Waste to Energy Plant

401 Racecourse, Te Awamutu

Landscape and Visual Assessment Report

mansergh graham
LANDSCAPE ARCHITECTS

This Landscape and Visual Assessment Report has been prepared
in support of an application by Global Contracting Solutions Ltd
to construct and operate a Waste to Energy Plant
at 401 Racecourse Rd, Te Awamutu.

All work has been undertaken and/or reviewed
by a Registered NZILA Landscape Architect.

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Report Version: R2

Date: August 2023

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INTRODUCTION

Mansergh Graham Landscape Architects Ltd (MGLA) has been engaged by Global Contracting Solutions Ltd to assess the effects of the proposed *Paewira Waste to Energy Plant* (WtE) on existing landscape character and amenity of the surrounding.

The following assessment examines the potential effects of the depot on the existing landscape and visual amenity values of the surrounding rural environment, within the context of relevant planning provisions.

Three main aspects are evaluated within this report. They are:

a. The existing landscape character of the site and its place in the local and regional context.
b. The potential landscape and visual effects of the proposed development from typical viewer locations.
c. An overview of the effects of the proposed development on landscape and natural character values.

METHODOLOGY

A standard assessment approach has been used to identify the existing landscape character of the site and its surroundings and to assess the potential effect of the proposed development on landscape and visual amenity.

In broad terms, the assessment consists of the:

a. Identification of the key elements or attributes of the proposed development.
b. Identification of the landscape values, natural character, key attributes, and social preferences within the context of biophysical, associative, and visual landscape interpretation; and
c. Identification of relevant assessment criteria within the context of the relevant statutory framework.

A combination of mapping analysis and field assessment has been undertaken to identify the potential effect of the proposed development on the existing character and amenity values from surrounding areas. By considering the above, the likely effects of the proposal can be identified and rated, allowing a mitigation strategy to be developed.

The approach undertaken is consistent with the *Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines (July2022)*[1]. Definitions of the rating systems used, and a methodological flow chart is contained in the appendices.

PROJECT DESCRIPTION

This section of the report identifies the location of the site and describes the proposed activity.

Site Location and Project Description

The application site is located at 401 Racecourse Road, Te Awamutu which is predominantly captured by the industrial zone but also contains a small area of residential zoning at it eastern most extent. The site is irregular in shape, broadly triangular with the apex of the triangle pointing north. The buildings within the proposed development are generally clustered around the central part of the site, set within a grid layout parallel to the more regular northwestern boundary. The site general layout is shown in the following figure:

[1] The Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines were adopted by the Tuia pito Ora NZILA in July 2022.

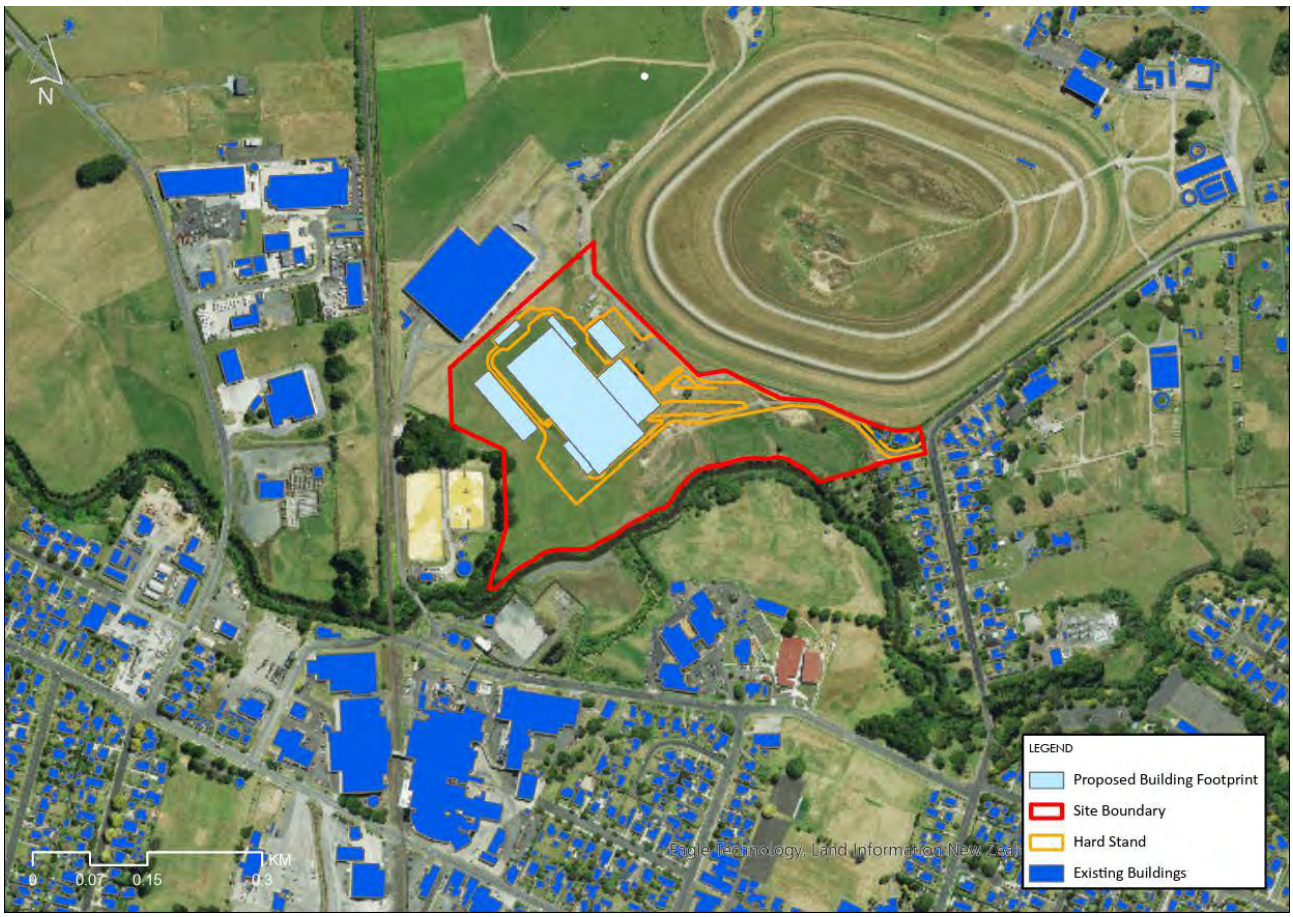


Figure 1: Site Location Map.

Proposed Development

The proposed development will comprise three main buildings and one smaller building configured in a grid layout located toward the northeastern boundary. The development will sit across a series of terraces which step down from the north and east of the site toward the Mangapiko Stream which forms the sites southernmost boundary.

The following buildings are proposed.

- Building 1 (height 12m, area 1241m^2) is located on the northeastern side of the site and contains the *Visitor Centre, Cafeteria and Museum*.
- Building 2 is a large composite building containing; the *Furnace and Boiler System* (height 35m, area 7124 m^2) and emission stacks (height 38m), the *Waste and Recycling Plant* (height 23m, area 5826 m^2), the *Tipping and Vehicle Manoeuvring Area* (height 11m, area 5130 m^2), and two bunkers (height 9m, area 1025m^2).
- Building 3 is the *Power Generator Building* located on the southwestern side of the site (height 21m, area 2624 m^2).
- Building 4 is a small standalone bunker (approx. 10m x 40m) located on the northwestern side of the site (height 9m, area 381m^2).

The site is located within a flood hazard area where all buildings are required to achive sufficient freeboard above the modelled 100-year flood level. This results in minimum finished floor levels ranging between RL43.9m and RL 44.6m. *(Floodplain Assessment; Paewiri Recycling, Te Awamutu Golovin Report November 2021).* The minimum proposed floor levels range from RL 45.0m to RL 50.0m and satisfy the relevant flood hazard requirements.

The development will be accessed from Racecourse Road with a two-way roading system that links to a car and bus parking area that services the *Visitor Centre Building* on the northeastern side of the development. (An access road from the bus parking area connects through to the Rosehill Property). A heavy vehicle

route, also accessed from Racecourse Road, diverges from the public route to pass over a weigh bridge which provides access to the enclosed *Tipping and Vehicle Manoeuvring Area*. A second heavy vehicle route, which diverges from the first and ramps down to the lower level of the development before passing over a weigh bridge, provides entrance to the underground bunker located within the *Waste and Recycling Plant.* This route also links with the one-way circuit around the development and various passing bays and parking areas. This route then passes through a tunnel section under the *Tipping and Vehicle Manoeuvring Area* before rejoining the lower-level two-way system and weigh bridge on the southeastern side of the building.

The facility is proposed to be open to receive waste between 7:00 am to 5:00 pm Monday to Saturday, and 8:00 am to 6:00pm Sundays and public holidays. While light vehicle movements are permitted at all hours, heavy vehicle movements are not permitted at night. The access routes and buildings within the development will include functional lighting for security and safety. As part of the development an appropriate lighting design will be developed with a *dark sky* approach ensuring potential light spill avoided or minimised through directional lighting, shrouding and motion activation where practical.

Acoustic barriers are proposed within the development. Those potentially visible from outside the site are located along the northeastern boundary shared with the Racecourse, screening the extent of the built structures and along the access road. At the entrance from Racecourse Rd, with screens on both the northern and southern boundaries of the entrance. These screens may vary in height relative to the adjacent activity level but do not exceed 2.5m on the northern and northeastern boundary and 3.5m on the entrance southern boundary The acoustic screens are to be integrated into the proposed amenity planting at the entrance and along the northeastern boundary.

The site is proposed to be landscaped with an amenity planting scheme around the buildings and along the road network, while an indigenous riparian planting strategy, will be implemented on the low-lying land adjacent to the Mangapiko Stream (Architectural Plans are contained in Appendix 5 and Mitigation Landscape Concept Plans in Appendix 6). A cycleway link connection is proposed along the periphery of the northwestern and western boundary of the site, which then runs parallel with the stream before crossing to connect with the cycleway on the southern bank. A cycleway link is also proposed at the northern apex of the site to provide access to the *Visitors Centre*, *Café* and *Museum*. The final details of the cycle link will be subject to further refinement based on detailed design.

Stack Height Discussion

The development includes emission stacks; however, the emissions do not typically produce a visual plume. (It is noted that ephemeral plumes may occur under limited atmospheric conditions with respect to ambient temperature and humidity). For the assessment of this development, stack heights on the *Furnace and Boiler System* component have been evaluated at 38m (RL), being 3ms above the 35m (RL) ridgeline of the development.

Modelling of alternate stack heights has been undertaken at 45m (RL), 50m (RL) and 60m (RL). (Images are included for information in Appendix 7). It considered that additional stack height would increase the potential adverse visual effects of the development. This because the stacks are located on the highest part of the development and consequently, greater height directly increases the visible presence of the development over a wider area. With increased heights comes an increased likelihood of intrusion by the stacks into views of significant landforms beyond. Additionally, as the four stacks are aligned atop the northwestern elevation of Building 2, from more perpendicular orientations, (NW and SE) the combined effect creates a greater extent of visual intrusion into the view than might otherwise be expected. This effect can be clearly seen within the images contained in appendix 7. Overall, with respect to the stacks based on their existing location within the development, from a visual landscape and amenity effects perspectives, the lower the height and the less the effect.

Mitigation

The assessment of effects in this report have taken into consideration the following mitigation design (shown in the Mitigation Planting Plan (Appendix 5) and recessive colour scheme.

Colour Scheme

i. While the scale of the structures is determined by the engineering requirement of the development, a recessive colour scheme has been developed to reduce the visual bulk and prominence of the building. Using predominantly recessive colours, the apparent scale of the building is reduced through the application of horizontal colour blocks which create visual layering within the broader elevations, while the upper elevations are proposed to be patterned to create more interest on the facade themselves.

ii. In addition to the recessive colours proposed for the elevations, the roofs are proposed to be a dark recessive colour to assist with grounding the building into the landscape.

Mitigation Planting

Two types of landscape mitigation planting are proposed within the wider site to complement the development amenity planting and rehabilitation planting.

iii. Amenity planting is proposed at the Racecourse Rd entrance to the development, immediately around the buildings and along the shared boundary with the Racecourse. The amenity planting includes areas of specimen trees, ornamental shrubs, grasses, and lawn areas. Specifically, it is proposed to include a 2m high clipped hedge along the northeastern boundary to provide low screening of the development from the Racecourse and reduce the visibility of vehicle movements. Additionally, a selection of columnar specimen trees shall be planted on the northern elevation of the development, where space permits, to assist with screening. While the amenity planting incorporates indigenous species, it will also utilise exotic species to create the desired amenity appearance.

iv. For the balance of the site, rehabilitation planting is proposed through the introduction of indigenous riparian and wetland planting into the site and the Mangapiko Stream edge. This planting is intended to enhance the ecological condition of the site replacing the areas of pasture with appropriate riparian and wetland planting. This rehabilitation planting will include taller tree species which, once established, will assist with the screening of the site from locations to the south, southeast and east.

The amenity and mitigation planting plan concept prepared for this development indicates the general intent of the scheme and would be subject to further refinement based on detailed design and resolution of the final earthworks and hydrology design.

Overall, the combination of the recessive colour scheme and screening planting will reduce the visual prominence of the development generally, with particular consideration given to visibility from eastern and southern view locations. From these orientations the combination of low-level screening, afforded by hedging along the site boundary and/or intermediate height rehabilitation planting, with taller specimen trees in and around the building and in the broader areas of rehabilitation will, once established, partially screen the development, and further decrease its prominence where viewed.

EXISTING LANDSCAPE CONTEXT AND VALUES

Landscape (and urban) character is a function of the landscape's visual expression. This includes elements that contribute to its appearance and the cultural modifications which have occurred upon it.

The landscape and visual quality of the site is a function of a series of factors including intactness of visual and physical elements such as topography and vegetation cover, the degree of modification that has occurred, surrounding landscape elements and attributes. Further contributing factors include juxtaposition and coherence between landscape elements within the subject site and those of the surrounding area, as well as human attributes or values assigned to an area.

Current professional practice conceptualises landscape in terms of the following overlapping dimensions:

- Physical (the physical environment – its collective natural and built components and processes).
- Perceptual (how we perceive and experience places); and
- Associative (the meanings and values we associate with places).

This section of the report identifies the existing landscape, natural character and amenity values of the site and its surroundings, identified by this study and provides a precis of the findings of relevant landscape studies.

THE APPLICATION SITE

The following section of this report describes the existing landscape and identifies its associated values in terms of the above model of the landscape. This approach is consistent with the current best practice approach and the recommendations contained within the *Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines.*

THE SURROUNDING LANDSCAPE CONTEXT

Landscape Context

The relationship between the major geographical features contained within this landscape, and the human modifications that have occurred upon them, are important factors to consider when assessing how the proposed development will influence existing landscape character and visual amenity values of the surrounding area.

The extent of the landscape assessed in this document (the study area) is limited to that potentially affected by the proposed development and is indicated in the figure below. Features outside of this part of the landscape that are contextually relevant and contribute to the character of the study area (such as Mount Pirongia and Mount Kakepuku) are also identified.

The site is located on the northwestern edge of the Te Awamutu township within Waipa District. While located within the industrial edge of the town, the wider land use of the area is agrarian and the formative processes that created the underlying landform are still apparent, influencing the characteristics of the site and surrounding landscape. Within the wider Waikato Basin, contained by the Hakarimata and Kapamahunga Ranges to the northwest, the topography of the surrounding landscape is characterised by a mix of flat plains, shallow basins, and gently rolling ridges punctuated by the Alexandra volcanics of Te Kawa, Kakepuku, Pirongia and Karioi.

Formative processes have been influenced by the fluvial deposition associated with the Waikato and Waipa Rivers and their tributaries including the Mangapiko Stream. While the Waikato and Waipa Rivers are major geographic features of the wider area, the incised Mangapiko Stream forms the boundary of the site. Although other tributaries/gully systems and remnants of the past river channels and terracing are evident in the surrounding landscape, many of the smaller and more subtle landforms and features associated with

overland flow patterns have either been channelized or lost to development or productive land management practices.

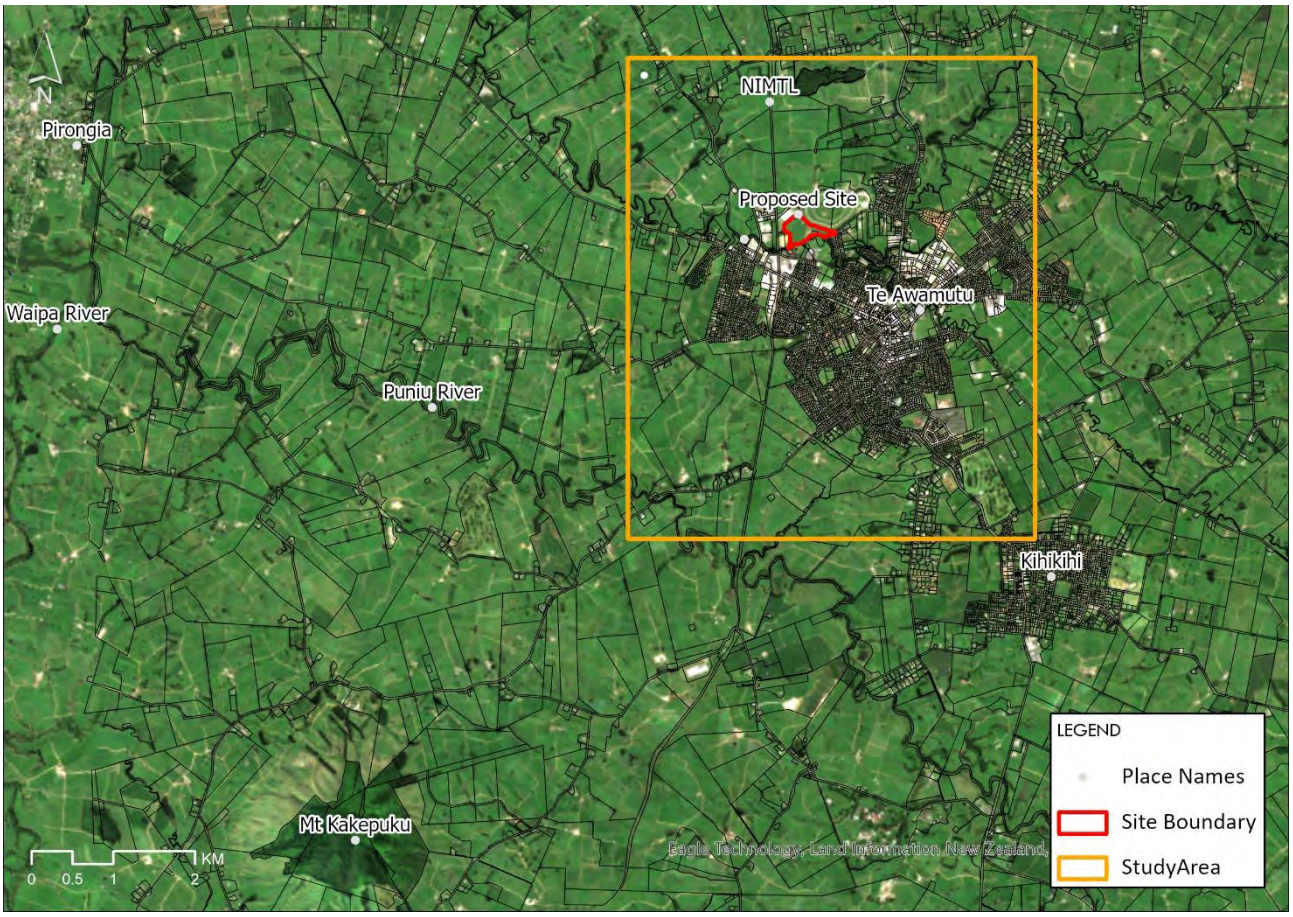


Figure 5: Study Area and Context Map

The volcanic cones of Pirongia and Kakepuku provide an important backdrop to views from eastern and northern locations, acting as focal attractions within the surrounding landscape. Other elements that enhance landscape quality include the open spatial characteristics of surrounding rural land, farm house curtilage, specimen trees, hedgerows and shelter row planting and the naturalistic appearance of the vegetation associated with the existing stream systems, located to the south of the site.

Existing Landscape Character and Values

The key landscape and visual attributes that contribute to existing natural landscape character and visual amenity within the wider landscape include:

a. Kapamahunga and Hakarimata Ranges (to the west and north of the site);
b. The volcanic cones of Te Kawa, Kakepuku and Pirongia to the west of the site
c. The Waipa, Puniu and Waikato Rivers, associated tributaries and oxbow lakes/wetlands;
d. Flat to gently rolling broader rural landscape resulting in a mosaic of pastoral farmland and crops, intermittently compartmentalised by shelter belt planting and mature trees;
e. The Mangapiko stream and other incised streams and gully systems, some with contiguous bush cover.

As the site is located within the industrial zone of Te Awamutu, the surroundings are also informed by consequential landcover development, with industrial development to west and south of the site, educational facilities and associated open space to the south, residential development to the east and the Waipa Racecourse to the north, interwoven with the network of transport corridors that service the town.

Key landscape and visual attributes that contribute to existing landscape character and visual amenity within the landscape surrounding the application site include:

a. Transportation corridors including the North Island Main Trunk Railway (NIMTR), and State Highway 3.
b. The existing development located within the Industrial Zone includes; Fonterra Te Awamutu, Taupuni Whakaora Wai Para Waste Water Treatment Plant, The Te Awamutu Waste Water Project, Vehicle Inspection NZ, Osborne Transport, Alpha Scaffolding, Harty Mechanical Ltd Higgins Depot, Rawson Plumbing, Bowers Concrete, Balance Agri-Nutrients, Manuka Heath NZ, Waipa Networks, Waipa Towing;
c. Educational Facilities including Te Wananga o Aotearoa, Te Kohanga Reo, Te Wharekura , and Te Awamutu College;
d. The Waipa Racing Club, track and course facilities;
e. The meandering incised Mangapiko Stream and riparian vegetation.
f. The Ellen Montefiore Reserve.
g. Residential development within Te Awamutu to the south and east of the site.

The convergence of these different land uses influences the character values of the study area, particularly when experienced sequentially when travelling through the area. This is common in peri-urban areas where a range of commercial, industrial, and residential activities are found in relative proximity to one another.

Outstanding Natural Features and Significant Natural Features.

Within the broader landscape context for this assessment, two landscape features have been referenced which are identified as either an *outstanding natural feature* (*N9.1 Outstanding Natural Features and Landscapes*) or a *significant landscape feature (N9.3 Significant Landscape Features at a District Level)* within the Waipa District Plan (WDP). They are;

i. *Pirongia*, identified as an *Outstanding Natural Feature and Landscape* within the WDP. This mountain has a distinctive volcanic shape comprised of a number of peaks with visible rock outcrops. Indigenous forest clothes the upper slopes with fingers of bush running down the gullies on the lower slopes, while the mid slopes include clumps of trees and pasture while the lower slopes include farm buildings, houses, hedgerows, and pasture.

'The aesthetic quality of this landscape feature is high because of its memorability, the fact that its shape demonstrates the formative processes that created it, and its visual distinction and eminence.'

ii. *Mount Kakepuku* is identified as a *Significant Landscape Feature at a District Level*. A small volcanic cone... *positioned on flat land between the Waipa and Puniu Rivers… it rises straight out of that flat country to a height of 449m. Its lower flanks are in pasture with a cap of regenerating bush. It is a highly distinctive feature in the locality, particularly because of its contrast with the surrounding flat land.*

Both *Pirongia* and *Mount Kakepuku Landscape features* are identified as being of particular cultural significance within the WDP (*Section N9.6 Cultural Landscapes*).

The effect of the proposed *Paewira Waste to Energy Plant* on these features has been assessed against these landscape features, using analysis of aerial photography, and other relevant background information. While the landscape features do appear within the distant background of some views of the site from some orientations, the distance of the site to the features themselves is 9 kilometres for *Mount Kakepuku* and 17 kilometres to *Pirongia* respectively. As the proposed development is wholly contained within the existing extent of *Te Awamutu* and does not significantly alter the configuration of the town, it is considered that the development will have no detectable landscape effect on the key attributes of these features.

Natural Character of the Mangapiko Stream

Resource Management Act section 6(a), *the preservation of the natural character of… rivers and their margins, and the protection of them from inappropriate subdivision, use and development…* is considered a matter of national importance.

The northern margin of Mangapiko Stream forms approximately 80% of the southern boundary of the site. The balance of the southern boundary diverges from the stream alignment to form a more regular cadastral boundary perpendicular with Racecourse Road.

While previously much of the length of the Mangapiko Stream had become degraded as a result of intensive farming, in recent years the Mangapiko stream margins have been the subject of restoration planting work which has greatly improved the ecological and water quality of the steam and its margins creating a narrow and valuable ecological corridor of moderate natural character.

The northern margin of the Mangapiko Stream, where it intersects with the subject site however, exhibits lower quality with remnant indigenous species in competition with exotic species and areas of bank instability. As such the existing natural character of the Mangapiko Stream along the site boundary is considered ***low-moderate.***

In order to enhance the existing stream character of this area, and as part of the overall mitigation strategy of the site, it is proposed to undertake restoration planting of indigenous riparian species both along the stream margins and within the lower terrace of the site. This is proposed to provide both overall enhancement of the stream margin, contribute to the overall ecological values of the site and assist with visual mitigation of the development.

Application Site and Immediate Surroundings

The application site is located at 401 Racecourse Rd, approximately 1.5km northwest of Te Awamutu town centre. The subject site (PT Lot 7 DP 20887) sits within the industrial zone and is broadly triangular in shape but also contains a small area of residential zoning at it eastern most extent. The sites southern boundary follows the meandering Mangapiko Stream with the educational facilities of *Te Wananga o Aotearoa*, *Te Kohanga Reo*, *Te Wharekura*, and *Te Awamutu College* sports fields lying adjacent to the stream to the south. Further to the south lie the Fonterra Plant, Fonterra training facility and urban residential development. The sites western boundary is shared with an area of settling ponds (operated by Fonterra), and the warehouse style building located on the Rosehill Property. Additional industrial development is located further to the west, across the North Island Main Trunk Railway (NIMTR).

The northeasterly boundary of the site is shared with the *Waipa Racecourse* and is delineated by a clipped hedge approximately 1.8 m high. Immediately adjacent to the boundary lies a sealed accessway which extends the length of the northeasterly boundary, providing access to the upper portion of the site and to the Rosehill Property that shares the northwestern boundary.

From the access road the site falls to the south, some 6m down an embankment to a broad lower terrace that lies approximately 2.5 m above the Mangapiko stream. The lower terrace has been divided into a series of paddocks separated by post and wire farm fencing. Consistent with the land use, the main vegetation cover is pasture, but does include a single specimen tree located within the southeastern portion of the site. At the time of site inspection (May 2022) no stock were present on site.

The lower terrace is uneven and has been modified through the creation of a series of channels, which drain toward the Mangapiko Stream, and a road cutting which provides vehicular access to the lower part of the site. A sparse mix of adventitious native and exotic trees, and shrubs cover sections of the Mangapiko Stream boundary, while other sections are covered with weed grasses and exhibit signs of localised bank erosion.

Latterly, the residential property at 417 Racecourse Road was included into the development site to allow for improved sightlines for the development entrance onto Racecourse Road. This residential property includes the main residential dwelling and outbuildings. The property is well fenced and includes perimeter hedging and specimen trees in association with residential amenity planting.

Site Photographs

The following photographs depict the character of the site and the surrounding landscape:

Photo 1 Internal to site looking east toward site entry and Racecourse Rd.

Photo 2. Internal to site looking southwest across site lower terrace and Mangapiko Stream. Fonterra Factory in Background.

Photo 3. Internal to site looking northeast along Mangapiko Stream margins.

Photo 4. Internal to site looking northeast from Mangapiko Stream across the site. Racecourse and Greenhill Dr Subdivision in distance.

Photo 5. Internal to site looking south across Mangapiko Stream to Te Awamutu College sports field and Te Wanaga o Aotearoa site.

ASSESSMENT OF EFFECTS ON LANDSCAPE CHARACTER AND VISUAL AMENITY

Ratings

The rating system used is consistent with the recommended 7-point scale contained within *Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines (July 2022).*

Document	Effect Rating						
Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines	*Very Low*	*Low*	*Low - Moderate*	*Moderate*	*Moderate-High*	*High*	*Very High*
Act/Policy	Threshold						
RMA	Less than Minor	Minor		More than Minor		Significant	
NZCPS						Significant	

EFFECTS ON EXISTING LANDSCAPE CHARACTER

Analysis of the study area has identified the key attributes of the various landscape features, which contribute to the landscape character and amenity of the site and its immediate surroundings.

When considered within the context of the landscape biophysical, perceptual, and associative attributes, the existing landscape character and values of the site are influenced by its location, within the Te Awamutu industrial zone, adjoining residential development within the residential zone and its border with the Mangapiko Stream. The broader formative processes evident within the Waikato basin, the distinctive Alexandra volcanics, and past and present landscape management of the surrounding landscape inform an understanding of the potential of the site. In this instance however, the immediate surroundings of the sites, present landform modifications and existing built context obscure much of the underlying landscape and character.

The key attributes that contribute to the existing landscape value and visual amenity of the landscape surrounding the site (study area) include:

a. The large-scale industrial character within the industrial zone including the Fonterra Plant, Fonterra training facility, Fonterra settling ponds and the NIMTR beyond.
b. The expansive open space area associated with the Waipa Racecourse, and associated structures including spectator stands and club facilities.
c. The educational facilities of *Te Wananga o Aotearoa*, *Te Kohanga Reo*, *Te Wharekura*, including the large format buildings and associated areas of carparking.
d. The established residential development that aligns Racecourse Road, Factory Rd and North St.
e. The open space areas associated with the *Te Awamutu College* sports fields and the *Ellen Montefiore Reserve* and plantings.
f. The Mangapiko stream and its margins.

When considered individually the landscape character and values of the area range between *low* (predominance of industrial buildings, structures and settling ponds within the view) and *moderate* (predominance of natural features within the view, including the Racecourse course open space, *Mangapiko Stream* and its margins, *Te Awamutu College* sports fields and the *Ellen Montefiore Reserve* and plantings).

When considered collectively, the overall landscape value of the site and its immediate surroundings is **low-moderate.**

ASSESSMENT OF VISUAL EFFECTS

The *Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines* state:

> *Visual matters are integral to landscape rather than a separate category or factor. Physical, associative, and perceptual dimensions are each experienced visually (as well as through other senses).*[2]

The visual effects of the proposed development have been assessed from twelve representative view locations surrounding the site and rated using a standardised rating system (appended to this report as appendix 2). While the proposed development will be visible from some identified view locations, the effects vary depending on the context in which they are seen, and the screening that is provided by several factors including, vegetation, buildings, and distance.

Due to a combination of existing intervening vegetation and buildings, and localised topography within the surrounding urban landscape, there are limited locations surrounding the site where direct views of the proposed development site can be obtained. A summary of findings follows.

Visual Catchment

As part of the initial investigation into the potential visibility of the proposed development, a site visit was undertaken which included evaluating potential visibility of the development within the wider area.
Key findings from the site investigation are:

a. The proposed site is potentially visible from areas to the north and south of the site, particularly when elevated relative to the site from the south west, northwest and northeast.
b. Field verification found that topography, as well as existing vegetation (shelterbelts, hedges, and trees), existing buildings (industrial buildings, dwellings, and ancillary buildings), restricts views into the subject site from surrounding public (and private) locations.
c. The visibility from close proximity is highly variable based on relative elevation to the development and the presence and screening effect of existing buildings, vegetation in the fore to midground, and topography.
d. The location of the development within the existing Industrial zone affords a high level of contextual integration when viewed from intermediate distances.
e. When viewed from in excess of a kilometre from the site, the development will appear as a component of the existing industrial zone.

View Locations and Viewing Audience

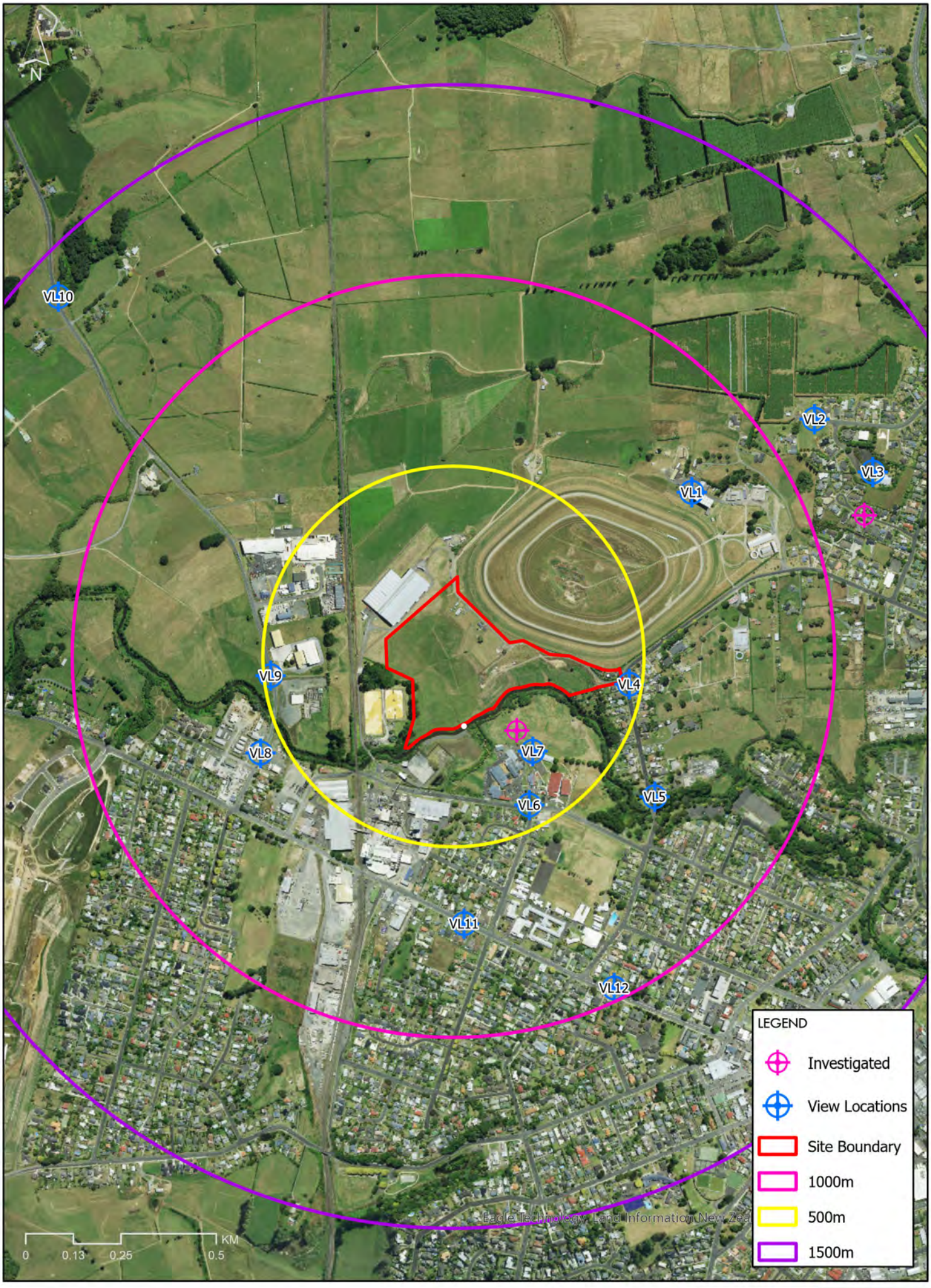
Several potential view locations were investigated as part of the assessment, with twelve selected as being representative of the range and types of views available to the public and private residents.

The potential viewing audience identified was to likely comprise:

a. Residents of Te Awamutu particularly those from elevated locations relative to the site to the south and north.
b. Staff and attendants at the Waipa Racecourse.
c. Staff and students at Te *Wananga o Aotearoa*, *Te Kohanga Reo*, *Te Wharekura*, and the *Te Awamutu College* sports fields
d. Motorists travelling along Paterangi Road, Alexandra Road and Racecourse Rd.

All selected view locations are identified on the view location map on the following page. Potential visual, landscape and amenity effects, arising from the development, are described in the following sections of this report.

[2] Para 4.30. *Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines (Final Draft)*



PAEWIRA WASTE TO ENERGY PLANT

2022-016

VIEW LOCATION MAP

SCALE 1:12,500 AT A4 | JULY 2023 | MAP NO-07 | R0

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Visual Absorption Capability

One of the main factors that will influence a development's visual effect is the visual absorption capability of the surrounding landscape. This is the ability of the landscape to integrate a development or feature into its existing visual character without notable change.

Each view location has been rated in terms of its visual absorption capability (VAC). Factors considered in determining the sites VAC rating include:

a. The degree to which the development is visible.
b. Visual and physical links with other similar elements or activities in the landscape (e.g., other commercial buildings).
c. The level of modification to the surrounding landscape (short and long term).
d. Appropriateness of scale.
e. Distance.
f. Backdrop.

Views of the site are generally restricted to within 1 kilometre of the site. Views of the proposed development from locations more than this distance are generally less frequent due to intervening buildings or vegetation.

The range of building types and land uses within the surrounding urban landscape provides the context within which the appropriateness of the proposed development can be assessed in terms of its size and scale. The application site is predominantly surrounded by two distinct zones, industrial and residential, which present two different building types: larger format bulk and scale industrial and commercial buildings with limited surrounding amenity development, and smaller residential buildings being typically one to two storey within developed curtilage.

From nearby, clear views of the proposed development will be afforded from short stretches of the surrounding road network and neighbouring properties (in between existing vegetation and buildings), due to the topography of the site and its surrounds. Subject to the orientation of the view, contextual industrial buildings may be present within the view and assist with the visual absorption development into the scene.

From further away, a wider extent is captured and the industrial buildings around the site are more likely to be included within the context of the view, while intervening buildings and vegetation are more likely to provide partial screening and backdrops. In combination these factors will aid in integrating the proposed WtE plant with its surroundings.

The site's ability to visually absorb the type of development expected ranges from *poor* (adjacent to the site) to *very good* (beyond approximately 500m), using a 5-step scale ranging from *poor* to *very good*. The definitions for the ratings and the visual absorption ratings for all view locations are attached in appendix three and five of this report.

Very Good ratings occur from locations that are generally some distance from the site, predominantly from views of the site where existing vegetation and buildings will largely screen the development from view, and/or seen within the context of other buildings of a similar size and scale.

Poor ratings occur where direct views of the proposed WtE plant will be available, with little screening or context provided by existing buildings or intervening vegetation.

View Location Photographs

Photographs from each of the view locations identified and assessed are included in appendix four.

Analysis of Visual Effects from Identified View Locations

Potential view locations were investigated during the preparation of this assessment. Twelve view locations (VL) were identified based on viewing frequency, viewer types, and availability of the view from publicly accessible locations, viewer distance and the viewing time available at the time of the study.

These VL's have been grouped together where similar elements occur within the views, or due to orientation and/or distance from the site.

The view from each VL was analysed within the methodological framework and rated using a standardised rating system. A rating definition table is found in appendix two.

Permitted Base Line Discussion

The underlying zone for the development is the *industrial zone*, which under the *Waipa District Plan (WDP)* has a permitted maximum building height of 20m (*WDP Performance Standards 7.4.2.6 Height*). As such in the determination of the visual effects, the ratings expressed in this report are reflective of that portion of the development that exceeds the permitted maximum height.

Common Effects

The proposed accessway off Racecourse Road to the *WtE Plant* has been developed to reduce potential adverse effects associated with vehicle movements in and out of the site. Vehicle movements associated with the proposal will be largely screened from view from surrounding dwellings by existing intervening vegetation, and the proposed amenity and mitigation planting, including the proposed hedging and acoustic screens. Adverse effects associated with vehicle movements to and from the site on existing visual amenity values will therefore be limited.

While truck movements along the accessway may be visible from some locations, these will be largely screened by the mitigation planting and will be limited to the daylight hours (6-7am and 4-6pm). Light vehicle movements are possible at all times.

<u>Group 1 – Waipa Racecourse and Adjacent Neighbours (northeast)</u>

Existing View

Group 1 includes VL1, VL2 and VL3, which are views obtained between 500m to 1000m northeast from the site. They are representative of elevated locations from private residences within Greenhill Drive and from the main stand at the Waipa Racecourse. It is noted that residents, represented by these view locations, may be more sensitive to change than casual observers (such as event attendees at the racecourse) as visual effects are typically regarded as persistent (non-transitory) and the exposure to an adverse effect is likely to be multiple instances (experienced several times a day) and recurrent over a long period. It is recognized that the duration of each instance of viewing may be highly variable subject to the orientation of individual lot and house configuration.

VL 1 is located adjacent to the main stand within the Waipa Racecourse and looks across the track in a south westerly direction toward the site. Within the existing view, the Waipa Racecourse with its broad level expanse of grass and low white barrier fencing which delineate the tracks and marshalling areas stretches across the fore to midground. Intermittent bands of amenity planting, signage, or low ancillary building provide a less visually permeable accent along some sections of the barrier fencing, while the occasional speaker pole creates a minor vertical punctuation within view.

Beyond the Racecourse a low ridgeline is seen in the distant midground, all but covered with residential and industrial development, and appearing well populated with specimen trees. A clear expression of the zoning division is not readily discernible as the residential and industrial development appear to be

interwoven. This is due in part to the oblique orientation of the street grid relative to the view direction, and the elevation of the racecourse and hedging along its southern boundary which obscure the low-lying land beyond. This obscured low-lying area contains open space areas, large scale educational buildings and industrial development adjacent to the *Mangapiko Stream*.

Additionally, to the fore and west of the visible portion of the Fonterra factory, a denser grouping of trees around the water treatment plant and beyond, including within *Anchor Park*, screen much of the development on the ridgeline beyond. As a result, the discernible industrial development located further west on Paterangi Rd does not appear contiguous with that of the Fonterra factory, but rather distinct and well separated. Consequently, the visible industrial developments do not reflect a coherent configuration of the relative zone elements, but rather only those industrial structures and residential elements that sit on or above the Racecourse elevation and are not screened within the view.

Development and planting on the low rounded ridgeline form the skyline within the view. The large and lightly coloured Fonterra factory is notable as it forms a minor focal attraction within the band of development. This is due to its size and colour which contrasts where backdropped by the prominent and dark coloured volcanic cone formation of *Kakepuku* beyond, and that a portion of the dryer buildings and emission stack breaks the skyline. To the west, the foothills of *Pirongia* can also be seen rising up from behind the mid distance ridgeline. The *Pirongia* foothills also provide a darker backdrop, but while other industrial developments are discernible adjacent to the Racecourse along Paterangi Rd to the west, they are not as prominent as they have a relatively low profile, do not break the treed skyline of the ridgeline beyond and are not seen in direct contrast against the darker background.

The character of the view is peri- urban, a recreational facility fringed by a narrow band of mixed residential industrial development, back dropped by more distant distinctive landscape features (or parts thereof).

The views captured from VL2 and VL3 are very similar to VL1 in terms of the midground and distant components of the view. Both include a portion of the Racecourse and mix of development in the mid-distance, with *Kakepuku* and *Pirongia* visible in the distant background. These two VL's are more distant from the site and capture a broader context including the crater of *Te Kawa* visible to the east of *Kakepuku,* and both views are from a higher elevation than VL1. This has the effect of elevating the horizon line within the view and reducing the relative height of development. As a consequence, the sky lining effect of the Fonterra factory is diminished, reducing its prominence within the view.

The most notable difference when comparing these views is in the foreground, where the presence of enclosing residential development results in screening of elements beyond, which heightens the perceived distance to the site, and has a greater influence on the character of the view. Although presented as static imagery, the views are typically experienced sequentially and while not captured within VL1 the residential context would form part of the arrival experience. As a consequence, the character of the Group 1 views shifts to urban with greater apprehension of the site context.

Proposed View

The introduction of the *WtE Plant* within the view alters the ratio of buildings and the character of the view. The *WtE Plant* presents as a large format multi building development composed predominantly of regular rectangular forms capped with shallow gable roofs. (The *Visitors Centre, Tipping and Vehicle Manoeuvring* and *Bunker* components have a mono pitch design). The variation in colour palette of the buildings emphasises their horizontal aspect and assists in delineating components of the development from one another, reducing its apparent bulk. The colours proposed have low reflective values which assist in reducing the prominence of the buildings within the view. The proposed mitigation planting, once mature, will also assist in reducing the prominence of the development, partially screening the buildings, and introducing shadowing effects across elevations.

Group 1 VL views present the broadest view of the development, with the longest elevations oriented approximately perpendicular to the line of sight. Due to its overall length and height the development will obscure a portion of the low ridgeline beyond and, subject to the elevation of the VL, may break the skyline. The tallest component of the development (the *Furnace and Boiler System* (height 35m, area 7124

m^2) and emission stacks (height 38m) will appear prominent and intrude beyond the skyline as result, while the balance of the development will appear to sit on or near the skyline. From the more elevated VL's, this effect is diminished.

Notwithstanding the over height portion of the development, it is noted that a similar screening effect on the background hill would occur with a height compliant development of a similar overall length. The main effect of this development is to alter the ratio of discernible industrial development within the view. Within Group 1 VL's the proposed *WtE Plant* sits to the fore of the cluster of specimen trees that separates the existing visible industrial developments. It replaces the natural separation buffer with an overtly industrial development that serves to visually connect the previously separated components. As a result, the *WtE Plant* emphasises the extent of industrial developments, not only through its own presence, but by connecting previously separated industrial elements to create a continuous band of industrial activity within the view.

While this results in an obvious change in the view, it is not one that is unexpected as the development is largely consistent with the underlying industrial zone. While the over height component adds a minor increase to the scale of the development overall, it has limited visual effect as it does not screen or intrude into the critical landscape features of *Kakepuku or Pirongia and* is afforded context by the existing similar scale industrial buildings within the view.

Once the mitigation has become established, the WtE Plant will have a ***low -moderate*** adverse effect on the surrounding landscape visual and amenity values from VL1, VL2 and VL3.

Group 2 – Mangapiko Stream and Adjacent Neighbours (south)

Existing View

Group 2 includes VL4, VL5, VL6 and VL7, while the VLs are located between 20m to 350m from the site. They are close proximity VL's representative of residential locations along Racecourse Rd adjacent to the site to the east, and from the educational facilities on Factory Road south of the site. In this instance, due to the sites irregular shape the distance to the buildings is more relevant. The VL's are located between 250 -550m south to southeast from the closest buildings within the site. With the exception of VL4, which is located at the entrance to the site on Racecourse Road and at a similar elevation to the upper terrace level within the site, the balance of the VLs are representative of the low lying land adjacent to the Mangapiko Stream.

VL 4 is located opposite the existing access road and is oriented to the west into the site which is framed by the adjacent residences and curtilage (417 Racecourse Rd to the north and 381 Racecourse Rd to the south). The racecourse property boundary is immediately to the north of 417 Racecourse Rd. The character of the view is largely suburban, comprised of the two residential properties framing the site entrance with only a very small portion of the site visible as the landform quickly drops away beyond the access road. The access road sweeps to the north in front of a power pole in the mid ground which acts as a minor focal element within the view. In the distance a portion of the water treatment ponds to the west of the site can be made out between deciduous trees on the site boundary. Above and beyond the band of distant specimen trees on the low ridgeline, a portion of Pirongia can be seen in the far distance.

VL5 is located further south on Racecourse Rd, adjacent to Ellen Montefiore Reserve. This view looks west north-west toward the site. The character of the view remains suburban with the foreground comprised of kerb and channel, footpath, power poles and mown lawn which drops into the reserve. The midground of the reserve is heavily planted with a variety of evergreen and deciduous specimen trees which obscure views beyond, including those of the site. A localised low point within the tree cover does allow a partial view of the more northern of the Fonterra dryer towers in the mid distance.

VL6 and VL7 are directly south of the site and represents views from the educational facilities along Factory Rd. The views toward the site are similarly oriented and demonstrate the screening effect that larger foreground elements have on the visibility of the site. When viewed from VL6 at the entrance to the *Te*

Wananga o Aotearoa, the character of the site is that of an educational facility with 2-3 storey commercial scale buildings set within a landscaped campus arrayed around a core development. Carparking is located to the south of the development and partially screened from the roadway. The orientation of the various buildings and their bulk, in conjunction with the maturing landscaping, largely screen views of the site beyond.

By contrast VL7 is located 100m north, beyond the *Te Wananga o Aotearoa* buildings, and overlooks the sports field, with views through and over the existing planting along the Mangapiko Stream to the site. The streamside planting affords a degree of low-level screening, (noting that this planting includes a number of deciduous trees which were not in leaf at the time of the inspection). The embankment within the site is visible within the view while the upper terrace level forms part of the horizon line. To the west the warehouse building on the Rosehill Property and other industrial development beyond the NIMTR are visible through the streamside planting. The skyline remains unbroken by buildings.

The character of the view is informed by the sports field and minimal presence of buildings within the view, notwithstanding the Rosehill development, conveying a *peri urban* character to the vista.

As with the Group 1 VL's, the Group 2 VL's views are typically experienced sequentially, and while the determining character may not be captured in the representative photo in isolation, it would be imparted to the viewer as part of the experience. The character of group 2 VL's have two separate characters derived from the dominant built element either part of or preceding the VL. For VL 4 and VL5, the suburban experience is the underlying character, expressed in the road typology, infrastructure, treatment of open space and the dominant residential built form. By contrast VL 6 and VL7 in combination convey an institutional *peri urban* character with the expression of large-scale institutional development contained on the edge of more rural open space context.

Proposed View

Within the Group 2, the VL's afford less viewing opportunities of the development than might be anticipated due to the greater extent of foreground screening elements (both buildings and vegetation), proximity to the site and the level or lower view location elevations relative to the site. From VL5 and VL6 the *WtE Plant* is not anticipated to be readily seen. VL5 sits with the low land adjacent to the Mangapiko stream. When looking NW toward the site the development buildings are over 500m away and the combination of perspectival diminishment and mature foreground vegetation will either fully screen or mostly screen the development such that it will be undiscernible within the view. From VL6, only a small portion of the development will be seen in the mid distance within the view, just above the foreground buildings. It is considered however, that due to the orientation and screening effect of the foreground large buildings, the *WtE Plant* will be gradually revealed as one transitions between this view and VL7.

From VL4, the removal of the residence at 417 Racecourse Rd and the development of a more formalised entrance including splitter island, broader lane widths and framing amenity planting will clearly signal a shift to a different development typology than the surrounding residential context. Once mature, the entry amenity planting will screen part of the view into the *WtE Plant* itself. An oblique aspect of the northern and eastern end of the tall *Furnace and Boiler* component, including 3 of the 4 stacks, and a small portion of the northern aspect of the *Tipping and Vehicle Manoeuvring* component will be visible. While being overtly industrial in appearance, the development will appear in the mid distance of the view, lower than the level of the roofline of the adjacent residence at 381 Racecourse Road, and partially screened. The recessive colour will assist in the development being only a minor focal element within the view. While only a small portion of the broader view, it will screen a portion of Pirongia in the distance and form part of the skyline. The overall effect will be to introduce a small but distinct industrial aspect to the view, albeit one that appears distanced from the residential component both spatially and visually.

From VL 6, an oblique partial view of the upper portion of the *WtE Plant* will be seen above the foreground development and vegetation, contributing only a very minor increase to the existing accumulation of roof tops within the view. VL 7 represents a view in which the development is most prominent. From a lower elevation, this view looks toward the southeastern elevation of *WtE Plant.* The *Waste and Recycling Plant* component forms the main visible component in the view*,* with the *Viewing Platform* wraparound serving

to horizontally break the façade. The southeastern end of the *Furnace and Boiler System* component is just visible above the *Waste and Recycling Plant.* On the northeastern elevation the mono pitch roofline of the *Tipping and Vehicle Manoeuvring* component is set back from the southeastern elevation of the *Waste and Recycling Plant component* and obscures the *Visitor Centre* beyond. On the southwestern side a small *bunker* is attached to the main building, while the gable profile of the *Power Generator building*, set some 97m back from the *Waste and Recycling Plants'* southeastern elevation, completes the visible components of the development.

From this VL the development is only 250m away, although some partial low-level screening is provided by the existing streamside vegetation, the *WtE Plant* is clearly visible and becomes the focal element within view. The building is conspicuous because of its large scale, elevated position and skyline altering location. While the recessive livery of the development does assist in integrating the building into the view, the combination of the proposed mitigation planting and colour greatly reduce the buildings prominence within the view.

It is noted that the main visible component within the view is the *Waste and Recycling Plant,* which at 23m high, only marginally exceeds the permitted building height of 20m. Whereas other components within the view, such as the *Tipping and Vehicle Manoeuvring* component *and Power Generator building* (11m and 21m in height respectively), are either just above or below the permitted height. Notwithstanding the over height portion of the development, it is considered that a height compliant development would have a similar screening effect on the background hill.

The main effect of this development is to substantially increase the prominence of industrial development within the view. While this results in an obvious change in the vista obtained from VL7, it is not one that is unexpected due to the underlying industrial zone. In this instance the over height component adds a minor increase to the scale of the development overall but has limited visual effect as it does not obscure or intrude into any significant landscape features within the existing view.

Once the mitigation has become established, the *WtE Plant* will have ***negligible*** effect from VL5, *very low* adverse effect on the surrounding landscape visual and amenity values from VL6, and *low* adverse effect from VL4 and VL7.

Group 3 – Wider Views North Northwest, West and South

Existing View
Group 3 includes VL8, VL9, VL10, VL11 and VL12, which are views obtained from between 300m to 1250m to the site from the west, north northwest and south southeast. They are representative of intermediate views from existing industrial and residential areas, and distant views from rural areas.

VL8, VL9 and VL10 are located to the west and north northwest of the site on Paterangi Rd and capture the transition from within the industrial zone through to the rural area. VL11 and VL12 are located within residential development to the south of the site and capture the potential effect from intermediate distances (between 500 – 800m of the site boundary) within the residential context.

The views captured from VL8 and VL9 are similar in terms of their composition, with industrial elements evident in the fore to midground, established trees within the midground and the site located in the mid distance partially screened by foreground elements. VL8 looks east toward the site and captures a portion of the Higgins depot; delineated by the ubiquitous chain wire fence containing a metalled yard, shipping container, parked cars, material stockpiles and frontend loader. The Norfolk Island Pine visible in the midground is to the north of the Higgins warehouse building which extends to the south. Not captured within the view but evidenced by the alignment of powerlines, the emission stack and dryer towers of the Fonterra factory are visible above and beyond the warehouse building and convey an industrial character. Within the view, much of the midground and the site itself are obscured by the established planting which aligns the banks of the *Mangapiko Stream*. The Greenhill residential suburb and shelter planting can be seen on a ridgeline in the distance forming a portion of the skyline.

VL9 is some 250m further north along Paterangi Road. Aside from the slight shift in orientation relative to the site, the main difference between the VL's is the presence of the industrial scale buildings in the foreground screening much of the view beyond. In the distant midground, an existing grey residential building on the site can be seen to the right of the *Balance Nutrients* building, while in the distance beyond a small portion of the Greenhill residential suburb infills the space between. In both instances the dominant characteristic is industrial.

The vista from VL10 contains similar elements, although with increased elevation and greater distance from the site. Although the site orientation varies, the broader context remains the same. The site is largely obscured by the blue *Balance Nutrients* building in the midground, back dropped by the accumulation of industrial buildings beyond. The greater distance highlights the proximity of the industrial zone to the rural zone. The mid to foreground of the view being dominated by pasture, hedgerow fence lines and specimen trees, as shelter belts or forming part of the curtilage of rural properties. The ridgeline containing the Greenhill residential suburb can be seen forming the skyline above garaging visible in the mid foreground of the view. The character of the view is that of *rural outlook toward industrial development*.

VL11 and VL12 are located south southeast of the site on Alexandra St within the residential zone. They capture the effect distance, elevation and minor changes within the foreground have within the context of residential zone views. From these VL's residential buildings, curtilage and fence lines dominate the foreground, while mid distance specimen trees and rooflines form the skyline, conveying a strong *residential character*. The prominence of larger buildings in the background of the view correlates with the proximity to the industrial zone.

More subtly however is the influence of roof pitch and relative elevation of the dwelling within the view, with permanent materials tending to be applied to buildings with a higher roof pitch and stud height. This combined with greater distance from the industrial zone (and the site), typically produces a greater level of screening, further enhanced with increased elevation. Undeveloped, the site is not visible from these view locations, while the prominence of existing industrial development within the view does confer a level of overlook, particularly at close proximity and lower elevation, and introduce an industrial character into the predominantly residential character.

Proposed View

Group 3 VL's represent more contextual and distant views of the development, which typically provides greater opportunity for integration.

Within VL8 and VL9, the development appears in the mid distance of the view partially screened by existing industrial elements in the foreground and midground vegetation. Due to the VLs distance and relative elevation to the site, foreground screening and the developments recessive colour palette, while visible within the view, it will not appear prominent. The maturation of the mitigation planting will further enhance its overall integration into the view. Due to its height, however, it will obscure a portion of the Greenhill ridgeline beyond and break the skyline. As it does not obscure any significant landscape features beyond, and the profile of many of the surrounding buildings result in a similar effect, albeit at closer proximity, the effect is diminished. Further it is noted that, notwithstanding the over height portion of the development, a similar screening effect of the background hill would occur with a height compliant development. The effect of the development from these VL's results in a minor increase in the ratio of discernible industrial development within the view.

From VL10, with the benefit of greater distance and elevation, a similar result occurs. The greater distance affords a wider vista, more screening opportunities and greater visibility of context, while the increased elevation reduces the screening efficacy of the mitigation planting. As a result, the development appears within the context of partially screened fore and midground elements, with the visible components of the development (or part thereof) and produces a minor increase in the ratio of industrial development seen within the view.

From VL11 and VL12 the constituent foreground elements are reflective of the underlying residential zone with distance to the site enhancing the screening effect. Within VL11 the taller portions of the development will appear on the skyline, infilling some of the voids present between mid-distance trees seen on the horizon, and forming a portion of that skyline. Given the low angle of viewing, the development would not be highly prominent nor as readily discernible as industrial by comparison to the other tall industrial elements within the view. As a consequence, the character of the view is not expected to alter. For VL12 the increase in relative elevation and distance in conjunction with the greater height of the foreground residential buildings remove the potential visibility of the development. As a consequence, the development will not be visible from VL12.

For VL8, VL9 and VL10 the change in the view is not one that is unexpected as the development is largely consistent with the underlying industrial zone. Although the non-complying height component adds a minor increase to the visibility of the development overall, it has limited visual effect as it does not screen or intrude into the critical landscape features, while existing large scale industrial elements assist its integration into the view. For VL11, the conclusion is similar, while the degree of prominence is increased by the additional height, it forms a minor component of the overall view. A compliant height development would also result in a degree of visibility within the view.

From these VL's, the mitigation planting has less effect of the rating of effect within the view. It is considered that the *WtE Plant* will have a *very low* adverse effect on the surrounding landscape visual and amenity values from VL8, VL9, VL10, and VL11. *Negligible* effect would be discernible from VL12.

RELEVANT PLANNING MATTERS

Planning documents that have been taken into consideration include the Resource Management Act and subsequent amendments (RMA), and the Waipa District Plan (WDP). Overall, the proposed activity is classified as a *Non-Complying* activity under the Waipa District Plan.

In terms of this assessment, only the key issues contained within the relevant planning framework, relating to landscape, visual and amenity matters have been considered.

Resource Management Act 1991 (RMA)

The proposed development must meet the requirements of the Resource Management Act (RMA), and it is therefore important that the assessment of visual, landscape and amenity effects address the requirements of Part 2, of the Act. Key sections relevant to this application are S6 (a) and (b), and S7 (c) and (f).

With regard to s6(a) of the RMA, the site is sufficiently far from the *Waikato River* and *Waipa River* that effects of the proposed development on the natural character values of these waterways are not considered relevant. The site is bordered by the Mangapiko Stream on its southern boundary. The natural character of the stream and stream margin bordering the site has been identified as ***low*** (as detailed in this report). The proposed mitigation strategy includes riparian and wetland restoration to the stream margins and the lower terrace level. This will enhance the existing character of this portion of the stream

With regard to s6 (b), the site is not located within or adjoining an identified outstanding natural feature or landscape. While a portion of Mt Pirongia does appear in the distant background of some views of the site, at 17 kilometres distance the development does not affect any of the key attributes or qualities of the outstanding natural feature.

With regard to s7(c), the adverse effects of the proposed *WtE Plant* on the existing visual amenity values will range from *negligible* to *low-moderate* (as detailed in this report). With the proposed mitigation strategy in place, adverse effects on amenity values will occur from some close proximity locations. At close proximity (within 1 kilometre), from some view locations the development will be visually prominent; the nature of the development identifiable as *industrial.*

Although located within the *industrial zone*, as the land cover of the existing site is currently pastoral, the introduction of the large industrial development within the site will result in a change in the ratio of elements present. It will affect the existing visual characteristics of the site, being a loss of views of the open pasture and views of trees beyond the site, and an increase in the ratio of built industrial development. This level of change is largely consistent with a compliant industrial development and is an expected consequence of the underlying zoning.

From more distant views, with the maturity of the mitigation planting, the proposed development will largely be integrated into the wider surrounding landscape while maintaining and enhancing amenity values. In general, once the mitigation planting is mature it is considered that the development will not cause an unacceptable change to the existing levels of amenity in the wider landscape.

Waikato Regional Policy Statement (WRPS)

The Waikato Regional Policy Statement (WRPS) contains a suite of objectives and policies pertaining to the protection of outstanding natural features and landscapes (Objective 3.20), amenity (Objective 3.21) and natural character (Objective 3.22).

- There are no Regionally Outstanding Natural Features or landscapes located within the subject site.

- The proposed development will not affect any significant amenity views associated with the wider environment, due to the complexity of the wider landscape and the urban context in which the site sits.
- The proposed development is located within an already modified urban landscape, where areas of natural character are limited. The application will not directly affect surrounding areas of natural character associated with the *Waipa* and *Waikato Rivers*. It does however border one of their tributaries, the *Mangapiko Stream*. The proposed mitigation strategy of riparian and wetland revegetation along the stream margin and adjacent lower terrace are anticipated to enhance the natural character of the stream.

Waipa District Plan (WDP)

This section includes commentary on relevant objectives with respect to the industrial zone pertaining to the protection of visual landscape character and amenity. It also discusses areas of non- compliance in respect to *Performance Standards*. Overall, the development is considered to be consistent with the intent of the WDP. It is noted however that although the site is *predominantly zoned industrial* it includes a small portion of *residential zoning* at its interface with Racecourse Rd. It is identified that *Noise Mitigation Structures* are deemed buildings under the WDP. And as a consequence, in addition to identified non compliances, a number of technical non-compliances result.

With respect to industrial development, the WDP states;

> 7.1.4 Industries and industrial areas have by their nature, a different level of effect than other zones. Industrial areas generally have higher levels of noise, site coverage, and a reduced amount of on-site amenity. While it is important to not unduly restrict how industries develop their sites**, a balance is required where industries adjoin strategic roads and other zones**; therefore in these locations, a higher level of amenity is anticipated. [Emphasis added].

It is considered that the development is consistent with *Section 7 Industrial Zone: Objective -Amenity value within the zone*, amenity policies 7.3.2, 7.3.2.1 and 7.3.2.2. It also is considered to be consistent with respect to *Section 7 Industrial Zone: Objective -Amenity values: effects on adjoining sites and areas*, policies 7.3.31, and 7.3.3.2 (a),(b), and (e).

In general, notwithstanding the technical requirements of the *WtE Plant*, it is considered that the development proposes integration and mitigation measures above what is typically seen within the surrounding industrial zone which enhance its integration into the site, create a higher level of amenity and minimise potential adverse effects on other zones.

With respect to the *Performance Standards* and areas of non-compliance
Industrial Zoning

> **7.4.2.2 - Minimum building setback from internal site boundaries**
> The minimum building setback from internal site boundaries that adjoin any zone other than the Industrial Zone shall be 5m:

As the *Noise Mitigation Structures* proposed along the northeastern boundary with the racecourse are deemed buildings, they do not comply with the minimum 5 m setback. It is considered however that the proposed amenity planting will sufficiently screen the *Noise Mitigation Structures* to prevent the propagation of potential adverse effect to the wider residential zoning.

> **7.4.2.6 - Height**
> The maximum height of buildings shall be 20m…

The proposed development includes several components that exceed the maximum permitted height. These include three components of the main composite building, and one separate building;

1. Furnace and Boiler System (height 35m, area 7124 m2) and
2. Emission Stacks (height 38m),
3. Waste and Recycling Plant (height 23m, area 5826 m2), and
4. The Power Generator Building (height 21m, area 2624 m2).

With respect to this non-compliance, it is noted that the heights identified on items 3 and 4 relate to the apex of the gabled roof lines. With respect to item 4 the area of roof line that is non-compliant is considered negligible from a visual perspective, it is unlikely to be discernible by casual inspection and nor would it result in any significant adverse effects above a compliant height structure.

Item 3 is similar in this respect, particularly given its location within the site, located 100m away from its nearest boundary. While the increased height may be discernible, the exceedance is considered minor within the scale of the building and is not considered to result in any significant adverse effects over and above a compliant height structure.

Item 1 is more of a notable departure from the maximum height, with the additional height being readily discernible, while the emission stacks (item 2) which extend a further 3m above the apex of the roof, form a relatively minor component of the overall departure due to their size and scale. In this instance however, based on site inspection, the extent of existing large scale contextual development within the industrial zone, the application of a recessive colour palette, the maturation of the proposed mitigation planting, and the limited intrusion into significant vistas beyond, it is considered that the height exceedance will generate *less than minor* effects on the receiving environment.

7.4.2.13 - Landscaping and Screening

Where an internal site boundary adjoins a site within the … Deferred Residential Zone... it must be landscaped to a minimum depth of 3m and the landscaping shall form a solid screen;

Waipa Racecourse development shares the northeastern boundary of the site. The underlying zone for the racecourse is *Deferred Residential* which requires the boundary to be landscaped to a minimum depth of 3m. Due to the site topography, the width of access track, the provision of Noise Mitigation Structures and connection to the Venn Property, provision of a 3m wide band of landscaping is unachievable. Instead, the proposal seeks to optimise landscaping along the boundary line where practical, and augment that screening with taller specimen tree species internal to the site, within larger garden areas between the building and the northeastern boundary. It is considered that this will achieve a greater level of screening of the development overall, than compliant strategy alone and is considered to meet the intent rather than rule.

Residential Zoning

2.4.2.8 Maximum Building Length;

The maximum length of the wall and roofline of any building parallel or up to an angle of 30 degrees to any internal site boundary that adjoins the Residential Zone or the Reserves Zone shall be 23m, provided that:

(a) Building lines in excess of 23m shall have the wall and roofline stepped to a minimum of 2.4m and a minimum length of 3m; and

(b) For every additional 23m in length the wall and roofline of a building shall be stepped to a minimum of 2.4m and a minimum length of 3m.

As the *Noise Mitigation Structures* are not intended to be stepped in height along their length, they are technically inconsistent with the underlying zone. It is considered however that the proposed amenity planting will sufficiently screen the *Noise Mitigation Structures* to prevent the propagation of potential adverse effects to the wider residential zoning.

When considered against *Section 21 – Assessment Criteria and Information Requirements,* given the current level of design, the development has been considered against the following relevant criteria with regard landscape character and amenity values;

> *21.1.1.3 Visual (a), (b), (d), (e) and (f),*
> and
> *21.1.1.4 Amenity Values (b), (c), (e), (f), (g), (h) and (i).*

These factors have been considered in my assessment (as detailed in my report) and proposed mitigation strategies have been developed to respond appropriately.

FINDINGS & CONCLUSIONS

Analysis of the proposed development within the context of the surrounding landscape character and visual amenity found that:

1. Views of the *WtE Plant* are available from areas north and south of the site, particularly from elevated locations from the southwest, northwest and northeast. Due to variations in topography surrounding the site, surrounding existing vegetation, (including shelter belts, hedges, stream margin plantings and reserve plantings), existing buildings (industrial buildings, dwellings, and ancillary buildings), views of the site will be obscured or partially obscured from many surrounding locations.

2. The wider landscape's ability to visually absorb the proposed development, without adversely affecting existing landscape character or visual amenity ranges from *poor* to *very good*. *Very good* ratings occur predominantly from views of the site where existing vegetation and built development will largely screen the development from view and provide context for the proposal. *Poor* ratings occur where direct views of the proposed *WtE Plant* will be available, with little screening or context provided by buildings, vegetation or topography.

3. The development area is captured by 12 recorded View Locations (VL), the effects vary depending on the context in which they are seen and the screening that is provided by a number of factors including, vegetation, topography, and distance. Given the underlying industrial zoning, with a permitted maximum building height of 20m, the ratings expressed are reflective of that portion of the development that exceeds the permitted maximum height and assume the implementation of the mitigation strategy.

    a. Group 1 are intermediate distance View Locations (VL1 to VL3), that view across the Waipa Racecourse from either level or elevated locations. The relative lack of midground screening afforded by the Racecourse provides a clear view of the development in the distant midground and captures the contextual industrial developments, including similar large-scale developments within industrial zone and wider background beyond. The relative viewing angles, vegetation, and publicly accessible view locations within the residential context, means that the effect on visual and landscape amenity is *Low-Moderate*.

    b. Group 2 are close proximity View Locations (VL4, VL5, VL6 and VL7), and reflect the variation in topography, screening vegetation and surrounding industrial, educational, and residential buildings within the area. Views of the development contrast between being either predominantly screened or relatively unimpeded, with close proximity rendering limited industrial context. Relative elevation to the site is also influential, with VL's at elevations similar to the lower levels of the site resulting in the lower portion of the development mostly screening the over height component. The existing topography, relative viewing angle, foreground vegetation, and variable view location context, means that the effect on visual and landscape amenity is *Negligible* for VL5, *Very Low* for VL6, and *Low* for VL4 and VL7.

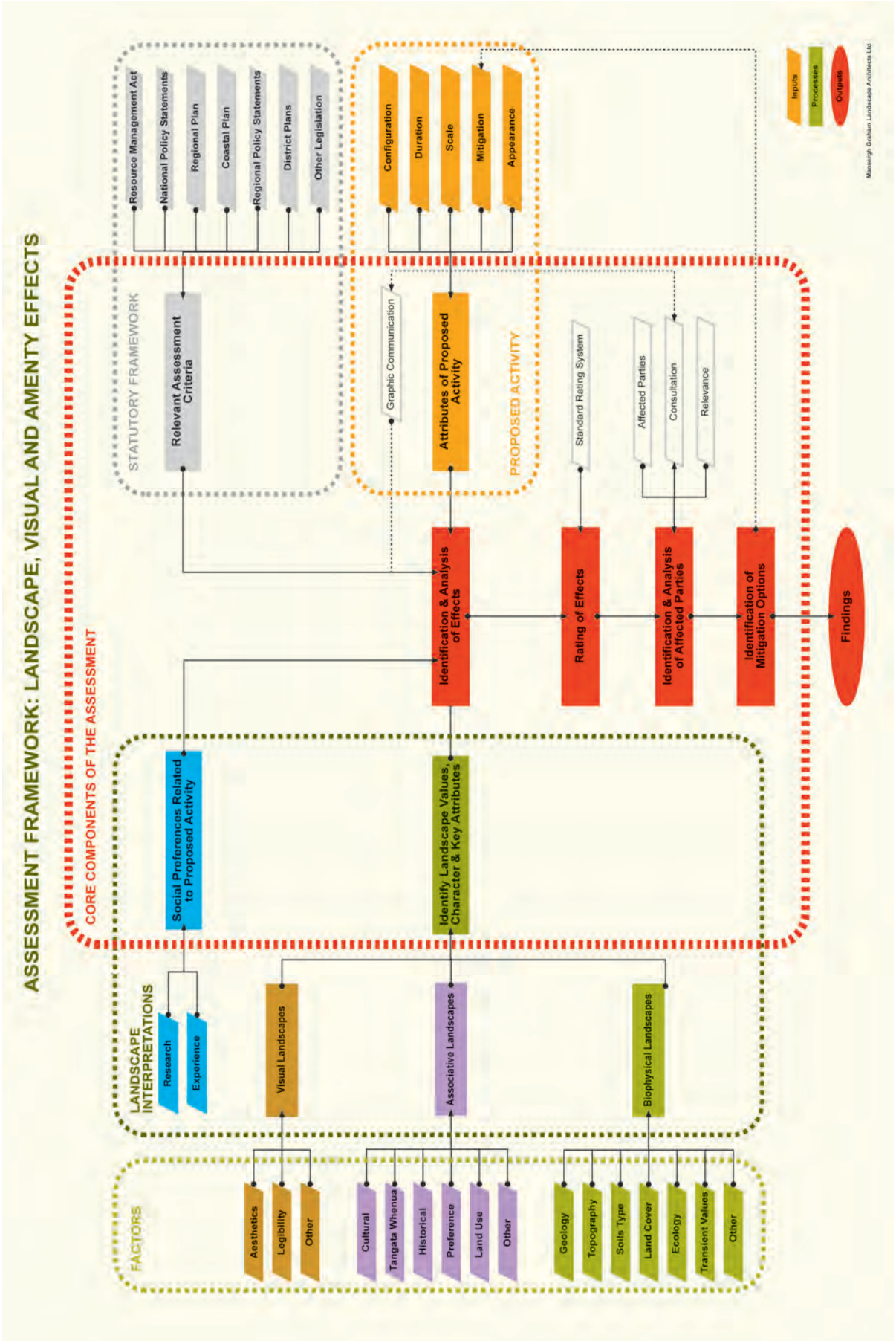
    c. Group 3 VL's are either at intermediate distance within the *Industrial Zone* and *Residential Zone, or* at greater distance in *Rural Zone*, with the site being either partially visible or not visible until developed. From within the industrial zone and rural zone, context affords both large scale screening elements and integration. Although the non-complying height component adds a minor increase to the visibility of the development overall, it has limited visual effect as it does not screen or intrude into critical landscape features beyond. From within residential areas, when seen, although the degree of prominence is increased by the non-complying height, it forms a minor component of the overall view. The proposed development will not be a prominent feature in the wider landscape and will not affect the key attributes of the surrounding landscape or detract significantly from the existing landscape characteristics. The effect on visual and landscape amenity from VL8, VL9, VL10, and VL11 is *Very Low.* From VL12 it is *Negligible.*

4. The site itself is not contained within or immediately adjacent to any identified outstanding natural features or landscapes. The broader landscape context for this assessment includes two landscape features which are identified as either an *outstanding natural feature* (*N9.1 Outstanding Natural Features and Landscapes; Pirongia*) or a *significant landscape feature (N9.3 Significant Landscape Features at a District Level; Kakepuku)* within the WDP. These features are at a distance of 17 km and 9 km respectively from the site. As the proposed development is wholly contained within the existing extent of *Te Awamutu*, and does not alter the configuration of the town, it is considered that the development will have no detectable landscape effect on the key attributes of these features.

5. The development does not encroach on the Waikato or Waipa Rivers or its margins and does not affect the key attributes of their natural character. The Mangapiko Stream, however forms a portion of the southern boundary of the site, and the stream and its margins exhibit a lower quality with remnant indigenous species in competition with exotic species and areas of bank instability. The existing natural character of the Mangapiko Stream along the site boundary is considered *low-moderate*. The proposed mitigation strategy includes indigenous riparian and ecological planting which will enhance the stream margins and have a positive effect on the associated natural character values.

The overall, adverse effect of the proposed development on the existing landscape character and visual amenity values range between *Very Low* and *Low-Moderate*. It is considered that the proposed development meets the overall intent of the relevant landscape and amenity objectives, policies, and rules of the WDP and section 6 (a), 6 (b), 6 (c) and 7 (c) of the RMA. The overall development is considered to result in *less than minor effects* on the landscape character and amenity of the receiving environment.

Appendix 1: Methodological Flow Chart



Appendix 2: Landscape and Visual Amenity Effect - Rating System

The following standardised rating system has been developed by Mansergh Graham Landscape Architects Ltd and is consistent with the recommended rating system identified in the Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines.

LANDSCAPE AND VISUAL AMENITY EFFECT - RATING SYSTEM		
Effects Rating		**Use and Definition**
Very High	***Significant*** (RMA/NZCPS)	*Use* The development/activity would: a. Have a very high level of effect on the character or key attributes of the receiving environment and/or the vista within which it is seen; and/or b. Have a very high level of effect on the perceived amenity derived from it. *Oxford English Dictionary Definition* Very: adverb 1 in a high degree. 2 with superlative or own without qualification: the very best quality. High: adjective 1 extending above the normal level. 2 great in amount, value, size, or intensity. 3 great in rank or status. 4 morally or culturally superior.
High		*Use* The development/activity would: a. Have a high level of effect on the character or key attributes of the receiving environment and/or the vista within which it is seen; and/or b. Have a high level of effect on the perceived amenity derived from it. *Oxford English Dictionary Definition* High: adjective 1 extending above the normal level. 2 great in amount, value, size, or intensity. 3 great in rank or status. 4 morally or culturally superior.
Moderate-High	***More than Minor*** (RMA)	*Use* The development/activity would: a. Have a moderate-high level of effect on the character or key attributes of the receiving environment and/or the vista within which it is seen; and/or b. Have a moderate-high level of effect on the perceived amenity derived from it. *Oxford English Dictionary Definition* Moderate: adjective 1 average in amount, intensity, or degree. High: adjective 1 extending above the normal level. 2 great in amount, value, size, or intensity. 3 great in rank or status. 4 morally or culturally superior.
Moderate		*Use* The development/activity would: a. Have a moderate level of effect on the character or key attributes of the receiving environment and/or the vista within which it is seen; and/or b. Have a moderate level of effect on the perceived amenity derived from it. *Oxford English Dictionary Definition* Moderate: adjective 1 average in amount, intensity, or degree.
Low-Moderate	***Minor*** (RMA)	*Use* The development/activity would: a. Have a low-moderate level of effect on the character or key attributes of the receiving environment and/or the vista within which it is seen; and/or b. Have a low-moderate level of effect on the perceived amenity derived from it. *Oxford English Dictionary Definition* Low: adjective 1 below average in amount, extent, or intensity. 2 lacking importance, prestige, or quality; inferior. Moderate: adjective 1 average in amount, intensity, or degree.
Low		*)Use* The development/activity would: a. Have a low level of effect on the character or key attributes of the receiving environment and/or the vista within which it is seen; and/or *b.* Have a low level of effect on the perceived amenity derived from it. *Oxford English Dictionary Definition* Low: adjective 1 below average in amount, extent, or intensity. 2 lacking importance, prestige, or quality; inferior.
Very Low	***Less Than Minor*** (RMA)	*Use* The development/activity would: a. Have a very low effect on the character or key attributes of the receiving environment and/or the vista within which it is seen; and/or b. Have a very low effect on the perceived amenity derived from it. *Oxford English Dictionary Definition* Very: adverb 1 in a high degree. 2 with superlative or own without qualification: the very best quality. Low: adjective 1 below average in amount, extent, or intensity. 2 lacking importance, prestige, or quality; inferior.
		Detectable Effect Threshold
No Effect		The development/activity would have no detectable effect on the receiving environment.
		Note: Ratings may be positive (e.g. high level of enhancement), neutral (e.g. neither positive or negative) or negative (e.g. high adverse effect).

Appendix 3: Visual Absorption Capability Ratings

The following standardised rating system has been developed by Mansergh Graham Landscape Architects Ltd and is consistent with the recommendations of Te Tangi a te Manu - Aotearoa New Zealand Landscape Assessment Guidelines.

Visual Absorption Capability Definition Ratings	
VAC Rating	**Use**
Very Good	The proposed development/activity would be completely screened, almost completely screened, or completely absorbed by existing landscape features. Any views of the development would be either unidentifiable or at a great distance, and/or; The development/activity would not affect the existing character of the surrounding landscape or view in which it is seen, and/or; The development/activity would introduce a visual element into the landscape or view which may be viewed very frequently or continuously in that or similar landscape types.
Good	The proposed development/activity would be mostly screened or visually absorbed by existing landscape features, but still be identifiable. The development/activity may act as a tertiary focal attraction within the landscape or view in which it is seen, and/or; The development/activity would not affect the existing character of the surrounding landscape or view in which it is seen, and/or; The development/activity may introduce a visual element into the landscape or view which may be viewed frequently in that or similar landscape types.
Neutral	The proposed development/activity would neither be screened nor become a visual intrusion or focal attraction within the landscape or view in which it is seen. The proposed development/activity may act as a minor focal attraction from some locations, and/or; The development/activity would alter the existing character of the surrounding landscape or view in which it is seen, and/or; The development/activity would introduce a visual element into the landscape or view which may be viewed occasionally in that or similar landscape types.
Poor	The proposed development/activity would be clearly visible but would not act as a primary focal attraction, and/or; It would be expected that the proposed development/activity would alter the existing character of the surrounding landscape or view in which it is seen, and/or; The development/activity may introduce a new visual element into the landscape or view. The development/activity may be viewed infrequently in that or similar landscape types.
Very Poor	The proposed development/activity will be highly visible and may act as a primary focal attraction or feature. It would also be expected that the proposed development/activity will significantly alter the existing character of the surrounding landscape or view in which it is seen, and/or; The development/activity will introduce a new visual element into the landscape or view, which will be significantly different in appearance, or scale from the landscape elements surrounding it, and/or; The development/activity would be found very rarely in that or similar landscape types.

Appendix 4: View Location Photographs and Photomontages

View Location One. View From Northeast Racecourse (500m from site)

View Location Data

NZTM Easting:	1803686
NZTM Northing:	5792114
Focal length:	50mm
Photographer:	Michael G
Camera:	Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)
Date:	6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

Photomontage. View Location One. View From Northeast Racecourse (500m from site)

View Location Data

NZTM Easting: 1803686
NZTM Northing: 5792114
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

Photomontage (With Mitigation Planting). View Location One. View From Northeast Racecourse (500m from site)

View Location Data

NZTM Easting: 1803686
NZTM Northing: 5792114
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

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Single image frame size

Photomontage (With Mitigation Planting). View Location One. View From Northeast Racecourse (500m from site)

View Location Data

NZTM Easting: 1803686
NZTM Northing: 5792114
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Two. View from Greenhill Drive (870 from site)

View Location Data

NZTM Easting: 1804008
NZTM Northing: 5792306
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Three. View From (840m from site)

View Location Data

NZTM Easting: 1804161
NZTM Northing: 5792168
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame
Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location FOur. View From Prpoosed Site Entrance (20m from site)

View Location Data

NZTM Easting: 1803522
NZTM Northing: 5791611
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Five. View From Racecourse Road (310m from site)

View Location Data

NZTM Easting:	1803589
NZTM Northing:	5791314
Focal length:	50mm
Photographer:	Michael G
Camera:	Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)
Date:	6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Six. View From Te Wananga Campus 'Entrance (270m from site)

View Location Data

NZTM Easting: 1803260
NZTM Northing: 5791292
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Seven. View From Te Wananga Campus (180m from site)

View Location Data

NZTM Easting:	1803269
NZTM Northing:	5791433
Focal length:	50mm
Photographer:	Michael G
Camera:	Canon EOS D5 MK.2 Full Frame
Digital	with EF 50mm F/1.4 USM (Prime)
Date:	6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

Photomontage. View Location Seven. View From Te Wananga Campus (180m from site)

View Location Data

NZTM Easting: 1803269
NZTM Northing: 5791433
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

Photomontage (With Mitigation Planting). View Location Seven. View From Te Wananga Campus (180m from site)

View Location Data

NZTM Easting: 1803269
NZTM Northing: 5791433
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Eight. View From Paterangi Road (380m from site)

View Location Data

NZTM Easting: 1802555
NZTM Northing: 5791429
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

Photomontage. View Location Eight. View From Paterangi Road (380m from site)

View Location Data

NZTM Easting: 1802555
NZTM Northing: 5791429
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

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Single image frame size

Photomontage (With Mitigation Planting). View Location Eight. View From Paterangi Road (380m from site)

View Location Data

NZTM Easting: 1802555
NZTM Northing: 5791429
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

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Single image frame size

Photomontage (With Mitigation Planting). View Location Eight. View From Paterangi Road (380m from site)

View Location Data

NZTM Easting: 1802555
NZTM Northing: 5791429
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

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Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Nine. View From Paterangi Road (310m from site)

View Location Data

NZTM Easting: 1802581
NZTM Northing: 5791633
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Ten. View From Paterangi Road (1240m from site)

View Location Data

NZTM Easting: 1802024
NZTM Northing: 5792627
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame
Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Eleven. View From Alexandra Street (540m from site)

View Location Data

NZTM Easting: 1803089
NZTM Northing: 5790981
Focal length: 50mm
Photographer: Michael G
Camera: Canon EOS D5 MK.2 Full Frame Digital with EF 50mm F/1.4 USM (Prime)

Date: 6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

View Location Twelve. View From Alexandra Street (780m from site)

View Location Data

NZTM Easting:	1803483
NZTM Northing:	5790812
Focal length:	50mm
Photographer:	Michael G
Camera:	Canon EOS D5 MK.2 Full Frame
Digital	with EF 50mm F/1.4 USM (Prime)
Date:	6th July 2023

A 3D digital model of the proposed development was produced and accurately superimposed into each image using a combination of Adobe Photoshop CC 2019, ArcGIS Pro and CityEngine, in accordance with NZILA best practice guidelines. Panoramic view was merged from 50mm frame images, Photo montaging by MGLA.

Image should be viewed at a distance of 260 mm to approximate actual scale.

Single image frame size

Appendix 5: Architectural Plans

TE AWAMUTU RACECOURSE

TEMPORARY BUNKER FOR WET ASH

POND

BUNKER
381 m²

VISTOR CENTRE + CAFETERIA + MUSEUM
1241 m²
RL. 50000

CARPARK

FURNACE & BOILER SYSTEM
7124 m²
RL. 45000

TIPPING AND VEHICLE MANEUVERING AREA
5130 m²
RL. 50000

POWER GENERATOR
2624 m²

WASTE AND RECYCLING PLANT
5826 m²

BUNKER
538 m²
RL. 45000

WEIGH BRIDGE

WEIGH BRIDGE IN

WEIGH BRIDGE OUT

WEIGH BRIDGE OUT

RAMP DOWN TO LOWER LEVEL FOR GMS TRUCKS ONLY

WEIGH BRIDGE IN

PICKING CRANE

ENTRANCE TO UNDERGROUND BUNKER

RACECOURSE ROAD

MANGAPIKO STREAM

RACECOURSE ROAD

C:\Users\Emily.Zhong\Documents\200065_PAEWIRA RECYCLING PLANT_BUILDING_REVIT 2021_cilla.vanheerden@terragroup.co.nz.rvt

NOTES

COPYRIGHT OF THIS DRAWING IS VESTED IN TERRA CONSULTANTS.

ALL DIMENSIONS ARE TO BE CHECKED ON SITE BEFORE FABRICATION OF ANY COMPONENTS.

DO NOT SCALE. FIGURED DIMENSIONS MUST BE TAKEN IN PREFERENCE TO SCALE.

ALL ARCHITECTURAL PLANS TO BE READ IN CONJUNCTION WITH ENGINEERS DETAILS. PLEASE NOTIFY THE ARCHITECT OF ANY ANOMALIES BETWEEN ARCHITECT'S AND CONSULTANTS'

FOR RESOURCE CONSENT

DATE STAMP *1/12/2021 2:17:53 pm*

NOTE: ALL FFL'S ARE INDICATIVE.

REV	DESCRIPTION	DATE
.		

terra consultants

79 GRAFTON ROAD,
GRAFTON, AUCKLAND 1010
09 357 3557
WWW.TERRAGROUP.CO.NZ

N

PROJECT STATUS:

PROJECT TITLE:
PAEWIRA WASTE TO ENERGY PLANT

PROJECT ADDRESS:
PAEWIRA – 401 RACECOURCE ROAD, TE AWAMUTU

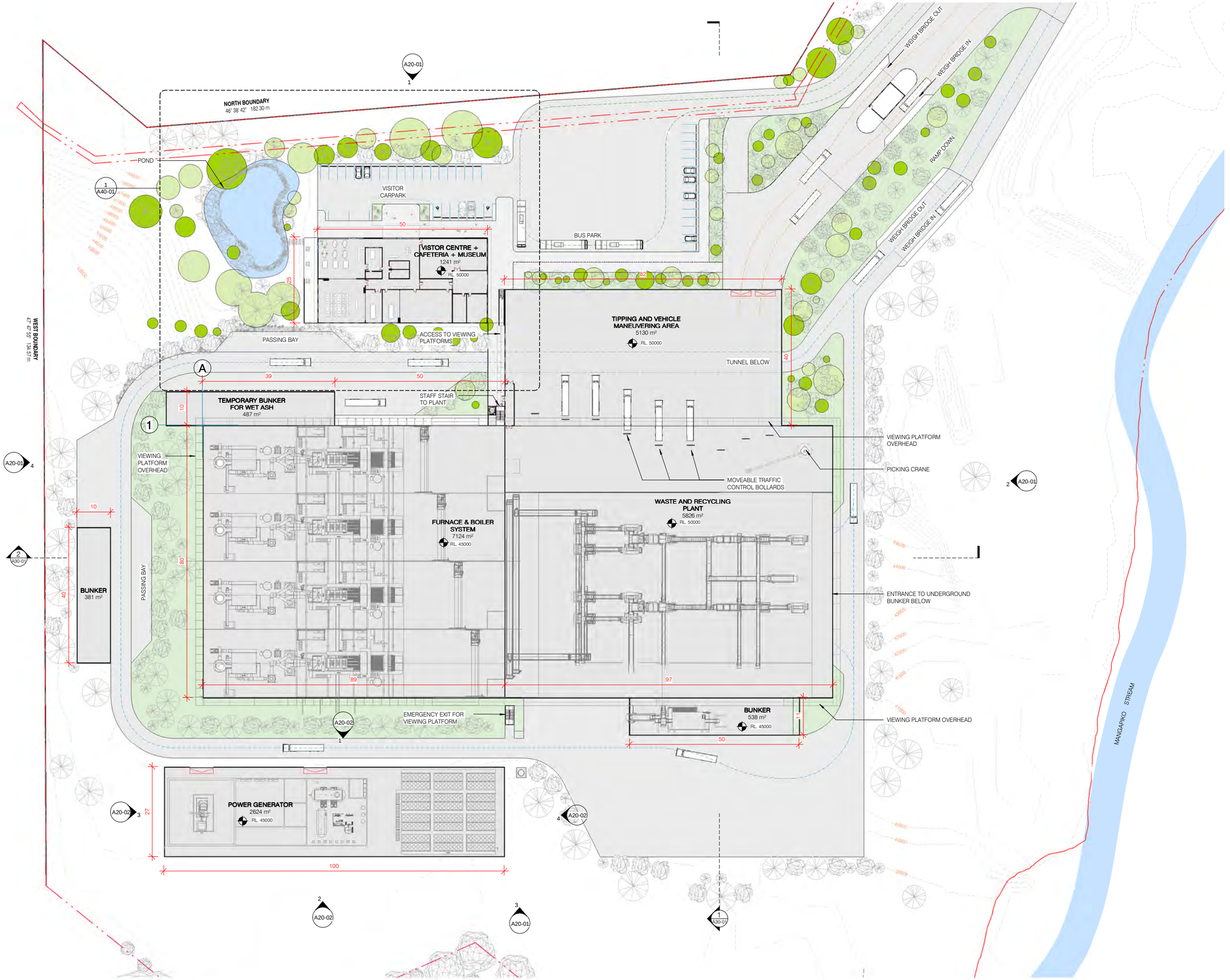
SHEET TITLE:
SITE PLAN

PROJECT ISSUE DATE:
DECEMBER 2021

SCALES:
1 : 1000 at A1

DESIGNER	DRAWN BY	CHECKER
Designer	Author	Checker

PROJECT NO.	SHEET NO.	REV NO.
200065	A01-01	



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REV	DESCRIPTION	DATE
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terra consultants

79 GRAFTON ROAD,
GRAFTON, AUCKLAND 1010
09 357 3557
WWW.TERRAGROUP.CO.NZ

PROJECT STATUS:

PROJECT TITLE:
PAEWIRA WASTE TO ENERGY PLANT

PROJECT ADDRESS:
PAEWIRA – 401 RACECOURCE ROAD, TE AWAMUTU

SHEET TITLE:
UPPER LEVEL PLAN

PROJECT ISSUE DATE
DECEMBER 2021

SCALES
1 : 500 at A1

DESIGNER	DRAWN BY	CHECKER
Designer	Author	Checker

PROJECT NO.	SHEET NO.	REV NO.
200065	A10-01	

NORTH BOUNDARY
46° 38' 42" 182.30 m

A20-01
1

89
97

CARPARK ABOVE

EDUCATION & EXHIBITION
PROGRAMME + CAFETERIA ABOVE

FIRE FIGHTING TANK

WEIGH BRIDGE ABOVE
WEIGH BRIDGE ABOVE
WEIGH BRIDGE OUT
WEIGH BRIDGE IN

PASSING BAY

TUNNEL

A
50
10
TEMPORARY BUNKER FOR
WET ASH
1
STAFF LIFT
TO OFFICES
WASTE
WATER
STORAGE
WATER SUPPLY TANK
STORAGE
STAFF STAIR
TO OFFICES
55
42

A20-01
4

2
A20-01

10
40
BUNKER
381 m²
PASSING BAY
80
FURNACE & BOILER
SYSTEM
7124 m²
RL 45000
GMS SPARE BUNKER
3286 m²
RL 45000
GMS UNDERGROUND
BUNKER
2519 m²
RL 45000
ENTRANCE TO UNDERGROUND
BUNKER BELOW

2
A30-07

A20-02
1
EMERGENCY EXIT FOR
VIEWING PLATFORM
BUNKER
538 m²
RL 45000
50

A20-02
3
27
GENERATOR ROOM
2624 m²
100

A20-02
4

2
A20-02
1
A40-10
3
A20-01
1
A30-01

MANGAPIKO STREAM

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GRAFTON, AUCKLAND 1010
09 357 3557
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PROJECT STATUS:

PROJECT TITLE:
PAEWIRA WASTE TO ENERGY PLANT

PROJECT ADDRESS:
PAEWIRA – 401 RACECOURCE ROAD, TE AWAMUTU

SHEET TITLE:
LOWER LEVEL PLAN

PROJECT ISSUE DATE:
DECEMBER 2021

SCALES .
1 : 500 at A1

DESIGNER	DRAWN BY	CHECKER
Designer	Author	Checker

PROJECT NO.	SHEET NO.	REV NO.
200065	A10-02	

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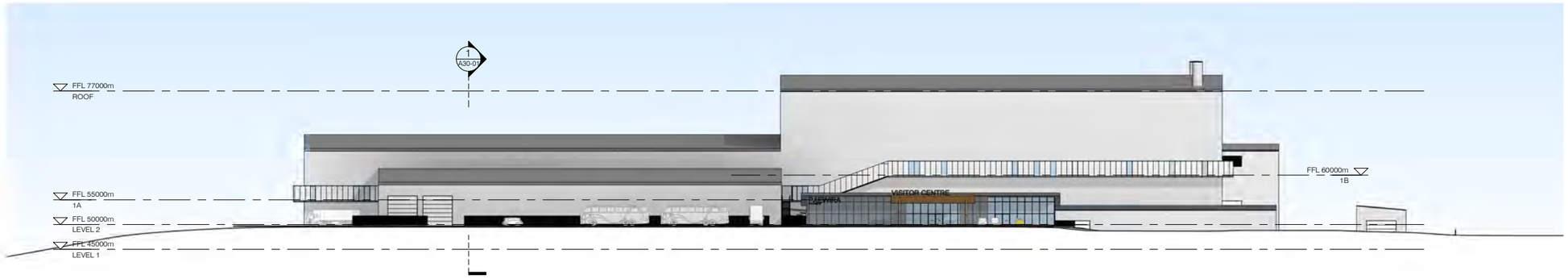
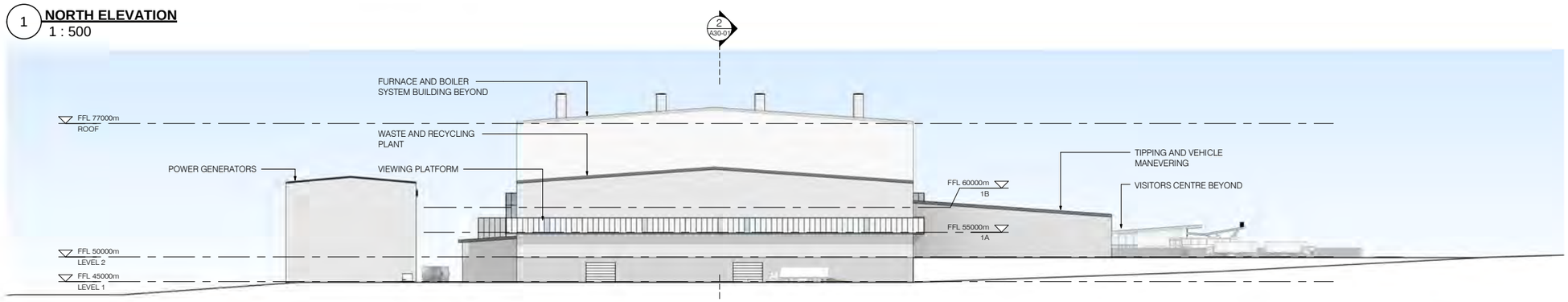
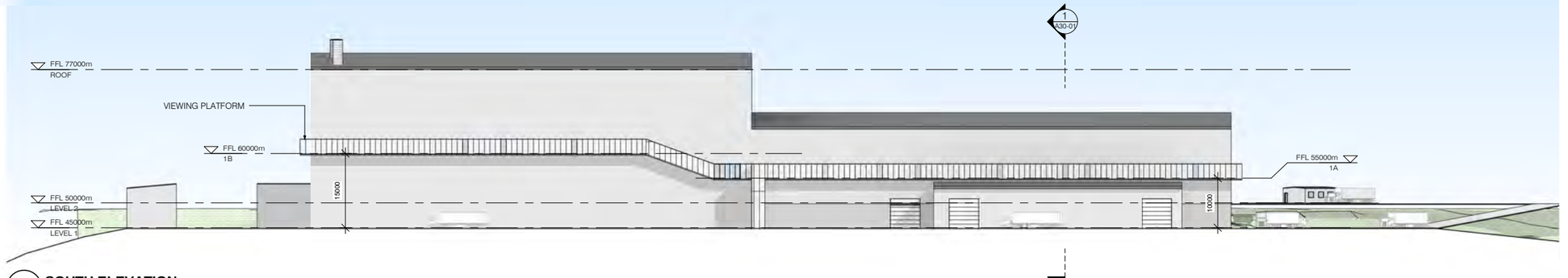


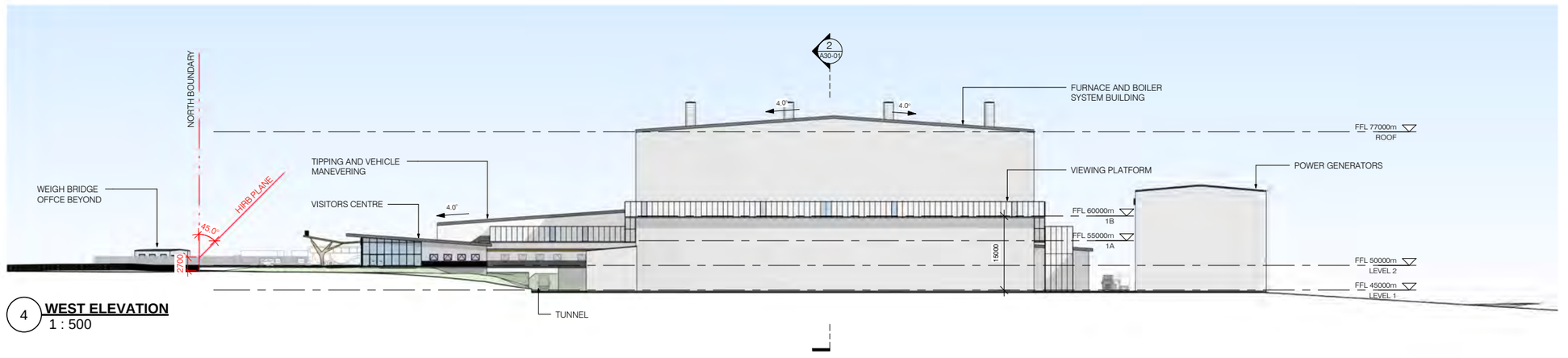
1 **NORTH ELEVATION**
1 : 500



2 **EAST ELEVATION**
1 : 500



3 **SOUTH ELEVATION**
1 : 500



4 **WEST ELEVATION**
1 : 500

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REV	DESCRIPTION	DATE
.		

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79 GRAFTON ROAD,
GRAFTON, AUCKLAND 1010
09 357 3557
WWW.TERRAGROUP.CO.NZ

PROJECT STATUS:

PROJECT TITLE:
PAEWIRA WASTE TO ENERGY PLANT

PROJECT ADDRESS:
PAEWIRA – 401 RACECOURCE ROAD, TE AWAMUTU

SHEET TITLE:
ELEVATIONS

PROJECT ISSUE DATE:
DECEMBER 2021

SCALES
.
1 : 500 at A1

DESIGNER	DRAWN BY	CHECKER
Designer	Author	Checker

PROJECT NO.	SHEET NO.	REV NO.
200065	A20-01	

Appendix 6: Mitigation Planting Plans

Key

- Site boundary
- Fence line
- Contour (0.5m Intervals)
- Proposed Buidlings
- Proposed Cycleway
- Proposed Planting (High)
- (Proposed Planting(Medium)
- Amenity Planting
- Proposed Planting (Low)
- Wetland Planting
- Screen Planting (Low)
- Screen Planting (High)
- Pond

N

Proposed cycleway link

Proposed cycleway link to visitors centre and cafe

Access road to Venn property

Proposed Pond

Proposed outdoor gathering space beside visitors centre and cafe

Amenity planting

Internal site cycleway provides different experience travelling over wetland and along stream edge

Low level indigenous planting

High vegetation screens views towards Waste & Recycling Plant

Cycleway bridge crossing

Connects to balance of cycleway

Riparian planting

Potential view over remedial area

Cycle extension provides loop path with opportunity for viewing platforms

New footpath

3m Screen Planting

3m Screen Planting

New pedestrian refuge

Bunker

Temporary Bunker

Visitors Centre, Cafe and Museum

Furnace & Boiler System

Power Generator

Tipping and Vehicle Maneuvering Area

Waste and Recycling Plant

Bunker

Weigh bridge

Weigh bridge

Mangapiko Stream

1 C2

2 C2

0 50 100 150 200 m

Design Intent

This proposal provides a broad overview of indigenous restoration planting for the Mangapiko Stream and associated secondary stream terrace within the broader grounds of the Paewira Waste to Energy Plant. Utilising a range of riparian and wetland indigenous species the proposal creates layers of low, intermediate and high swathes of vegetation which respond to the site topography, restoring the site and providing enhanced ecological habitat for the stream and stream terrace. The ecological restoration not only provides a varied and enjoyable setting for a proposed section of the Te Awamutu to Lake Ngaroto Cycleway, but once mature will assist in providing appropriate scale, screening and integration of the Paewira Waste to Energy Plant

1 Overview Plan
Scale: 1:1750

The purpose of this plan is to show the general intent of the design and may not be complete in every detail. This plan is not intended as a construction drawing and should not be used as such.

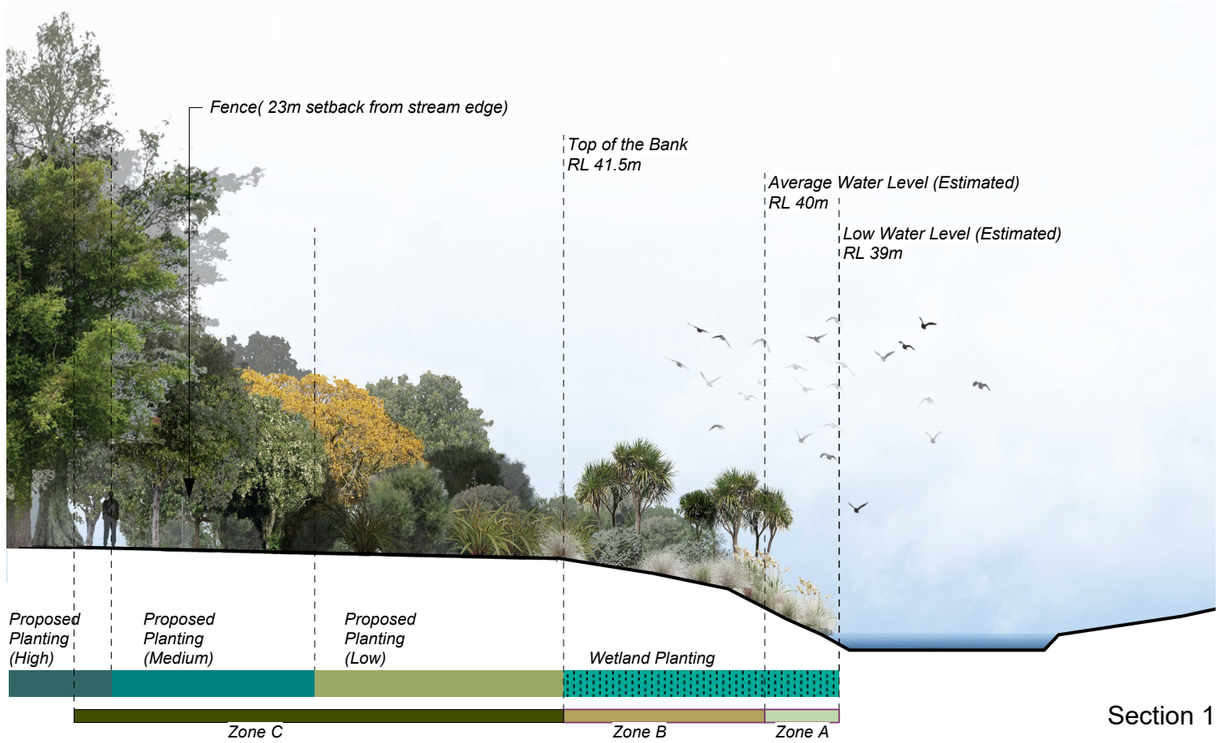
mansergh graham LANDSCAPE ARCHITECTS

Landscape Planting Overview

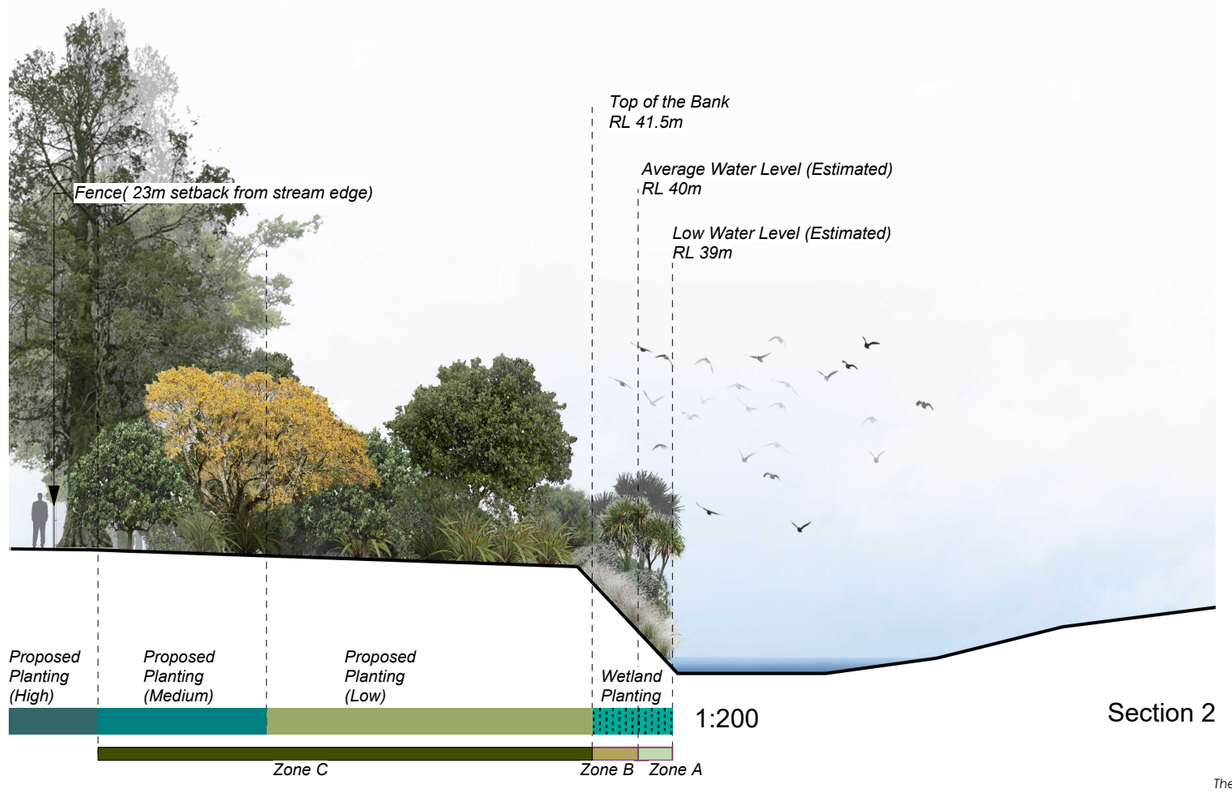
Paewira Waste To Energy Plant

Project No. **2022-016** | Phase **Concept** | Scale **shown @ A3** | Revision No. **R8** | Date **23/08/2022** | Drawn **YL** | Approved **MG**

Plan No. **C01**



Section 1



1:200

Section 2

Riparian Planting (Zone A)

ID	Latin Name	Common Name	Height	Spread	Quantity
BAR	Baumea articulata	Jointed Baumea	1.8	1	343
CAU	Cordyline australis	Cabbage Tree	8	1.5	53
CFU	Cortaderia fulvida	toetoe	1.5	1.5	158
CGE	Carex geminata	Cutty Grass	1.2	3.5	396
CSE	Carex secta	Purei	1	1	791
CUS	Cyperus ustulatus	Giant Umbrella Sedge	1	1	528
CVI	Carex virgata	Pukio	1	1	369
Note:	All plants at 0.75m spacing				2638

Riparian Planting (Zone B)

ID	Latin Name	Common Name	Height	Spread	Quantity
CAU	Cordyline australis	Cabbage Tree	10	3	19
CRO	Coprosma robusta	Karamū	4	1.5	38
DVI	Dodonaea viscosa	Akeake	6	3	48
HST	Hebe stricta	Koromiko	1.8	2	230
JPA	Juncus pallidus	Giant rush	1.5	0.6	230
LSC	Leptospermum scoparium	Manuka	4	1.5	67
MAU	Myrsine australis	Mapou	3	2	326
Note:	All plants at 1.5m spacing				958

Top Bank Planting (Zone C)

ID	Latin Name	Common Name	Height	Spread	Quantity
ASE	Aristotelia serrata	Wineberry	9	4	89
CRO	Coprosma robusta	Karamū	4	1.5	267
HSE	Hoheria sextylosa	Lacebark	6	3	89
LSC	Leptospermum scoparium	Manuka	4	1.5	232
MRA	Melicytus ramiflorus	Mahoe	5	4	125
PEU	Pittosporum eugenioides	Lemonwood	9	4	356
PTE	Phormium tenax	Flax	3	2	446
SMI	Sophora microphylla	kōwhai	10	5	178
			0	0	0
Note:	All plants at 2m spacing				1782

Note: Planting schedules cover a 20m offset from the stream.
Schedules for the balance of the planting will be prepared subject to council approval

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LANDSCAPE ARCHITECTS

Streamside Remediation

Paewira Waste To Energy Plant

Project No. **2022-016** I Phase **Concept** I Scale **shown @ A3** I Revision No. **R4** I Date **17/08/2022** I Drawn **YL** I Approved **MG**

Plan No.
C02

Appendix 7: Stack Height Comparison

Stack height 38m (no change)

Stack height 45m

Stack height 50m

Stack height 60m

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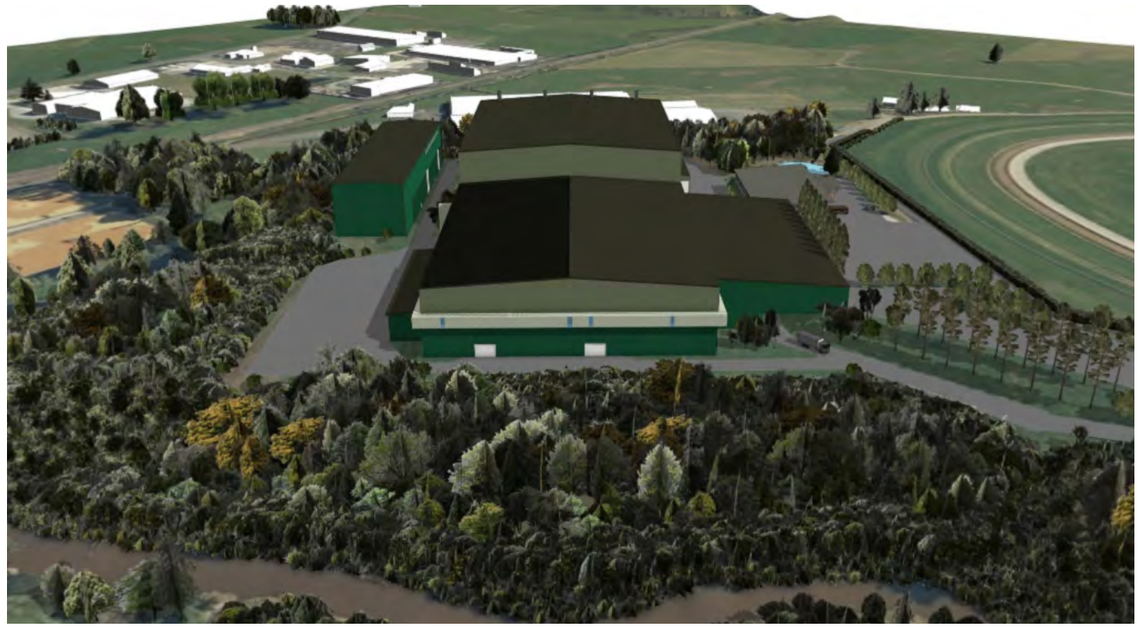
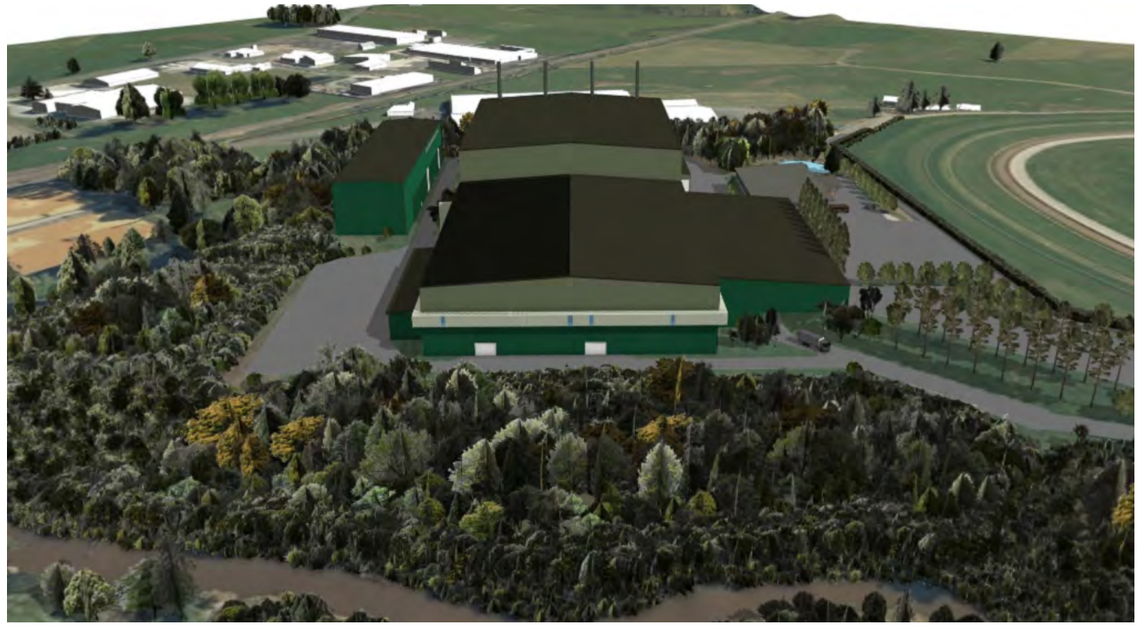
Paewira Streamside Remediation

Comparative Stack Heights

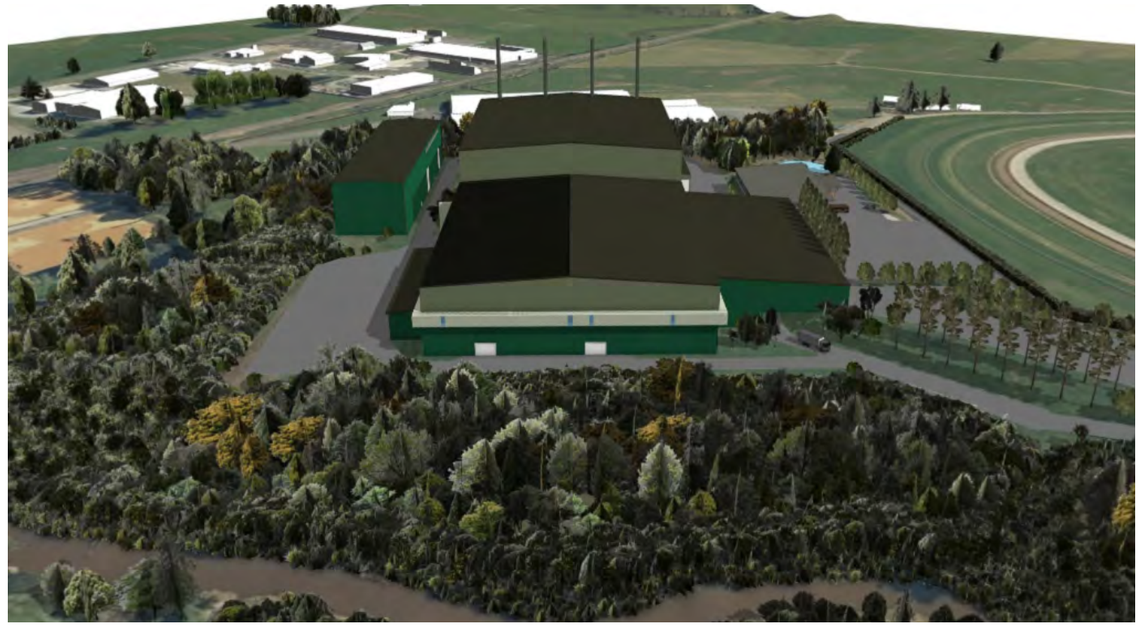


Stack height 38m (no change)

Stack height 45m



Stack height 50m



Stack height 60m

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mansergh graham
LANDSCAPE ARCHITECTS

Paewira Streamside Remediation

Comparative Stack Heights