all but four wetland areas, three of which lie within the Otaihanga South character area and will be fragmented and reduced in size. An area of new wetland proposed in the same character area will go some way towards offsetting this loss. This is discussed further in the evidence of **Mr Park** and **Mr Fuller**, respectively.
- 55 The large crescent-shaped dune with advanced regenerating indigenous vegetation near Puriri Street, north of the Takamore urupā, will be substantially altered by large cuts and the loss of an area of advanced secondary native vegetation. However, this alignment avoids the need to remove more dwellings in the Te Moana character area and other associated visual and other effects.
- 56 The proposed riparian mitigation planting on the sections of streams affected by the Project will, in time, improve the indigenous biodiversity and habitat of those parts of the streams.<sup>24</sup>

#### ***Effects on Visual Amenity***

- 57 My assessment assigns a magnitude of the visual amenity effects to each character area. This reflects the prevalent effect across the character area, but recognises there will be locations where the effects are likely to be greater or less.
- 58 While a great deal of effort and design work has gone into locating the alignment to avoid or reduce the landscape and visual effects, the Project will be an unavoidably visible element in the landscape. In particular, the scale of the elevated bridges makes it difficult to screen the Expressway from view. Another factor is the visibility of traffic movement on the Expressway, which will accentuate visual impact. However, apart from the interchanges and local road crossings; the proposed earth bunds, noise fences, walls and planting will provide visual mitigation by screening views of the moving traffic.
- 59 The effects on visual amenity are rated as very high in three character areas and high in four of the twelve areas. The greatest

<sup>23</sup> I note that there was an error in the conditions, as lodged. DC.57(f) refers to a three year maintenance period. However, a two year maintenance period is proposed for terrestrial planting and a four year maintenance period is proposed for wetland and riparian planting. This is consistent with my recommendations in Technical Report 7. I note that condition WS.5 also requires updating.

<sup>24</sup> Technical Report 26: Ecological Impact Assessment, Section 11.3.2.

visual effects are where the proposed footprint is large and where there are substantial structural and elevated components, such as ramps, bridges, embankments and noise walls. The magnitude of these effects increases where they are visible to both resident and transient viewing audiences, and when the visual change detracts from existing views and outlooks.

- 60 The effects on the visual amenity of the Waikanae River corridor will be very high, and extreme when viewed at close quarters. The River corridor's high natural and recreational values and its status in the Kāpiti Coast District Plan (*District Plan*) as an Outstanding Landscape<sup>25</sup> make this area sensitive to change<sup>26</sup> (notwithstanding that the existing WLR designation anticipates a bridge at this location). The WLR bridge, while shorter and narrower than that proposed for the Expressway<sup>27</sup>, would still be a large structure and like the Expressway, would be a totally new and foreign element in this part of the river environment. Any type of bridge in this environment would affect the natural character and impact on the recreational and other users using the river walkway.
- 61 **Mr Bailly's** evidence notes the value of the Expressway bridge in providing connectivity for cyclists and pedestrians moving between the northern and southern sides of the river. The bridge will also achieve greater levels of connectivity for the east-west recreational users in that it will allow people using these routes to connect to the north-south cycleway / walkway developed as part of the Expressway.
- 62 The proposed bridge will also afford cyclists and pedestrians views of the river corridor from the elevated position of the bridge itself, thus providing a different perspective of Waikanae River than that which currently exists.
- 63 The presence of a large bridge across the river corridor will be a dominant feature that detracts from the otherwise 'natural' and 'wild' amenity enjoyed by the community. While the visual effects would be extreme from close proximities of the bridge (i.e. within about 200m), they diminish with distance because of the relatively

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<sup>25</sup> I note that the District Plan refers to the river landscape of the Waikanae River as being an 'outstanding landscape', rather than using the phrase 'outstanding **natural** landscape', as per the Court's interpretation of Section 6(b) of the RMA (see Policy 4, C.10.1). However, the Explanation to Policy 4 refers to Section 6(b) language, recording that the RMA requires "protection of outstanding landscapes from inappropriate subdivision use and development." I consider it reasonable to interpret the District Plan as categorising the landscape of the Waikanae River (and the other specific landscapes discussed later in my evidence) as an outstanding landscape, for the purposes of Section 6(b) of the RMA.

<sup>26</sup> Volume 1, Part C.10 Objectives and Policies, and Map 09 District Wide and Urban Plan Features, District Plan.

<sup>27</sup> The Expressway bridge is 182m long and 27.6m wide.

sinuous alignment of the river itself and the presence of existing vegetation. Also, it is only a short section of the river corridor outstanding landscape that would be affected.

- 64 Similarly, the bridge and embankments crossing Wharemauku Stream introduce large elevated structures into a relatively flat, undeveloped and well-used landscape, reducing the openness of the area and restricting views to Kāpiti Island from some locations. At Kāpiti Road and Te Moana Road interchanges, the Project proposes large elevated structures crossing busy local roads and in residential areas which impact on the visual amenity of large viewing audiences, in particular transient road users.
- 65 From most locations, the visual changes resulting from the Project will not necessarily adversely affect visual amenity but will simply present a different view (e.g. along Makarini Street). For the majority of viewers (resident and transient), once the bunds are formed and vegetation established on them, Expressway traffic will generally not be visible, and so the visual effects of the Expressway will be minimal. However, at some locations, the effects on visual amenity for residents immediately adjacent to the Expressway will be severe, particularly for residents who lose views of open space and traffic becomes a prominent element of their foreground view (e.g Chilton Drive).
- 66 I consider that planting on bunds in some of these particular situations may help to ameliorate visibility of the Expressway to various degrees, however, I recognise there is a balance to be struck between competing effects. For example, noise bunds, whilst acting as mitigation for the effects of noise from the Expressway have consequential effects in terms of loss of visual amenity.
- 67 The largest viewing audience will experience the Expressway as a transient event when passing under or over it on local roads, through interchanges, and along the Waikanae River and Wharemauku Stream corridors.

***Effects on Landscape Character***

- 68 The landscape character varies along the proposed 16km route; there are areas with distinct rural, rural lifestyle, residential, urban, industrial, and highway characters. As a large piece of infrastructure, the Project will introduce a new type of activity and character to these areas.
- 69 The Project will bisect the landscape, interrupting in places the natural topography and water bodies as well as man-made patterns such as settlements, plantations, shelterbelts, roads and accessways. The degree of change to the existing landscape relates to the scale of the Project footprint and the size of the various structures. The change to landscape character will generally be the

greatest in the immediate vicinity of the Project footprint; however, with increasing distance from the Project these effects will lessen and then virtually diminish. The least effect on the existing landscape character occurs where the Expressway is close to the existing SH1/NIMT rail corridor, which is already a busy transport environment.

- 70 For most of the route, the magnitude of changes to landscape character areas has been rated high. However, in three of the character areas the changes will be very high – Wharemauku Basin, Waikanae River and Te Moana.<sup>28</sup> In these locations, both the scale of the Expressway structures, and the activity that it will introduce, will significantly change the existing landscape character.
- 71 Landscape character evolves over time. This is reflected in the District Plan, where several provisions provide for development and expansion of urban and residential areas, which make landscape change in this part of the Kāpiti Coast inevitable. For example, the development of Paraparumu Airport and accompanying business park, the proposed Kāpiti town centre, and district plan changes such as the Waikanae North Development Zone, Waikanae North Urban Edge, and Ngarara all signify changes in landscape character.
- 72 While such development tends to introduce physical change and changes in landscape character relatively gradually, the construction of the Project over 4-5 years in conjunction with ongoing urban development will bring relatively rapid landscape change to several communities. The WLR designation also anticipated major change in landscape character for transportation purposes. As I have noted in paragraph 60, the bridge over the Waikanae River, although shorter and not as wide as the proposed Expressway bridge, would still be a significant structure and have an adverse effect on landscape character in this part of the river corridor.

## **ASSESSMENT OF PART 2 RMA MATTERS**

### ***Section 6(a) Natural Character of the Coastal Environment, rivers, wetlands and their margins***<sup>29</sup>

- 73 As I have noted, in my opinion, the Project does not lie within the Coastal Environment.
- 74 The Project crosses approximately 11 streams, most of which currently have a low level of natural character (due to being channelised, with poor riparian vegetation and low in-stream

<sup>28</sup> In the case of the Wharemauku Basin the 'very high' rating applies to an assessment of the Project's landscape character effects in the existing environmental context. The Basin is however zoned Commercial and proposed for town centre development. Considered against that future context, the landscape character effects of the Project are simply 'high'.

<sup>29</sup> Technical Report 7, Section 11.4.1, pages 129-130.

ecological value). The exception is the Waikanae River, which has a high level of natural character.

- 75 The large scale of the Expressway, where it crosses these streams, will have an adverse effect on the natural character in terms of perceived naturalness. Where long culverts are required, it will also affect the natural character in an ecological sense because of the resulting loss of habitat. However, the proposed riparian restoration and enhancement of sections of the streams will improve the ecological value and natural character of these particular stream sections.<sup>30</sup>
- 76 While important wetlands have been largely avoided parts of some will be lost, which will adversely affect their natural character. 5.4ha of wetland restoration is proposed as mitigation for the loss of 1.8ha. of wetland of moderate value. **Mr Park** discusses this in his evidence.
- 77 The loss of natural character in the immediate vicinity of the proposed Waikanae River Bridge would be very high with the realigned Muaupoko Stream and the main river channel confined by riprap and with the bridge overhead. However, when considered in the context of the river over its entire length, the effect on natural character would be relatively low.

**Section 6(b) Outstanding Natural Landscapes**

- 78 I interpret Policy 4 of the District Plan as seeking to protect 'outstanding landscapes', for the purpose of Section 6(b) of the RMA.<sup>31</sup> Six 'outstanding landscapes' are identified, one of which is referred to as 'Ecological areas shown on the planning maps'. The Project's effects on these areas will be discussed further in **Mr Park's** evidence.
- 79 Of the other landscapes identified in Policy 4:
- 79.1 The Project will directly affect the 'Riverscape of the Waikanae River,<sup>32</sup> and
- 79.2 Sections of the Project will be located in proximity to the 'Wave-cut escarpments behind Paraparaumu and Paekakariki', and the 'Foothills of the Tararua Ranges.'
- 80 The Project would not have any direct effects on the wave-cut escarpments nor on the foothills of the Tararua Ranges. In relation to the Waikanae River outstanding landscape, the effects of the

<sup>30</sup> Technical Report 26, Section 11.2.3

<sup>31</sup> Please see the comment above at footnote [25] regarding interpretation of the District Plan.

<sup>32</sup> Section 10.8, pages 86-93, Technical Report 7.

Expressway are limited to the section of the river where the Expressway bridge crosses. The effects on the river and environs would be moderate when considered in terms of the outstanding landscape overall, but in the immediate vicinity of the river crossing, the effects on the natural and landscape values would be significant. As noted in paragraphs 60 and 72, the bridge proposed for the WLR proposal would also have a similar level of effects on the natural and landscape values.

- 81 While landscape mitigation is proposed in the form of reinstating and extending native planting, this will not fully offset the effects on visual amenity and landscape character in the immediate vicinity of the proposed bridge.

***Section 7(c) Amenity Values***

- 82 My assessment focused on the landscape and visual components of amenity.<sup>33</sup> Overall, the Project will have very high adverse effects on amenity in relation to many properties located within 100m. The large scale and physical nature of the Project, and also traffic movement, will unavoidably affect the amenity and open space values of the rural and residential communities through which it passes.

- 83 While the proposed mitigation will assist to integrate the earthworks into the local environment and screen views of the road and traffic, the physical presence and resultant increase in ambient noise will impact on the existing amenity of adjoining areas.

***Section 7(f) Quality of the Environment***

- 84 The physical changes to the dunes and other landforms, features and water bodies will adversely affect the quality of the environment along the Project route. However, the large areas of the Project corridor to be planted with predominantly locally eco-sourced indigenous vegetation will improve the biodiversity of the environments along the route. The creation of a new ecological wetland at Otaihanga, the margins of which will also be densely planted, will also contribute positively to this.

***Temporary landscape and visual effects***

- 85 In Section 10.14 of TR7 I discuss temporary landscape and visual effects. These effects are discussed under four headings – earthworks, structures, temporary fencing and temporary buildings and yards.
- 86 There will be temporary landscape and visual effects during construction. However, many of these temporary effects will occur

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<sup>33</sup> Other aspects of amenity are addressed in Technical Report 5 and in the evidence of **Mr Bailey**.



at different times, along different parts of the route, during the overall proposed four year construction period.

- 87 While earthworks will occur along the entire route, structures such as the erection of bridges and retaining walls, temporary buildings and yards will occur at specific locations. Consequently, the potential landscape and visual effects of these will be limited and a lot more area/site specific.
- 88 Construction effects are relatively short term in relation to the life of the Project and regarded here as temporary effects, albeit over the four year construction programme. The visual effects of earthworks are the most significant temporary effects.
- 89 The construction process will create landscape and visual effects for nearby residents and others in the vicinity of the Project corridor. In particular, the removal of vegetation and earthworks will be the most significant visual impact and will affect the visual amenity of each locality. Bare earth or hydroseeded surfaces, especially on the elevated embankments, will be visible during and post construction, and from some locations visually prominent. Until the proposed planting is established the visible earthworks will have a 'bare' or 'new' appearance, contrasting strongly with previous views.
- 90 In locations where surcharging the peat by preloading is required, this will result in these sections being 2.0-3.9m higher than the finished road height for periods of 6-24 months. Consequently, the visual effects of preloading earthworks are likely to be greater than the final effects of the established Expressway, as the finished Expressway road level will be lower and the embankments planted. Given most of the preloading sections are located in areas of low population only, a small number of residents are potentially affected.
- 91 There will be a lot of construction activity in areas where bridges, retaining walls and other structures are being built, especially at the interchanges. Many of the bridge and other structural components will be precast off site and transported to the various sites, to reduce the amount of time and construction activity at the actual locations where these structures are being built.
- 92 The sites for the temporary buildings and yards have been carefully considered in terms of efficiency during construction and also in terms of adjoining land uses, avoiding residential areas and local roads where possible. All such facilities will be located within the construction designation with layouts and access designed to avoid adverse effects on residents and local road users. Where required

appropriate measures will be adopted to mitigate potential landscape and visual effects.<sup>34</sup>

- 93 Contractors working on construction bridges at night will need to use floodlights, either portable or temporary, but these will be mounted so that they do not cause glare towards any residential properties or roads.
- 94 Lighting layout and design for the construction yards, which is to include a 10.0m buffer zone between any equipment requiring light and a residential boundary, will be reviewed and approved by an accredited illumination engineer to ensure adverse environmental effects from lighting are avoided prior to it being installed.<sup>35</sup> **Mr Keith Gibson** discusses the effects of lighting further in his evidence.
- 95 At the outset of construction, the areas where earthworks and other construction activities will occur will be securely fenced. This will secure the construction site for health and safety purposes and will also ensure that areas of vegetation within the Project designation, but which have been identified to be retained as part of landscape mitigation, are not inadvertently damaged or disturbed.
- 96 The fencing will be 5-wire stock-proof farm fencing for much of the route. However, in the areas where there is public access 2.0m high mesh fencing will be erected. Also, in places where temporary noise walls are required for construction these will act as barriers to prevent public access.
- 97 For the most part, the temporary fencing will be familiar to most people, especially in the rural and rural lifestyle character areas. The nine sites selected for the establishment of the construction yards are relatively discrete and separated from residential properties. While the 2.0m high mesh fencing around the yards will be visible from public roads and residential areas, it is unlikely to be intrusive or result in any adverse landscape or visual effects.
- 98 Due to the linear nature of the Expressway, 11 yards along the route will be established to accommodate and service the works at various stages during the construction programme. Upon completion of the works, the construction yards will be disestablished and the areas reinstated, which will involve grassing and in places some planting may be required.
- 99 One advantage of the greenfield linear nature of the Project is that during construction, the Expressway corridor will provide the haul

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<sup>34</sup> For example, the arrangement of buildings and the layout of the main construction yard at Otaihanga Road, including lighting, will be organised so that it is well screened from adjoining areas, including minimising light spill.

<sup>35</sup> Refer Technical Report 8, Section 3.5.

route for delivery of materials and construction thus minimising both the volume of traffic on local roads and the area of land disturbance within the designation. Each section of the route will be constructed consecutively and progressively away from the Otaihanga Project Office and Yard.

### **MEASURES TO AVOID, REMEDY OR MITIGATE LANDSCAPE AND VISUAL EFFECTS**

#### **General principles employed to manage effects**

- 100 Measures to avoid, remedy or mitigate landscape and visual effects are discussed in Section 7 of TR7 (pages 26 to 34), which details the range of landscape mitigation measures proposed. These measures are summarised in Attachment 7.3 to TR7. In addition, the LMP sets out the tasks and actions that will be needed to avoid, remedy and mitigate landscape and visual effects during the construction phase of the Project.<sup>36</sup> The LMP outlines the necessary monitoring during the construction phase and the transition to the operational phase of the Expressway.
- 101 Throughout the design process, the aim has been, where practicable, to avoid adverse landscape and visual effects. However, given the large scale of the proposed works, complete avoidance of adverse effects is not possible in all parts of the Project.
- 102 Avoiding wetland areas, stands of regenerating native vegetation, and also significant exotic trees, wherever practicable, and instead retaining and enhancing these areas as part of the Project, will all contribute positively to the District's landscape and visual aspects.
- 103 Aligning the Expressway over local roads will, on balance, reduce landscape and visual and effects for local residents. While the actual bridges that cross over local roads at Poplar Avenue, Raumati, Kāpiti, Mazengarb, Otaihanga and Te Moana Roads will be visible within their immediate environs, this approach does however avoid greater landscape and visual effects for many adjoining residents and property owners than if these local roads were to cross over the Expressway (i.e it would mean the local roads on both sides of the Expressway would need to be significantly altered and ramped to clear the Expressway). In addition, retaining these local roads in their current alignment also retains the connectivity for local communities, as discussed by **Mr Baily** in his urban design and planning evidence.
- 104 Earth bunding and planting to visually screen the Expressway are the primary landscape and visual mitigation measures proposed. Mitigation measures primarily proposed for ecological and noise related purposes have also been taken into account and these often

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<sup>36</sup> CEMP, Appendix T.

assist with landscape and visual mitigation. For example, planting along streams as ecological offsets for lengths of stream lost because of the Project also assists in terms of enhancing landscape character and improving visual amenity, and construction of noise fences on property boundaries and noise walls and bunds can assist in screening views of the Expressway from adjoining residential properties. The extent and type of planting proposed as mitigation along the Expressway is shown in Figures 2-6, Appendix 7A to TR7, Volume 5.

105 The key to successful landscape mitigation for the Expressway along its 16km length is dependent upon:

105.1 Avoiding a standard approach to mitigation treatment along the entire route and instead ensuring that the measures proposed are appropriate to the particular location and landscape character of the particular area; and

105.2 Ensuring wherever possible, that the treatment of landform as a mitigation measure is incorporated as an integral part of the bulk earthworks.

106 The landscape mitigation measures that I have proposed seek to address two aspects, in particular:

106.1 Effects on biophysical factors: by retaining existing trees and vegetation where desirable and practicable, earth bunding and contouring of earthworks, and planting to integrate the Expressway into the fabric of the surrounding landscape; and

106.2 Effects on the visual amenity from beyond the corridor: by including measures that can, as far as practicable, screen views of the Expressway, associated structures, and traffic movement, particularly for nearby residents.

107 The effects on landscape character are however, far more difficult to mitigate given the levels of change that the Expressway will introduce into what is mostly a small scale landscape, large parts of which have been developed for residential housing. I have assessed the changes in landscape character for 11 of the 12 character areas, which include landscape mitigation measures, as being high or very high.

108 I now turn to discuss some of the specific landscape mitigation measures proposed.

#### **Contouring of earthworks**

109 Given the level of disturbance that will occur to the dunes, it will be important to ensure that the cut faces and batter slopes are 'tied in', both physically and visually, with the adjoining, undisturbed dunes.

The ULDF report describes and illustrates these points through a series of design principles.<sup>37</sup>

- 110 The UDLF is given force through the conditions; DC.1 requires the Project to be undertaken in general accordance with the AEE and the supporting documents, of which the UDLF is one. Condition DC.55 a) i) requires the LMP to implement “*the principles and outcome sought by the Urban Design and Landscape Framework*” and ii) also the “*landscape plans submitted as part of the Landscape and Visual Assessment*”.

### **Noise Barriers**

- 111 I worked with **Ms Wilkening** to assess the landscape and visual effects of the various noise mitigation options she initially proposed, and worked with her to select best practicable options that mitigated noise with the least adverse landscape and visual effects. Some of the noise mitigation measures, in particular noise bunds, actually reduce the Project’s landscape and visual effects by screening views of the Expressway.
- 112 Noise bunds adjoin dunes in many places but in others are located on flat land. The shape of bunds is important, in that they need to relate to their context and ideally, have a ‘natural’ appearance.<sup>38</sup> As noted in paragraphs 109 - 110, both the UDLF and the LMP cover this aspect and are given force through conditions DC.1 and DC.55.
- 113 Noise walls have been designed in relation to their context.<sup>39</sup> In those places where 1.1m concrete safety barriers along the Expressway ramps and bridges are required, these will also function as noise walls.
- 114 Other noise walls along the route will be either:
- 114.1 Concrete walls of varying heights depending on the specific location, or
- 114.2 Welded mesh stone filled gabion baskets along the edge of the Expressway with earth ramped up on the outer face and mass planting.<sup>40</sup>

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<sup>37</sup> Refer ULDF at Section 5.10, and refer also Technical Report 7, Section 7.1 and Appendix 7A, Figure 7.

<sup>38</sup> Technical Report 7, Section 7.1.1, page 28.

<sup>39</sup> Technical Report 7, Section 7.1.2, page 28.

<sup>40</sup> Refer ULDF, Section 5.9, which sets out the design principles for noise barriers. Refer also to Technical Report 15 – the Assessment of Traffic Noise Effects & Appendix 15.8 which sets out the “Selected Mitigation Options”. Conditions relating to final design of the noise barriers are discussed in the evidence of **Ms Wilkening**.

- 115 Timber noise fences along rear boundaries of some residential properties are also proposed. These will be 2.0m high, closed board fences and will appear as typical residential fences. Generally there will be planting along the 'Expressway side' of fences, as part of overall landscape mitigation; planting may need to be offered to owners of private properties to minimise the effects of high fences. Condition DC.57(g) requires that the LMP include details of landscape design, including landscape treatment for noise barriers.

#### **Retention of existing vegetation**

- 116 Patches of existing vegetation and some individual trees are to be retained.<sup>41</sup> Retention of existing vegetation is a key mitigation measure, which can assist with integrating the Expressway into the landscape in several ways:
- 116.1 Existing vegetation has intrinsic value which should be acknowledged instead of clearing all vegetation at the outset regardless of its ecological and landscape worth or value;
- 116.2 Existing vegetation provides a starting point and often a basis for planting further vegetation;
- 116.3 It can provide shelter and protection for new plantings; and
- 116.4 It can reduce overall planting requirements and therefore reduce costs.

#### **Planting**

- 117 Planting as a landscape mitigation measure is equally as important as re-contouring of dunes and earth bunding.<sup>42</sup> As explained in the briefs of evidence of **Mr Park** and **Mr Fuller**, planting is also important for ecological mitigation. In landscape terms, planting will:
- 117.1 Enhance local landscape character;
- 117.2 Integrate earthworks with adjoining topography/vegetation;
- 117.3 Reinforce or complement existing vegetation to be retained;
- 117.4 Enhance natural character;
- 117.5 Screen views of the Expressway, associated structures and traffic on the Expressway;
- 117.6 Screen views of noise walls;

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<sup>41</sup> Technical Report 7, Section 7.2.1, page 29.

<sup>42</sup> Technical Report 7, Section 7.2.2, pages 29-31.

117.7 Maintain visual amenity for residents; and

117.8 Enhance cycleway/walkway amenity.

- 118 Nine planting types are proposed along the Expressway route. Further detail of this is given in Figure 2 of Appendix 7A, (Volume 5).

***Pest Plants***

- 119 Pest plants will be a major issue in relation to the landscape and ecological rehabilitation of areas of existing vegetation to be retained and also in areas of new planting – both in relation to terrestrial and wetland planting.<sup>43</sup>
- 120 Removing and controlling pest plants requires vigilance and a sustained effort both at the outset of construction, and then ongoing maintenance. Regular and careful monitoring of the planting will need to be established in the construction phase and continue through the defects liability period and then during the maintenance periods that follow. These aspects are addressed in both the Ecological Management Plan (*EMP*) and the LMP.<sup>44</sup>

***Eco-sourcing***

- 121 Although very little original indigenous vegetation remains on the Kāpiti coastal sand plain, the development of the landscape and ecological mitigation planting along the Expressway provides an opportunity to use a range of native plant species that occur in the Foxton Ecological District.<sup>45</sup>
- 122 Use of eco-sourced plants has accordingly been factored into the planting for the Project where possible. There are, however, exceptions. Given the time frames for construction of the Project, obtaining the quantities of certain species of large grade specimen trees for planting in areas such as the Kāpiti Road and Te Moana Road interchanges is unlikely. The planting proposed for these areas is more for amenity purposes rather than one of trying to approximate natural plant assemblages. From a landscape perspective, I consider this to be an appropriate response.

***Planting: terrestrial***

- 123 As part of refining the planting design and species composition along the route, a planting substrate and plant trial has been established on an area at the southern end of the route adjacent to Queen Elizabeth Park. As part of the trial, a range of species proposed along the route will be planted on a trial embankment that

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<sup>43</sup> Technical Report 7, Section 7.2.4, page 32

<sup>44</sup> CEMP Appendix M, Section 3.3.1, pages 24-26 and Section 4.3.2, pages 45-46 and Appendix T, Section 4.3.2, pages 14-15.

<sup>45</sup> Technical Report 7, Section 7.2.5, pages 32-33.

has been formed onto which different soil mixes have been placed. The performance of the different soil mixes, together with the survival and success of the plant species will be monitored over the next two or so years to ascertain the best soil mixes to use along the route and how the different plant species perform.

124 The construction methodology involves the removal of a large quantity of peat and its stockpiling along the route to dry out. Much of this peat will be used as the basis for the soil mix placed on the embankments and other areas to be planted. Sand, compost and other additives will be added to the peat to form a suitable soil mix; the trial will help to determine the most suitable ratios of these materials.

125 Planting will involve the following:<sup>46</sup>

125.1 All areas disturbed by earthworks will be hydroseeded on completion to provide stability and to control silt runoff. Areas to be planted in woody vegetation will be mulched. Various areas of woody vegetation along the route will be cleared and mulched (except those species that may become future pest plants) and used around new planting;

125.2 All plants will be 'hardened off' either in a nursery where they are propagated or in a suitable nursery holding area for at least two months prior to being planted;

125.3 Controlling pest plants and animals will be a key to plant survival and establishment. Where pest plants or animals are likely to be a threat, then a pest removal/control programme will be initiated in advance of planting;

125.4 All terrestrial planting will be subject to a six month defects liability period followed by a two year maintenance period<sup>47</sup> on embankments, batter slopes, bunds, and wet and dry swales. I consider that the combination of the defects liability and the maintenance periods are appropriate to get terrestrial planting established, providing planting is carried out in accordance with best horticultural practice and, within the three month planting season (beginning of June until end of August) annually that is recognised as being the optimum for the Kāpiti Coast;

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<sup>46</sup> Technical Report 7, Section 7.2.6, pages 33-34.

<sup>47</sup> As noted above, condition DC.57(f) and WS.5 incorrectly refers to a three year maintenance period for all planting.



125.5 The LMP addresses these aspects<sup>48</sup> and this will be given force through the conditions (DC.55 and DC.57).

***Planting – wetlands***

- 126 Establishing and maintaining planting in the existing and new wetlands will pose several challenges, notably pest plants and the level and period of maintenance required. Given the level of pest plants present in most of the existing natural wetlands on the Kāpiti Coast, any additional planting in these areas will face competition. To help deal with this, a four year maintenance period is proposed for the ecological and stormwater treatment wetlands.<sup>49</sup>
- 127 I consider that the combination of the defects liability and the maintenance periods are appropriate to get wetland planting established, providing planting is carried out in accordance with best ecological and horticultural practices and within the three month planting season (beginning of June until end of August) annually, that is recognised as being optimum for the Kāpiti Coast.

**RESPONSE TO SECTION 149G(3) REPORTS**

- 128 The RMA Section 149G(3) report prepared by KCDC raises issues regarding protection of open space from inappropriate development, in particular the need to provide public access alongside streams and other water bodies and the need to provide a range of recreational opportunities within Queen Elizabeth Park. The KCDC report identifies the District Plan objectives and policies relevant to these issues.<sup>50</sup>
- 129 Attachment 1 of TR7 provides a statutory planning context. The statutory context report discusses open space issues, including specifically in relation to Queen Elizabeth Park. The report also considers the relevant statutory provisions regarding access to waterbodies.
- 130 The southern end of the Expressway will be visible from Queen Elizabeth Park and it encroaches on the north-eastern corner of the Park at Poplar Avenue. This sector of the Park has been modified by a clean fill operation. The Expressway therefore will not directly affect the active and passive recreation activities in the Park.
- 131 The popular public access along both sides the Waikanae River will remain, apart from during construction of the Waikanae River bridge. In addition, the development of a cycling and pedestrian

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<sup>48</sup> Section 3.5.2, pages 12-13 and Section 4.3.2, pages 14-15 and Appendix 3, LMP, CEMP Appendix T.

<sup>49</sup> Technical Report 7, Section 7.2.7, page 34.

<sup>50</sup> Page 35, KCDC Key Issues Report.

route along the entire length of the Expressway will provide greater connectivity for users of the existing Waikanae River walkway.

- 132 The walkway/cycleway along the south side of the Wharemauku Stream will also be unaffected by the Expressway, and similar opportunities to increase connectivity will also be provided at this location. The proposed cycling/walkway alongside the Expressway will also create new opportunities to develop new future linkages from it to other waterways that the Expressway crosses.
- 133 GWRC, in their Section 149G(3) report, suggests that the LMP<sup>51</sup> should include a review of the success of the wetland and riparian mitigation planting at the end of the proposed four year maintenance period. Monitoring of the success of all plantings will occur throughout the entire maintenance period and actions identified progressively to address any issues or problems. Therefore, I consider it unnecessary to specifically include a separate review at the end of the maintenance period.
- 134 The mitigation planting proposed fulfils several functions and was developed collaboratively with **Mr Park**, as was the length and details of the maintenance periods. In their submission, GWRC state that the LMP provides only limited reference to planting for wetland and ecological purposes and goes on to record that the LMP describes planting by sector. I note that planting is also shown on the planting plans in TR7.<sup>52</sup> The LMP and the EMP are complementary and need to be considered together in order to understand the extent and type of planting proposed and the maintenance regime.
- 135 The maintenance period for wetlands and riparian areas was established in conjunction with **Mr Park**; we both consider that the four year maintenance period for these areas is appropriate providing the planting is carried out in accordance with recognised ecological and horticultural practices and within the three month optimum planting season, as noted in paragraphs 125.4 and 127.
- 136 The GWRC and KCDC Key Issues Reports raise other matters, all of which have been addressed in TR7. The table below outlines the matters raised and where they are addressed. Several of these matters are also covered in my response to submissions.

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<sup>51</sup> Paragraph 234, GWRC Key Issues Report.

<sup>52</sup> Figures 3-6, Appendix A, Technical Report 7.

**Table 8: Summary of various matters raised in Key Issues Reports**

<b>Matters Raised</b>	<b>Reference from Technical Report 7</b>
Effects on the amenity and character of landscapes are identified, managed and mitigated.	Covered in relation to each of the 12 landscape character areas identified, pages 45-116 and sections 11.2 -11.3, pages 127-129.
Landscape and visual effects of the Expressway, particularly elevated components such as ramps, bridges, retaining walls, and noise barriers.	Section 7.1 -7.2, pages 26-34 and also covered in relation to each of the 12 landscape character areas identified, pages 45-116 and sections 11.2 -11.3, pages 127-129.
Effects of earthworks, particularly on natural landforms, outstanding landscapes and landscape and heritage features.	Covered in relation to each of the 12 landscape character areas identified, pages 45-116 and sections 11.2 -11.3, pages 127-129.
Effects on the Waikanae River, particularly in relation to the 180m long Expressway bridge over the river.	Section 10.8.7-10.8.9, pages 90-93, 11.4.1, page 129 and Attachment 7.1, page 13
Effects on the coastal environment relating to adverse effects on natural character.	Section 8.4, page 43 and Attachment 7.1, page 1.

## **RESPONSE TO SUBMISSIONS**

- 137 I have reviewed the 216 submissions received on the Project that raise landscape and/or visual related matters. Many of the issues raised by submitters are similar and can be grouped under specific headings. Several submissions are substantial and cover various matters in some depth and detail. In my evidence below, I have addressed these more substantial submissions first and then turn to the other matters raised by submitters, addressing them under thematic headings.
- 138 A fairly large number of submissions have simply stated that they oppose the Project because of landscape and/or visual effects (without being specific as to their concerns). I have not addressed

these submissions below, because landscape and visual effects have been covered in detail in TR7 and/or earlier in my evidence.

139 Proposed conditions DC.54-59 cover the information and process for development of the LMP (which forms part of the CEMP). The landscape mitigation described in TR7 and in the LMP will be developed in detail, if the Board of Inquiry (BoI) confirms the NoR and approves the resource consents sought for the Project. Plans and cross sections of the finishing earthworks where the Expressway cuts through dunes, the formation of earth bunds and the planting which is currently shown as planting types will be developed as detailed planting plans and specifications. Particular attention will be given to developing landscape mitigation plans and details for those properties located close to the Expressway.

140 Planting maintenance specifications will also be developed to ensure that the planting that is undertaken is looked after until it becomes established.

**Kāpiti Coast District Council (Submission No. 682)<sup>53</sup>**

141 KCDC supports the Project in part but seeks further information, refinements or more appropriate conditions in relation to some aspects. The Council also states that they consider the issues raised in their submission are capable of resolution prior to the BOI's decision through provision of additional information and /or through witness conferencing, together with the provision of appropriate conditions.

142 In the opening section of its submission, the Council lists the Project's landscape design aspects which it supports.<sup>54</sup> In two of nine points listed, the Council includes provisos; one relates to the standard gradient of slopes facing the Expressway,<sup>55</sup> and the second relates to ensuring that the impacts of planting on neighbouring properties are appropriately addressed.<sup>56</sup> While both of these aspects are detailed design matters and will be addressed in the next phase of the Project, the LMP will also be instrumental in achieving this.<sup>57</sup> The Council is one of five organisations identified in the conditions that have to be consulted in preparing the final LMP.<sup>58</sup>

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<sup>53</sup> Raumati South Residents' Association lodged a comprehensive submission (No. 707). However, the section on landscape and visual effects is virtually a repetition of the matters raised by KCDC in their submission; consequently my response to the KCDC submission also applies to the submission by Raumati South Residents' Association.

<sup>54</sup> Paragraph 201, page 37.

<sup>55</sup> Paragraph 201, Point (g), page 37.

<sup>56</sup> Paragraph 201, Point (i), page 38.

<sup>57</sup> DC.54(d)(i) and (ii).

<sup>58</sup> DC.54(c).

143 The Council discusses landscape and visual matters under three separate headings: Maintenance Standards and Monitoring; Amenity and Visual Amenity; and Coastal Landforms and Natural Character. In each of these, there is a discussion of the issues, followed by the outcomes sought. In some of the outcomes sought, the Council acknowledges that appropriate conditions would achieve the identified outcome. I now turn to each of the matters raised, which I discuss under the same headings used by Council.

***Maintenance Standards and Monitoring***

144 Five matters are raised, some of which are also addressed in the evidence of other experts including **Mr Levy** (hydrology), **Mr Park** (ecology), **Ms Wilkening** (noise) **Mr Baily** (urban design), and also by **Mr Andrew Quinn** (for the NZTA).

145 The Council:

145.1 Is seeking both a longer period for maintenance of planting and also for maintenance to be based on minimum performance-based specifications. Ongoing monitoring and pest control is also sought.<sup>59</sup>

145.2 Is concerned about the lack of clarity regarding the NZTA's responsibility for the maintenance of all planted areas and wants assurance that the NZTA will have the legal capacity in place to achieve this.<sup>60</sup>

145.3 Considers that more work is required on the shape of stormwater wetlands and flood storage areas and their visibility.<sup>61</sup>

145.4 Requests further detail of the proposed noise walls, noise fences and bunds.<sup>62</sup>

145.5 Maintains that there is an apparent underestimation of the effects of the Project on the landscape character of the Wharemauku Basin, and that there is a need for more riparian planting around Wharemauku Stream.<sup>63</sup>

145.6 Seeks "certification" of the landscape design and details, in order to provide greater certainty around achievement of landscape outcomes.<sup>64</sup> I note that the LMP is to be certified

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<sup>59</sup> Paragraphs 202 and 207(a)-(c), pages 38-39.

<sup>60</sup> Paragraphs 203 and 207(A), pages 38-39.

<sup>61</sup> Paragraph 204, page 38.

<sup>62</sup> Paragraphs 205 and 209, pages 38-39.

<sup>63</sup> Paragraphs 206 and 208, pages 38-39.

<sup>64</sup> Paragraph 210, page 39.

by KCDC.<sup>65</sup> The question of management plan certification is discussed further in **Mr Robert Schofield's** evidence.

*Maintenance Period and Specifications*

- 146 Boffa Miskell's standard specification for planting requires plant survival to be 80% at the end of the defects liability period. If there are plant deaths during the subsequent maintenance period there is a clause in the specification for additional planting to achieve the 80% survival. The initial planting densities are such that 80% survival will over time achieve total cover. Regular monitoring of planting is a key requirement during both the defects liability and subsequent maintenance periods and the LMP provides for this.<sup>66</sup>
- 147 A condition could be added requiring plant survival to be at least 80% at the end of the six months defects liability period, which would be reflected in the planting specification. During the maintenance period, areas where plant survival was less than 80% would be replanted by the landscape contractor as part of the maintenance contract to achieve this outcome. However, I do not consider such a condition is necessary here, rather, these matters can be adequately managed through the existing LMP conditions.
- 148 In my opinion, the proposed two year maintenance period for terrestrial planting and four year period for wetland planting<sup>67</sup> is sufficient to achieve plant establishment to a high level, providing site preparation, plant supply, planting, and monitoring are all carried out in accordance with recognised best horticultural and landscape practices. Adopting different or longer maintenance periods alone do not guarantee excellent plant survival and establishment outcomes; that also requires integration at all stages of Project delivery with input of appropriate expertise at the right times, which the Alliance model is well placed to deliver.
- 149 I understand that some NZTA projects have adopted different maintenance periods than those proposed for this Project; for example, all planting in the recently approved Transmission Gully roading project is subject to a three year maintenance period, with a review of all planting at the end of 10 years.<sup>68</sup> In my opinion, this regime is appropriate for that project because the harsh environmental conditions present in Transmission Gully warrant it. However, in comparison, the widely settled coastal plain of the

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<sup>65</sup> See condition DC.59.

<sup>66</sup> DC.57(f).

<sup>67</sup> I note that there was an error in the conditions as lodged. DC.57(f) refers to a three year maintenance period. However, a two year maintenance period is proposed for terrestrial planting and a four year maintenance period is proposed for wetland and riparian planting. This is consistent with my recommendations in TR7. I note that condition WS.5 also requires updating to reflect this.

<sup>68</sup> Condition G.36, Final Report of Board of Inquiry into Transmission Gully Proposal, Volume 2: Conditions.

Expressway environment is far more conducive to plant survival and establishment, so the proposed planting regime and maintenance periods proposed are in my opinion, entirely appropriate.

- 150 Both pest animal and pest plant control will be included in the maintenance specifications for all planting on the Project. All aspects of site preparation, planting substrate, plant supply, planting and maintenance will also be covered in the specifications and in the LMP (Proposed Conditions DC.54-DC.59).
- 151 It is my understanding that at the end of the respective maintenance periods for the Project, the NZTA would assume maintenance of planted areas within the final designation as part of its regional highways maintenance programme. The evidence of **Mr Quinn** outlines this further and also clarifies the legal aspects regarding long term maintenance.

*Shape and Visibility of Stormwater Wetlands and Flood Storage Areas*

- 152 The outline of these areas is shown on the Mitigation Planting plans.<sup>69</sup> These geometric pond shapes are based on those provided by the stormwater and hydrology, and ecology teams, with whom I worked with closely throughout the Project. The shape of these features is simply indicative of the footprints required to accommodate the capacity based on the calculations and modelling done by these other experts. The design of the footprints and the associated planting will be determined at the detailed design stage, so the geometric shapes will invariably change to approximate more 'natural' configurations, while ensuring that these areas function as intended.
- 153 The stormwater treatment wetlands will be visible from various locations but, given my comments above, their shape and the planting around them will ensure that they will largely have a 'natural' appearance and hence be positive and appropriate landscape elements. The same applies to the flood storage areas that will be planted in woody species; they too will be planted in eco-sourced plant assemblages. The flood storage areas that are sown in pasture grass will however, continue to be grazed and appear no different than the adjoining farmland. Further details on the stormwater wetlands and flood storage areas are provided in the evidence of **Mr Levy** and **Mr Park**.

*Noise Barriers*

- 154 While I have been involved in workshops and discussions concerning the type, location and design of noise barriers, these form part of the urban design and noise packages and are addressed in the evidence of **Mr Baily** and **Ms Wilkening** respectively.

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<sup>69</sup> Figures 3-6, Appendix A, Technical Report 7.

*Landscape Character Effects on Wharemauku Basin*

- 155 In TR7 I have made two assessments on the effects of the Project on landscape character of the Wharemauku Basin, depending on whether or not the town centre proceeds in the low-lying area east of the Expressway, which is zoned Commercial.<sup>70</sup>
- 156 If the town centre is located in this part of the Basin, then the Project's effects on landscape character would be high, but if for some reason the town centre is not developed in this area and the area is re-zoned for open space or similar, then the Project's effects on landscape character would be very high.<sup>71</sup> In addition to the town centre, the Project has also allowed for the planned Ihakara Street extension through the Basin under the Expressway and I have taken this into account in my assessment.
- 157 The effects on landscape character and visual amenity in the Wharemauku Basin will largely depend on the master plan and detail of the town centre development. I maintain that the inclusion of two assessments was warranted, given both the current town centre zoning and the potential for the Ihakara Street extension.
- 158 I consider that I have correctly and accurately addressed landscape character effects on the Wharemauku Basin in my assessment in TR7. While Wharemauku Stream is an important waterway, it has been significantly modified and channelised and requires regular cleaning out by a digger. There is a popular walkway and pedestrian commuter route on the southern side of the stream but there are large areas of blackberry and gorse, and riparian vegetation is absent; instead the banks on both sides of the stream are mown grass and the stream is used for stormwater discharge from the Paraparaumu town centre.<sup>72</sup>
- 159 While some native planting is proposed on the banks of a short section of the stream where the Expressway crosses it, the rest of the stream is to be left mostly as is with the grass banks being retained (given the periodic cleaning by digger that is required). The area of native planting that is proposed is mitigation required directly for the Project.
- 160 Two other factors also need to be taken into account when considering the effects on the landscape character of Wharemauku Stream. First, I understand from meetings with KCDC during the Project that realignment of Wharemauku Stream has been considered as part of the town centre plans, and second, as discussed above, that a future road link, an extension of Ihakara Street is planned. This latter aspect has largely determined the

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<sup>70</sup> Section 10.4, Technical Report 7, pages 61-69.

<sup>71</sup> Summarised in Section 10.4.7, Technical Report 7, page 68.

<sup>72</sup> Section 10.4 Technical Report 7, pages 61-69.



height the Expressway crosses Wharemauku Stream. In my opinion, both of these aspects mean that significant changes to Wharemauku Stream could potentially occur. In my view, providing native planting to mitigate the landscape and visual effects of the Expressway only is the appropriate mitigation response for effects on landscape character.

***Amenity and Visual Amenity***

161 The Council raises several issues in relation to the Project's effects on amenity and visual amenity; I will address visual amenity aspects, but other aspects of amenity are addressed by **Mr Baily, Ms Wilkening, Mr Gibson, Ms Julie Meade Rose** and **Mr Schofield** in their evidence.

162 The visual amenity matters raised fall into three groups:<sup>73</sup>

162.1 Insufficient assessment of cumulative amenity effects.

162.2 Insufficient assessment of the permanent effects and construction effects of loss of views, noise, lighting, shading, loss of privacy and loss of connectivity for residents in some areas, especially on particular clusters of residential properties lying close to the Expressway.

162.3 The effects on visual amenity in the wider landscape are underestimated in particular areas, especially north and south of Peka Peka, from SH1 and from residents living on the hills to the east.

*Combined Amenity Effects*

163 TR7 focuses specifically on visual amenity; it is one of three aspects that are explicitly assessed for each of the twelve landscape character areas identified. Other aspects of amenity are assessed by **Mr Baily, Ms Wilkening, Mr Gibson** and **Ms Meade Rose** in their respective reports and also in their respective briefs of evidence. **Mr Schofield** (in his planning evidence), draws together the amenity effects covered in these reports to provide a combined assessment of amenity effects.

*Visual Amenity Effects*

164 TR7 considers visual amenity as one of three factors assessed for each of the twelve landscape character areas identified. The assessments were carried out from public areas only, apart from in a few places (e.g. El Rancho Christian Holiday Camp and Takamore urupa). As explained above in my evidence, no assessments were undertaken or visual simulations prepared from private properties.

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<sup>73</sup> See paragraphs 211-215, pages 39-40.

- 165 Computer generated zone of theoretical visibility maps at a broad scale (3km extent) and at a detailed level (300m) were generated to determine what parts of the Expressway could be seen, based on contour information.<sup>74</sup> Using aerial photographs, maps and Google Earth, a calculation of the number of dwellings within 100m and 200m of the Expressway was made.<sup>75</sup>
- 166 The effects on visual amenity were assessed as high, very high or extreme for eight of the twelve landscape character areas. Apart from the Peka Peka South character area, all of the areas identified by KCDC in their submission as requiring further assessment have the Expressway as having either 'high', 'very high' or 'extreme' effects on visual amenity. I have identified the effects on visual amenity in the Peka Peka South landscape character area as moderate and have described these effects in TR7.<sup>76</sup>
- 167 The visual amenity effects are discussed in detail in TR7 in the commentaries for each character area respectively, noting the nature of visual amenity effects on particular clusters of residential properties, such as in Conifer Court, Milne Drive, Makarini Street, Matai Road, Chilton Drive and environs, which are all mentioned in KCDC's submission. The effects on visual amenity at the interchanges and also in regard to the Waikanae River and Wharemauku Basin are also specifically described.
- 168 Of the submissions I have reviewed, 38 are from residents whose dwellings are within 200m of the Expressway and of these, 19 lie within 100m. The effects on visual amenity would vary from property to property along the route, especially for those located close to the Expressway.
- 169 In my opinion, the detail provided in the landscape and visual assessment and also the level of effects described for each of the landscape character areas is an accurate reflection of the situation with regard to each of the 12 landscape character areas. I do not believe these have been understated. The assessment is also appropriate in terms of the mitigation proposals that have been prepared and that are described in TR7.
- 170 I consider that little value would be gained by preparing a detailed assessment and potential visual simulations from the 863 dwellings identified as being within 200m of the Project. The LMP, which is to be prepared in consultation with several statutory and other organisations will ensure that landscape and visual mitigation measures will be able to be developed in response to specific

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<sup>74</sup> Section 7.1.1-7.1.4, Technical Report 7, pages 35-38 & Figures 8, 11, 24, 36, 50, Appendix A.

<sup>75</sup> Section 7.2.1 – 7.2.7, Technical Report 7, pages 38-42.

<sup>76</sup> Section 10.11.7, page 111.

properties to ascertain exactly what landscape mitigation is needed.<sup>77</sup>

- 171 Section 10.14 of TR7 covers temporary construction effects under four separate headings. Under each heading the nature and general route location of the temporary effects are described (but not in relation to specific groups or individual properties). In TR4 **Mr Goldie** provides greater detail of the temporary construction effects and this is also discussed further in his evidence.

***Coastal Landforms and Natural Character***<sup>78</sup>

- 172 KCDC considers that:

172.1 The Expressway is within the 'coastal environment' and therefore, KCDC seeks that an assessment of the Project be carried out in the context of the NZCPS.

172.2 As the Waikanae River is an outstanding landscape<sup>79</sup> (listed in the District Plan) that additional planting should be carried out to mitigate visual effects.

*New Zealand Coastal Policy Statement*

- 173 As I have already explained, I do not consider that the Project lies within the coastal environment (in terms of Policy 1 of the NZCPS) and therefore I did not carry out an assessment of natural character as set out in Policy 13 of the NZCPS. The active coastal processes and dynamic influences of the coast do not significantly continue to shape the inland area where the Project is proposed. Therefore, I do not consider the Project to be located within the coastal environment.

- 174 I do however note that where the Expressway crosses the Waikanae River, 2.0km from the coast, there may be a minor coastal influence in the river due to tidal movement and migration of fish species but the water there is not saline and the area has no perceptible coastal characteristics.<sup>80</sup>

- 175 I have acknowledged that the Waikanae River has high natural character in my discussion of Section 6(a) of the RMA. I have also acknowledged that, where the Expressway crosses the 11 streams along the route, most of which currently have a low level of natural character because of channelization and an absence or poor quality riparian vegetation, that the natural character will be affected.<sup>81</sup>

<sup>77</sup> DC.54(c) and (d)(ii).

<sup>78</sup> Paragraphs 216-220.

<sup>79</sup> As discussed earlier in my evidence, I consider that Policy 4 of the District Plan refers to outstanding landscapes, for the purpose of Section 6(b) of the RMA.

<sup>80</sup> Section 8.4.1, page 43 and Attachment 7.1, Technical Report 7, page 1.

<sup>81</sup> Section 10.4.1, Technical Report 7, pages 106-107.

However, I have also noted that the riparian planting proposed as part of the Project's landscape and ecological mitigation will improve the natural character of particular sections of streams along the Expressway route.

- 176 My conclusions on the application of the NZCPS to the Project have been informed by other work undertaken on the NZCPS, which I describe below.
- 177 The NZCPS became operative in December 2010 and early in 2011 Boffa Miskell was commissioned by Horowhenua District Council (HDC) to carry out a natural character assessment of the 32 km of coastline in their district. Together with two colleagues (one of whom was **Mr Fuller**), I carried out this assessment. Our assessment was informed by discussions with Department of Conservation (DoC) head office staff.
- 178 My colleagues and I developed a methodology for the Horowhenua coastal assessment based on the definitions and requirements in the NZCPS. We undertook the assessment which involved a desk top exercise, field work and site visits, aerial reconnaissance and photography, and peer review by colleagues from our other offices, who had been engaged by other councils to carry out similar assessments. We tabled our report to HDC in June 2011.
- 179 To date, Boffa Miskell has carried out NZCPS coastal natural character assessments for Marlborough District Council, and Bay of Plenty Regional Council. While I have not been directly involved in any of these three other studies, I have collaborated with colleagues in the development and evolution of the methodology that we are using company-wide.
- 180 Natural character of the coast is both a landscape and ecology assessment matter. In all of the coastal natural character assessments carried out by our company, both landscape architects and ecologists have been involved. In his evidence, **Mr Fuller** (who was involved in the coastal natural character assessment for HDC) comes to a similar conclusion to me regarding the Project's relationship to the coastal environment in terms of the NZCPS.
- 181 Based on my interpretation of the NZCPS and the inland extent of the coastal environment, I considered that it was unnecessary for me to undertake a coastal natural character assessment for the Project. In addition, my view is that the Landscape and Visual Assessment that I have completed for the Project (and reported in TR7) is robust and comprehensive and that it obviates the need for any further assessment of natural character.

*Waikanae River*

- 182 The effects on the Waikanae River's visual amenity and landscape character are determined as extreme<sup>82</sup> and very high respectively.<sup>83</sup> The landscape mitigation proposals in the vicinity of the Waikanae River were prepared in consultation with the Rivers Department, at GWRC, who are responsible for the River (especially in relation to flood management). GWRC reviewed several drafts of our mitigation proposals, which were jointly developed by the hydrology, ecology, urban design and landscape teams involved in the Alliance. In developing the mitigation proposals, we drew on our discussions with and input from KCDC, DoC, Friends of Waikanae River and El Rancho.
- 183 Planting on the floodplain on the north side of the river is restricted by the need not to impede flood flows. The mitigation proposals meet GWRC's requirements, but the detailed aspects of the extent and type of specific planting will be determined during the detailed design phase (and reflected in the LMP). Thus, I consider that the matters raised by KCDC are already sufficiently dealt with by way of conditions (DC. 54-59, G.34-40).

**Department of Conservation (Submission No. 468)**

- 184 The DoC submission focuses primarily on effects on wetlands and freshwater habitats and species and hydrology. DoC states that "*the AEE provides a robust analysis of the relevant statutory documents*", however, DoC mentions that the Project **may** (my emphasis) be contrary to the NZCPS, in particular Policies 3 (Precautionary Approach), 11 (Indigenous Biodiversity) and 13 (Preservation of Natural Character).<sup>84</sup> For the reasons previously discussed, I do not consider that the Project falls within the coastal environment for the purposes of the NZCPS.

**Greater Wellington Regional Council (Submission No. 684)**

- 185 In addition to GWRC's submission, (number 684) they also provided a discussion document.<sup>85</sup> I address below, the matters raised in both their submission and in the discussion document.
- 186 GWRC's submission raises two matters that relate to landscape and visual issues (based on its role as asset owner or manager):
- 186.1 Impacts of the Expressway on Queen Elizabeth Park; and
- 186.2 Impacts on the Waikanae River works and mitigation planting design in the Waikanae River environs.

<sup>82</sup> In close proximity to the bridge (see Table 7 above).

<sup>83</sup> Sections 9.8.5-9.8.9, Technical Report 7, pages 89-93.d

<sup>84</sup> NZCPS, 2010, pages 12, 16 and 17.

<sup>85</sup> *GW Submission on Mackays to Peka Peka Project, Without Prejudice - Discussion Document*, 22 August 2012.

### **Queen Elizabeth Park**

- 187 The Expressway encroaches on the north-eastern corner of the Park, in an area that is currently used as a clean fill disposal site. It does not damage or encroach on to the extensive continuous dune system that characterises this regional park from the others owned and managed by GWRC. In landscape and visual terms, the Expressway location does not affect the integrity of the Park, but I acknowledge that the elevated interchange at Poplar Avenue will be visible from parts of the Park.
- 188 Currently this part of the Park is open and grazed; however, construction of the Expressway will see extensive planting of the embankments with eco-sourced native species. This planting will be developed at the detailed design phase of the Project and reflected in the LMP, which outlines the methods to be implemented during the Project's construction and maintenance phases. The LMP will be prepared in consultation with various agencies, including GWRC (DC.54 (c)).
- 189 I consider that the Project's effects on the Park can be adequately managed through the planting proposed as part of the LMP.

### **Waikanae River**

- 190 GWRC discuss several planting design details of the river corridor in the vicinity of the proposed bridge,<sup>86</sup> acknowledging that these issues have been discussed with the Project design team and/or may be appropriately resolved during future detailed design stages.
- 191 The issues that GWRC raise relate to the location and species selection of vegetation to be planted in order to achieve the aims of stabilising the channel edge, providing visual screening, and enhancing the biodiversity of the area. These issues have been discussed and agreed to at joint meetings with the GWRC Rivers Group members, Project hydrologists and Boffa Miskell.<sup>87</sup>
- 192 I concur with GWRC's design suggestions, which are described and illustrated in TR7. However, I note there are some minor discrepancies between the text and annotated plans. I consider that the design details for this area can be finalised with GWRC during the detailed design phase and as part of the LMP, in accordance with DC.54(c).

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<sup>86</sup> Bullet point in Item 2.3 on page 4), *GW Submission on Mackays to Peka Peka Project, Without Prejudice - Discussion Document*, dated 22 August 2012.

<sup>87</sup> Section 10.8.2, Technical Report 7, pages 87-88, Figure 38A, Appendix A and Figure VS10, Figure B.

**Waikanae Christian Holiday park (El Rancho) (Submission No. 477)**

- 193 The El Rancho submission is comprehensive and covers a wide range of matters, including landscape, visual, amenity, and landscape character effects. Several appendices are attached to El Rancho's submission, including one where they provided feedback in February 2011 on the Project, which comments on visual amenity and mitigation sought (Attachment 4).
- 194 The mitigation measures sought in the submission relate to four aspects:<sup>88</sup>
- 194.1 Planting associated with the proposed earth bund between Kauri Hall and the Expressway.
- 194.2 Design details for the noise wall.
- 194.3 Design and landscaping of the proposed realigned access to El Rancho.
- 194.4 Pedestrian access along the Waikanae River Walkway and the associated riparian planting.
- 195 All of the matters raised by El Rancho are aspects that would normally be addressed at the detailed design phase; they are covered by condition DC.54(d)(ii).

**Friends of Waikanae River (Submission No. 59)**

- 196 This submission by Friends of Waikanae River (*the Friends*) acknowledges the significant changes to landscape character and visual amenity that will occur with the construction of the Expressway bridge over the Waikanae River and environs. Three specific landscape and visual matters are raised:
- 196.1 The length of time needed to maintain the mitigation planting.
- 196.2 That the bridge will not be split (as had been indicated to the Friends during consultation).
- 196.3 The lack of access from the Expressway cycleway/walkway to the River walkway on the north bank.

**Maintenance of Planting**

- 197 Areas of planting established along the River by the Friends will be destroyed during construction of the River bridge and the associated realignment works of the Waikanae River and Muaupoko Stream. Planting of the areas damaged or disturbed will be re-established as part of landscape mitigation. All planting will be subject to a six

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<sup>88</sup> Section 4.3, page 15.

months defects liability period followed by a four year maintenance period for all riparian planting. This is fairly consistent with the "about five years" maintenance period which the Friends are calling for in their submission. As noted elsewhere, I consider the proposed maintenance periods appropriate.

### ***Split Bridge***

- 198 **Mr Noel Nancekivell** address the reasons why the bridge is not split in his evidence.
- 199 With the width of the bridge at 27.6m, there is no point planting under the bridge given the low light conditions and lack of water. In my opinion the cost of setting up irrigation and other measures to sustain planting under the bridge and its ongoing maintenance cannot be justified.
- 200 However I note that, in time, silt, together with tree and shrub propagules brought down the river will result in various plant species becoming established of their own accord under the bridge.

### ***Access to River Walkway***

- 201 Strictly speaking, the Friends are correct. Currently there is no right of access from the River walkway in the vicinity of the bridge to Kauri Road other than by crossing El Rancho's property. Given the greater connectivity that the Project's combined walkway/cycleway will introduce to Kāpiti, a link between it and the river walkway on the north bank would be sensible. This is something that is best discussed further with the NZTA, KCDC, El Rancho and the Friends in the Project's detailed design phase.

### ***Waikanae On One (Submission No. 514)***

- 202 Waikanae On One (WOO) claim that the visual effects of the Expressway between the Waikanae River and Waimeha Stream are severe and that these effects "**can and should be avoided by an alteration to the design of the Expressway**" (my emphasis). In TR7, the effects on visual amenity for the Te Moana Character Area (which includes the area of concern to WOO) were assessed as very high, the effects on landscape character as very high, and the biophysical effects as high.<sup>89</sup>
- 203 The existing character of much of this sector is open with a large area in market garden, flanked by an area of dunes largely unmodified by earthworks, and residential development on the fringes along Te Moana Road.
- 204 I was involved, together with other members of the Alliance, in several meetings with WOO that focused on the Waikanae River to Waimeha Stream sector. Alternative options promoted by WOO

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<sup>89</sup> Section 10.9.8, page 99, Technical Report 7.



were considered but there were engineering and hydrological issues with their proposals. **Mr Nancekivell** and **Mr Levy** discuss the submission by WOO in their respective briefs of evidence.

- 205 In my opinion, even if the alternative option promoted by WOO was shown to work in engineering and hydrological terms, the magnitude of visual effects could not be avoided as claimed; visual effects would still be very high, irrespective of whether the road was on a lower elevated structure or an embankment.

**Metlifecare Kāpiti (Submission No. 608)**

- 206 Metlifecare Kapiti are concerned about the adverse impacts the Expressway will have on their retirement village (Kāpiti Village)<sup>90</sup> in terms of its landscape, visual and amenity values as well as the effects on character and natural character. Parts of the Village are located within 200m of the Expressway, with the closest dwellings within 50m from the centreline.<sup>91</sup>
- 207 Kāpiti Village is located on the western side of the Expressway, north of the Kāpiti Road interchange (part of the Kāpiti-Mazengarb Landscape Character Area)<sup>92</sup>. Planted earth bunds to mitigate noise and visual effects are proposed, and while these measures will screen the Expressway and help ameliorate effects on visual amenity, the overall landscape character will be affected. In TR7 the biophysical effects, effects on visual amenity and effects on landscape character for this character area have all been assessed as high.
- 208 However, it is noted that KCDC has allowed residential development right up to the boundary of the WLR designation on both the east and west sides and Kāpiti Village forms part of this development. In addition, the high yield of residential sections has been achieved by flattening of the dune landforms, which contribute to landscape character.
- 209 TR7 acknowledges that there will be effects on visual amenity and landscape character for parts of Metlifecare's Kāpiti Village but notes that the combined factors of the orientation of the dwellings close to the Expressway proposed designation boundary, together with existing vegetation, the proposed noise bunds and planting, mean that the Expressway will not be visible.<sup>93</sup> During the detailed design phase specific mitigation solutions will be developed that will address mitigation of landscape and visual effects; the LMP and proposed conditions DC.54(d)(i) and (ii) give force to this.

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<sup>90</sup> Point 8.2.9, Annexure to Submission.

<sup>91</sup> Point 3, Annexure to Submission.

<sup>92</sup> Section 10.5, Technical Report 7, page 70.

<sup>93</sup> Section 10.5.4, Technical Report 7, page 73.

**Save Kāpiti Incorporated (Submission No. 505)<sup>94</sup>**

- 210 Save Kāpiti maintain that the Project is contrary to a number of relevant provisions of RMA statutory documents. It also states that the proposal is contrary to, or inconsistent with, a number of KCDC policies, plans and strategies. Those relevant to landscape, natural character and visual effects are addressed in TR7.<sup>95</sup>
- 211 The submission raises landscape, natural character, and visual amenity issues in a general way with few specifics. The submission notes that the elevated roadways, bridges and interchanges will be largely responsible for the adverse effects on landscape, natural character and visual amenity. TR7 clearly acknowledges the level of visual amenity effects, recording effects as high, very high or extreme in eight of the twelve landscape character areas. Landscape character effects are rated as high or very high in eleven of the twelve character areas. However, as explained elsewhere, I consider that the landscape and visual mitigation measures proposed in TR7 are appropriate.

**Response to Issues Raised in Submissions**

- 212 The landscape and visual issues raised by many submitters are similar and so I propose to group these under specific headings; some of these matters are also relevant to other experts and are covered in the evidence of **Messrs Nancekivell, Baily, Fuller, Park and Ms Wilkening**.

***Elevation of the Expressway***

- 213 The elevation of the Expressway concerns many submitters.<sup>96</sup> The elevation is partly driven by the underlying geology and geomorphology through which the Expressway traverses, particularly the low-lying inter-dunal areas and having to deal with extensive deposits of peat. Of the 18km length of the Expressway, approximately 10.4km is located on low embankments, approximately 7.1km is in cut and only 550m on elevated structures.
- 214 The need to build the Expressway on embankments through the low-lying inter-dunal areas is driven by geotechnical and civil engineering requirements. The elevation of the Expressway over local roads at Poplar Avenue and Raumati, Kāpiti, Mazengarb, Otaihanga, Te Moana and Peka Peka Roads provides significant landscape, urban design and social benefits. It means that these

<sup>94</sup> The assessment of landscape, natural character and visual effects have been addressed in my response to KCDC's submission, particularly in relation to the NZCPS.

<sup>95</sup> Attachment 7.1, pages 1-18.

<sup>96</sup> Including submitters 65 [Cornick], 206 [Patten], 319 [Morton], 330 [Religious Society of Friends], 337 [Laing], 402 [Mackay], 466 [Lattey], 474 [Waikanae Property Development], 494 [Kieboom], 514 [Waikanae on One], 589 [Starke], 690 [Starke], 673 [Hinkley].

local roads remain at grade and mostly on the same alignment as they are currently. This will result in fewer landscape and visual effects than if these local roads were elevated over the Expressway, which would affect many properties on either side because of the length of approach ramps needed to provide sufficient clearance over the Expressway.

- 215 Elevation of the Expressway over local roads was a decision arrived at through the MCA process, which is described in the AEE and further in the evidence of **Mr Schofield**. I acknowledge in my assessment that for some properties, particularly for some within 200m of the Expressway, the elevation of the road, even on embankments, will increase the potential visibility from surrounding properties.<sup>97</sup>

***Scale of Expressway***

- 216 Many submitters are concerned at the scale of the Expressway, relative to its context and its integration into the landscape.<sup>98</sup> The approximately 100m width of the designation for much of the Project is sufficient to accommodate the fourlane Expressway, together with mitigation measures such as noise barriers and planting.
- 217 The dunes play an important role in helping to absorb the scale of the Project. In many places in the southern and middle sections of the route, dunes remain only because of the existing WLR designation. The Expressway cuts through the middle of the dunes in places leaving dune faces on one or both sides largely intact. These remaining sections of dunes will help to provide both visual and noise mitigation and also help to integrate the scale of the Project into the landscape.
- 218 In the northern half of the route, the rural landscape is open and mostly grazed with shelterbelts, amenity tree planting and woodlots (e.g. Otaihanga, Ngarara, Smithfield, Greenaway and Peka Peka Roads). In these areas, the Expressway will cut through dunes in places or be built on low embankments. The size of the rural lifestyle allotments and distance from the Expressway, together with rural scale tree planting in groups or in shelterbelts will help integrate the Expressway into the surrounding landscape and provide landscape and visual mitigation of an appropriate scale.
- 219 In places along this part of the route, the dwellings on rural and rural lifestyle properties are generally sited on dunes to maximise views and to avoid the damp, cool inter-dunal areas (e.g. north of

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<sup>97</sup> Sections 8.1 & 8.2, pages 35-42 and Appendix A: Figures 8, 11, 24, 36, 50.

<sup>98</sup> Including submissions 206 [Patten], 354 [Walker], 484 [Smart Transport Network], 589 [Starke], 611 [Rational Transport Society], 630 Cherill], 675 [O'Sullivan], 690 [Starke].

Otaihanga Road and along Greenaway and Peka Peka Roads). While mitigation planting within the designation boundaries will provide effective mitigation for residents living in some of these houses, it may need to be supplemented by strategically sited shelterbelts or groups of trees within private properties.<sup>99</sup> I consider that the LMP conditions should be amended to specifically provide for this where it is appropriate and the relevant land owner consents. I propose an amendment to Condition DC.54(d)(ii) to effect this (I discuss this further below in the section of my evidence which outlines proposed conditions).

- 220 In other places, such as between Kāpiti and Mazengarb Roads (e.g. Makarini Street, Chilton Drive) and at Quadrant heights, residential properties lie on the boundary of the existing WLR designation, often with dwellings very close to rear boundaries. For these properties, submitters have both noise and landscape and visual concerns.<sup>100</sup> Some form of noise barrier on or close to the boundary is proposed for these properties, supplemented by mitigation planting. Specific solutions will be developed for these properties at the detailed design stage and as part of the LMP (DC.54).

### ***Visibility and Visual Effects***

- 221 Virtually all of the submissions I reviewed refer to the high visibility of the Expressway and the adverse visual effects that will result from the Project (i.e. terms such as visual impact, visual pollution, visual blight, and eyesore are used)<sup>101</sup>. In addition, in many of the submissions visual effects have often been combined with those of noise and/or lighting, which are part of overall amenity effects.<sup>102</sup> Technical Reports 8, 15 and 16 deal with the effects on lighting and noise respectively, and are discussed in the briefs of evidence of **Mr Gibson** and **Ms Wilkening**. **Mr Schofield** comments on cumulative amenity effects in his evidence.
- 222 TR7 comprehensively addresses effects on visual amenity in each of the twelve landscape character areas and assesses the effects on visual amenity for eight of these areas as high, very high or severe.
- 223 However, my view is that in many sections of the Expressway, neither the carriageway nor the traffic moving on it will be visible

<sup>99</sup> Including Submitters 382 [Aregger], 429 [Inge], 466 [Lattey], 567 [Arnold], 531 [Short/Schwass] 668 [Chambers] 675 [O'Sullivan]

<sup>100</sup> Including Submitters 11 [Smith], 65 [Cornick], 206 [Patten], 245 [Griffis], 608 [Metlifecare], 678 [Anderson].

<sup>101</sup> Including submissions 65 [Cornick], 206 [Patten], 267 [Waterson], 328 [Sisarich], 337 [Laing], 466 [Lattey], 566 [Houston & Lord], 602 [Smith], 607 [Saint], 616 [Connal], 630 [Cherill], 663 [Beechey].

<sup>102</sup> Submission including 26 [Dearden], 73 [Ford], 228 [Burton], 320 [Nixon], 328 [Sisarich], 336 [Hopkirk], 335 [Cowper], 337 [Laing], 370 [Vere-Jones], 404 [Mackay], 616 [Connal].

once the planting on the embankments and bunds is well established. In the short term, traffic movement will be visible, as will some sections of the carriageway on embankments and also where the Expressway is on elevated bridge structures over local roads. The series of ground-based visual simulations illustrate the level of visibility from 16 representative viewpoints along the route.<sup>103</sup>

- 224 Views of Kāpiti Island being blocked or adversely affected are also raised by some submitters.<sup>104</sup> In places the Expressway will partly obscure views of Kāpiti Island from local roads, dwellings and other areas, but in other places views to Kāpiti Island will be created. For example, the Expressway will certainly affect but not obscure the view of Kāpiti Island when travelling west along Kāpiti Road and affect or obscure views westward to the Island from the Wharemauku Basin, Makarini Street Reserve, and various residential properties in this neighbourhood located on the eastern side of the Expressway, and also from locations further north.<sup>105</sup>
- 225 However, because of the Expressway, views of Kāpiti Island will be opened up, such as from parts of the Ferndale subdivision<sup>106</sup>. From the Expressway itself, there will be excellent unobstructed views of Kāpiti Island, especially when travelling south.
- 226 The level of visual amenity effects has significantly influenced the type of visual mitigation measures proposed. The specifics of these measures will be determined at the detailed design phase and in accordance with the LMP (see conditions DC.54-59).

### ***Landscape Character***

- 227 Many submitters raise general concerns about the Project's effects on landscape and natural character, but few elaborate with any detailed comments.<sup>107</sup> TR7 records that the Project's effects on landscape character will be high or very high in eleven of the twelve character areas identified.
- 228 However, I acknowledge that, within each of the character areas, the effects on landscape character in relation to some individual properties will be higher or lower than that ascribed to the whole

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<sup>103</sup> Appendix B, Figures VS1-VS16, Technical Report 7.

<sup>104</sup> Including submissions 307 [Scrimshaw], 356 [Cherrington], 484 [Smart Transport Network], 492 [Cherry], 589 [Starke], 602 [Smith], 607 [Saint], 611 [Rational Transport Society], 630 [Cherill], 673 [Hinkley], 675 [O'Sullivan].

<sup>105</sup> Appendix B, Figures VS3, 5, 16, Technical Report 7.

<sup>106</sup> Appendix B, Figure VS 14, Technical Report 7.

<sup>107</sup> Including Submitters 124 [Bunch], 293 [Anderton & Abigail], 346 [Downie], 354 [Walker], 402 [McKay], 505 [Save Kapiti Inc], 531 [Short & Schwass], 663 [Beechey].

character area. I have discussed this earlier in my response to comments on KCDC's submission.

### **Concrete Expressway**

- 229 Reference to the Expressway as an elevated concrete structure is common throughout the submissions I have reviewed.<sup>108</sup> While the Expressway will appear as an elevated concrete structure where it crosses local roads, elsewhere it will be either cut into the dunes or it will be on heavily planted embankments. Consequently, the observations that the Expressway will be a visible concrete structure along its 16 km length, are incorrect.
- 230 The series of visual simulations illustrate views of the Expressway from key representative viewpoints along the route. Those simulations help to illustrate what the Expressway will look like, and how it will integrate into the surrounding landscape.<sup>109</sup>

### **Open Space**

- 231 Loss of open space is mentioned specifically or indirectly in several submissions.<sup>110</sup> For much of its length, the Expressway traverses land that was previously designated for the WLR and, while these undeveloped and often 'wild' areas have been used informally or viewed by residents, they are not defined areas of open space; the open space factor is simply an opportunistic one.
- 232 This phenomenon is not unusual. It often occurs where areas of land have been zoned for some form of development but this development has not occurred. The community then assumes a level of expectation over the land and opposes legitimate development because of the loss of what they regard as community open space.
- 233 The landscape and ecological mitigation proposed for the Project has sought to extend and also connect areas of open space and to improve landscape and ecological aspects. For example, the combined cycleway/walkway proposed for the length of the route will provide access to open space along the Expressway route and to adjoining existing open space areas.

### **Planting**

- 234 Several submissions suggest that the scale and type of planting proposed is inadequate to mitigate the adverse effects of the Project. Some have also highlighted the loss of vegetation that will result from the Project, but only a few submitters<sup>111</sup> have

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<sup>108</sup> Including submissions 261 [Dearden], 354 [Walker], 494 [Kieboom], 675 [O'Sullivan].

<sup>109</sup> Appendix B, Figures VS1-VS16, Technical Report 7.

<sup>110</sup> Including submitters 404 [McKay], 470 [Love], 594 [Leonard-Taylor].

<sup>111</sup> Submission 234 [Canvin].

acknowledged the significant amount of new planting that will be undertaken.<sup>112</sup>

- 235 The planting proposed will serve several purposes including ecological, hydrological, landscape, open space and visual amenity purposes. The planting will extend or enhance existing ecological areas such as wetlands and streams, it will be a key component of new wetlands, it will play a key role in stormwater management and flood storage, connect areas of open space, enhance landscape character, provide screening and improve visual amenity.
- 236 The Kāpiti coastal plain is a good environment for plant survival and development, providing the correct horticultural and ecological practices are followed. The ecological assessment reports describe the type of vegetation and habitats that existed originally, yet today, only very small remnants of the original vegetation remain.<sup>113</sup> The Project seeks to extend the range of native plant assemblages on the coastal plain, using species sourced from the Foxton Ecological District with eco-sourced species comprising over 99% of the planting proposed.
- 237 In addition to new planting, areas of existing vegetation will be retained; this is described in TR7<sup>114</sup> and summarised in paragraph 116 of my evidence. An assessment of the existing vegetation along the route was carried out as part of the ecological and landscape assessments with the aim, wherever possible, to retain all vegetation that has potential ecological, landscape and visual amenity value. Ms Palmer (Submitter 725) records the value of retaining existing vegetation and questions what existing vegetation is to be saved. The vegetation to be retained is shown on the Mitigation Planting plans.<sup>115</sup>
- 238 Mr Begovich (Submitter 651) seeks as part of mitigation that any mature stands of native or exotic vegetation that fall within buffer zones be retained. I am assuming that by 'buffer zones' Mr Begovich is referring to areas outside the Project earthworks but within the designation. There is a stand of pines and other mixed vegetation to the south of Mr Begovich' property that lies partly within the designation, which has been identified to be retained.<sup>116</sup> However, the dune areas recently cleared of pine trees, north of this stand, which are visible from this part of the Ferndale development, are not proposed to be planted outside the earthworks area.

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<sup>112</sup> Including Submitters 206 [Patten], 267 [Waterson], 337 [Laing], 494 [Kieboom], 497 [Mason], 630 [Cherill], 651 [Begovich], 663 [Beechey].

<sup>113</sup> Technical Reports 26, 27, 28, 29 & 30.

<sup>114</sup> Section 7.2.1 and Attachment 7.3, Technical Report 7.

<sup>115</sup> Figures 3-6, Appendix A, Technical Report 7.

<sup>116</sup> Figure 6 , Appendix A, Technical Report 7.

### **Recreation**

- 239 Submissions highlighting the effects of the Expressway on recreational use are focussed mostly on three areas - Queen Elizabeth Park, Wharemauku Basin and Waikanae River. Several submissions have commented on effects on recreation generally.<sup>117</sup>
- 240 I have addressed Queen Elizabeth Park in my comments on the GWRC submission, the Wharemauku Basin in part in my comments on KCDC's submission, and in relation to Waikanae River in my comments on both the KCDC and on the GWRC submissions respectively.<sup>118</sup>
- 241 Recreation use will be affected temporarily during construction in all three of these areas (e.g. temporarily closing or diverting the walkways at Wharemauku Stream and along the Waikanae River). However, once construction has been completed, and the walkways /cycleways reinstated, including landscape and ecological mitigation planting, the effects on recreational use will be limited. Landscape character and visual amenity, which is part of recreational experience will however be affected and this is described in TR7.<sup>119</sup>
- 242 The temporary loss of use of these areas is outweighed by the benefits as the Expressway, once completed, will increase recreation linkages and opportunities. In my opinion, the combined cycleway, walkway and bridleway along the length of the Expressway and the linkages from it to the wider network will make a significant contribution to the district. It is surprising that some submissions have not acknowledged the benefits of this significant investment in recreation.<sup>120</sup>

### **PROPOSED CONDITIONS**

- 243 Proposed condition DC.1(a)(ii)11 requires the Project to be undertaken in general accordance with Appendix A and B of TR7. Appendix A describes the types of mitigation planting<sup>121</sup> and a series of planting plans,<sup>122</sup> together with the principles to be followed for landform design.<sup>123</sup> Appendix B contains 16 visual simulations from representative viewpoints along the route. For each viewpoint there

<sup>117</sup> Including 124 [Schlieder Bunch], 328 [Sisarich], 432 [Waterhouse], 465 [Pomare], 481 [Gradwell], 487 [Sijbrant], 492 [Cherry], 567 [Arnold], 607 [Saint], 620 [Williment], 677 [Action to Protect and Sustain Our Community].

<sup>118</sup> Discussed above at paragraphs [155] – [160], [167], [182] – [183] [187]-[192].

<sup>119</sup> Section 10.4.5 - 10.4.7, pages 64-69 and 10.8.5-10.8.9, pages 89-93, Technical Report 7.

<sup>120</sup> Submissions 485 [Implementation Group of the Kapiti Coast District Council Advisory on Cycleways Walkways and Bridleways], and 503 [Living Streets].

<sup>121</sup> Figure 2, Appendix A, Technical Report 7.

<sup>122</sup> Figures 3-6, Appendix A, Technical Report 7.

<sup>123</sup> Figure 7, Appendix A, Technical Report 7.



are three photographic images; the first shows the existing situation, the second on the facing page illustrates the view of the Expressway following construction but without any woody planting and the third illustrates the situation with planting after 10 years.

- 244 Preparation of a LMP is included as one of five management plans required as part of proposed Designation Condition 7 (DC.7). Proposed conditions DC.54 to 59 sets out the scope and details to be covered in the LMP.
- 245 The LMP outlines the methods and measures to be implemented during the construction phase, and for the subsequent maintenance periods, to avoid, remedy and mitigate adverse effects of the permanent project works on landscape amenity (DC.54). The LMP shall be prepared in consultation with key stakeholders as listed in DC.54 (c). The LMP is also to be consistent with the EMP (DC.55(b)).
- 246 The focus of the LMP is on how specific landscape outcomes will be achieved; these are listed in DC.54 (d). This will require input prior to any site clearance or groundworks to clearly identify vegetation to be permanently retained or any key trees that may be need to be relocated as part of construction of the Expressway, and to identify areas where weed clearance and control are required (DC.57 (a) (b) & (e)). These aspects will be undertaken in conjunction with the ecologists in accordance with the EMP.
- 247 As discussed above, I consider it appropriate that the LMP conditions specifically refer to planting on identified private properties where this is appropriate and where the relevant owner consents. I propose an amendment to condition DC.54(d)(ii) to effect this:

*"The mitigation of the visual effects of the Expressway on properties in the immediate vicinity through landscape works, generally within land acquired for the Project (but also including on private properties, where appropriate, and where the relevant owner consents)."*

- 248 Three other key aspects of the LMP that are addressed in DC.57 concern ground preparation for planting, the staging of planting in relation to the construction programme and plant supply. All of these require significant attention prior to construction. Ground preparation is one of the main factors in successful plant survival and establishment (DC.57 (e) (vi)). As noted in paragraphs 123 - 124 above, a planting substrate and plant trial has been set up and will run from August 2012 until near the end of construction. This will help determine both ground preparation for planting following bulk earthworks and the composition of the soil mixes for areas to be planted.

- 249 One of the conditions requires that native plants are to be eco-sourced from the relevant Ecological District, so far as is practicable (DC.57(e)(vi)(3)). A long lead time is required to achieve this. This will require a plant supply contract to be put in place at least two years in advance of when the first planting is scheduled to be carried out, as this will enable eco-sourced seed to be collected from within the Foxton Ecological District and sufficient plants to be propagated and grown on to the requisite size for planting along the Expressway (DC.57 (e) (vi)(3)).
- 250 When planting is actually carried out is also important and the programming for this is very dependent on construction programming (DC.57 (d)). Planting will be scheduled to occur in accordance with the three month planting season for the Kāpiti Coast (beginning of June until the end of August).
- 251 Monitoring of construction and the prevailing environmental conditions will be critical to the successful implementation of the LMP; this will include monitoring of ground preparation and planting during construction and also monitoring through the subsequent defects liability, and maintenance periods (DC.57 (f)).<sup>124</sup>
- 252 DC.59 requires that the LMP be completed and certified prior to the commencement of construction. I understand that, where construction will be staged, detailed design for the whole of the route will not be completed before the first construction begins in October 2013. Consequently, the conditions require some amendment to reflect this situation. The LMP could be structured so that there is a degree of flexibility so as to accommodate aspects that may emerge during detailed design after the start of the first stage of construction (i.e it would allow staging of planting).
- 253 I understand that **Mr Schofield** will provide an updated set of conditions, which reflects the changes to conditions proposed by me and other experts.

### CONCLUSIONS

- 254 When considered at a broad landscape context, the Expressway traverses the relatively flat topography of the coastal plain. However, when considered at a more local level, the Project passes through a variety of smaller landscapes, each with a distinctive landscape character. As part of the landscape and visual assessment, 12 separate landscape character areas were identified, and the effects of the Project (in terms of biophysical, visual

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<sup>124</sup> I note that condition DC.57(f) and WS.5 require amendment so as to provide for a two year maintenance period for terrestrial planting and a four year maintenance period for wetland and riparian planting.

amenity and landscape character effects) have been assessed in relation to these.

- 255 The Project will introduce changes in the various landscapes along the 16km route; the type and scale of changes will vary. In places, the scale of the Project footprint, the associated earthworks, scale and elevation of the various structures such as bridges, retaining walls, and noise barriers will have unavoidable adverse landscape and visual effects, even with the substantial mitigation that is proposed. Despite this, the Project does provide opportunities at various locations along the route to improve some aspects of the landscape.
- 256 The Expressway has been aligned to avoid key landscape and ecological areas in many places, such as the continuous dune sequence in Queen Elizabeth Park (one of GWRC's five regional parks), wetlands at Raumati and El Rancho, remnant natural areas at Ngarara, and dunes at various places along the route. Creation of a new ecological wetland at Otaihanga, creation of wetlands to deal with stormwater, riparian planting along waterways, and extending and linking small areas of remnant indigenous vegetation will individually and collectively have positive landscape and ecological benefits.



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Boyden Evans  
7 September 2012

**ANNEXURE 1: LANDSCAPE CHARACTER AREAS**

Twelve landscape character areas as they relate to the four sectors of the project identified for the purpose of the AEE assessment.



FIGURE 9 CHARACTER AREA LOCATIONS