KiwiRail Regional Freight Hub

LANDSCAPE AND VISUAL EFFECTS ASSESSMENT

FINAL

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CONTENTS

Executive Summary

Context

1. The KiwiRail Regional Freight Hub (Freight Hub) project is a proposal to construct a new hub with marshalling yards, a container terminal, freight forwarding facilities, maintenance facilities and provision for a log yard and bulk storage. Internal rail lines and access roads will service the site (Site) with the largest buildings proposed (the freight forwarding warehouses) spanning some 800m of the Site with heights of 11m and 14m. A naturalised channel will be constructed within the Freight Hub Site to convey one of the Mangaone Stream tributaries and others will be culverted under the Site. These main Freight Hub works will require a number of roads to be legally stopped as well as a new perimeter road, noise mitigation walls and earth bunds, and stormwater ponds to be constructed. The existing North Island Main Trunk Line (NIMT) will be relocated to the west and the existing rail embankment modified as part of the earthworks required to establish a flat site for KiwiRail operations. Significant areas of mitigation planting have been integrated within the Freight Hub Site and across the designation extent (Designation Extent) including naturalised groupings of River Plain, River Terrace and wetland species. All components of the project total approximately 177.7ha, as is shown on the Landscape Plan and Illustrated Cross Sections in Appendix C of the AEE.

2. The Freight Hub Site is set to the edge of the NIMT and connecting roads to Fielding, Ashurst and Palmerston North City and a section of Te Araroa Trail. The existing environment comprises the wider context of the Manawatū Plains and Mangaone Stream catchment, the surrounding North Eastern Industrial zone (NEIZ) and rural and rural residential activity, the township of Bunnythorpe and power substations for the lower north island. The existing natural and urban landscape character of the site consists of rolling unmodified landforms impacted by flooding and stream tributaries flowing into the Mangaone Stream with low and very low natural character. Vegetation patterns are limited to exotic boundary hedgerows and shelter belts with minor patterns of indigenous vegetation. Rural activity and residences further characterise this landscape, as accessed via a grid pattern of local roads. Rural activities over the Site, and the vernacular structures of farming activity has, in recent years, transitioned to rural residential land use with a finer grain of curtilage planting and larger homes. Part of the Site has also been rezoned to provide for expansion of industrial activities over the NEIZ. Context Photographs showing the existing environment are included in Appendix 1 to this Assessment.

3. This report assesses the summative effects of the Freight Hub (including proposed mitigation as shown on the Landscape Plan) on landscape and visual matters as follows:

Natural Character

4. The effects of the Freight Hub on the natural character of the Mangaone Stream environs will be a moderate positive (on a 7-point scale[1]) While the existing tributaries are highly modified, they currently follow a naturalised path, and the development will culvert a significant length of waterways. These effects will be mitigated, and natural character benefits integrated, through the approach to include earth bunds for noise mitigation where possible, the design for a naturalised channel and stormwater ponds and the integration of mitigation planting including River Plain and wetland species. Overtime, this will create a significant area of naturalised lowland bush and wetland associated with the stream environs including existing patterns of fish passage and future habitats.

Natural Landscape

5. The effects of the Freight Hub on natural landscape will be moderate-high adverse. This is a large-scale industrial development requiring significant earthworks that will level a large area of land for rail and associated activities. These effects have been mitigated and reduced by the earthworks approach to limit the scale of the cut and fill batters to the edges of the Freight Hub works, as well as the inclusion of naturalised stormwater ponds and significant areas of mitigation planting.

Urban (built) Landscape

6. The effects of the Freight Hub on the urban landscape will be low-moderate adverse. While the preferred layout provides for the best interface with the surrounding land uses, it is of a very different scale and character to the surrounding environment. Some of these effects have been mitigated by the preferred layout to accommodate the larger structures to the south, which should be anticipated within the NEIZ. The removal of level crossings and provision of logical alternative routes, where there are legally stopped roads, has also limited these effects.

7. The inclusion of the proposed footpath and off-road path, to and from the stormwater ponds and stream, combined with the opportunities for an improved edge condition and lookout along Te Araroa Trail, will provide urban landscape positive effects. The mitigation planting will also help to improve the gateway experience to Bunnythorpe.

Visual Amenity

8. For most viewing audiences the mitigation proposed will limit visual amenity effects to less than low - moderate adverse and this is mainly due to the proposed layout of the Freight Hub works, where the

[1] A 7 point scale is used to help describe the level of effects - very low, low, low to moderate, moderate, moderate to high, high, very high.

larger bulky structures are located to the south, and the significant areas of planting proposed. The mitigation planting proposed will, overtime, improve the visual amenity of the entrance to Bunnythorpe and that of Te Araroa Trail edge. However, there are a number of residential properties, with close open views towards the Freight Hub Site and in close proximity to noise mitigation walls, where there is the potential for residual high adverse visual amenity effects. As set out in the recommendations, further investigations should be carried out in the next stages of the project, to determine whether these effects can or need to be reduced further, including by additional mitigation planting, if required.

Construction

9. Overall, and assuming mitigation planting can occur early, the adverse effects of construction for landscape and visual amenity are likely to range from high to moderate-high**.** The construction process will occur over 20 years and a 177.7ha site and requires large scale earthworks and other processes to set up an industrial activity.

Summary of effects and mitigation

10. In summary, and with the proposed mitigation shown in the concept Landscape Plan, the landscape and visual effects resulting from the Freight Hub will be avoided, remedied and/or mitigated with **positive effects** provided in terms of natural character, urban (built) landscape and visual amenity Residual **adverse effects** for natural landscape, urban landscape and visual amenity relate to the scale of the earthworks, the Freight Hub works and noise mitigation. These adverse effects range from low-moderate to high and can be further reduced as detailed design is advanced. Further mitigation should be considered in future stages of the project such that the Freight Hub can be further integrated into the surrounding environment

Residual effects – recommended future stage mitigation

11. Given the scale of the Freight Hub, some residual adverse effects on the natural landscape, urban landscape and visual amenity are expected. As the project progresses, it is recommended that KiwiRail look for further opportunities to mitigate these effects to further integrate the development into the surrounding environment. Where effects are identified as being more than moderate, the following matters should be considered through further technical assessment:

    a. Any additional planting, beyond that already provided for in the Landscape Plan, which may further mitigate for the adverse effects on natural landscape, such as in areas between the two stormwater ponds and the naturalised channel outfall alongside the Mangaone Stream. This additional planting

would further enhance the natural character of the Mangaone Stream surrounds and, for nearby residents, help to further mitigate adverse visual amenity effects.

b. A detailed design, prepared in accordance with the NEI Design Guide principles (as I understand KiwiRail intends to do), will ensure a design that minimises perceptions of bulk and scale of the buildings, with a finish using materials and colours that best integrate the development within the surrounding rural and rural-residential landscape. Similarly, design of noise mitigation structures should consider the location, final form, finish, and planting alongside Sangsters Road and Maple Street, and, where these have an interface with Bunnythorpe, the opportunity to enhance the visual amenity of the Ashhurst gateway. These measures will further help to mitigate adverse effects on the urban landscape.

c. Roading design will need to consider integration with the surrounding character of the rural residential properties and township. Design matters to consider will include required carriageway widths, requirements for curb and channel, intersection type options, lighting, and associated planting to improve the quality of the urban environment and align with the broader patterns of mitigation planting proposed.

d. Design opportunities to integrate a rural cycle path into the reconfiguration of Te Araroa Trail should also be considered in consultation with PNCC, along with a possible lookout over the Freight Hub Site. This would enhance the urban landscape. Alternatively, this rural cycle path could be accommodated along the perimeter road footpath or off-road trails proposed to access the stormwater ponds.

e. Any additional planting, beyond that shown on the Landscape Plan, which may be necessary to mitigate for visual amenity effects for specific residential properties as investigated and identified by further desktop and field assessment. Recommendations for any additional planting to address visual amenity effects would be reduced by early implementation of proposed mitigation planting; This would ensure earth worked areas are replanted and achieve good coverage as quickly as possible and larger shrubs and trees are established prior to the main buildings being constructed.

f. To further manage visual amenity effects, lighting design should consider opportunities for a 'zoned' approach to fit particular uses across the Site. Visual clutter should be limited by balancing a reduced number of lighting poles with maintaining lower tower type lighting to minimise light spill.

1.0 INTRODUCTION

1.1 This report forms part of a suite of technical reports prepared for the KiwiRail Palmerston North Freight Hub development for KiwiRail Holdings Ltd. Its purpose is to inform the AEE and to support the Notice of Requirement (NoR) required for the Freight Hub. This report assesses the landscape and visual effects of the Freight Hub (including the Freight Hub works, roading changes and proposed mitigation, as shown in the designation Landscape Plan).

1.2 Isthmus has been involved in the Freight Hub development project since early 2019, as part of the specialist team assisting KiwiRail in the selection of the preferred site and layout and providing preliminary advice as to the measures to avoid, remedy and mitigate for landscape and visual effects. This has included inputs into the assessment of alternatives and provision of collateral for and attendance at consultation events.

1.3 The **project description** is included in the AEE. Matters of particular relevance to landscape and visual matters are addressed below.

1.4 In summary, the Freight Hub Designation Extent consists of:

- the Freight Hub works within the proposed new perimeter road and the relocated NIMT;
- Noise Mitigation;
- Stormwater Ponds;
- Road Closures and new Connections; and
- Mitigation Planting.

1.5 The proposed Designation Extent, including all components, totals approximately 177.7ha.

1.6 The Freight Hub works (between the NIMT and the perimeter road) include:

- *Terminal Operations* - alongside the section of Railway Rd that will be closed, there will be eight arrival and departure tracks that can accommodate trains up to 1,500m in length and at least 10 marshalling tracks, where 900-1500m trains will be assembled/built. The back shunts will also be located in this area to cater for the storage of up to 100 wagons.
- The *Container Terminal* (CT) is set out to the west of the tracks with a maximum height of 12m. This provides for refrigerated and non-refrigerated containers and inland port of import/export containers will be serviced by separate tracks and trucks. It will cater for up to 400 x 40-foot containers stacked three high.

- *KiwiRail maintenance facilities*, network services depot and yard operations facility (maximum height 16m) are located to the north of the CT with connecting tracks allowing for movement on and off the yards and arrival/departure tracks.
- *Commercial services* -to the west of the CT rail and non-rail connected commercial freight forwarding (warehousing) facilities are located, which will be leased to a variety of operators. These buildings will be a maximum height of 14m (internal row) and 11m over some 880m with a typical depth of 80m in both rows likely to be configured to four larger units alongside the container terminal and 6 units to the western boundary of the Site.
- To the north of these warehouses there is provision for tanks for rail and road serviced bulk storage and the log handling area. The tanks will have maximum height of 6m.
- Other elements of the Freight Hub works include associated office buildings, internal access roads, car parking and proposed planting in and around the buildings. Mitigation planting design is to prioritise indigenous species and is to be used to help up break up the appearance of the built forms whilst ensuring good sightlines and safety and can include naturalised groupings, more linear planting (referencing the tributary paths through the Site) along with amenity type planting and areas of lawn adjacent to outdoor seating areas and car parks. Where security fencing is required, permeable types are preferred and can be combined with hedge type planting.
- Vehicle access to the Site will be from the new proposed new Perimeter road (Railway Road) along the north west boundary and off Roberts Line at the Richardson's Line intersection.
- Culverts will be constructed under the Site to convey the existing tributaries flowing through the Site and a naturalised stream channel feature integrated along the north west boundary to the east of the log handling and tank storage rail track. This channel will vary in depth up to 4.9m below the site RL50. The base and sides of the channel can be varied; to be at least 6m wide/with a slope no steeper than 1v:3h respectively. Larger/woody plant species can be integrated above the flood level of these channels and wetland type species below this, such that the channel can achieve a naturalised form. All other tributaries will be conveyed under the Site and this will require new culverts and further earthworks to the edges of Sangsters Rd. Fish passage is to be integrated into these structures.
- Earthworks required to establish the Freight Hub site to a consistent RL50. Tie in of levels will be achieved mainly to the edges of the perimeter road where the maximum fill heights will be located at to the south of Te Ngaio Road and cuts heights of located below Maple St. There is also a requirement for fill batters to the edges of Sangsters Rd, required to integrate new culvert structures. The largest being along the boundary of 363 Tutaki Rd (CHN 142700) which will have a top of embankment height approximately 10m above the property. The 1v:2h batter in this location

will extend into the unformed section of Sangsters Rd reserve in this location, where Te Araroa Trail is currently located. Other fill batters required for culvert works to the north of Clevely Line east can be accommodated in the existing railway reserve.

- Lighting design is to provide for 24/7 operation and will include LED luminaires set at 7.3m and flood lights at 22.1m. Lighting design will be confirmed at detailed design stage.

1.7 Noise barriers

Mitigation for increased sound levels is required around the majority of the Site, as detailed in the Acoustics Assessment.

- Along the northwest boundary - Maple St boundary - it is recommended to be located near the private property/cemetery boundary to be most effective. It is recommended in the Acoustics Assessment that this can be achieved with a 3m high earth bund which can be planted.
- Alongside the end of Te Ngaio Rd, reduced noise levels mean that a 3m structure would be sufficient, however space constraints will mean this needs to be a vertical concrete wall with the potential for planting to provide some screening/to soften its appearance.
- Along the western boundary, from that point, the noise mitigation can be internalised within the Freight Hub Site, where a 3m wall is required and similarly planting can be used to soften its appearance, as are included in the precedent images within the Acoustics Assessment. This wall would continue along the Freight Hub Site perimeter to the Roberts Line entrance.
- Noise mitigation will also be required along the full extent of the new tracks/realigned NIMT tracks to an area beyond the edges of the perimeter road. With space constraints in this area, this will need to be a 2-3.5m concrete wall which can be set on top of the existing railway embankment to achieve a top of wall 55RL (5m above the level of the main Hub site). The NIMT, including possible double tracking in future, will be relocated westward and set at the same level as the rail yard. This has meant that the wall height can be minimised. Earthworks required to establish the new culverts through the embankment will mean a new batter slope to the edge of Sangsters Rd and across the unformed road reserve in one location (alongside 363 Tutaki Rd). Combined with rehabilitation of the rail embankment, replacing ballast with suitable growing media, this will allow for areas of planting to screen the wall and improve the appearance of the edge of Te Araroa Trail (where the existing rail ballast is visible is flanked by exotic weeds such as blackberry and gorse). Where the earthworks include an area of the Sangsters Rd reserve, a shift of the noise mitigation wall, to the edge of the rail lines (leaving the existing embankment clear), may provide for the opportunity of Te Araroa Trail alignment to be lifted up on to the existing rail embankment and a lookout to be

established with views out over the Hub and Mangaone landscape. This opportunity is to be investigated in the following stages of the project.

1.8 Stormwater ponds

There are two ponds proposed to the west of the perimeter road, as described in more detail in the Stormwater Assessment. These ponds will provide storage capacity to manage flooding, as well as wetland areas for treatment of on-site stormwater. Detailed design for these features can provide for a naturalised approach with varied final shape and batter slope and can include planting to the edges and the opportunity for public walking tracks. For example, the banks of the northern pond could be planted up to the banks of the Mangaone and integrate a publicly accessible loop track off Clevely Line.

1.9 Road closures and connections

Required changes to existing roads is described under the existing environment – site description and in more detail in the AEE. Earthworks will be required for the perimeter road batters, as described above. These batters will be rehabilitated with mitigation planting. The road reserve will be 30m and the typical cross section for this road will include a 7m carriageway with 2m footpath and standard shoulder. Lighting for the road connections will need to conform to PNCC requirements.

1.10 Mitigation Planting

As described in more detail below, Mitigation Planting will be integrated within all components of the project. This will combine lower growing and large scale species in response to context and the effects to be addressed. Planting types within the Freight Hub works will be consistent with the NEIZ Design Guide and referencing the natural (and historic) patterns of the Manawatū River – Mangaone Stream landscape.

2.0 SCOPE OF ASSESSMENT

This assessment outlines:

- The assessment methodology;
- The relevant statutory framework for the assessment;
- The existing natural and urban landscape;
- The assessment of potential adverse and positive effects of the Hub site development, including effects on:
- The Natural character of the Mangaone Stream and its tributaries;
- Any landscape areas identified in the regional or district planning documents;

- Natural and urban landscape (including elements, patterns, and processes); and
- Views and visual amenity[2].

- The design measures proposed to avoid, remedy, or mitigate potential adverse effects; and
- An overall conclusion on landscape and visual effects.

3.0 METHODOLOGY

Landscape and Visual Assessment

3.1 The methodology used to assess landscape, visual and natural character effects of the proposal has followed best practice guidance set out by the New Zealand Institute of Landscape Architects' Best Practice Guidance Note 10.1, and has comprised the following:

- Review of project documents provided and relevant assessment matters;
- Review of statutory planning documents;
- Site visits to understand the proposal and its context, and to record the existing environment in Context Photographs (site visits were carried 25 and 26th July 2020 including to representative private properties. This followed a previous site visit on 20 August 2019 to the nine sites evaluated through the multi-criteria assessment;
- An evaluation of the existing environment for both the Site and the broader context;
- Visual appraisal, comprising identification of the visual catchment (areas from which the proposal will be seen), viewing audiences and their likely sensitivities to the proposed change, and key viewpoints where visual effects are likely to be most pronounced;
- Assessment of the summative natural character, landscape and visual effects arising from proposed designation including mitigation proposed in the concept design;
- Review of the construction and design approach and recommendation for additional measures to manage adverse effects and build in benefits-positive effects;

The following matters are addressed in the assessment of landscape and visual effects:

Definition of Landscape

3.2 Landscape is the cumulative expression of natural and human features, patterns, and processes in a geographical area, including physical components, perceptions, and associations[3]. This term captures both the natural and urban landscape patterns of the Site's wider context (the three scales of the existing environment, as described below) including:

- landforms;
- waterways;
- vegetation patterns;
- the road network;
- cadastral patterns;
- modes of transport and connections including recreation;
- heritage features;
- historic associations;
- past and continuing relationships of mana whenua; and
- existing activities and built forms.

Visual amenity[4]

This refers to the amenity derived from views. Visual amenity is a subset of 'landscape'; relating to its sensory component (see below) and is due to the combination of natural and urban landscape patterns. Effects on visual amenity (visual effects) are assessed in this report for the main viewing audiences of the Freight Hub and are assisted by Context Photographs (see below).

The main components of any landscape are: physical, sensory, and shared and recognised. Factors[5] that contribute to these components include:

3 New Zealand Institute of Landscape Architects, 2 November 2010, 'Best Practice Note 10.1: Landscape Assessment and Sustainable Management'.
4 In the RMA the term "amenity values" is defined as: those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes (Part 1, s2 RMA).
5 The list is similar to a list contained in the 'Lammermoor decision' (Maniototo Environmental Society Incorporated and others v Central Otago District Council and Otago Regional Council Decision C103/2009, paragraphs 201 to 204). The list is not exhaustive or fixed or a formula. It merely provides typical factors.

Landscape components	**Factors**
Physical (or geographic)	Natural - Geology and geomorphology - Topography and hydrology- waterways - Vegetation and soil patterns - Ecology and dynamic patterns of flora and fauna Urban -Settlement, cadastral and street patterns - Built form - Land use
Sensory (perceptual aspects)	- Geomorphic expressiveness (how obviously the landscape expresses land formation processes) - Legibility (visual clarity and visibility of landmarks, edges, and character areas, which reinforce natural wayfinding and memory) - Visibility, public and private views - Aesthetic qualities and character (associated with the unique combination of natural and urban landscape features, patterns, and processes) - Coherence (the extent to which human patterns reinforce the underlying natural and urban landscape, through visual relationships)
Shared and recognised (Associative)	- Tangata Whenua associations - Historical associations - Recreation activities - Iconic features or those closely associated with the community's identity and sense of place - Includes components recognised through national, regional, and local statutory bodies, for example, through statutory acknowledgements etc.

The analysis of the existing landscape was carried out through **site visits** and **desk-top investigations**.

The natural and urban landscape was described considering the factors listed above, to identify and understand its main components. This is a useful tool for analysis; however, landscape is considered as more

than a list of factors; or the sum of its parts. Landscape is a synthesis of physical, sensory, and shared and recognised factors; as are used collectively to define its boundaries, character ('sense of place') and significance under the Resource Management Act 1991 (RMA). In this regard, particular attention was paid to the operative Horizons Regional Council One Plan (One Plan) and to consider whether there are any areas identified as outstanding natural features and landscapes[6] (ONFL) in proximity to the development.

No landscapes have been identified as having Special Amenity values[7] (SAL's) in the One Plan, the Palmerston North District Plan (PN District Plan) or the Manawatū District Plan (MDP) on, or proximate to, the proposed Designation Extent.

As further detailed below, anticipated outcomes and permitted activities associated with operative and proposed zone and overlay and designation matters of the PN District Plan were also considered, as is relevant to landscape and visual effects under the RMA.

Natural Character

3.3 Natural character is a type of character, resulting from the balance of physical, sensory, and shared and recognised factors that have been influenced by human intervention. In planning terms there are specific requirements to address natural character under Section 6(a) of the RMA to ensure, as a matter of national importance:

"the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development".

For the purpose of this assessment, natural character considerations relate to the impact on the Mangaone Stream and its tributaries and the relative ability to mitigate any effects through diversion works and/or restoration in the wider catchment.

Natural character has been defined through the New Zealand Coastal Policy Statement 2010 (NZCPS), Policy 13(2) and Department of Conservation (DOC) Guidance Note on the NZCPS. In practical terms, this definition applies to natural character in general, not just in the coastal environment.

[6] Identified under Section 6(b) of the RMA. As are adopted in the P District Plan – mapped as the 'Tararua Landscape Protection Area'.
[7] Identifed under Section 7(c) of the RMA.

The DOC Guidance Note says that "natural character is the term used to describe the natural elements of all [coastal][8] environments. The degree or level of natural character within an environment depends on:

"1. The extent to which the natural elements, patterns, and processes occur;

2. The nature and extent of modification to the ecosystems and landscape/seascape;

3. The degree of natural character is highest where there is least modification; and

4. The effect of different types of modification upon natural character varies with context and may be perceived differently by different parts of the community.

In this context 'elements, patterns and processes' means 'biophysical, ecological, geological, and geomorphological aspects; natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks; and the natural movement of water and sediment".

By way of explanation, the following principles were adopted in this assessment:

- Natural character is the unique combination of an area's natural features and processes;
- It comprises both biophysical naturalness and perception of naturalness;
- Factors influencing natural character are not exhaustive (for example, some are likely to be more, or less, relevant to this particular project);
- Factors influencing natural character are not necessarily of equal weight (some are likely to be irrelevant to this project); and
- As part of landscape, an overall synthesis of the area's natural character needs to be made. In practice, factors that contribute to natural character form the basis of the 'natural landscape'.

The degree of natural character is typically evaluated against the following seven stage scale[9]:

very low	low	mod-low	moderate	mod-high	high	very high

As a guide:

- Very high natural character generally means near to pristine landforms and landcover, essentially no human structures or patterns, and strong experience of natural processes;

[8] Brackets added- in practice the DOC guidance note applies to the assessment of natural character of wetlands, rivers, lakes and thier margins as well as coastal environments and it provides a guide to the assessment of the degree of natural character in all other environments.

[9] The 7-point scale is generally accepted by Environment Court and NZILA.

- High natural character generally means a dominant presence of unmodified landforms and landcover, visually unobtrusive land management (e.g. extensive pastoral farming), few and visually integrated human structures, and strong nature based experiential aspects;
- Moderately-high, moderate and moderately-low natural character will generally mean one or more of the following: Mostly modified landforms and land cover (e.g. pasture, plantations), only remnant indigenous vegetation, obvious land management patterns, obvious or prominent human structures, reduced and less evident experience of natural processes; and
- Low and very low natural character would mean one or more of the following: highly modified landforms (including engineered structures), indigenous vegetation is absent, obvious intensive land management patterns (industry, urban development), diverse and prominent human structures, highly modified natural features and processes, experience of natural processes is very limited or absent.

Relevant Planning Provisions

3.4 While the assessment focuses primarily on its core subject matter and RMA Part 2 matters (natural character, landscape and visual), it was framed in response to relevant provisions and anticipated outcomes in the One Plan and the PN District Plan. Relevant One Plan and PN District Plan provisions are briefly summarised in the report.

Assessment of Effects

3.5 Landscape and visual effects were assessed in relation to the following project components[10] including the proposed noise, stormwater, and planting mitigation, as are shown on the Landscape Plan and Illustrative Cross Sections included in the AEE:

- **Freight Hub works** including the arrival and departure and back shunt tracks, the marshalling yards, wagon storage yard, container terminal (CT), maintenance facilities, network services depot and yard operations facility, freight forwarding facilities, log handling area, tanks for bulk liquid storage and associated office buildings, internal access roads, carparking and proposed mitigation planting in and around the buildings and stormwater and stream channel features proposed within the immediate footprint of the Freight Hub works (east of the proposed perimeter road including noise mitigation walls and other security fencing);

[10] As described in the AEE and summarised below noting that the design The Freight Hub has been developed to a concept design stage and an indicative site layout for the Freight Hub is shown on the Landscape Plan and that the design will be further developed through future stages of the project.

3.6 Components of the project that are required as a consequence to the Freight Hub works, are assessed separately in the initial analysis, where appropriate, to inform the summative evaluation. This approach is used to accurately identify the source of distinct landscape and visual effects and the integration of design and mitigation measures that will have the most impact.

- **Noise mitigation** features, including wall and bund structures with associated planting proposed along the boundary to the Freight Hub works and within the proposed Designation Extent.
- **Stormwater ponds** (northern and southern) and associated planting that are proposed downstream of the Freight Hub, to the west of the perimeter road; and
- **Rail, road and trail/path connections** including legally stopping of existing roads under the proposed Designation Extent and provision for cul de sac ends, the closure of level crossings and forming of a section of Sangsters Rd to reinstate access, the reinstatement of Te Araroa Trail, and the proposed relocation of the North Island Main Trunk Line (NIMT) and future double tracking alongside Sangsters Road.

3.7 Effects of each component or part of the project were assessed against the natural character (where applicable), natural and urban landscape and for the main viewing audiences in relation to visual amenity and views. There is some overlap between these matters, as they define parts of the whole; components of landscape. However, it is useful to assess them separately as they relate to different statutory provisions. A summative assessment is then provided to address the overall impact of the project on landscape and visual amenity values.

3.8 Effects during construction were also considered, as these will occur over a 20-year+ period. The indicative programme for construction of the Freight Hub is outlined in the Design Construction and Operation Report.

3.9 Effects are assessed as a combination of the nature of the effect and its significance in relation to context (using a 7-point scale). Effects are assessed against the existing environment i.e. positive and adverse effects are assessed in relation to the landscape 'baseline' including the reasonably foreseeable future environment, as provided for by operative planning instruments such as the NEIZ within the PN District Plan.

3.10 Effects on identified landscape areas are not addressed further in this assessment. There are no outstanding natural features and landscapes (ONFL), or significant amenity landscapes (SAL) identified under the One Plan or District Plans that are in the vicinity of the Freight Hub.

3.11 Information drawn from other reports informs both the description of the existing environment and assessment of landscape and visual effects.

Context Photographs and Illustrative Drawings

3.12 Stitched Context Photographs have been used to assist the effects assessment and are provided in the drawing set for the project, as included in Appendix 1. The viewpoints for the Context Photographs were selected to represent views from private properties and public roads for the main viewing audiences of the Freight Hub. The images are printed across two A3 pages to show the correct scale at a normal reading distance of 400mm and a horizontal field of view of just under 120 degrees. A description of the methodology used to prepare the stitched Context Photographs is also included in the drawing set. The designation Drawing Set, showing the designation concept design and indicative Site layout, including the Landscape Plan for the designation and Illustrative Cross Sections, provide a further reference for the assessment.

Conclusion

3.13 The main factors contributing to positive and adverse effects are summarised for each section set out in this report, and a conclusion is made as to the overall effects on natural character, landscape, and visual amenity values. This includes recommendations for further design measures to avoid, reduce and mitigate adverse effects and to ensure positive effects relevant to natural and urban landscape matters are achieved, where these are part of the proposal.

4.0 EXISTING ENVIRONMENT

4.1 The existing natural and urban landscape context is described across three scales:

- the Manawatū Plains;
- the Bunnythorpe - Palmerston North environs; and
- the immediate Site.

Context photographs (as included in Appendix 1 of this Assessment), showing views from public roads, private properties in the surrounding area and the Site are noted below; as a further reference to the existing environment.

Manawatū – Mangaone Stream Plains and Terraces

4.2 The Freight Hub Site is located between Roberts Line, Railway Rd, Maple St, and the Mangaone Stream. The Context Photographs shown in Figures 2-5 represent views of the wider landscape from public roads around the Site. Mangaone Stream is a significant tributary to the Manawatū River which has a large catchment - from the foothills of the Ruahine Ranges near Pohangina to its outflow at Awapuni near the racecourse. The plains topography is created by the ranging historical paths of the hill and spring fed water ways in the area, such as Jacks Creek which connects with the Mangaone near the

intersection of Maple St and Te Ngaio Rd. To the west of the Mangaone Stream, the tributaries generally flow south- south east and have established gentler patterns of topography that are characteristic of the broader Taonui and Oroua River landscapes between Bunnythorpe and Feilding. To the east of the Mangaone, the tributaries flow off the Kelvin Grove 'rise', in a more perpendicular alignment to create greater differences in topography. Existing landforms across the Freight Hub Site have been shaped by the varied paths of streams and tributaries over time. Today, the contour levels within the Designation Extent vary by approximately 5m, with the lower lying areas being Flood Prone, as are identified in the PNCC planning maps.

4.3 Broader patterns of indigenous vegetation have been removed from these landscapes, including from the edges of the waterways, through previous timber and farming activities. Historically, the plains would have been cloaked in a kahikatea dominant forest with tōtara and riparian and wetland areas featuring harakeke (flax), kowhai and a range of sedges and rushes. Modified in-stream habitats have been maintained, as described in more detail within the Ecology Assessment Report including possible short-term habitat for longfin and shortfin eel ("tuna" in Te Reo), common bully (toitoi) and kokopu. For example, as noted by residents at the project public consultation events, tuna can be found in the waterways, at least part of the year, including in constructed ponds and the Mangaone tributaries that flow through properties east of the existing Railway Rd.

4.4 Patterns of settlement, landuse and transport are further influenced by these broader river plain landscape patterns. Historic and continuing associations for mana whenua, as identified through a desktop study, relate to Rangitane o Manawatū, Ngāti Raukawa ki te Tonga [11] and other iwi groups that have moved through the area, establishing a sequence of Pā along the banks of the Manawatū River and its tributaries. These waterways, and the wetland areas alongside them, were used for food collection, mahinga kai, and as trade and transport routes and featured cliff top defensible lookouts where the waterways are more incised. The continued occupation, ahi kā and connection of mana whenua is further signified in the area by Ngāti Kauwhata[12] marae at Aorangi, previously located at Awahuri, and at Kauwhata (Kai Iwi Pā) and the pattern of natural features and places that have retained Te Reo Māori names. Māori land retained along the banks of the Oroua River between Awahuri and Aorangi- Taonui and Statutory acknowledgements provide a further link to associations of mana whenua with the Manawatū Plains landscape, as annexed to the One Plan. Near the Freight Hub, these relate to the upper catchment of the Manawatū River and its tributaries and the Oroua River for Rangitane o Manawatū, the Oroua River for Ngāti Apa, with the Taonui Stream forming the accepted boundary between Rangitāne o Manawatū and Ngāti Apa areas, rohe, historically.

[11] http://www.tkm.govt.nz/region/te-moana-o-raukawa/

[12] Ngāti Kauwhata who originated from the Waikato, as do Ngāti Raukawa ki te Tonga

4.5 Water and the topography of the plains have continued to influence the location of settlement and development with the main centres of Palmerston North and Fielding growing around the historic settlement of Papaioea (Palmerston North City's Te Reo Māori name) between the Manawatū, Mangaone Stream and the Oroua Rivers. Early land-based transportation routes also follow the dominant natural patterns; being set to easier topography, to avoid areas that regularly flood and to achieve practicable perpendicular river crossings. This response has set the stage for the logical although somewhat awkward 'Y intersection' between the Ashhurst Rd connection to the Manawatū Gorge (an historical trail through to the Wairarapa and route originally proposed for the Napier - Gisborne Line) and the NIMT line and (later) Railway Rd, Campbell Rd and Waughs Rd.

4.6 The rail lines, and roads alongside, were located at the natural edge of the land to avoid the flood plain and to achieve easier gradients needed by rail. That edge is highly dissected by the eastern tributaries to the Mangaone. This meeting of transport links created a logical node for the township of Bunnythorpe and other infrastructure connections (such as the power sub stations that feature alongside Stoney Creek Road and the larger facility behind the residential areas at Redmayne St). The distinct grid pattern of roads established off the rail line framework, while typical of surveying conventions, is also clearly set to an alignment that is either parallel or perpendicular to the waterways of the area. This grid further emphasises the relationship between natural and urban landscape character in the Mangaone Landscape.

4.7 It is these broad scale natural landscape patterns and the settlement and transport response to this that have established and strengthened Palmerston North's importance as an inland port in recent years and positive population growth rates, in recent years and predicted over the next 25 years[13]. Similarly, the combination of the plains natural and urban patterns has underpinned Palmerston North's historic and existing significance to the rail network which, along with other national KiwiRail business imperatives, underpin the proposal, and the selection of the preferred site for the Freight Hub development; as further detailed in Appendix F to the AEE.

4.8 Together these broader patterns of natural and urban landscape establish the Site and the Freight Hub as:

- Part of a diverse river-based landscape with an intricate relationship between waterways and existing commercial, industrial, residential, and recreational activities;
- In an area with a rich history of settlement for mana whenua who first discovered the Plains some 800 years ago and occupied larger Pā at Oroua with continued ahi kā and marae at Aorangi;

[13] https://www.pncc.govt.nz/media/3132945/long-term-projections-2020.pdf

- An important junction point for rail and road connections with a long history of road, rail and infrastructure development and area with natural and urban landscape patterns that fit with and have the potential to further contribute to Palmerston Norths role as an inland port.

Bunnythorpe - Palmerston North

4.9 The landscape immediately surrounding the Site can described as the area between Kairanga Bunnythorpe Rd and Mangaone Stream to the west, the Sangsters Rd slopes to the east, the north eastern industrial land and interface with the regional airport to the south and the Bunnythorpe township to the north. The broadscale Context Photographs noted above and those shown from private properties and the Bunnythorpe Cemetery, Figures 07-14, and those taken within the site, Figures 15-21 show views of this landscape setting.

4.10 The dynamic character of this area reflects that of many peri urban areas where there is growth and there are key transport connections established. This is a landscape in transition.

4.11 The majority of the land to the west is zoned rural, but there is a pattern of recent subdivision to establish rural - residential land use. This has resulted in changes to land use from sole income primary production to a greater range of rural-type activities through to large lot residential properties (for example along Clevely Line). A number of these newly developed properties along Clevely Line and Te Ngaio Rd are directly impacted by the Freight Hub. With changes in landuse in this area being recent, vegetation patterns are still largely reflective of productive landuse, with predominately pasture and some established exotic species shelter belts. Vegetation patterns along the Mangaone Stream are also highly modified, predominately exotic including naturalised weed species.

4.12 To the east, there are more dissected landscapes established by the Mangaone tributaries. This, combined with the railway links into the city via Tutaki Rd and Stoney Creek Rd, have contributed to a finer grain and established pattern of rural residential properties. These include off the formed section of Sangsters Rd, the Clevely Rd extension, Parrs Rd (where smaller rural residential properties are concentrated) and those properties in close proximity to the Roberts Line -Railway Rd intersection.

4.13 Easier connections with the city and Fielding have had further impacts on development in this area. The level crossing at Clevely Line and opposite Richardson's Line provide for a number of existing commercial properties at 422 Railway Rd including the Farmgear- agricultural equipment- and existing firewood supply businesses. Recent development closer to the city, to the east of Sangsters Rd, include large lots with large footprint homes progressing to a pattern of rapid residential growth to the east of Kelvin Grove. More diverse vegetation patterns feature in this area with shelter belts and curtilage planting emphasising the smaller scale of the cadastral patterns and established rural residential land use including an obvious sequence of ponds, established offline to the main tributaries.

4.14 Te Araroa Trail forms a further feature of this area, following the extent of Sangsters Rd including its unformed section with the trail typically unfenced to the neighbouring property. At varying levels above Sangsters Rd sits the NIMT which while set to less pronounced topography, traverses between the contour level of 51.84m at Richardsons Line, up to 52.67m at 422 Railway Rd (the Farmgear property and level crossing), dropping to 46.27m at rail boundary to 363 Tutaki Rd, rising some 7m to the boundary of 73 Sangsters Rd, dropping to 48.61 m near the Clevely Line level crossing and rising again to 54.06m near the Stoney Creek -Ashhurst Rd intersection. That is: over 2.8km the rail line traverses up and down a 7.79m level change. Note: this level change will be moderated through the project works to relocate the NIMT and include a second track and to ensure level tie ins for the arrival and departure tracks, as detailed in the description above and Illustrative Cross Sections.

4.15 Significant tributaries to the Mangaone are a further feature of this area, as they trace through the landscape and are piped through large box culverts under the road and rail in six locations, as discussed in more detail in the Stormwater Assessment Report, and together with the flood hazards that feature on the Site, require a detailed design response.

4.16 To the north, the small settlement of Bunnythorpe (2013 census population 222), is set to the grid off Campbell Rd, Dixons line and Dutton St. The township was established alongside the NIMT in the late 1800s with the school opening in 1883 and the area to the south of the rail line known as Mugby Junction (featuring a finer grain of cadastral boundaries that had anticipated a direct Napier Line connection). Historic features of the town, as discussed in more detail in the Heritage Assessment, include the cemetery along Maple St and the Glaxo factory building along Campbell St established in 1904.

4.17 To the south, Roberts Line marks the edge of the current development within the NEIZ, which was extended in 2015 to include areas within the Freight Hub Site. Recent development in this area, off Roberts Line has included the large-scale Foodstuffs warehouse which is of a similar scale height to the distribution buildings proposed on the Site. Development in this zone is subject to a design guide which will be adopted across the Freight Hub project. To the immediate southern boundary is the regional airport, adding further to the pattern of varied transport modes which characterise this area. To the south of Roberts Line, there remains an enclave of rural zoned land to the industrial area of Midhurst which has been transformed to larger lot rural residential landuse, including further minor commercial activities off Midhurst St. It is at this point also that Te Araroa Trail continues along Railway Rd and then across the city to the Manawatū River. A further recreational path, along the stop banks of the Mangaone Stream heads south, starting at the end of Flygers Line, within easy walking/cycling distance of the Airport. This off-road path continues to join the Manawatū River paths near Awapuni.

The Freight Hub Designation Extent

4.18 The Freight Hub Designation Extent covers an area of approximately 177.7ha. Relevant features of the Site's natural and urban (built) landscape are summarised as follows, which combine to create its existing rural and rural-residential character. Context Photographs set contained in Appendix 1, Figures 15-21 show views within the Site.

4.19 The Freight Hub's **natural landscape** is characterised by:

- Unmodified landforms of the Mangaone Stream catchment shaped by tributaries and past flooding events, with contours varying across the site by approximately 5m and low points reflective of the flood hazard patterns identified in PNCC planning maps.
- Tributaries of the Mangaone Stream that create three catchments across the Site, with the main watercourse to the west of Clevely Line (to be replaced with a naturalised channel in the proposed design) and 5 other culverts along Railway Rd collecting water flowing east west from properties above Sangsters Rd. These tributaries generally follow a natural path with minor patterns of vegetation, predominantly exotic weeds. Habitat values, as described further in the Ecology assessment, are degraded, as is typical of many of the modified waterways across the Manawatū Plains although sightings of tuna (eel) are noted by locals in the Sangsters- Stoney Creek area. On a 7-point scale these tributaries have low natural character values.
- Predominant pasture landcover with minor patterns of vegetation, assumed to be a mix of exotic and indigenous species, including shelter belts associated with existing rural residential landuse and amenity planting to residence curtilages.

4.20 The Freight Hub's **urban (built) landscape** patterns are set to a framework established by the transport routes including:

- The existing NIMT and the way in which the track varies in height from the proposed Freight Hub level at 50RL).
- The arterial routes that follow the rail, Railway Road – Campbell Rd connecting Palmerston North City, Bunnythorpe and Fielding, the links to SH54 and SH3 via Kairanga Bunnythorpe Rd and Ashhurst Rd and alternative routes through to Palmerston north city via Tutaki Rd and Stoney Creek Rd.
- The pattern of connecting streets and cadastral boundaries that follow a distinct grid off Railway Rd including those impacted by the proposed closure of Railway Rd from Roberts Line through to Maple St including:

- The level crossings at the end of the Clevely Line and off Railway Rd with an alternative connection for the commercial properties likely to require a further section of Sangsters Rd to be formed off the end of Roberts Line.
- The road end closure of Roberts Line east – so that it becomes a cul-de-sac off Kelvin Grove Rd.
- The removal of Richardson's Line under the Freight Hub.
- The closure of Clevely Line under the Freight Hub works and of the level crossing onto Railway Rd (which will be closed in this location). This will create a Clevely-Sangsters-Parrs Rd loop onto Stoney Creek Rd.
- The closure of Te Ngaio Road under the Freight Hub works and cul-de-sac end east of Maple St.
- Te Araroa Trail, which follows Sangsters Road at the base of rural residential properties, including unformed sections where styles are used to traverse fences and there are typically no boundary fences to adjacent properties. This trail sits alongside the NIMT which will need to be relocated to the west (so that it can tie in with the levels of the Freight Hub Site) and will include possible future double tracking along this section (a separate future KiwiRail project).

- Landuse across the Site which combines rural activities and associated utility buildings with land holdings now remnants of much larger farms historically (the Clevely family, for example), now subdivided and developed through recent patterns of rural residential development with larger scaled homes, particularly off Clevely Line and Te Ngaio Rd.

4.21 Together these features combine to characterise the Site as relatively open rolling land with remaining rural and recent rural-residential landuse. This landscape is set to a busy rail and road corridor and a wider context of urban growth, including recent development and industrial zoning across part of the Site and recent rural-residential and residential growth to the north of the city.

5.0 STATUTORY FRAMEWORK

5.1 An assessment of the Freight Hub against the statutory provisions is contained in the AEE. Below is a summary of the relevant statutory provisions that relate to landscape and visual assessment matters. The following are considered:

- The RMA;
- The Horizons One Plan; and
- The Palmerston North District Plan.

Resource Management Act 1991

5.2 The overarching framework of the RMA is set out in Part 2. Matters of national importance particularly relevant to landscape include sections 6(a), 6(b), 6(c), 6(d), 6(e) and 6(f). Section 6(a), (b) and (f) promote the preservation or protection from inappropriate use and development of natural character, outstanding natural features and landscapes, significant indigenous vegetation and habitats and historic heritage. Sections 6(d) and 6(e) address the consideration and enhancement of public access to and along rivers (which include streams) and the relationship of Māori with their ancestral lands, water, sites of significance and other taonga.

5.3 Other relevant sections include 7(aa), 7(c) and 7(f) that address kaitiakitanga, the ethic of stewardship, amenity values, and the quality of the natural and urban environment. These 'other matters' are relevant to all landscapes and, along with natural character considerations, underpin the landscape, visual and natural character mitigation measures proposed for the Freight Hub.

5.4 These RMA matters are relevant and can be considered without cross-over or double counting of other specialist areas, as they contribute to the main components of landscape; natural science, sensory and shared and recognised factors.

Horizons One Plan (One Plan)

5.5 The operative Regional Policy Statement (RPS) within the Horizons One Plan includes objectives and policies that relate to natural features, identified landscapes and natural character. As is relevant to the Freight Hub, these promote the preservation of natural character of waterways and their margins and the protection of them from inappropriate use and development. The approach of the RPS (Chapter 6 – Indigenous biodiversity, landscape and historic heritage, Policies 6-8 and 6-9) is to at least maintain, and enhance where appropriate, the current degree of natural character and for development to include opportunities for restoration where appropriate and practicable. Policies 6-10 promotes public access to and along rivers and their margins. The consideration of opportunities to mitigate and restore natural character are addressed further in the Regional Plan Chapter 17 – Activities in Beds of Rivers and Lakes, and Damming. While the proposal's direct impact is limited to the tributaries of the Mangaone that have low natural character, these policies are relevant to the design for the naturalised channel and the stormwater ponds proposed in the Freight Hub.

Palmerston North District Plan (PN District Plan)

5.6 As discussed above, the Site includes land currently zoned Rural and is part of the NEIZ. Other PN District Plan features relevant to landscape matters include the identified flood prone areas and the

designation over the Bunnythorpe cemetery on Maple St. Recreational reserves in the area are associated with the Bunnythorpe town centre, such as the Dutton St Reserve and walkway.

5.7 As discussed above, the main recreational resource that has an interface with the project is Te Araroa Trail, which follows the formed and unformed sections of Sangsters Rd from the end of Clevely Line east to Roberts Rd. PNCC plans to improve the improve cycling connections between Fielding and Palmerston North, as part of its wider rural cycle path programme[14], and has previously considered an alignment within the Railway Rd reserve. These plans have not been progressed sufficiently to consider as part of the existing, or near future, urban landscape surrounding the Site; rather as a possible benefit to be integrated into the Freight Hub along the Sangsters Rd reserve i.e. combined with Te Araroa Trail.

5.8 As the Freight Hub will result in the Site being transformed from rural to industrial landuse, the regulatory design guide is indirectly relevant to the assessment, as the PN District Plan requires all resource consent applications within the NEIZ to be consistent with its provisions. The NEI Design Guide provides a useful basis for assessing the effects of the proposed designation, as part of the proposal falls within the zone and the purpose is to provide for industrial activities.

5.9 The NEI Design Guide addresses: site and road layout; waterways; stormwater; boundary setback areas; planting; site contouring; city image and experience; signage; pavement and furniture; lighting and fencing. Section 2 matters detailed in the NEI Design Guide (for larger areas rather than single sites) have underpinned the development of the proposed masterplan for the Freight Hub and measures to reduce adverse effects on surrounding rural and rural-residential areas. The high-level principles are to manage effects and build in benefits.

Amenity values of the surrounding area would be primarily maintained by:

- buffer set back areas comprising screen planting;
- limit on the placement and number of access points into the area;
- controls on building design and appearance, signage, landscape design.

The Design Guide and Structure Plan incorporate principles for the internal appearance of the NEIZ to enhance its look and amenity. Design principles have been outlined for site layout, building design and landscape treatments. There are also potential opportunities to enhance local amenity of the surrounding environment including:

[14] PNCC Active and Public Transport Plan 2018 https://www.pncc.govt.nz/media/3130993/active-and-public-transport-plan-2018.pdf

- Management of water flow and water quality of upper tributaries of the Mangaone Stream;
- Greater landscaping and screening of existing adverse views;
- Providing a positive city image and experience; and
- Incorporating recreational routes such as walking and cycling paths where practically possible.

6.0 ASSESSMENT OF LANDSCAPE AND VISUAL EFFECTS

6.1 The Freight Hub will have potential adverse and positive effects on:

- Natural character (of the Mangaone Stream and its tributaries);
- Natural and urban landscape; and
- Visual amenity.

6.2 A summative assessment for each of these matters, and the Freight Hub as a whole, is provided following a detailed analysis by:

- project component (for natural character and natural and urban landscape) including: the Freight Hub works, Noise Mitigation, Stormwater Ponds and Road Connections, as set out in the project description above; and
- Viewing audience (for visual amenity) including: passengers travelling along the NIMT; motorists travelling along existing roads; users of the existing industrial area; visitors to the Bunnythorpe cemetery; residents and visitors to the Bunnythorpe township; residents who have an open outlook onto the Site in the surrounding area; and pedestrians travelling along Te Araroa Trail.

6.3 This approach, to 'unpack' the nature and extent of effects through detailed analysis, is then used to inform the assessment of overall impact of the Freight Hub on landscape and visual matters. This process provides the opportunity to more accurately evaluate the range of adverse and positive effects the project contributes. An analysis of the effect 'parts' also helps to identify design and mitigation measures that will avoid, remedy and mitigate adverse landscape and visual impacts or unlock potential benefits.

6.4 Due to the Freight Hub's location near the Mangaone Stream, it will have no adverse effects on the Tararua ONFL identified in the One Plan, and mapped as a Landscape Protection Area in the PN District Plan;

6.5 This effects assessment considers design and mitigation measures that have been integrated into the concept, across the Designation Extent, as shown in the Landscape Plan and Illustrative Cross Sections and are included in the project Description in the AEE.

6.6 In summary, design and mitigation measures integrated into the concept (and assessed) that are relevant to **natural character and natural landscape** effects include:

- The Freight Hub works will be set to 50RL which will limit the height and extent of the cut and fill batters to its edges (along the proposed new perimeter road);
- Cut and fill batters are to tie into the natural contours gradually and provide for opportunities to vary the slope in long section; to blend with the natural rolling landforms;
- Cut batter slopes are to be typically under 2.5m in height and will have a gentle slope, typically, no steeper than 1v:3h, to provide for greater mitigation planting options. Where high cut faces are required, for example along the proposed new perimeter road, these will face the Freight Hub (reducing their prominence);
- Fill batters will have a gentle and varied slope to tie into natural contours, will be generally no steeper than 1v:3h, and 1v:2h in one localised area along Sangsters (see 6.19 below), and allow for greater mitigation planting options;
- The proposed channel and stormwater ponds will provide opportunities for a naturalised profile and edge (although the alignment of the channel is relatively confined) and will integrate planting of wetland indigenous species and opportunities for fish passage to and from the Mangaone Stream.
- Opportunities for public access and recreation, via a loop track to and from Bunnythorpe and the proposed stormwater ponds. These tracks will increase perceptions of natural character, as they are proposed to follow an off-road alignment through broad areas of indigenous mitigation planting.
- Mitigation planting proposed includes River Plain, River Terrace and Wetland species with indigenous specimen trees. This planting will help to rehabilitate the earthwork batters, provide partial screening of the Freight Hub buildings and, overtime, screen the vertical noise mitigation walls. Planting typologies will combine larger numbers of plants in naturalised groupings and larger (mature height) tree species; in keeping with the Site's surroundings and the scale of the development. Broader areas of planting are proposed alongside the stormwater ponds. This will result in the establishment of Kahikatea type bush and broader areas of wetland planting, once typical of the Manawatū Plains, increasing perceptions of natural character.
- Planted earth bunds with a gentle slope will be used for noise mitigation where space allows, alongside the Maple St properties, as an alternative to vertical concrete walls. These will reduce adverse effects on the natural landscape, as they will have a more naturalised form and will be integrated within a broader area of River Terrace mitigation planting.
- The relocation the NIMT to the west, which provides scope for a greater extent of mitigation planting to the edges of Te Araroa Trail and double track lines. This planting will include screening of

the vertical concrete noise mitigation walls (which will be set along the existing rail embankment with the top of the structure set at 55RL).

6.7 Design and mitigation measures integrated into the concept (and assessed) that are relevant to **urban landscape** effects include:

- The proposed layout and alignment of the Freight Hub works and the new perimeter road to ensure that disruption of existing urban patterns is reduced. This includes measures used to limit the number and extent of roads that need to be legally stopped and the provision of alternative routes that minimise back tracking to typical destinations. The required closure of two-level crossings also improves urban landscape patterns, as these roads 'cut across the grain' of the NIMT reinforcing an existing poor fit between this and the finer grid of the roading network.
- Alternatives provided for access to private properties, for example, as resolved by forming part of Sangsters Rd off the end of Richardsons Line.
- Noise mitigation requirements that combine the use of vertical concrete walls (generally below 3m and up to a maximum of 5m in height) or earth bunds where space allows with both types set within proposed mitigation planting. The location to limit the use of vertical concrete noise mitigation walls and their height, has also been considered. For example, along Sangsters Rd, the required noise mitigation if provided, in part, by an embankment (where the existing NIMT is aligned) such that the height of the concrete wall above this is reduced, to achieve a top of wall height of 55RL. Along the Maple St edge of the Designation Extent, a planted earth bund is proposed rather than a vertical concrete wall. These design and mitigation measures will reduce the dominance of these structures and assist the proposal to be integrated within the existing urban (built) environment.
- Consideration given to the spatial arrangement of the Freight Hub. This is to ensure the location, scale and typical forms of the buildings can be more easily integrated with the surrounding environment. This principle has been used in the concept design layout to locate the larger distribution facilities and container terminal to the south and more dispersed smaller scaled forms and activities to the north; where they are located in closer proximity to rural residential and residential areas of Bunnythorpe.
- The use of mitigation planting over larger areas (depth and length) including larger tree species in both naturalised and more linear planting patterns (referencing the tributary paths through the Site). Mitigation planting has been used to provide partial screening of the built components (total screening of the development would have an adverse effect; creating a disconnected enclave). Larger scale (mature height) trees will be important to provide a counterpoint or balance to the scale of the development-built forms and outside the Freight Hub helps to create a more gradual transition out into the wider landscape.

- Changes required to the NIMT alignment (a shift to the west) help to mitigate for the effects of the Freight Hub and required noise walls. This shift provides opportunities for improvements to Te Araroa Trail, including planting to the edges (where there is currently blackberry and other exotic weeds). As will be confirmed through detailed design, a stepped alignment of the noise mitigation wall, will also provide for possible variation in Trail's alignment and a viewing area up on the embankment overlooking the wider landscape including the Freight Hub.
- Improved pedestrian and cycle connections between Bunnythorpe and the wider NEIZ, including the proposed footpath along the new perimeter road and opportunities for it to link with the indicative potential off-road recreation trails. These features could provide for alternative modes of transport to and from places of work; of benefit to the urban landscape.

6.8 Design and mitigation measures integrated to address natural character and natural and urban landscape effects (as summarised above) will also help reduce adverse effects on views. This is because the natural and urban landscape components combine to establish **visual amenity**, as experienced from public viewpoints and by local residents.

6.9 Opportunities to improve the visual quality of the existing environment have also been considered in the concept design, as a result of the proposed mitigation planting, as shown in Landscape Plan and Illustrative Cross Sections. For example, while views of the rail corridor and rail activity are not necessarily adverse (the trains add visual interest and are linked to the history of the town), rural residential properties along Sangsters Rd and Te Araroa Trail users currently look out on an elevated rail corridor featuring blackberry and gorse. Planting proposed in this area will improve the visual amenity of this edge overtime. Similarly, the existing visual amenity of the streetscapes along Railway Rd and Campbell Rd near Bunnythorpe is very poor and could be improved by the works required to establish the new perimeter road in this area.

6.10 These matters, and further recommended mitigation measures are considered in more detail in the effect's assessment below.

Natural Character, Natural and Urban Landscape Effects

6.11 The potential adverse and positive **natural character and natural and urban landscape** effects will vary over the main components of the project:

- The Freight Hub- including the terminal operations (arrival and departure yard, marshalling yard and wagon storage), KiwiRail facilities (equipment maintenance and network services), container terminal, freight forwarding, log handling and tank storage, and required internal access roads, car parks, planting, constructed waterway channel and vertical noise mitigation walls (as required to the east of the proposed new perimeter road, where they will be set against a backdrop of the new

buildings). For the purpose of this assessment, the Freight Hub includes the relocation of the NIMT to the west, future double tracking alongside the Freight Hub and earthworks over the existing rail embankment.

- As a result of the *stormwater ponds* and *noise mitigation* structures required that are external to the main Hub works; and
- Due to changes in the existing *road connections* including the proposed new perimeter road.

Freight Hub works

6.12 The potential for adverse **natural character** effects resulting from the Freight Hub relates to the redirection and constructed conveyance of the existing stream tributaries through the Site from 3 catchments. While these tributaries have low existing natural character overall, they follow a largely unmodified path with minor areas of riparian type vegetation.

6.13 Potential adverse effects on the natural character of the northern most tributary have been reduced by the proposal to redirect this flow via an open channel to the east of the log yard rail line. Detailed design will include opportunities to vary its profile and integrate planting of wetland plants and larger tree species to the edges.

6.14 The remaining tributaries will be conveyed under Freight Hub Site and proposed new perimeter road to outfall through the mitigation ponds into the Mangaone Stream. Design details to maintain fish passage under the Freight Hub will be integrated in the detailed design phase and will be delivered along with measures to reduce contaminant loading into the ponds and/or ground water resource of the area through the regional consents that will sought.

6.15 The Freight Hub will channel existing tributaries, and although these have low natural character, significant sections will be conveyed underground limiting future natural character restoration options. Although the profile of the open channel can be varied, its path is relatively confined between the Freight Hub features, rather than following a meandering path typical of the existing tributaries. Culverted sections will also be required where it intersects with operations, such that the open channel is not continuous through the Freight Hub Site.

6.16 Natural character benefits of the open channel will be experienced by motorists travelling along the new perimeter road (although viewed through the Freight Hub's chain link security fencing). These benefits will require a final design that provides for a naturalised profile, in long and cross section, and planting of lower growing species and groupings of trees to provide framed views through to this feature.

6.17 Overall, with the proposed channel design and mitigation planting, the Freight Hub's effects on **natural character** of the Mangaone stream tributaries will be a low positive on the 7-point scale. The existing tributaries through the Site will be replaced by a short, relatively straight naturalised channel with planting typical of riparian environments. Fish passage through the culverted sections of all tributaries will be maintained.

6.18 Effects on the **natural landscape** from the Freight Hub relate to the scale of the earthworks and the removal of all existing vegetation. The development will flatten the Site, removing largely unmodified undulating landforms and vegetation patterns that contribute to its rural character and amenity.

6.19 These natural landscape effects have been reduced by the preferred yard level of 50RL. This limits the cut and fill heights to the edges of the Freight Hub Site and what needs to be made up at the edges of the proposed new perimeter road. The largest cut sites are located along the edge of the proposed new perimeter road facing the site with slopes typically 1v:3h that are able to be rehabilitated; either grassed or planted. The largest fill batters will occur on the new perimeter road bend as it approaches the end of Te Ngaio Rd and alongside Sangsters Rd, where fill is required to integrate new culverts. Across the dip at 363 Tutaki Rd, for example, the batter will be extended by approximately 6m into the Sangsters Rd reserve. These batters will have a slope no steeper than 1v:2h, so will be able to be planted. Planting proposed within the Designation Extent is a further natural landscape mitigation measure, combining naturalised groupings with larger trees tracing some of the water ways through the Site (that will be culverted). Species selected are to be typical of the area and its historic landcover including kahikatea dominant forest and wetland species.

6.20 Overall, the balance of natural patterns will be shifted post redevelopment. The Freight Hub can be tied into the surrounding landforms and includes greater areas of planting than exist currently. However, due to its current rolling topography and rural landuse the area will be highly modified.

6.21 In summary, the adverse effects of the Freight Hub on the **natural landscape** will be high, including proposed mitigation, to limit batter heights and provide for planting. Large scale earthworks are required to service level tracks through the Freight Hub, transforming rolling topography shaped by waterways and past flood events to a flat site for infrastructure use. While mitigation planting to the edges of the Freight Hub will provide some screening of the built forms and planted areas alongside the existing NIMT will improve existing weedy vegetation patterns, overall, the Site will not retain its existing character of rolling topography and largely unmodified landforms .

6.22 Effects on the **urban landscape** of the Freight Hub relate to developments setting to the edges of the NEIZ to the south, the rural and rural-residential landuse to the west and east, and the township of Bunnythorpe to the north. Adverse effects related to individual property matters and specific social

impacts are addressed elsewhere in the AEE, so this assessment considers matters of overall fit with the existing urban patterns, including those anticipated by adopted planning instruments.

6.23 The Freight Hub is well aligned with existing rail and arterial road connections; however, it cuts across the finer grain of the cadastral grid. It is of scale that is not generally consistent with the surrounding urban landscape other than when compared to the existing NEIZ. The scale of the Freight Hub's buildings and key operational features are also significantly larger than the typical forms of other landuse types, although they have some relationship with structures in the existing industrial area. For example, the recently built Foodstuffs building, while of a similar height to the proposed distribution facilities, has a much smaller total footprint, with a building length of approximately 350m (rather than 880m). The scale of the development both in terms of its overall footprint and its main components establishes an urban pattern and character that is of a larger grain and patterning than its surroundings including areas dedicated to rail movement.

6.24 Some of this shift in character is to be anticipated under the NEIZ across part of the Site and any adverse urban landscape effects associated with this change have also been reduced by the preferred layout. The larger scaled buildings are located to the south of the Site, further away from the finer grain urban patterns surrounding Bunnythorpe. Design measures to ensure the principles of the NEI Design Guide are integrated (as intended by KiwiRail) will also build in further mitigating factors. This will help to break up and integrate the built forms through the use of materials, colours, and rooflines typical of a rural activities and partial screening through large areas of planting, including larger tree species. For example, tree species to be integrated will include those with mature heights of more than 15m, greater than the distribution warehouses and of a more comparable scale to the larger lighting columns, at 22.1m.

6.25 There are advantages to the masterplan approach used to determine the general arrangement of the Freight Hub buildings and key operational features. This will ensure a greater degree of coherency and consistency. This will help to reduce visual clutter and reduce the way in which the development might jar the senses or seem ‘at odds’ with the surroundings. The scale of the Freight Hub and depth of areas available between the buildings and surrounding roads has also meant that broader scaled planting mitigation measures are able to be integrated. This provides greater opportunities for the Freight Hub built forms to be ‘stepped’ down and out into the landscape; by using a combination of large scaled (mature height) trees and smaller trees and shrubs, in a transition to the edges of the Freight Hub and wider areas of mitigation planting.

6.26 Overall, the adverse effects on the **urban landscape** resulting from the Freight Hub will be moderate with the proposed mitigation planting. While some of these effects are to be anticipated under the

North East Industrial Zoning over part of the Site, this is a large-scale development with components of a very different scale to much of the surrounding urban patterns.

6.27 The main opportunities for the Freight Hub to provide **urban landscape** benefits and positive effects relate to its interface with Sangsters Road and Bunnythorpe.

6.28 Along Sangsters Rd there is the potential to improve the relationship between Te Araroa Trail and the NIMT including the possibility to realise a section of PNCC's planned rural cycle path between the city and Fielding. Where the NIMT rail line is to be re aligned to the west, and the earthworks to modify the existing embankment, there will be a greater width between the new NIMT lines and the Sangsters Rd reserve including earthworks to level and widen the existing rail embankment (associated with the culvert works). This will mean that the Freight Hub can integrate areas of planting between the required vertical concrete noise walls, to be located on top of the modified existing embankment, and the Trail (Sangsters Rd reserve). In addition, where the batter slope crosses the road reserve, there is the opportunity to lift the Trail (and future cycle path) up onto the embankment and to modify the alignment of the noise mitigation walls to create a lookout area with views out over the Freight Hub and wider Mangaone landscape.

6.29 At the entrance to Bunnythorpe, there is mitigation planting associated with the required noise mitigation walls which, combined with a quality final form and finish for the structure, could provide very low urban landscape benefits, by improving the Bunnythorpe gateway experience.

Noise Mitigation Structures

6.30 Potential adverse **urban landscape** effects of the required *noise mitigation* structures (as listed below and shown on the Landscape Plan) are a separate matter to consider where they occur at a distance from the Freight Hub. At 3 and 5m in height, these structures will introduce a built form that is not typical of the existing environment and, as such, are more likely to have an adverse effect on the urban landscape where they are not well integrated. In contrast, low and very low adverse urban landscape effects will result where the noise mitigation walls are set to a backdrop of the buildings within the Freight Hub i.e. the noise mitigation walls that are required to the east of the proposed new perimeter road.

6.31 In summary, there is potential for adverse urban landscape effects associated with the noise mitigation structures:

- Along the length of Sangsters Rd, where a 1.4 to 5m high vertical concrete wall (typically less than 3m high) is required along the modified existing NIMT embankment. The top of the wall will be set

to a height of 55RL (5m above the relocated NIMT and marshalling yards). This wall is required from the cul-de-sac end of Roberts Line through to the substation in Bunnythorpe; and

- Between the perimeter road and Maple St, where a 3m barrier is required near existing property boundaries, from the corner of Railway Rd to the Bunnythorpe cemetery. This distant location is required due to topography; as these residences are elevated, such that a noise barrier along the edge of Freight Hub would be ineffective. From the cemetery south, the proposed structure drops down to a position directly alongside the new perimeter road, near the intersection with Te Ngaio Rd, where a 3m concrete wall is proposed directly opposite, along the boundary of the Freight Hub; to ensure an adequate sound dampening overlap.

6.32 Due to space constraints, there is no logical scope for an alternative noise mitigation design along Sangsters Rd, and combined with the earthworks required to modify the existing embankment, this will introduce a significant new built form to the edges of Sangsters Rd and Te Araroa Trail and the Stoney Creek Rd entrance to Bunnythorpe.

6.33 In some locations, where the existing embankment will be retained and is at, or near, 50RL[15], the noise mitigation wall will need to be 5m in height. In other locations where the existing embankment is higher, the wall height can be reduced to a minimum of approximately 1.4m[16]. In contrast, in the 'dip', where Sangsters Rd borders 363 Tutaki Rd, the existing NIMT embankment is set at its lowest level; 46.28 RL. Earthworks will lift this to a height of 52RL (with a broader batter into the Sangsters Rd reserve, as required to accommodate a new culvert). This means that the noise mitigation wall can be limited to 3m in height in this location i.e. the noise mitigation combines the modified embankment and the vertical concrete wall.

6.34 In summary, along the length of Sangsters Rd reserve, the noise mitigation wall will need to vary from approximately 1.4 to 5m in height depending on the level of the modified existing rail embankment and in relation to the Freight Hub. Where the existing embankment also needs to be raised to accommodate the culvert works, the overall height of the new 'structure' (combining embankment and noise mitigation wall), as observed from the Sangsters Rd reserve and Te Araroa Trail, will be up to 13m in height in the 'dip' alongside the property at 363 Tutaki Rd. This is approximately double the height of the existing NIMT embankment in this location.

6.35 Overall, this approach has integrated design measures to reduce effects on the urban landscape. The relocation of the NIMT means that the noise mitigation to be achieved using a combination of embankment and vertical concrete wall, with broad areas of mitigation planting to its edges, will reduce

[15] for example at 422 Railway Rd (opposite the Firewood business CHN 142400),
[16] such as at 79 Sangsters Rd (CHN 143100), the existing embankment has a height of 53.6RL

its visual dominance and contrast with the surrounding environment. The design also requires fill batters around the new culvert works, including through the 'dip', which will provide greater scope to vary the alignment of Te Araroa Trail; and the option for a lookout area over the Freight Hub and wider Mangaone Stream landscape.

6.36 Where noise mitigation is required to be located to the west, alongside the Maple St (above the proposed new perimeter road) there is space to use a planted earth bund with gentle, varied slopes and lower growing species, to retain open views (including of trains moving along the NIMT). This approach will integrate the required noise mitigation into the existing environment and the proposed mitigation planting to the edges of the new perimeter road and naturalised channel within Freight Hub. At the end of Te Ngaio Rd, where there are new homes built approximately 20m from the proposed noise mitigation, such an approach may not be possible. Here a low vertical wall on top of a lower bund may offer the least adverse urban landscape effects; as can be investigated and confirmed in the following stages of the project.

6.37 Overall, the adverse **urban landscape** effects of the *noise mitigation* external to the Freight Hub, including the proposed design measures and planting mitigation, will be moderate to moderate-high alongside Sangsters Rd, depending on the relative level of Te Araroa Trail and adjacent properties and the need for the existing embankment to be raised. The Freight Hub requires the introduction of a significant new structure along this road edge and while mitigation planting will screen this feature over time, it will be visually dominant, further confine the road edge and have a form and finish that is out of context with its rural residential surroundings.

6.38 In contrast, the adverse **urban landscape** effects resulting from the planted earth bund *noise mitigation* will be low for properties to the west of the new Perimeter road (with the exception of houses retained at the eastern end of Te Ngaio Rd which will need further investigation). The use of planted earth bunds, with gentle batters, will tie into the natural contours and are able to be integrated into a wider area of River Terrace mitigation planting such that they will be integrated into the surrounding landscape.

Stormwater Ponds

6.39 Potential natural and urban landscape effects of the required stormwater ponds are relevant to consider separately from the Freight Hub (and noise mitigation), as their effects are distinct and there are further benefits to be considered in future stages of the project. Note, although the stormwater ponds have limited effects on any stream tributaries (the northern pond will be built over a short section of a highly modified watercourse) in a broader sense, they are considered to have natural character effects; as they feed into the Mangaone Stream and are in close proximity to it. They will

appear as part of the stream landscape. The northern pond will have an outfall directly into the Mangaone and the southern pond to a tributary that flows perpendicular to Roberts Line.

6.40 Effects on **natural landscape and natural character** resulting from the stormwater ponds will, in the short term, relate to the earthworks and any vegetation that is required to be removed to establish the ponds footprint.

6.41 In the short term the effects on natural landscape and natural character will be adverse. While the shape of the pond and the profile of its banks can be naturalised, to tie into the natural contours, the required depth of the ponds and their size (approximately 71,000m^2 - northern pond and 60,000m^2- southern pond and maximum depth of approximately 6m) will contribute further to the way in which the project modifies natural landforms in this landscape.

6.42 In the medium to long term, the ponds will provide natural landscape and natural character benefits. These positive effects will result from the proposed mitigation planting to the edges of the ponds and their gently sloping banks, including wetland and lowland kahikatea forest groupings, that would have once characterised the Manawatū Plains. Options for public access, combined with required maintenance tracks around these features, as are shown indicatively in the Landscape Plans, will increase perceptions of natural character. For example, where a small carpark to the edges of the Clevely Line road end could service a loop track to and from the Mangaone Stream through the mitigation planting – around the banks of the stormwater pond and wetland areas.

6.43 Overall, the effects of the stormwater ponds on **natural character** will be a moderate positive. The northern pond removes an existing watercourse has very low natural character values. The ponds will ensure water flow is retained through this area and establish significant areas of indigenous lowland River Plain planting.

6.44 Overall, the effects of the stormwater ponds on the **natural landscape** of the Mangaone Stream environment will be a moderate to high positive. The ponds will establish two naturalised features in an existing pastoral landscape with significant areas of lowland and wetland vegetation and the option for recreation and access to the Mangaone Stream.

6.45 Opportunities to enhance these benefits further could be investigated in future stages of the project through additional planting and include potential opportunities for further recreation links between the two ponds. This integrated landscape treatment along the western boundary of the project would increase the natural landscape benefits in this area to at least high.

Road Connections

6.46 **Urban landscape** effects of the roading connections relate to changes in the proposed network (with effects of the earthworks required addressed above under Freight Hub works). As noted above, the Freight Hub site and the closure of Railway Rd will require part and total closure of a number of roads such that the remaining properties on:

- Clevely Line will need to use either Stoney Creek Rd or Roberts Line to access Bunnythorpe, Palmerston North or Fielding (rather than Railway Rd);
- The Stoney Creek Rd connection to Bunnythorpe will also apply to all properties on Parrs Rd and Tutaki Rd (the latter having the option to continue along Tutaki Rd to Palmerston North City);
- Te Ngaio Rd east will need to use Maple St or Kairanga Bunnythorpe Rd connections (rather than Railway Rd);
- The businesses along Railway Rd will connect into the cul-de-sac end of Roberts Line east, and along with existing residential properties, use Kelvin Grove to travel to all other destinations.

6.47 Overall, the adverse **urban landscape** effects of these changes to the existing road connections are assessed as low. While there will be changes required in some residence's everyday connections (as described in the Transport Assessment), there are logical alternatives proposed and the underlying grid pattern of the urban landscape is retained.

6.48 The potential adverse **urban landscape** effects associated with the proposed *new perimeter road* relate to its alignment; and the way it cuts across the finer grained grid of local roads. On the other hand, it has a logical alignment to the broader scale patterns set by the NIMT, and the framework set by Roberts Line and the Kairanga Bunnythorpe Rd. It also reinstates the status quo connection into Bunnythorpe, along the remaining section of Railway Rd.

6.49 Mitigation planting proposed over the cut and fill batters of the new perimeter road, will be set within broader areas planting proposed to the edges of the road, alongside Maple St and on either side of the log yard rail line including the naturalised channel. Combined with the proposed mitigation planting to the surrounds of the stormwater ponds, and to the edges of the Freight Hub works, this is likely to create positive urban landscape effects, as a gateway to and from Bunnythorpe. The existing arrival experience along Railway Road is characterised by a closely spaced rail and road corridor, enclosed by weed covered embankments.

6.50 Further, as outlined in the Transport Assessment, the new perimeter road considers the future urban landscape, in that it does not preclude connections to future roading links, such as connections to Kairanga Bunnythorpe Road and / or a southern bypass of Bunnythorpe .

6.51 Further design measures integrated in the concept include a new footpath connection alongside the perimeter road. There are also opportunities for an off-road path linking from Railway Rd to the stormwater ponds with a loop track to the Mangaone Stream to be investigated in the future. These features have further potential positive urban landscape effects, as they provide further options for Bunnythorpe residents in terms of recreation and access to the wider NEIZ, including areas of employment. The potential footpath connection and recreation trail are shown on the Landscape Plan and Illustrative Cross Sections; with the alignment of the trail to be confirmed in the next stages of the project.

6.52 Overall, the proposed perimeter road will have low-moderate positive effects on the **urban landscape**. While it cuts across the finer grid pattern of local roads it has a logical setting to the main arterial routes, and with the broad areas of mitigation planting proposed, provides an uplift in the arrival and departure experience into Bunnythorpe.

Summative natural character, natural and urban landscape effects

6.53 In summary, the effects of the **project overall** (considering the combined impact of the Freight Hub works, Noise Mitigation, Stormwater Ponds and Road Connections) on:

- The mitigation proposed in the Landscape Plan will have moderate positive effects on **natural character** of the tributaries to the Mangaone Stream. While the existing tributaries are highly modified, they currently follow a naturalised path, and the development will culvert a significant length removing future options for natural character restoration. These effects have been mitigated and benefits integrated by the integration of the naturalised channel within the Freight Hub and by the proposed mitigation ponds and include the potential for future ecological gains. These features will provide natural character gains due to their naturalised form, broader scale wetland and River Plain, kahikatea forest dominant, type planting and the potential for recreation paths. Additional planting between the ponds, the Mangaone Stream and the tributary connecting to the naturalised channel, would add further natural character benefits. This would create a continuous naturalised landscape along the majority extent of the proposed perimeter road. These opportunities should be investigated in future stages of the project.
- There will be moderate-high adverse effects on **natural landscape** patterns including natural landforms and vegetation, the characteristics of the area that contribute rural amenity. This is a large-scale industrial development requiring significant earthworks that will level a large area of land for rail and road distribution and operation activities. Factors that have limited these effects include measures to reduce earthwork cut and fill batters heights and slopes so that the development ties into existing contours along with the significant areas of naturalised mitigation planting proposed. This planting will help to integrate the extensive built forms into the surrounding environment.

While some of these effects are anticipated, where there is part zoning for industrial development, there will be further opportunities, at detailed design, to address the balance between natural and urban landscape patterns. This design process should include consideration of the way in which the final building forms can be articulated to manipulate perceptions of scale and fit and quality of finish including the use of a coherent palette of materials for all structures. These measures will further integrate the development within the surrounding natural and urban landscape that has rural and rural-residential character.

- Effects on the **Urban landscape** patterns, including the existing road and rail connections and character of the existing built of the area, will be low-moderate adverse. While the concept design layout provides for the best interface with the scale of surrounding land uses, it is of a very different scale and character to the surrounding rural, rural residential properties and township of Bunnythorpe. These effects have been mitigated, in part, through the relocated alignment of the NIMT, to provide greater separation between the rail activities, Te Araroa Trail and residential homes close to Sangsters Rd. Effects on the character of residential areas have also been reduced by the integration of planted earth bund noise mitigation, where possible, and by extensive mitigation planting proposed with the potential to establish an improved gateway into Bunnythorpe. The effects on local and through transport flows have been minimised and the new perimeter road connection does not preclude connections to future roading links .
- Detailed design will confirm any opportunities to integrate Te Araroa Trail (which will be reformed), including a potential lookout over the Freight Hub Site. There is also the possibility that the reformed Te Araroa Trail can help councils realise part of the rural path Palmerston North to Fielding link. Confirmed details and planting to the edges of the required vertical noise mitigation walls will be important to limit adverse effects and realise possible urban landscape benefits.

Visual Amenity

6.54 The potential for adverse and positive visual effects relates to the following main viewing audiences for the site:

- Passengers travelling along the NIMT
- Motorists travelling along existing roads;
- Users of the existing industrial area;
- Visitors to the Bunnythorpe cemetery;
- Residents and visitors to the Bunnythorpe township;
- Residents who have an open outlook onto the site in the surrounding area; and

- Pedestrians travelling along Te Araroa Trail.

6.55 For the purpose of this NoR assessment, potential visual effects are considered by viewing audience and orientation, to reflect the varying character, and visual amenity, of the landscape surrounding the site. The purpose of this more detailed analysis is to assess the way in which the project will be experienced from the south, north, east, and west and to identify any other design and mitigation measures to be investigated in the future stages.

6.56 The assessment of visual effects has been carried out through desktop analysis and fieldwork to the site and surrounding area. Stitched Context Photographs were taken, relevant to the viewing audience groups (as are included in Appendix 1 to this assessment), to help inform the assessment. Visual effects as experienced from individual properties has not formed part of this assessment process. A number of residential properties were visited during field work and Context Photographs taken to assist in the assessment of representative views relevant to a viewing audience group. Due to the scale of the project and the way in which it will change the character of the local landscape, further desktop and possible site work visibility investigation is recommended in future stages of the project, as discussed in more detail below.

6.57 Similarly, the effects of lighting due to spill and general effects on the night sky are not considered in this report. The Lighting Design Report outlines the lighting standards that must be achieved through detailed design. Any lighting effects will need to be assessed and appropriately managed as part of that process.

Rail passengers

6.58 A representative view of the site and the NIMT rail corridor is shown in Figure 02 in the Context Photographs.

6.59 The NIMT typically services the daily Northern Explorer passenger journey along with freight. Adverse visual amenity effects for passengers on the train will relate to a loss of rural amenity. The existing landscape is relatively open and there are views out towards the Mangaone Stream and of rural activities as the train passes alongside the site (if the train is travelling at 50km/hr, over approximately 3-4 minutes). Any adverse effects will be, in part, mitigated by the Freight Hubs connection with their overall experience -interest in rail activities and, or the expectation that these activities could feature along the journey. A change in the view, over a proportion of the Site, should also be anticipated, given the change in zoning to industrial land. The 'whole site 'master planned approach, used to determine the logical arrangement of the Freight Hub works, will result in a coherent layout that limits visual clutter. The requirements of the NEI Design Guide (to be integrated by KiwiRail across the Site) and proposal for large areas of planting alongside Roberts Line, will also limit adverse visual amenity effects.

6.60 Overall, the adverse **visual amenity** effects for *rail passengers* will be low. The project will be viewed for a short section of the journey and provide visual interest for rail enthusiasts and the master plan and use of the NEI Design Guide principles will ensure there is coherent visual quality and logic to the Site. Large areas of mitigation planting proposed to the north western boundary and perimeter road will also feature in the views from the train near Bunnythorpe, and alongside Roberts Line, which will provide an uplift to the existing visual quality of the area.

Motorists

6.61 The Freight Hub will feature in views from a number of public roads around the Site with the potential for adverse visual amenity effects more likely in close views such as from Roberts Line, Clevely Line, Te Ngaio Rd, Sangsters Rd end of Parrs Rd and the remaining sections of Railway Rd and the proposed new perimeter road. Figures 02, 03 and 06 in the Context Photographs show representative views from public roads in close proximity. There will also be changes to longer distance views resulting from the Freight Hub, where the existing Mangaone landscape forms part of a wider view. For example, along Kairanga Bunnythorpe Rd and Stoney Creek Rd. Figures 03 and 05 in the Context Photographs show representative views from public roads where the project will feature in distant views.

6.62 Views of the Freight Hub from close public roads, such as Roberts Line, will be dynamic, for example, as experienced during a journey around the Site. Given the site's context and the layout of the Freight Hub, the potential for the greatest adverse visual amenity effects is likely to be from locations where the larger components of the masterplan are located in the foreground and there are no existing or proposed mitigation features that would provide screening or a logical context (elements of a similar scale) to integrate the proposal. Close views with the least mitigating factors and, therefore, greatest potential for adverse effects, are likely for motorists travelling south east along **Roberts Line.** Here, the Freight Hub will include 11m high distribution buildings over 800m in length close to the road and the surrounding landscape has much smaller scale rural residential and rural utility buildings. Similarly, along the new perimeter road, the distribution buildings will flank an 800m stretch of the road approximately 60m from the road centreline. Mitigation measures included in the Landscape Plan, include significant areas of planting proposed:

- both sides of the distribution facility rail track and Roberts Line southern entrance to the Freight Hub;
- to the edges of the perimeter road required noise mitigation walls along with fencing details and building articulation to comply with the NEI Design Guide; and
- around the stormwater ponds including larger scaled areas and tree species.

6.63 These measures will help to break up the bulk and scale of the buildings, provide partial screening and a counterpoint to the scale of the built facilities. Further, it is relevant to note that, the larger scaled components of the Freight Hub, as will be experienced in these views, are located mainly in the areas zoned industrial where large-scale built forms and industrial activities are anticipated.

6.64 Overall, the adverse **visual amenity** effects for motorists in close views to the project will be low, at worst and low to moderate; due to the extensive areas of mitigation planting proposed and noting a change in character is anticipated over a proportion of the site as part of the NEIZ. These adverse effects will reduce further over time as the larger (mature height) trees proposed in the mitigation planting grow above 10m and provide partial screening and a counterpoint to the scale of the new buildings.

6.65 In some locations the proposed mitigation planting will improve visual amenity, with positive effects in terms of the views experienced by motorists. For example, at the corner of Roberts Line and Railway Rd, there is currently very low visual amenity, and the project will introduce large areas of planting alongside the southern boundary (that will partly screen the yards and buildings). Similarly, the proposed planting to the west of the new perimeter road from Richardsons Line to Bunnythorpe will, in time, establish a broad area of lowland wetland and forest through to Railway Rd, with visual amenity benefits. Planting in this area will also be important in terms of mitigating for adverse effects on views from Clevely Line west, nearby (and where planting over a wider area of the flood plain would be a further advantage; as included in the Recommendations below).

6.66 Along **Sangsters Rd**, for motorists, the potential for adverse visual amenity effects relates mainly to the height and treatment of the noise walls, where the wall is typically at least 2m in height it will block views beyond it to the Freight Hub Site. The final form and finish of these walls and planting along this structure will be important to mitigate for any adverse effects on views experienced by motorists. Overtime, the mitigation planting, where well maintained, will result in an improved edge condition (currently this edge features gorse and other weeds).

6.67 Along **Te Ngaio Rd,** broad areas of proposed mitigation planting and greater viewing distances to the taller buildings will mitigate for visual amenity effects of the Freight Hub Site. There will, however, be a number of houses retained in close proximity to the perimeter road and a noise wall is required to the boundaries of properties at the end of the cul-de-sac. Here, the potential for adverse visual amenity effects for motorists is able to be mitigated through planting, to screen the noise mitigation wall. The greater visual amenity effect issues in this location relate to the properties; as discussed below.

6.68 In distant views for motorists, the Freight Hub may be able to be viewed in the mid ground of a more extensive scene and, due to the scale of the footprint and its built forms (including colourful containers), it will be noticeable where there are no other impediments to the view. Given the rolling topography

and existing vegetation patterns, some components of the Freight Hub are likely to feature through open view shafts along Stoney Creek Rd, for example, at the corner of Clevely Line (approximately 500m to the Freight Hub boundary). Similarly, from greater distances along Roberts Line, views are likely to be obscured by intervening rows of trees. For example, at the intersection with Kairanga Bunnythorpe, the Freight Hub boundary will be over 1 km away and there are lines of trees in the midground blocking view across the Mangaone Stream. Over time the proposal will provide further large-scale trees beyond the watercourse.

6.69 Overall, the adverse **visual amenity** effects on distant views for motorists will be low, at worst, and from a number of roads in the surrounding environs, negligible due to the screening effects of intervening landform and vegetation.

NEI Zone

6.70 Adverse **visual amenity** effects experienced as a result of the Sites proximity to other areas of the NEIZ (including that still to be developed west of Richardson's Line) will be negligible, as the change in character is to be anticipated, and use of the NEI Design Guide principles will ensure consistency and coherent visual quality.

6.71 In addition, extensive areas of mitigation planting, to be integrated along the Roberts Line boundary of the Designation Extent, will provide some visual amenity benefits; and is likely to compliment future master planned development (for example over the Higgins site along Richardson's Rd).

Bunnythorpe Cemetery Visitors

6.72 Adverse visual amenity effects for visitors will relate mainly to views from the south eastern corner of the cemetery, where there is a break in the existing vegetation. A representative view from this location is shown in Figure 09 of the Context Photographs; accessed off the main lawn through a narrow track. The removal of large trees located on properties required for the proposal, along Te Ngaio Rd, will create a change in the view from this location. Overtime, large scale (mature height) tree species proposed in the mitigation planting, to the edges of the rail yard and tank storage area, may replace these landmarks. From this location, broad areas of proposed mitigation planting will also feature in the view, from the cemetery boundary to the edge of the perimeter road (which will be set down below the level of the cemetery) and, beyond this, further areas of more open planting associated with the naturalised channel. To the south east, the larger scaled buildings of the Freight Hub Site may feature, at a distance of more than 800m; where they are not screened by intervening mitigation planting (and noting trees will take time to grow to heights above 5m and a number of built elements are over 12m in height). However, as the majority of the built structures in the Freight Hub will be set 3 metres below the level of the cemetery, their prominence will be somewhat reduced. Overall, the adverse **visual**

amenity effects for *cemetery visitors* will be very low, and the proposed planting could provide the opportunity to remove the exotic Pampas weeds along the boundary of the cemetery overtime.

6.73 From within the cemetery, near the main grave sites and paths, there will be limited views of the Freight Hub due to the existing vegetation along its south eastern boundary and there will be no adverse visual amenity effects for visitors. A representative view from the main path is shown in Figure 10 of the Context Photographs.

Bunnythorpe township

6.74 Views of the project from the Bunnythorpe township streets will be limited to the immediate environs of the Glaxo building and small substation, alongside Campbell Rd. A representative view from this location is shown in Figure 04 of the Context Photographs. Here, the adverse visual amenity effects relate mainly to the design of the required noise mitigation walls, which will be up to 5m in height along the eastern edge of the NIMT in this location (ending at the eastern end of the substation) and the mitigation planting proposed around this, to the edges of Stoney Creek Rd. The planted earth bund, to the edges of the new perimeter road, may also be visible from this area of the township across the rail lines.

6.75 Overall, the potential adverse **visual amenity** effects will be low from the *township*. The existing views towards the rail corridor and the Freight Hub Site have low visual quality. With appropriate design detailing of the noise mitigation walls and proposed planting, the Freight Hub could have a low positive visual amenity effect on the township.

Pedestrians travelling along Te Araroa Trail

6.76 Views of the Freight Hub will be experienced along Campbell Rd and both the formed and unformed sections of Sangsters Rd (noting that the current access is via a style off Stoney Creek Rd to the west of Nathan Place). As there is a requirement for a noise mitigation wall to the east of the NIMT from Stoney Creek Rd to Roberts and beyond, adverse visual amenity effects will relate primarily to the relative height of the wall, its final form and finish and the proposed mitigation planting; that will soften and screen this structure over time.

6.77 The relocation of the NIMT line will help reduce visual effects along Te Araroa Trail, as the noise mitigation wall can be located on top of the existing embankment and, providing this can be rehabilitated with growing media, the area between the wall and the Sangsters Rd reserve planted. The extended fill batter in one location (at 363 Tutaki Rd and its surrounds) also offers the opportunity to lift Te Araroa Trail up onto the existing embankment, so that some views of the Mangaone landscape are retained. The details of this lookout feature are to be confirmed in the next stages of the project, for

example where the noise mitigation wall can be stepped back and overlapped to provide a 'window' through to the west. In summary, there will be some adverse **visual amenity** effects for users of Te Araroa Trail where existing views of the rural landscape are blocked, and the wall becomes a dominant feature to the edge of the journey. However, with the mitigation planting proposed, the adverse effects can be appropriately managed to low to moderate, and over time there will be some visual amenity advantages in having the edges of Te Araroa Trail planted rather than being weed infested.

Residents

6.78 Properties with unobstructed, open, views in close proximity to the Site are most likely to experience adverse visual amenity effects. These properties surround the site and are located along:

- Roberts Line;
- Clevely Line west;
- Te Ngaio Rd;
- Maple St;
- Clevely Line east;
- Sangsters Rd;
- Parrs Rd; and
- Tutaki Rd

6.79 **Roberts Line** properties include two subsets; those east of Railway Rd with residents that will now be living along a cul-de-sac and the properties retained to the west up to Mangaone Stream (approximately 500m from the proposed distribution facilities).

6.80 **Visual effects** for the *Roberts Line east* group will be negligible, as they do not have an open outlook onto the Site. There are a number of mature shelter belts planted facing the site that will obscure any views of it. Representative views from Roberts Line east properties are shown in the Context Photographs Figure 13 and 14.

6.81 Visual effects for *Roberts Line west* properties relate to their proximity to the distribution facilities that extend over 800m and will be 11m and 14m in height. While land use is likely to change in this area, due to the NEI Zone[17], there are a number of houses along the southern edge of Roberts Line that will be located less than 200m from the warehouses with an open outlook towards the site. In these locations,

[17] As shown in the PN District Plan map, this zone extends through to No#771 Roberts Line

there is the potential for high adverse visual amenity effects. For example, the home at No#765 Roberts Line (inside the NZEI Zone) is located approximately 50m from the site boundary.

6.82 Mitigating factors integrated into design, as shown in the Landscape Plan, include proposed planting to the boundary edges including larger (mature height) tree species which will provide screening and a counterpoint or balance to the larger scale buildings. Similarly, mitigation planting integrated around the stormwater ponds will help reduce these effects further, where this area features in their outlook. Building form and finish is also to be consistent with the principles of the NEI Design Guide and this will, also, ensure a coherent level of visual quality across the site. However, the proposed mitigation planting will take time to establish, for example it will be 5-10 years before tree species planted at 2-3m would reach heights above 10m. Where warranted, and recommended by further desktop and field investigation, faster screening could be provided from within the property boundary where this is confirmed as being required through further technical assessment and agreed by KiwiRail. Using standard sightline conventions, lower trees, or hedge type planting, located in closer proximity to the viewer, will provide screening in a shorter time frame.

6.83 Following the assessment findings above, it is recommended that residential properties located alongside Roberts Line, from Richardson's Line to 873 Roberts Line, be considered for future stage technical assessment in terms of possible additional planting.

6.84 Early establishment of the mitigation planting, as shown on the Landscape Plan, is also recommended, prior to the construction of the Freight Hub buildings, and this will also have an impact on whether or not any additional planting may be required to mitigate the effects for the residential properties along Roberts Line. For example, where the mitigation planting is in place 2-3 years prior to any buildings, their screening effects will be enhanced, and this may negate the need for additional planting in other areas.

6.85 Along **Clevely Line** west, there is the potential for high adverse **visual amenity** effects to be experienced from the residential home to be retained at No#163. This property has an open outlook towards the Freight Hub. Mitigation planting proposed to the edges of the new perimeter road and the distribution facility will reduce effects here. However, given the open outlook and the scale of the buildings located within 200m from the home, further investigation of additional planting mitigation is recommended. Planting over a broader area of the flood plain, as discussed above and included in the assessment Recommendations, would also bring areas of planting closer to the viewer (and therefore have a greater screening effect).

6.86 Properties along **Te Ngaio Rd,** east of Maple St, will have an open outlook towards the Site from an elevated location approximately 3m above the perimeter road cut face where there is a requirement for

a noise mitigation concrete wall or earth bund of 3m. Context photographs show representative views in this area, Figure 20 (a property within the Designation Extent).

6.87 The closest structures within the Freight Hub will be the storage tanks at a distance of approximately 400m from the houses, with a height of 6m, and the distribution warehouses, located approximately 770m away from the end of Te Ngaio Road. Where the noise mitigation wall or planted bund (which would need to have a steep batter slope above the cut face to fit within the designation area) is located in close proximity to the houses to be retained, this will also have an impact of **visual amenity** with the potential for high adverse effects. A planted bund option may provide for a better fit in terms of landscape character and, likewise, faster screening of built forms within the Designation Extent.

6.88 In summary, the recommendation is, that all properties east of Maple St, along Te Ngaio Rd, are investigated further in the next stages of the project, once more is known about detailed design, to determine the best option for the noise mitigation design and associated mitigation planting (while ensuring a coherent approach to the use of noise mitigation walls and earth bunds around the Site).

6.89 The potential for adverse visual amenity effects along **Maple St** will be similar to that of the Bunnythorpe cemetery, where there is existing screening to the eastern boundary such as at No#1A, 3 and , where there is a tall exotic hedge that will block views of the Freight Hub. All other properties have a relatively open view out towards the Site, although at No#9 and No#11 Maple St there are split sections, and the homes located along the street edge are unlikely to be able to view the Freight Hub. A representative view from No#9a Maple St is shown in the Context Photographs Figures 7+8. Similarly, houses to the other side of the street are unlikely to view the Freight Hub other than at No#12, through a narrow view and open lot opposite, where the noise mitigation bund proposed and planting would be the only visible features of the project.

6.90 Properties with the greatest potential to experience moderate to high adverse **visual amenity** effects resulting from the Freight Hub are located at No#9a and No#11a, where there are 2 storey homes, and other single storey properties with an open outlook located in close proximity to the Designation Extent. The requirement to provide for a 3m high planted bund as noise mitigation (located approximately 50m out from the residential property boundary), while visually pleasant, will block existing views out towards the NIMT which contribute to resident's amenity. Views from the second storey of No#9a and No#11a will not be impacted by the bund and most components of the Freight Hub will be visible, although at a distance. For example, the maintenance facility (16m in height) is located approximately 650m from the boundary of No#9a and will be viewed through extensive areas of proposed mitigation planting. Over time this is likely to screen much of this building (and noting it will be located approximately 5m below the Maple St property). The proposed lower River Terrace Planting with groupings of larger (mature height) trees integrated in the Landscape Plan will retain views of the

general rail activity from the second storey of these homes, including of the NIMT. The larger buildings of the Freight Hub and the marshalling yards will feature in these views and, while these will be noticeable and result in a marked change in landscape character, the adverse effects are likely to be appropriately mitigated. The distribution facilities, including 14m and 11m high warehouses and the container terminal stacks of 12m, will be viewed at a distance of at least 650m, and at an oblique angle. Significant areas of intervening mitigation planting will provide screening of the marshalling yards ballast, partial screening of the larger scale buildings and elements of a similar scale, as a counterpoint to the built forms.

6.91 While the layout of Freight Hub works and the proposed mitigation planting reduces the potential for adverse visual amenity effects, the design of the noise mitigation features will need to be worked through in the next stages of the design. This investigation will be required to ensure there is a consistent approach along Maple St edge of the designation extent, and that this has a good fit with the character of the landscape, whilst minimising adverse effects on visual amenity. For example, while the Landscape Plan currently shows the bund planted, it could be retained in pasture, which would reduce its perceived height.

6.92 In summary, it is recommended that a whole street design approach for noise mitigation is confirmed during the next stage of the project, which provides for reduced adverse visual amenity effects and avoids a piecemeal, inconsistent approach.

6.93 The potential adverse effects for **Clevely Line east**, **Sangsters Rd**, Parrs Rd and **Tutaki Rd** road properties can be addressed collectively as they have a similar aspect towards the Freight Hub. Figures 11 +12 in the Context Photographs show representative views from 363 Tutaki Road towards the Site. Potential adverse visual amenity effects will vary markedly for properties in this area depending on proximity of the homes to the Designation Extent, topography, and vegetation. In logical subsets these include:

- The Farmgear and Firewood commercial activities at No#422 and 422a Railway Rd and No#91 Sangsters Rd where the homes are located at a similar level to the Freight Hub. Views of the project marshalling yard and lower parts of the container terminal stacks, and distribution buildings will, however, be partly screened by the required noise mitigation walls – with the top of the wall set at 55RL. Mitigation planting proposed to the edges of the wall, including larger (mature height) tree species, will also screen a greater extent of the buildings over time such that adverse **visual amenity** effects will be low-moderate and reduced over time (and noting that the effects of lighting on visual amenity are not assessed at this stage);
- Properties set below 50RL will have further project elements screened by virtue of topography. For example, at No#73 Sangsters Rd the house site is located at approximately 47RL, such that the top of

the noise mitigation wall will provide approximately 8m of vertical screening in views (and noting that the top of the existing rail embankment is at 53.62m i.e. views in the immediate foreground feature the rail embankment).

- In contrast, properties at the end of Nathan Place, that have an elevated location, at or near 55RL may have relatively unimpeded views out over the Freight Hub Site if their curtilages are not planted with larger trees and shrubs. Proposed planting of larger tree species alongside the noise mitigation wall would provide further screening overtime in this instance however, as this vegetation will be at a reduced elevation compared to the residences, this will take some time to have an impact and in the short to medium term moderate and moderate to high adverse **visual amenity** effects could result. Further investigation of visibility and adverse visual amenity effects is recommended in future stages of the project, and;
- Property owners with more distant residences, such as at No#363 Tutaki Rd may value existing views from their paddocks, close to the NIMT i.e. adverse visual amenity effects will not always be discounted by screening around the immediate curtilage of the homes. Proposed planting to the edges of the noise mitigation wall will however reduce any adverse **visual amenity** effects here to low (and noting currently these views feature a weed lined rail embankment).

6.94 In summary, there may be a number of properties east of Sangsters Line where further technical investigation is warranted to determine whether additional mitigation planting is required to manage visual amenity effects. These properties will be elevated with open views over the Freight Hub where the homes are in close proximity to the NIMT. Overtime, the proposed mitigation planting will provide some visual amenity benefits for residents, who currently look out on a weed lined rail corridor.

6.95 In summary, the proposal integrates design measures that has limited the potential for adverse **visual amenity** effects for most viewing audiences and it provides opportunities for positive visual amenity effects through the use of significant areas of mitigation planting.

6.96 However, the Freight Hub has the potential to have high adverse visual amenity effects for some properties, due to the scale of the development and changes in topography and vegetation patterns along the edges of the proposed Designation Extent. In the next stages, it is recommended that further visibility mapping is used to identify properties where further site investigation is warranted, and whether additional mitigation planting may be required to manage these effects. The residential properties recommended for further investigation are located:

- Between Richardson's Line to 873 Roberts Line;
- No#163 Clevely Line West;
- Te Ngaio Rd properties east of Maple St; and

- Residential properties directly alongside the NIMT that have an open and or elevated view towards the Site.

6.97 Additional mitigation planting could be recommended following this investigation including further desktop and field work and review of the construction staging programme (when areas of the Landscape Plan can be established prior to buildings). Construction

6.98 Construction of the Freight Hub will occur over a period of 20 years or more and include large scale earthworks, roading, track and building construction along with the installation of overhead lines and lighting columns. Details on the construction programme and timing will be developed as detailed design progresses, however there may be opportunities to establish significant areas of mitigation planting along with the noise and stormwater ponds prior to the development of the Freight Hub.

6.99 Where this is early establishment occurs and the programme for construction is likely to span 20 years, the effects will be reduced.

6.100 Overall, and assuming mitigation planting can occur early, the adverse effects of construction for landscape and visual amenity are likely to range from high to moderate to high. This is a large-scale development project over 177.7ha with significant earthworks and tall built forms. Early mitigation planting, along the edges of Sangsters Rd and the new perimeter road will reduce these effects, where planted areas are able to be established 2+ years in advance of the bulk earthworks across the Freight Hub Site.

7.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions on effects and mitigation

7.1 The proposal has the potential to create positive and adverse effects relating to natural character, the natural and urban landscape patterns, and visual amenity.

7.2 Moderate positive effects on **natural character** will result from the naturalised channel and mitigation ponds where these combine extensive mitigation planting and varied shape and profile.

7.3 There will be moderate-high adverse effects on the **natural landscape**. This is a large-scale industrial development requiring significant earthworks that will modify and level a large area of land for rail and road distribution and operation activities. These effects have been moderated by the proposed RL for the Hub works. This has been set at 50RL, which limits cut and fill heights to the perimeter, and by the extensive naturalised mitigation planting proposed.

7.4 There will be low-moderate adverse effects on the **urban landscape**. While the preferred layout provides for the best interface with the scale of surrounding land uses it is of a very different scale and character to the surrounding rural, rural residential properties and township of Bunnythorpe. These effects have been reduced by the proposed layout and coherent masterplan approach used to confirm the arrangement of the Freight Hub and significant areas of mitigation planting.

7.5 The effects on **visual amenity** will be varied. For most user groups the adverse effects are less than **moderate** on a 7- point scale, given time for plant establishment. For some residents there is the potential for high adverse effects and a need to identify whether or not additional mitigation planting is recommended.

7.6 The extensive areas of mitigation planting proposed will have positive visual amenity effects along the perimeter road and to properties with an outlook over the mitigation ponds and river terrace above the perimeter road. In the long term, the visual amenity of the Sangsters Rd edge will also be improved.

7.7 Overall, the Freight Hub will have positive effects on natural character and provide some urban landscape and visual amenity benefits. These benefits can be enhanced by future design and mitigation measures as set out below in the Recommendations.

Further Recommendations

7.8 As outlined above, there will be some residual adverse effects on the natural landscape, urban landscape and visual amenity that are more than moderate in relation to noise mitigation walls, Freight Hub buildings and roading changes and for some viewing audiences. This is to be expected for a project of this scale and KiwiRail should look for opportunities to further mitigate these effects where practicable. Where effects are identified as being more than moderate, the following matters should be considered as the project progresses:

a. Any additional planting, beyond that already provided for in the Landscape Plan, which may further mitigate for the adverse effects on natural landscape, such as in areas between the two stormwater ponds and the naturalised channel outfall alongside the Mangaone Stream. This additional planting would further enhance the natural character of the Mangaone Stream surrounds and, for nearby residents, help to further mitigate adverse visual amenity effects.

b. A detailed design, prepared in accordance with the NEI Design Guide principles (as I understand KiwiRail intends to do), will ensure a design that minimises perceptions of bulk and scale of the buildings, with a finish using materials and colours that best integrate the development within the surrounding rural and rural-residential landscape. Similarly, design of noise mitigation structures should consider the location, final form, finish, and planting alongside Sangsters Road and Maple Street, and, where these have an

interface with Bunnythorpe, the opportunity to enhance the visual amenity of the Ashhurst gateway. These measures will further help to mitigate adverse effects on the urban landscape.

c. Roading design will need to consider integration with the surrounding character of the rural residential properties and township. Design matters to consider will include required carriageway widths, requirements for curb and channel, intersection type options, lighting, and associated planting to improve the quality of the urban environment and align with the broader patterns of mitigation planting proposed.

d. Design opportunities to integrate a rural cycle path into the reconfiguration of Te Araroa Trail should also be considered in consultation with PNCC, along with a possible lookout over the Freight Hub Site. This would enhance the urban landscape. Alternatively, this rural cycle path could be accommodated along the perimeter road footpath or off-road trails proposed to access the stormwater ponds.

e. Any additional planting, beyond that shown on the Landscape Plan, which may be necessary to mitigate for visual amenity effects for specific residential properties, as investigated and identified by further desktop and field assessment. Recommendations for any additional planting to address visual amenity effects would be reduced by early implementation of proposed mitigation planting. This would ensure earth worked areas are replanted and achieve good coverage as quickly as possible and larger shrubs and trees are established prior to the main buildings being constructed.

f. To further manage visual amenity effects, lighting design should consider opportunities for a 'zoned' approach to fit particular uses across the site. Visual clutter should be limited by balancing a reduced number of lighting poles with maintaining lower tower type lighting to minimise light spill.