Little River Logistics Precinct

Landscape and Visual Impact Assessment

Landscape and Visual Impact - Technical Assessment
Prepared for **Pacific National**

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Quality Assurance

Little River Logistics Precinct

Landscape and Visual Impact - Technical Assessment

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Revisions

Rev	Date	Details	Prepared By	Reviewed By	Project Principal
1	6 March 2023	Landscape and Visual Assessment – Draft 1	JC	MR	**MR**
2	28 April 2023	Landscape and Visual Assessment – Rev 02	JC	MR	**MR**
3	08 June 2023	Landscape and Visual Assessment – Rev 03	JC	MR	**MR**
4	06 July 2023	Landscape and Visual Assessment – Rev 04	JC	MR	**MR**
	17 July 2023	Landscape and Visual Assessment – Final Issue	JC	MR	**MR**

Executive Summary

This Landscape and Visual Assessment report has been prepared by Tract Consultants Pty Ltd for Pacific National. The report provides a technical evaluation of the landscape and visual effects associated with the Little River Logistics Precinct (LRLP) development proposal. The assessment is based on the schematic design provided by Pacific National- *Utilities Compound Option, sheet number SIWI-TAC-AR-SKC-ASK-46 (issue A, drawn 25th January 2023).* The assessment is based on modelling which assumes a uniform warehouse height of 22m.

Background

Pacific National is proposing to develop a new 'state-of-the-art' integrated freight and logistics precinct in Little River, Victoria. The project is named the 'Little River Logistics Precinct' (LRLP) and the Project will deliver a significant asset, not just for Pacific National, but for the national freight supply chain, and the nation, generating increased rail mode share for interstate and, ultimately import/export freight. With the combined rail terminal and integrated warehousing, the Project will result in lower rail supply chain costs, reduced trucks on roads leading to reduced traffic congestion and increased road safety, and reduced greenhouse gas emissions.

The site which is the subject of the Project includes land within three properties with a total area of approximately 580 hectares. The properties include:

- Part of 132A Old Melbourne Road, Little River
- 425 Little River Road, Little River
- 471 Little River Road, Little River
- Government Road (Allot. 2032 PARISH OF COCOROC)

Most of the land within the site forms part of 132A Old Melbourne Road, Little River. There are two parcels in 132A Old Melbourne Road to the south of Little River Road identified as Lot 3\TP820002 and Lot 2\LP141768 that are not part of the site for this project. The site includes a Government Road that is 20 metres in width and is part of an unmade road. Application for the land to be incorporated into the Project site will be made as part of the Project approvals.

Phase 1 Preliminary Landscape and Visual modelling synopsis and findings

A previous *Preliminary Landscape and Visual Assessment* modelling process was produced based on an early concept design within the proposed site area (drawn 28/06/2022).

The preliminary modelling and assessment process was utilised to test height and mass of earlier concept design options, including early indicative site layout and warehouse heights. This early modelling and assessment process DOES NOT form the basis of the formal Phase 2 LVIA.

The outcome of this earlier assessment and modelling process has:

- Identified the pattern of viewing related to the site and the relative sensitivity of individual viewpoints.
- Identified the relative effects of different building height and location options from specific viewing locations and viewing distances.
- identified general mitigation strategies that are likely to be effective when applied to the site development.

Phase 2 Landscape and Visual Impact Assessment

Baseline conditions

A study area of approximately 6 kilometres radius from the site boundary has been used as a primary study area within this assessment. A larger viewing distance has been considered where appropriate for landscape context and additional sensitive receptors, such as the views to and from the You Yangs.

The study area includes the settlement of Little River and the Princes Highway within a broad acre farming land use area, including typical agricultural infrastructure and a cultural landscape that includes prominent windrow and boundary plantations. Other existing infrastructure within the study area includes the Youth Justice Centre facility 2km away which includes the built facility and perimeter wall. The existing Werribee landfill site (Wyndham Refuse Disposal Facility) is located 4km away and includes mounding, various buildings, and associated operation vehicles. There is an existing Quarry 4.5km towards the northeast of the site area on the northern side of the railway line. The future Outer Metropolitan Ring Road is located towards the east of the site area within a Public Acquisition Overlay along with a new Princes Highway interchange and road connection to Little River township to the southeast of the site area, this will function as a future transport corridor.

The proposed development site is positioned within the Western Plains Rural Landscape Character Type and is considered part of a larger Green Wedge Zone that is intended to visually separate the Melbourne and Geelong metropolitan areas. The site area has been determined to be of **local status** and currently comprises open pasture fields within surrounding agricultural lands and rural residential dwellings. The site includes existing native / exotic grassland that transitions to an ephemeral wetland condition within the east and south of the site.

In terms of Landscape Value, the site area is rated as having an overall **low scenic quality** within the Western Plains landscape Character Type, based on the common, flat basaltic plain landform, minimal volcanic features and lack of permanent water forms. The site and wider landscape towards the east of the rail reserve does include remnant vegetation of the Plains Grassland. The site and wider landscape has been extensively modified through agricultural use but has no discernible cultural landscape features. This landscape has a **low visual absorption capability** to accommodate changes within this character type on the basis of relatively flat terrain and lack of vegetation cover.

The Princes Highway and the Little River settlement represent the most sensitive visual receptors due to the number of potential viewers and the proximity of viewing points to the site. The typical pattern of viewing within the study area is from moving road-based views from the Princes Highway and from surrounding rural roads, as well as moving rail-based views on the northern edge of the site. Rural residential dwellings may have additional private static views, in addition to their surrounding road-based views going to and from their place of residence.

Views to the Western Plains are typically visually broken up by existing vegetation along roadways and agricultural boundaries and this pattern of intermittent viewing is a significant, but not a complete mitigating factor.

New Conditions - Assessment

Zone of Visual Influence modelling and Wireframe Visualisations have been produced based on the Phase 2 schematic design (refer to Appendix 2 - Zone of Visual Influence and Appendix 4 - Wireframe Visualisations).

The Proposed built form will substantially change the nature of the site landscape character from a rural landscape to an essentially industrial land use. Various existing viewpoints will have an uninterrupted or partial line of sight towards the subject site.

The Western Plains landscape character type will not easily absorb the proposed built form that is proposed within the site area. The changes will represent an industrial scale of site development and a built form that is significantly beyond the existing nature of the landscape character. The nearby existing Youth Justice Centre, Wyndham Refuse Disposal Facility (Werribee Tip) and Quarry are evident within the surrounding landscape but are of a lesser scale and are more easily absorbed within the landscape. The industrial scale of this development would likely be seen as a substantial

alteration and adverse effect within this landscape setting without implementing practical and effective mitigation measures.

The majority of the visual receptors within the study area are located along existing transport corridors and would be partially screened by existing roadside vegetation and / or existing residential development. Other main views include rural residents and residents within Little River within 0 – 3km that have views of the proposed development site without existing screening vegetation. Background views beyond 3km will also be available from a range of viewpoints with visibility likely to include the built form as a partial silhouette within the horizon that includes tree planting and other developments that are characteristic of the rural landscape.

Visual Impacts have been identified as ranging from a high adverse impact to a low impact or no impact from several sensitive visual receptors and from multiple viewing angles and distances within the study area. The main influence on the nature and magnitude of change impacting visual impact has been identified as:

- Viewing distance
- Existing screening vegetation
- Existing residential development

Cumulative effects

The proposed development adds to existing landscape changes such as the Youth Justice Centre, the Wyndham Refuse Disposal Facility and residential development and to future changes such as the Outer Metropolitan Ring Road (E6) development, however there are no viewpoints where these developments are seen within the same view or viewing sequence. On that basis and at this time, the proposed development is likely to be perceived as a new, but isolated development, rather than part of a sequence of development changes. Over time, future infill development within the Little River setting or Princes Highway edge has the potential to increase the visual connection between developments and increase the potential for cumulative effects.

In terms of the potential effects of the proposed development on the qualities of the 'green break', the visual separation of existing development including the modelled effects of the proposed development, suggest that the current development proposal would not represent a specific and significant change to the landscape and visual qualities of the 'green break' landscape.

Mitigation Measures

Mitigation measures will reduce and, in some locations, completely eliminate visual impacts, but the effectiveness of mitigation measures will depend on establishment time and the use of offsite planting in roadside locations. Mitigation measures identified are a combination of the following:

1. Limiting building height (22m)
2. Breaking up the visual mass of the development through the use of colour
3. The use of non-reflective building materials and lighting controls
4. The development of a structured system of landscape planting within the site and boundaries, including pre-construction planting
5. The use of tree species combinations and landscape management strategies that optimise tree growth.
6. Development of a planting palette that reflects the landscape context and character. In this way, new tree planting will visually integrate with the existing regional landscape.
7. Where possible, develop a system of strategic tree planting outside of the site boundary within local road reserves to screen views in key viewing locations. This could include planting within local road reserves and within private properties.

An indicative landscape plan has been developed and additional Photomontage renders have been produced displaying the staged development and vegetation growth (refer to Appendix 5 - Landscape Plan and Appendix 6 - Photomontage Visualisations).

Evaluation

The proposal would substantially change the landscape character of the site and represent a clearly noticeable and adverse change to the landscape character type.

Due to the nature and scale of the proposed development, the change will be seen as a potentially dominant visual feature within this landscape setting, although the extent of the visual impact depends on the location of the visual receptor and the screening effects of existing vegetation and development. The visual impacts can be partially but not fully mitigated through the implementation of screen planting within the overall site development. More substantial, but not complete visual mitigation could be achieved through the development of a network of mitigation planting in roadside locations beyond the site boundaries.

The pattern of viewing relating to the You Yangs will not be significantly interrupted by the proposed development.

While the industrial scale of the site's development would unlikely impact the Green Wedge's main intent to visually separate the Melbourne and Geelong metropolitan areas, other future cumulative impacts in addition to this development may cause future effect.

The development will be clearly evident, but not a dominant visual element within the landscape of the Western Plains when viewed from the You Yangs. It would not significantly diminish the quality of the view from the You Yang's, which is a valued at a regional level. However, over time may form part of a cumulative change that will be compounded by the existing views of the Youth Justice Centre, Wyndham Refuse Disposal Facility and other future road and development works from the proposed OMR/E6. Close views from Little River township will be most affected by the development change, given its physical proximity and the residential nature of the setting. These views can be partly, but not fully mitigated by planting within the development site. Offsite planting in road reserves would potentially provide more comprehensive visual impact mitigation.

More distant views from the Princes Highway will be unaffected or at a negligible / low impact level. One location will have a higher level of impact but the overall change to the Princes Highway corridor is not considered to be significant.

If the mitigation strategies of staging development and establishing mitigation planting in advance of development, as well as establishing an offsite network of roadside planting close to view sources are implemented successfully, then the nature and magnitude of change will reduce the potential impact of the Proposal. A more detailed pattern of roadside planting is consistent with planting patterns that already occur close to Little River township and the Princes Highway.

Contents

Glossary of terms

Amenity	A measure of scenic quality.
Analysis	Process of breaking down landscape or visual attributes into component parts to understand how it is made or valued.
Assessment	General term for description, classification and analysis of landscape or visual attributes.
Classification	A process of sorting the landscape into different types using selected criteria, but without attaching relative values to the different kinds of landscape.
Community values	Commonly held perceptions and values that the community attach to environmental attributes or qualities. These can include individual views.
Cumulative effects	The summation of effects that result from changes caused by a development in conjunction with other past, present or reasonably foreseeable actions.
Duration of effects	Measure of both time and the reversibility of effects.
Effect	A consequence of change.
Impact	A positive or negative change to the landscape or the visual environment.
Landscape	A distinctive physical area as perceived by people, whose character is the result of the action and interaction of natural and / or human factors. Human perception of the land conditioned by knowledge and identity with a place.
Magnitude of effect	Combination of scale, extent and duration of an effect.
Mitigation	Measures to avoid, reduce or compensate for adverse landscape and visual effects.
Perception of landscape	The psychology of seeing and potentially attaching value or meaning to a landscape
Receptor	Physical landscape resource, viewer or special element that will experience an effect as a result of change.
Scenic quality	A relative judgement, based on common community perceptions, about the visual qualities associated with a landscape type or character area.
Sense of place	A relative judgement, based on common community perceptions, about the essential character and spirit of an area.
Sensitivity	The extent to which changes in landscape and visual resources can accept change without unacceptable, adverse effects on its character.
Significance	A relative measure of the importance of a landscape or visual change against a defined value system
Study area	Combination of the proposed development site and the surrounding area, typically to a radius of 6km.
Viewshed	A region visible to an observer, defined by reference to an actual view or area of theoretical visibility determined by a ZVI analysis.
Visual absorption capability	Index of an areas ability to accommodate changes without a significant reduction in landscape and visual quality or amenity.
Visual amenity	The value of a particular area or view in terms of what is seen.
Visual assessment	Deals with potential effects on the visual resources of the setting from changes in the composition and quality of views, people's response to likely changes and the overall effect on visual amenity.
Visual sensitivity	The extent to which a landscape can change without unacceptable adverse effects on its visual character or scenic quality.
Wireframe Visualisation	A computer simulation to illustrate the appearance of a proposed development.
Zone of Visual Influence (ZVI)	An area within which a proposed development may have an effect on visual amenity. This is also referred to as the 'Zone of Theoretical Visibility'.

1 Introduction

This Landscape and Visual Impact Assessment report has been prepared by Tract Consultants Pty Ltd for Pacific National. The report provides a technical evaluation of the potential landscape and visual effects associated with the Proposal.

Tract Pty Ltd have prepared this assessment based on Pacific Nations proposal to develop a new 'state-of-the-art' integrated freight and logistics precinct in Little River, Victoria. The Project will cover approximately 375 hectares with rail terminals, freight handling, warehousing, and supporting activities, along with 205 hectares of biodiversity offset land.

The project is named the 'Little River Logistics Precinct' (LRLP) and the Project will deliver a significant asset, not just for Pacific National, but for the national freight supply chain, and the nation, generating increased rail mode share for interstate and, ultimately import/export freight. With the combined rail terminal and integrated warehousing, the Project will result in lower rail supply chain costs, reduced trucks on roads leading to reduced traffic congestion and increased road safety, and reduced greenhouse gas emissions.

The specific area of investigation referred to herein as the 'site area', comprised land bounded by the Melbourne to Geelong Rail Corridor in the north, West Back 1 Track and Belfridges 1 Track in the east, Devines Road in the west and Little River Road (Old Melbourne Road) in the south (refer to Figure 1 for location context). The assessment is based on the Schematic Design site layout within the site area (drawn 25/01/ 2023).

The proposed built form has been modelled as a simple 3D block model based on this schematic design and additional height information provided at the date of assessment. The modelled site therefore includes building locations and indicative heights only. The model does not provide architectural details, building materiality or lighting effects, but does provide a basis for assessment within the existing conditions and baseline values identified.

1.1 Scope of assessment

The primary purpose of the Landscape and Visual Assessment is to evaluate the likely visibility of proposed new structures and key features within the site area, from surrounding viewpoints and the effect of the likely change on the landscape character and scenic quality of the landscape and surrounding areas.

The scope of this study has been informed by the information provided within the Schematic Design (drawn 25th January 2023), from Pacific National. This Landscape and Visual Impact Assessment includes the following:

- Description of the development proposal
- Summary of the regional strategic context and landscape values
- Baseline values of existing visual conditions and the surrounding landscape values
- Modelling to determine the theoretical zone of visibility
- Key findings based on the theoretical ZVI modelling, site inspection and supporting indicative wireframe visualisations
- Assessment of landscape and visual values related to the new development proposal and supporting photomontage images
- Description of possible mitigation measures and recommendations
- Evaluation of the development proposal in terms of landscape and visual effects

1.2 Assumptions

The assessment does not consider:

- Specific impacts from every possible viewing location. The assessment establishes a baseline of existing site values, along with an analysis of the nature and magnitude of development related changes from locations that have been classified as 'worst case' and 'most typical / representative receptor locations.
- No empirical research or targeted consultation relating to community values or visitor perceptions of landscape and visual quality was undertaken as a part of this study, however, publicly available documents have been referenced in order to provide an understanding of baseline values. (refer to Section 4).
- The potential impact on cultural heritage, refer to the *Preliminary Aboriginal Heritage Report* (Extent Heritage PTY LTD, 2022) for further details.
- The effects of glint and glare on visual receptors from the Proposal.
- The scope of this assessment does not include consideration of landscape and visual impacts from lighting during night-time conditions (no information available at this time).

This assessment is based on technical information provided at the time of writing:

- The Proposal 'site area' of this assessment is based on the Schematic Design (drawn 25th January 2023).
- The key features within the site area have been assessed on indicative heights for all warehouse buildings (22m).
- LiDAR data provided by the client (2017-18 Greater Melbourne LiDAR Project MGA Zone 55, GDA2020 8pts/m2, Accuracy of 0.2m Horizontal, 0.1m Vertical), in combination with publicly available contour data of Metropolitan contour data 1-5 meter – Vicmap elevation data (DELWP).

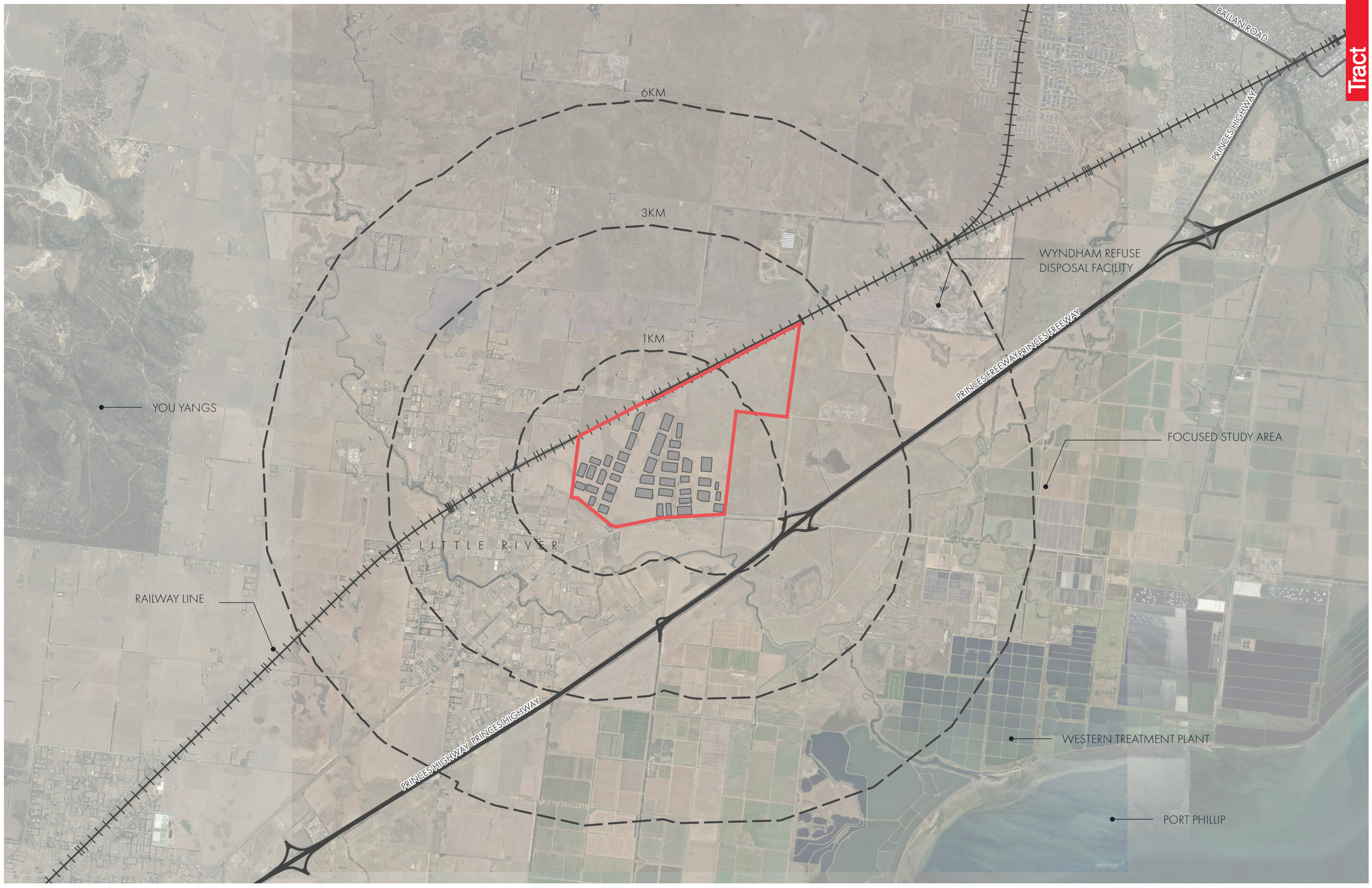
The overall approach for this Landscape and Visual Impact Assessment is outlined within Section 2 and Figure 2.

1.3 Study area

The study area of this assessment includes a focused study extent of approximately 6km radius from the proposed warehouse locations, as shown within Figure 1. This radial distance equates to 'background' views and is generally acceptable to capture the nature and magnitude of effects for this scale of development (refer to Table 5 for distance factors). The assessment also includes prominent locations outside of the focused study area that have been deemed to have a high sensitivity surrounding the focused study area extent.

Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC) is the Registered Aboriginal Party (RAP) for the site area. Refer to the *Preliminary Aboriginal Heritage Report* (Extent Heritage PTY LTD, 2022).

The study area is located within the Wyndham local government area and is predominantly positioned in a rural setting within the Western Plains landscape setting (Leonard & Hammond, 1984). The site area is located approximately 1.5km NE of the settlement of Little River in the west and is positioned outside of the Melbourne urban growth boundary that is located towards the east. The study area includes the Melbourne to Geelong Rail Corridor to the north and the Princes Highway to the South. Towards the west of the study extent are the You Yangs and within the south is the Western Treatment Plant, a Ramsar listed wetland.



Drawing Title	Project Name	Drawing No.	Revision	Date	Drawn	Checked	Project Principal	Scale
Study Area	Little River Intermodel Freight Terminal	321-0501-01-L-00-DR01	02	06.06.2023	EB	JC	MR	@ A3 0 100 200 500

2 Study Methodology

2.1 Assessment methodology

General assessment methodology reference

The overall method applied to assess landscape and visual impacts of the existing landscape is based on principles outlined in *Guidelines for Landscape and Visual Impact Assessment (third edition)*, The Landscape Institute & Institute of Environmental Management & Assessment, Spon Press, April 2013, which represents a 'best practice' approach within the United Kingdom and has been extensively trialled since 1995 on a range of project types including extractive industry projects, wind farms, property and road infrastructure development.

Refer to Figure 2 for Tracts overall LVIA methodology which forms the basis of understanding the baseline condition of this LVIA.

Visualisation references

In terms of visual representation of effects (wireframe visualisation images), the methodology is based on the principles outlined in the following publications which are cross referenced within the UK based LVIA guideline:

Visual Representation of Development Proposals, Advice Note 17/19, Landscape Institute (UK) 2019

Photography & Photomontage in Landscape & Visual Impact Assessment, Advice Note 1/11, Landscape Institute (UK) 2011 *Visualisation Standards for Wind Energy Developments*, The Highland Council (Scotland), 2013.

Professional judgement in LVIA

Structured professional judgement (qualitative assessment) is an integral part of the LVIA process and has been used in conjunction with quantitative based assessment procedures in this project. Tract has used a team-based approach to validate professional judgements.

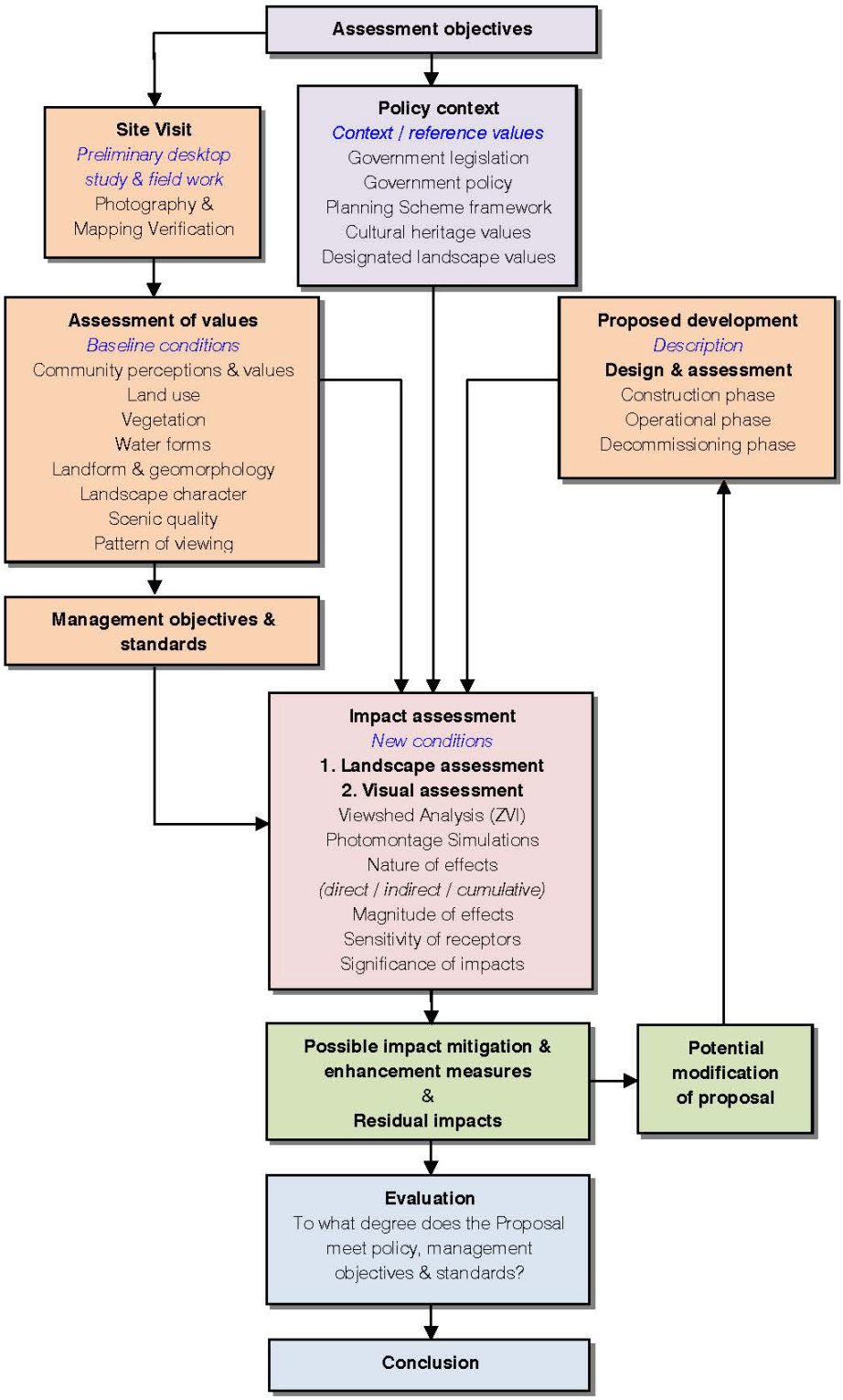


Figure 2: *Landscape and Visual Assessment Methodology (Tract Consultants)*

2.2 Impact assessment definitions

Impact assessment has been based on the criteria of sensitivity of receptors including landscape and its users (viewers), duration of impacts, nature and magnitude of impacts, and significance of impacts.

Receptor sensitivity

A visual receptor is a place, route, viewer or interest group. Receptor sensitivity is a measure of the direct or indirect effects that development changes may have on a receptor or their view, refer to Section 2.3 for the identified sensitivity levels within the study area.

Nature and magnitude of impacts

The nature and magnitude of impacts is the anticipated extent of change that will be experienced by receptors, refer to Section 2.4 for the definition of impact significance levels.

Significance

The significance of impacts will be determined by a combination of sensitivity of the receptor (whether it is landscape or a viewer) and the magnitude of the predicted changes. The ratings shown in Table 1, define the levels of significance of impacts expressed as three levels.

The impact ratings are made against the baseline values identified within Section 5.

The significance ratings reflect an assessment of the overall importance of the predicted impact and also indicate mitigation priorities.

A number of 'moderate' rating factors may collectively represent a relatively 'high' degree of change to a receptor (cumulative impact) and therefore mitigation measures may need to be considered for more than 'high significance' rated impacts.

Table 1: Impact significance matrix

MAGNITUDE OF CHANGE	high	moderate	high	high
	moderate	moderate	moderate	high
	low	low	moderate	moderate
	negligible	low	low	low
	No evident change	Nil	Nil	Nil
		low	moderate	high
		RECEPTOR SENSITIVITY (Landscape / Viewers)		

2.3 Receptor sensitivity

Visual receptor sensitivity is a measure of the direct or indirect effects that development changes may have on a view or scenic resource. Sensitivity factors could include physical elements, visual character and cultural values. For the purposes of the impact assessment viewer sensitivity is defined as a combination of the following factors:

- A direct relationship to or dependence on the visual environment
- Familiarity with the place and its landscape and scenic qualities
- The distance of the receptor from the potential impact and the available angle of view (field of view),
- The number of people that use that location and are likely to experience changes to scenic quality

Table 2: Receptor Sensitivity

Sensitivity	Receptors
High Sensitivity	▪ Recreational users within a designated state level park, or major recreation trails and formal scenic view locations (You Yangs) ▪ Community users of major public spaces within town centres (Little River settlement) ▪ Residential properties ▪ Road users of Highways and major regional roads (Princes Highway)
Moderate	▪ Recreational users within the Western Treatment Plant, and secondary tourist roads and recreational driving routes ▪ Rural residential properties ▪ Users of Schools, hospitals and residential care facilities
Low	▪ Road users of local rural roads ▪ Workers within Industrial properties ▪ Workers within agricultural properties

In this rural landscape setting it can be assumed that:

- There are limited residential visual receptors living within this rural landscape setting and they will have an acute interest in the scenic quality of Little River's agricultural setting and the visual qualities associated with the broader rural area.
- Frequent travellers along the Princes Highway and Railway line who are familiar with the rural scenic qualities may have an equal interest in the scenic quality, but different sensitivities due to the typical speed of movement and limited views.

2.4 Nature and magnitude of impacts

Table 3 defines the nature and magnitude of impacts, resulting from each anticipated impact significance level from major adverse (high) to major beneficial (negligible) .

Table 3: Nature and magnitude of impacts – definition

Impact Significance Levels	Definition Visual Impacts on Landscape	Definition Visual impacts on Receptors
Major adverse **HIGH (6)**	Total or substantial alteration to key features of the baseline conditions. Effects are at considerable variance with the landform, scale and pattern of the landscape and cannot be substantially mitigated. Would cause a high quality or designated landscape to be substantially changed and its quality and values diminished.	Total or substantial alteration to key features of the baseline conditions. The Proposal forms a significant and dominant part of a view of high scenic quality. Other scenic elements become subordinate and diminished in value. The valued scenic character of the site is markedly changed. Sensitive visual receptors are adversely affected by the change.
Moderate adverse **MODERATE (5)**	Would be noticeably out of scale with the landscape and clearly at variance with key landscape attributes identified within the baseline conditions. Will leave an adverse impact on a landscape of recognised quality.	The Proposal forms a clearly visible and recognisable new element within the overall scene that is readily noticed by the receptor. The scenic character and quality of the site is diminished.
Minor adverse **LOW (4)**	Will have an apparent but not obvious or dominant effect on an area of recognised landscape character or its key attributes.	The Proposal constitutes a discernible but minor component of the wider view. Awareness of the element will have a negative but not a marked effect on overall scenic quality.
Neutral **NEGLIGIBLE (3)**	Only a very slight change to baseline conditions and maintains existing landscape character and quality. New features complement the scale, landform and pattern of the site landscape and its broader setting.	No part of the Proposal or associated activity is visually discernible. The activity or feature is visible but has an insignificant effect on the perceived values or scenic quality of the setting.
Minor beneficial **NEGLIGIBLE (2)**	Likely to enable the restoration of valued landscape characteristics or features lost or diminished through existing land use activities. Potential to contribute to the development of a new and higher quality landscape character.	The Proposal fits comfortably within the existing visual landscape. The Proposal helps to articulate existing visual character and amenity values. Potential for the Proposal to contribute to the development of a new and higher value visual character.
Moderate / Major beneficial **NEGLIGIBLE (1)**	Fits comfortably within the existing landscape character and clearly contributes to the development of higher landscape values. Results in a significant improvement to the quality of the landscape through the rehabilitation of damaged areas or the removal of features or activities that have a negative impact on landscape values. Results in a distinctive landscape feature that has the potential to add new values to the landscape without diminishing existing valued landscape characteristics.	Fits comfortably within the existing landscape character and clearly contributes to the development of higher landscape values. Results in a significant improvement to the visual quality of the landscape through the rehabilitation of damaged areas or the removal of features or activities that have a negative impact on scenic values. Results in a distinctive landscape feature that has the potential to add new visual or tourism values to the landscape without diminishing existing valued visual characteristics.

Table 4: Impact duration

Impact duration

The *duration* of impacts is defined as:

Duration	Definition
Short term	Project construction and establishment phase (<2 years)
Medium term	▪ Early project operational phase (2 – 10 years)
Long term	▪ Within projected operational phase (10 – 25 years)
Permanent	▪ Beyond projected operational phase (25 years +)
Reversible	▪ Physical potential for full rehabilitation to original baseline condition within feasible cost parameters and land use objectives
Irreversible	Permanent physical change to the baseline condition ▪ Beyond feasible cost parameters and land use objective

Table 5: Distance factors – dependant on the nature of the change

Distance	Definition of typical effects
Foreground (<1km)	▪ Obvious or dominant visual change to the landscape and landform characteristics including Colour contrast and textural details are clearly perceived. ▪ Views are more likely to be broken by foreground features. ▪ Landform characteristics and the relationship between landscape features are clearly discernible.
Middle ground (1 – 3 km)	▪ Potentially obvious visual change to the landscape and landform characteristics. ▪ Views are more likely to be broken by foreground features. ▪ Landform characteristics and the relationship between landscape features may be clearly discernible.
Background (3 – 5 km)	▪ Likely minimal visual recognition of strong colour and light contrasts and large - scale vegetation clearance only. ▪ Minimal recognition of form and detail and no appreciation of vehicle movement. ▪ Distance zone where different landscape elements or types are visually apparent.
Distant views (5 km +)	▪ Textures are no longer visible. Only landform features such as valleys, skyline and ridgelines are visible. ▪ Depending on the scale of change, likely minimal visual recognition of strong colour and light contrasts and large-scale vegetation clearance only. ▪ Minimal recognition of form and detail and no appreciation of vehicle movement. ▪ Depending on the scale of the development, the visual scale of the change may be barely discernible and appear as a relatively minor visual element within a larger landscape complex.

2.5 Community perceptions and values

This LVIA process considers existing information sources, including Wyndham City Councils published strategies and guidelines, which make reference to landscape character values and visual quality of the surrounding area (refer to Section 4). In this context, these information sources are considered to generally represent the broader community values relating to the landscape and visual resources of the setting.

Many levels of perception will also be based on generic physiological factors that are broadly consistent for people across all communities. The common perceptions, listed below in 6, create a basis for subsequent value judgements.

Common perceptions and values

Existing empirical research suggests that there are common physiological, visual and aesthetic factors affecting visual perception and that these factors are likely to be relatively consistent across communities.

These findings, in isolation are indicative only factors to be considered as a part of the assessment. The factors do not provide a quantitative measure or definitive analysis of likely perceptions of visual effects / impacts or the values that may be attached to those changes in the viewed landscape, as they do not consider elements such as context, cultural meaning and the manner in which the receptor views the landscape.

Table 6 Common perceptions & values

Visibility	The magnitude of visual impact is at least partly determined by the nature of that view and whether it is moving or static.
Field of view	Horizontal line of sight: The normal physiological binocular field of vision (horizontal line of sight / width of view) is considered to be between 100° and 124°. Within the binocular field of vision, the viewer has depth perception. Either side of the binocular field is a monocular field of 42° for each eye (peripheral vision) which provides the viewer with awareness of movement speed and locational cues. Within the binocular field is a central field of view of around 10° which allows symbol recognition. Within the central field of view is a fovial field (zone of visual acuity) of 2.5° where viewed objects are sharply fixed and in detailed focus. Vertical line of sight: The normal physiological vertical field of view is considered to be 120 degrees (50° above horizontal and 70° below horizontal) with the limit of colour discrimination at 55 degrees (25° and 30° below horizontal). Technical reference It has been noted that the above field of view parameters are related to a normal human physiological view. The visualisations produced within this report are considered to provide a reasonably accurate impression of the size and nature of a visual change on a viewer's overall field of view. Impact ratings are based on an assessment of the change on the viewers actual field of view. Impact ratings are not based on the size of the modelled visual change as a proportion of the photograph presented in this report. Technical parameters are based on general practice within the industry (Landscape Institute United Kingdom, 2019). Refer to Section 2.7.

Horizontal field of view	As a general guide only, a visual element of less than 5° of a field of view may be considered insignificant, depending on the nature of background visual contrasts and the movement of the viewer. A field of view of between 5° and 30° may be potentially noticeable, depending on the nature of background visual contrasts and the movement of the viewer. A field of view of over 30° is likely to be highly noticeable and potentially dominant. The assessments new conditions have been modelled with a horizontal field of view of 80° within a panorama, which is general practice as noted within Section 2.7 (Landscape Institute United Kingdom, 2019).
Vertical field of view	As a general guide only, less than 0.5° of a field of view may be considered insignificant, depending on the nature of background visual contrasts and the movement of the viewer. A field of view of between 0.5° and 2.5° may be potentially noticeable, depending on the nature of background visual contrasts and the movement of the viewer. A field of view of over 2.5° is likely to be highly noticeable and potentially dominant.
Method of Perception:	These fields of vision indicate a field of view and visual 'recognition' but in isolation, are not meaningful measures of scenic perception. The process of recognising and observing an object or scene (Dynamic Visual Acuity) is complex and involves constant scanning of the seen area, recognition and refocussing within the field of view; a process that is modified (narrowed and simplified) by viewer movement, the speed of movement of the viewer and secondary activities such as driving, but enhanced by colour contrasts, illumination, proximity, size, shape, symbol recognition based on expectation and other factors.
Occupied view area:	The nature and magnitude of the visual impact is likely to have a proportional relationship to the percentage of the available view taken up by development infrastructure, new activities or landscape interventions. Objects may be visible, but not dominant, particularly when they occur within landscapes that have been modified by human activity and where the context and complexity of the natural landscape has been significantly altered. A spread of built elements or landscape changes across a wide view or several viewable areas is likely to result in a perception of greater overall visual impact than a similar number of built elements within a more confined viewable area.
Speed of movement	As the speed of movement increases, viewer concentration on a fixed area increases and peripheral vision diminishes, effectively shrinking the visual field. Foreground detail begins to fade.
Distance	The greater the viewing distance, the less detail is observable and the more difficult it is to distinguish between the site or object and its background, diminishing the impact.
Relative elevation	Objects viewed against a skyline silhouette or at the edge of a break in slope are likely to have a greater visual impact than objects or changes viewed from a location where features are viewed against a land backdrop. Colour contrasts may modify this outcome.
Size, colour & form	The greater proportion of a view occupied by new features or activities the greater the impact. Contrasting colours and forms increase the relative impact of change.

Illumination	Luminance contrast increases the visual definition of the shape, size and location of objects and potentially changes the context in which objects are re viewed. Lighting colour and movement increase the potential level of contrast.
Activity	Movement of objects, including vehicles and light reflection changing with movement will increase impact.
Complexity	Changes to a visually complex field of view with elements of varying scales and form are likely to result in lower impacts than changes to a relatively uniform field of view.
Context	The extent to which the proposed development is in character with the land use and landscape character of the site will affect the perceived level of impact.
Weather conditions	The overall clarity of the view, the angle of the sun and the degree to which skyline silhouettes are masked by clouds etc will affect visibility.
Change	The degree of change in the view and the process of change will affect the degree of impact on the viewer.
Familiarity	Changes to a familiar visual setting or where the viewer interacts with the setting is likely to have a relatively greater impact on the viewer than changes to a setting that is rarely seen or poorly understood.
Cultural context	Changes to a visual setting with significant cultural value or purpose is likely to have a relatively greater impact on the viewer than what may be considered a 'generic' landscape setting with no specific value.
Individual context	The perception of a visual impact or visual improvement within a landscape is likely to differ between communities, cultural groups and among individuals. Personal context and values strongly influence the manner in which visual effects are valued.

2.6 Landscape sensitivity

Landscape character and scenic quality assessment is used as a basis to assess the landscape's sensitivity to change, which is used further to assess the visual impacts resulting from proposed development within the landscape. Visual sensitivity refers to the extent to which a landscape can change without unacceptable adverse effects on its visual character and quality. Landscape sensitivity levels are described in 7.

Table 7: Landscape Sensitivity

Sensitivity Level	Definition
HIGH	Key characteristics of the landscape are highly vulnerable to the type of change being assessed, with such change likely to result in a significant change in valued character.

MODERATE	Some of the key characteristics of the landscape may be vulnerable to the type of change being assessed. Although the landscape may have some ability to absorb change, some alteration in character may result. Considerable care may be needed in locating and designing change within the landscape.
LOW	Key characteristics of the landscape are less likely to be adversely affected by the proposed change. Change can potentially be more easily accommodated without significantly altering character and there may be opportunities to positively create new character. Sensitive design is still needed to accommodate change.

2.7 GIS and computer-based modelling procedures

Visibility analysis

Visibility analysis through Zone of Visual Influence (ZVI) modelling of the Proposal and surrounding terrain was used to produce a model identifying potential visual receptors and areas that may be subject to views of the Proposal. Refer to Appendix 2 - Zone of Visual Influence.

ZVI modelling produces a theoretical zone indicating all places with a line of sight to the modelled data points. The data points have been chosen to best represent the layout and height of the Proposal during *the Preliminary Landscape and Visual Assessment* or two scenario options.

ZVI modelling was based on:

- Digital Terrain Model only and did not consider existing vegetation. This results in a 'worst case' scenario in terms of the theoretical extent of visibility.
- A modelling height of 1.6m above the predicted surface level of the future structure to simulate a typical viewer eye height.

The actual extent of visibility was verified by reference photographs and representative wireframe visualisations (photomontages), as described within Section 2.9.

Data limitations

Modelling and assessment outcomes are limited by the following:

- LiDAR data provided (2017-18 Greater Melbourne LiDAR Project MGA Zone 55, GDA2020 8pts/m2, Accuracy of 0.2m Horizontal, 0.1m Vertical), in combination with publicly available contour data of Metropolitan contour data 1-5 meter – Vicmap elevation data (DELWP).
- The Proposal 'site area' of the Phase 1 *Preliminary assessment* was based on the Western Concept Draft Rev 2 (drawn 28/06/2022) and nominal heights provided for each warehouse scenario at the time of writing.
- The Proposal 'site area' of this Phase 2 *LVIA technical assessment* was based on the Schematic Design provided by Pacific National *(issue A, drawn 25th January 2023)* and nominal heights provided at the time of writing.

It is considered that, given the scale of the Proposal, the size of the investigation area and the margins of accuracy applying to the modelling process, the modelling results are sufficiently accurate for the purposes of this assessment.

Best-practice modelling process

As the first step in the process, several photo locations and GPS points were recorded during the site visit. Photos were taken with a DSLR Camera (Canon 5D) with a 50mm fixed lens focal length. Conditions on the day of photography were clear and with adequate long-range visibility for the purposes of the assessment.

Photos have been photo stitched into planar panoramas, to provide a realistic impression of the scale of development. It is noted that planar panoramas have an increasing distortion towards the edges of the panorama in order to maintain a correct impression, when it is being viewed flat (planar). The planar projection panoramas have been limited to a HFoV of 80 degrees to reduce the distortion represented within the panorama, and it is recognised that beyond a HFoV of around 60 degrees from the centre point within a panorama that distortion may become present (Landscape Institute United Kingdom, 2019) .

Survey equipment was used to establish the GPS location and elevation of viewpoints. This information was used in 3D software to match the virtual camera with the photos taken on site.

A 3D virtual model was developed in 3D software (3D Studio Max) including the 3D model of the Proposal, based on the Schematic Design provided by Pacific National (issue A, drawn 25th January 2023). The viewpoint GPS locations were added into the 3D model to setup virtual cameras for camera matching. Once the views were matched, a Wireframe visualisation and additional Photomontage images were produced to superimpose on the existing conditions photograph to create before and after conditions.

Mitigation measures were added to the Photomontage images to show their potential effects.

Background

The photographic and imaging techniques adopted for this study are intended to produce visual representations that:

- Are as geometrically and aesthetically accurate as possible to permit decision makers, after suitable field inspections, to make a reasonable, balanced judgement of the effects of a proposed change.
- Are based on a transparent, structured and replicable procedure, to allow others to confirm the accuracy of the information presented; and
- Are intended to present findings in a manner that is easily understood by non-technical people.

It is important to note that photographic images and simulations cannot provide the visual experience that a human observer would receive in the field. The detailed technical assessments and professional judgements presented in this study have been made on the basis of site inspections, modelling and other information.

2.8 Selection of viewpoints

The potential viewpoints identified within this technical assessment are represented by photographed existing conditions from the site inspection (refer to Appendix 3 - Existing Conditions Viewpoints).

The viewpoints have been selected based on the following criteria:

- Locations have been nominated for testing based on a desktop assessment that were considered to be the most representative receptors.
- Viewpoints were identified and tested through the ZVI modelling process as being the most likely areas of potential visual impact. Within these areas, the most representative and the likely 'worst case' visual impact locations were selected to be tested during a site inspection.
- The selected viewpoints were all publicly accessible.

The Western treatment plant was not photographed due to no access being available, however, the entry / exit road was captured and would effectively represent the 'worst case' viewing distance from the Western treatment plant.

2.9 Photomontage (wireframe) simulations

The appearance of the Proposal is further assessed by wireframe-based visualisations and photomontage images. These simulations provide an accurate representation of the scale, shape and location of new structures within the site photographs. Different versions of the photographic model from each main viewpoint show:

- Existing conditions
- Wireframe visualisation of the new building masses, and the likely extent of the structures that would be seen from the viewpoints.
- Photomontage images including mitigation measures.

The potential mitigation measures such as landscape planting are modelled based on an indicative plan and would be subject to a detailed design process.

3 Project Description

3.1 Project Summary

Pacific National is proposing to develop a 'state-of-the-art' integrated freight and logistics precinct in Little River, Victoria. The project is named the 'Little River Logistics Precinct' (LRLP) and the Project will deliver a significant asset, not just for Pacific National, but for the national freight supply chain, and the nation, generating increased rail mode share for interstate and, ultimately import/export freight. With the combined rail terminal and integrated warehousing, the Project will result in lower rail supply chain costs, reduced trucks on roads leading to reduced traffic congestion and increased road safety, and reduced greenhouse gas emissions.

3.2 The Little River Logistics Precinct (The Project)

The Little River Logistics Precinct will deliver a new, open access, interstate intermodal terminal with the capacity to ultimately process more than 2 million twenty-foot equivalent units (TEUs) and handle 1,800m long, double-stacked trains. The interstate terminal will incorporate integrated 'Cargolink' warehousing that enables freight to be transported directly between the terminal and warehouses, which removes a step in the supply chain, improves supply chain efficiency and reduces heavy vehicle movements on public roads.

The Project also includes for an open access import/export (IMEX) terminal to shuttle freight on rail to/from the Port of Melbourne, and the future Bay West Port, which is planned for the future along the western side of Port Phillip Bay, nearby the Project site. The Project will be supported with general warehousing, which can capture the convenience of being located close to the terminal, and associated rail functions, commercial activities and other services.

The Project will cover approximately 375 hectares with rail terminals, freight handling, warehousing and supporting activities, along with 205 hectares of biodiversity offset land.

It is planned to deliver the Project in stages over 25+ years. The first stage will include construction of a part of the interstate terminal, rail connections to the adjacent freight line, some warehousing, road connections and upgrades, and the creation of the biodiversity area – the latter proposed to rehabilitate back to its original Western Grassland state.

The Project includes the following elements:

- an open-access interstate intermodal terminal with a capacity of more than 2 million TEU per annum:
- an open-access IMEX terminal with a capacity of approximately 500,000 TEU per annum:
- integrated terminal Cargolink warehousing and general warehousing comprising approximately 890,000m2 of warehouses with offices:
- commercial activities and support services for workers and visitors.
- terminal administration/operations centre to provide management and security, rail and container handling equipment control, maintenance and other business services.
- holding tracks, staging lines and arrival/departure tracks to manage the loading and unloading of trains.
- rail connections to the Western Freight Line (part of the ARTC Interstate Freight Network) with rail bridges (flyovers) over the Melbourne-Geelong passenger railway.
- locomotive provisioning and wagon maintenance facilities.
- external public road network upgrades to accommodate the increased traffic generated by the Project, and
- conservation of a biodiversity offset area to enhance and protect areas of environmental value.

The Little River Logistics Precinct will operate 24 hours a day seven (7) days a week.

3.3 Site Development (site area)

The site which is the subject of the Project includes land within three properties with a total area of approximately 580 hectares. The properties include:

- Part of 132A Old Melbourne Road, Little River
- 425 Little River Road, Little River
- 471 Little River Road, Little River
- Government Road (Allot. 2032 PARISH OF COCOROC)

Most of the land within the site forms part of 132A Old Melbourne Road, Little River. There are two parcels in 132A Old Melbourne Road to the south of Little River Road identified as Lot 3\TP820002 and Lot 2\LP141768 that are not part of the site for this project. The site includes a Government Road that is 20 metres in width and is part of an unmade road. Application for the land to be incorporated into the Project site will be made as part of the Project approvals.

The Project site has approximately 3.9km of rail frontage to the existing Melbourne/Geelong rail corridor, which contains a dedicated freight line operated by ARTC, and is less than 1.5 km from the Princes Freeway (M1). The future Outer Metropolitan Ring Corridor (a new multi-modal corridor for both road and rail) is planned to the north of the site and will enable double-stacked train access to the Inland Rail once constructed.

The proposed site development includes the following main visual elements within The Project forms the basis of this assessment. The elements include:

- Cargo link Warehouses
- General Warehouses
- Interstate intermodal rail terminal and operations.
- IMEX Terminal and operations

This assessment has been based on the schematic design provided by Pacific National as shown in Figure 4. A typical section of these main visual features within the rail terminal is shown in Figure 3.

An assumption of similar or equal effect from the construction and operation phase has been assumed within this technical assessment. Both phases would include differences that may have greater impact at certain periods of time, which cannot be accurately assessed at the time of writing.

No night-time light spill has been assessed within this report, due to no lighting design being undertaken at the time of writing. Light fixtures have not been modelled or included within this preliminary technical assessment. However, a general observation on visual effects from indicative lighting information has been mentioned.

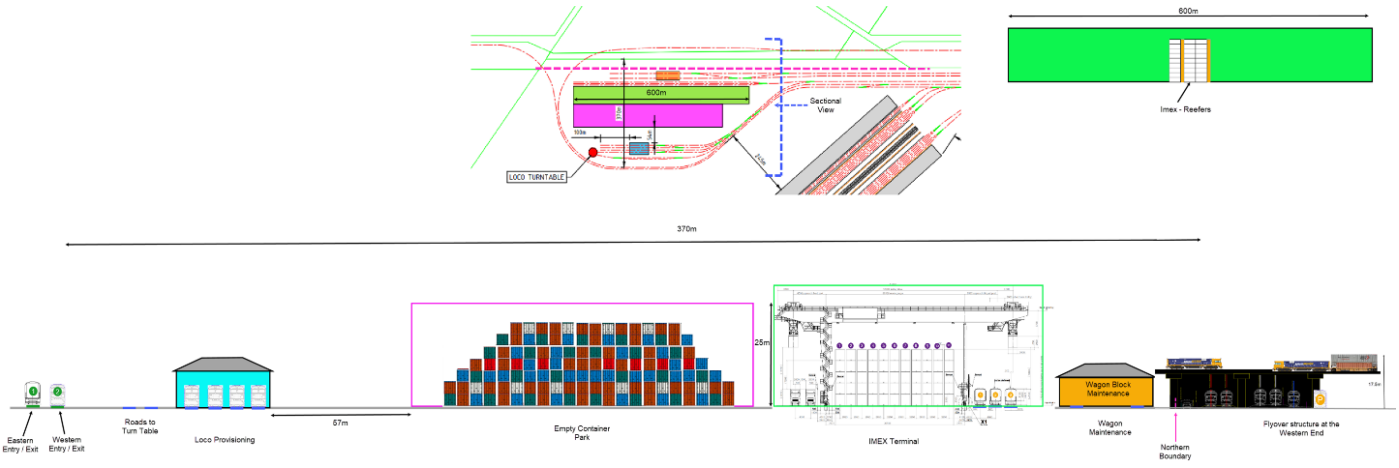


Figure 3: Typical section of visual features (refer to Indicative site layout for IMEX Terminal location)

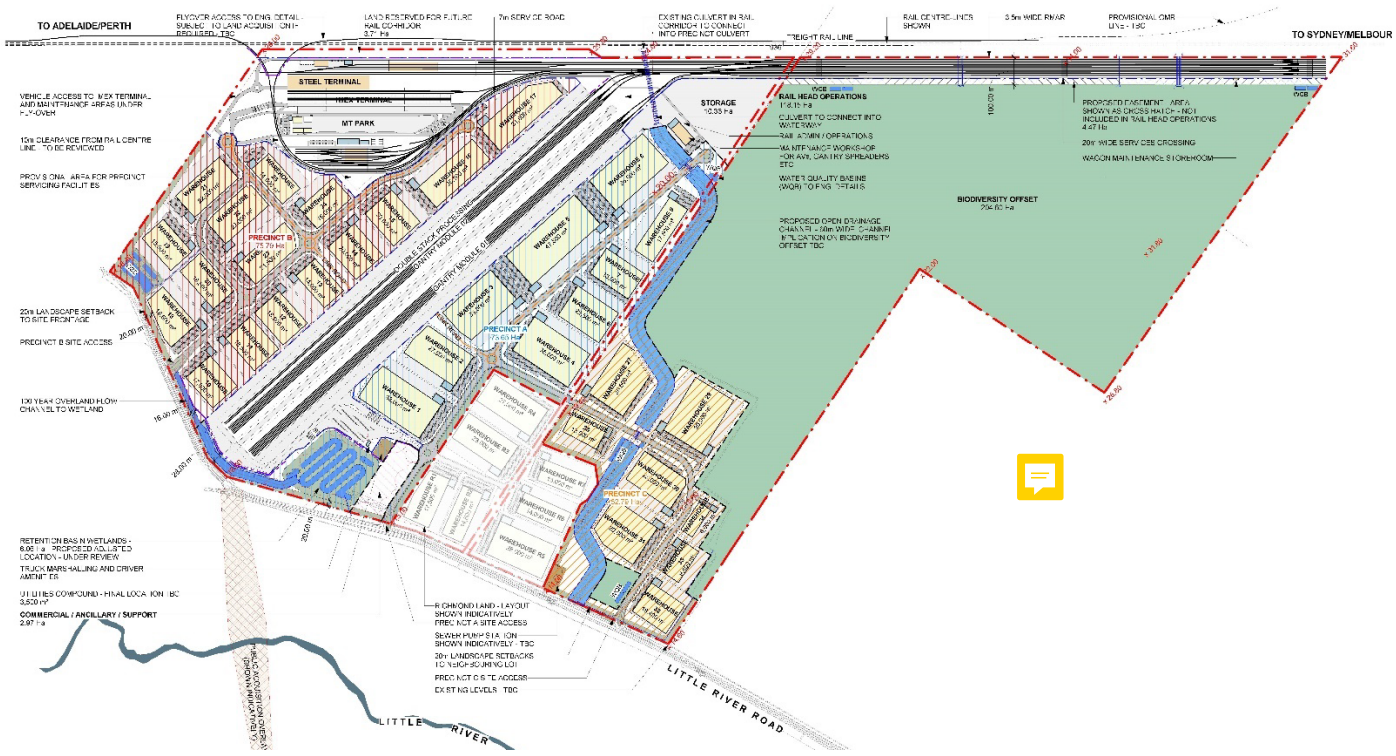


Figure 4: Indicative site layout

3.3.1 Warehouse Precincts

The warehouses and commercial precinct have been assessed within this assessment as a simple block model, the materiality or reflection impacts have not been considered for the purpose of this assessment. The warehouse configuration and heights have been assessed at a maximum height of 22m (refer to Figure 4).

3.3.2 Rail Terminal

Rail connections to the Western Freight Line (part of the ARTC Interstate Freight Network) with rail bridges (flyovers) over the Melbourne-Geelong passenger railway. The rail entry/exit Terminal would be positioned above the existing landform at a nominal maximum height of 15.5m from the top of a double stacked container secured on a moving train. The rail terminal would end at the processing facility.

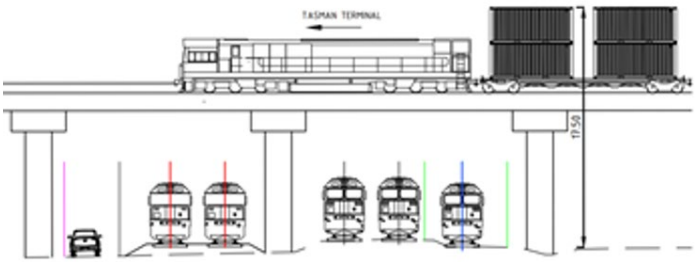


Figure 5 Typical Rail Terminal Section

3.3.3 Terminal Operations (IMEX Terminal)

An IMEX terminal with a capacity of approximately 500,000 TEU per annum.

Servicing the IMEX terminal would be a moving gantry crane of an approximate height of 17.6m (highest point), as shown in Figure 6 and Figure 7. A Container Park would facilitate the storage of empty containers up to a maximum height of 22m, as shown in Figure 3.

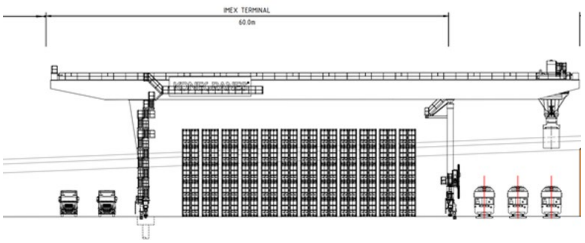


Figure 6 : Typical IMEX Terminal Gantry Crane Section

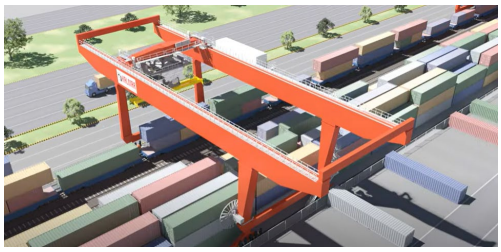


Figure 7: Typical view of automated gantry crane (Image sourced from Kalmar Global).

4 Planning Policy & Strategic context

The purpose of this section is to provide an overview of the landscape and visual study area and its surroundings and highlight the community values that can inform or provide an appropriate reference for the landscape and visual assessment process. The site area is located outside of the Melbourne Urban Growth Boundary and within the City of Wyndham, towards the west of Melbourne and east of Geelong.

4.1 Existing Planning Controls

The Site is predominantly zoned 'Green Wedge Zone' and 'Special Use Zone – Schedule 6' (Extractive Industry). The site is partially affected by the Environmental Significance Overlay – Schedule 1 (Waterway Corridors), Heritage Overlay HO133 (Old Melbourne Road Walls) and the State Resource Overlay – Schedule 1 (Strategic Extractive Resource Areas). Refer to Figure 8 for land use zones and Figure 9 for land use overlays.

The following is a summary of relevant points identified for this assessment.

4.1.1 Green Wedge Zone

A portion of the Site is located within the Green Wedge Zone (GWZ). The purpose of the GWZ is:

- To provide for the use of land for agriculture.
- To recognise, protect and conserve green wedge land for its agricultural, environmental, historic, landscape, recreational and tourism opportunities, and mineral and stone resources.
- To encourage use and development that is consistent with sustainable land management practices.
- To encourage sustainable farming activities and provide opportunity for a variety of productive agricultural uses.
- To protect, conserve and enhance the cultural heritage significance and the character of open rural and scenic non-urban landscapes.
- To protect and enhance the biodiversity of the area.

4.1.2 Special Use Zone – Schedule 6 (Extractive Industry)

The north-eastern portion of the Site is located within the Special Use Zone – Schedule 6 (SUZ6) 'Extractive Industry'.

The purpose of the SUZ6 is:

- To recognise or provide for the use and development of land for extractive industry.
- To prohibit uses that are incompatible with the existing or future use and development of land for extractive industry.
- To encourage land management practices and rehabilitation that contribute to the strategic biodiversity objectives of the Western Grassland Reserve.

4.1.3 Environmental Significance Overlay – Schedule 1 (Waterway Corridors)

The southern portion of the Site is affected by the Environmental Significance Overlay – Schedule 1 (ESO1) 'Waterway Corridors'.

The purpose of the ESO1 is:

- To identify areas where the development of land may be affected by environmental constraints.
- To ensure that development is compatible with identified environmental values.

Schedule 1 includes a statement of environmental significance that identifies Little River as a major waterway and outlines environmental objectives to be achieved.

4.1.4 Heritage Overlay HO133 (Old Melbourne Road Walls)

A portion of the Site is affected by the Heritage Overlay – Schedule 133 (HO133) 'Old Melbourne Road Walls'.

The heritage place is identified as 'the dry-stone walls' along both sides of Little River Road/Old Melbourne Road'.

The purpose of the HO is:

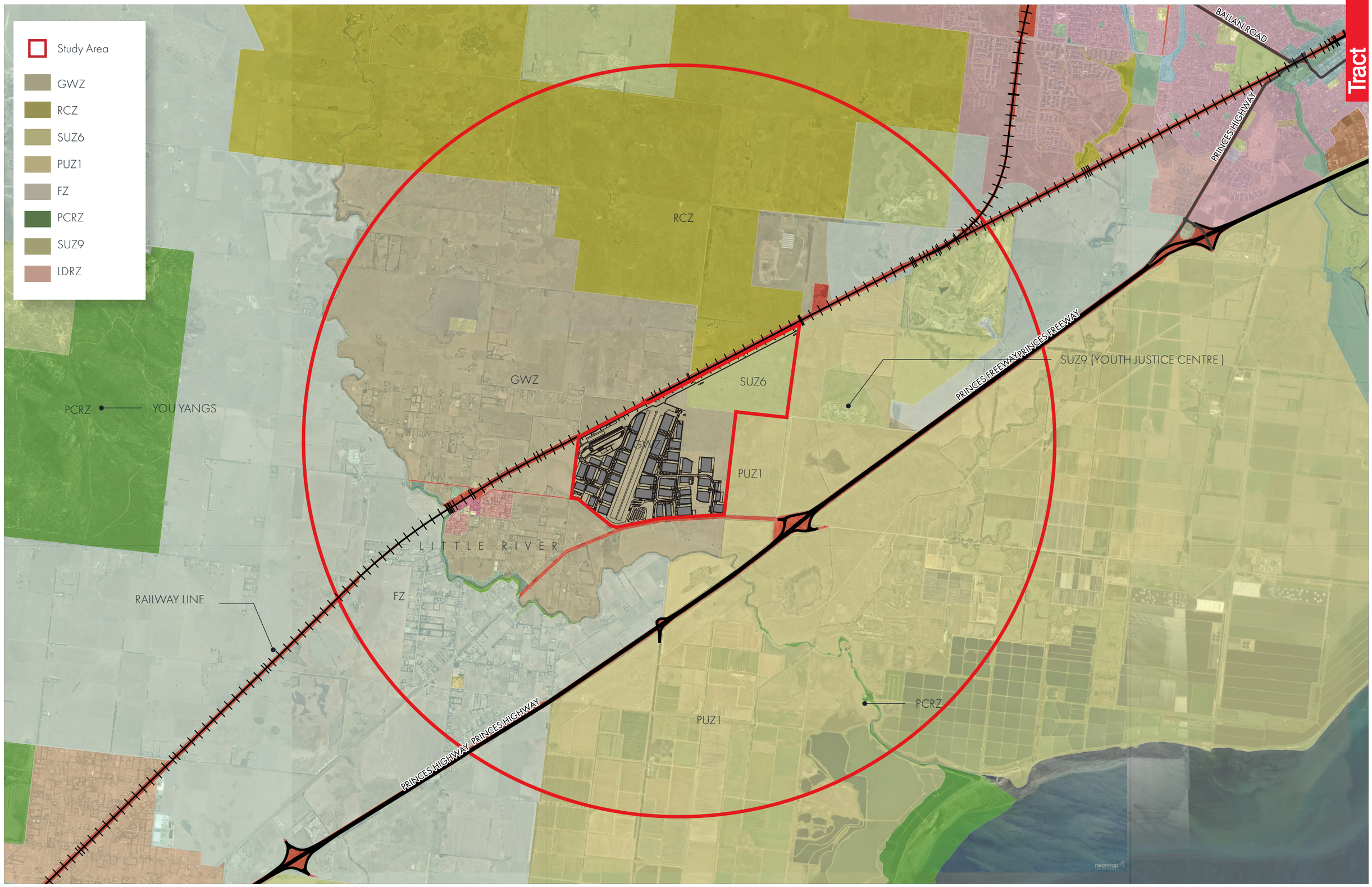
- To conserve and enhance heritage places of natural or cultural significance.
- To conserve and enhance those elements which contribute to the significance of heritage places.
- To ensure that development does not adversely affect the significance of heritage places.
- To conserve specified heritage places by allowing a use that would otherwise be prohibited if this will demonstrably assist with the conservation of the significance of the heritage place.

4.1.5 State Resource Overlay – Schedule 1 (Strategic Extractive Resource Areas).

A portion of the Site is affected by the State Resource Overlay – Schedule 1 (SRO1) 'Strategic Extractive Resource Areas'.

The purpose of the SRO is:

- To protect areas of mineral, stone and other resources, which have been identified as being of state significance, from use and development that would prejudice the current or future productive use of the resource.



Tract

Drawing Title	Project Name	Drawing No.	Revision	Date	Drawn	Checked	Project Principal	Scale
Land use Zones	Little River Intermodel Freight Terminal	321-0501-01-L-00-DR02	02	06.06.2023	EB	JC	MR	@ A3

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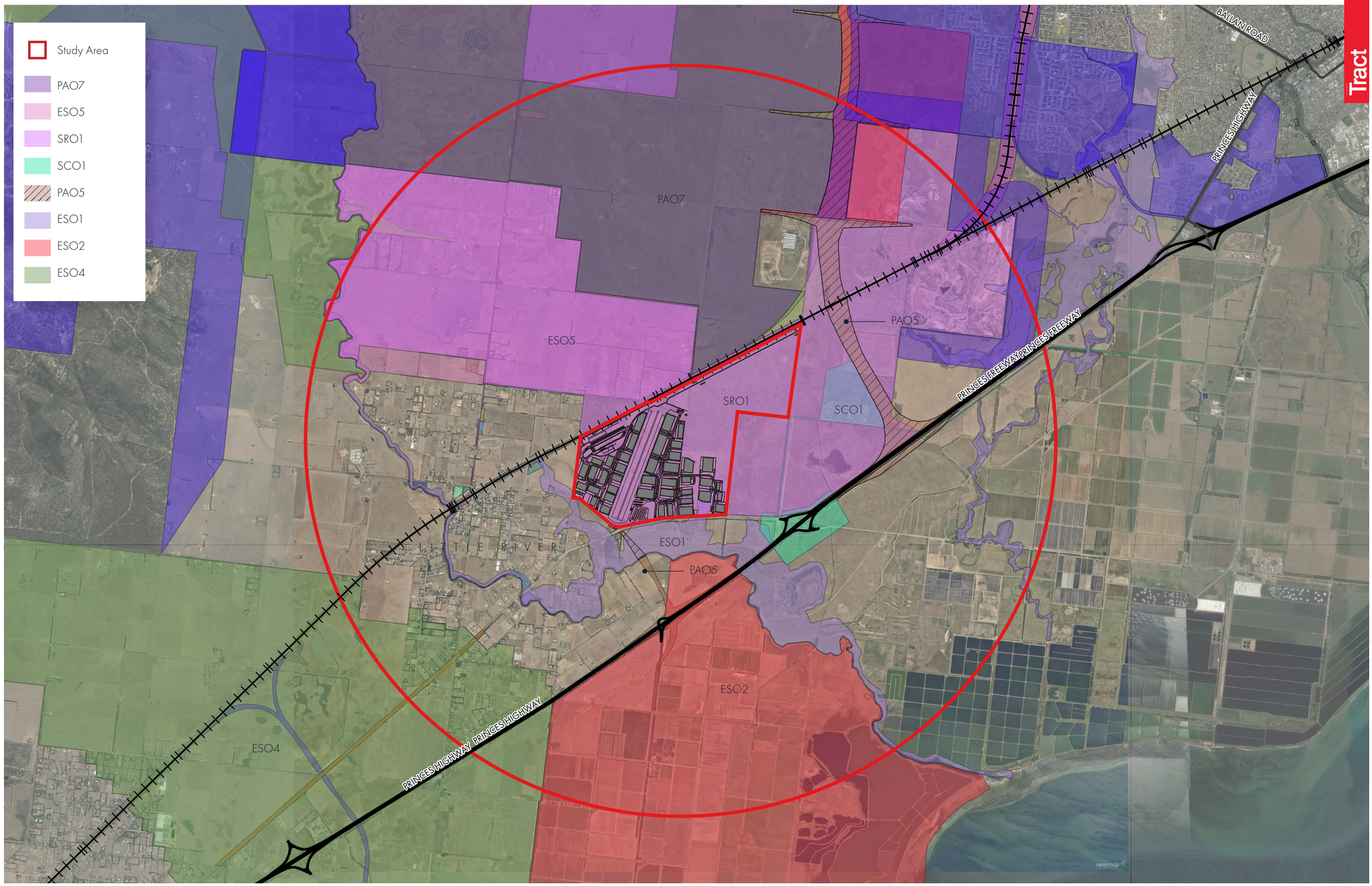

Tract

Drawing Title	Project Name	Drawing No.	Revision	Date	Drawn	Checked	Project Principal	Scale
Land use Overlays	Little River Intermodel Freight Terminal	321-0501-01-L-00-DR03	02	06.06.2023	EB	JC	MR	@ A3 0 100 200 500

4.2 Regional policy

4.2.1 Wyndham 2040 Community Vision

The Wyndham 2040 Community Vision (Wyndham City Council, 2021) guides how Council directs the resources under its control and the direction for future Council policies. The vision is a broad overarching document, which does not directly have relevance for this assessment.

4.2.2 Wyndham City Council Plan 2021-2025

This council Plan describes how the Council will work towards delivering the community's priorities in line with the long-term aspirations described in the Wyndham 2040 Community Vision. The Council Plan 2021-25 is structured around the 2040 Community Vision themes and eight strategic areas, the relevant strategic area for this assessment includes 'a liveable city' and 'a green city'. These strategic areas highlight the natural environmental features within Wyndham including several significant rivers, waterway corridors and habitats of international migratory importance including the wetlands of the Western Treatment complex.

The Council Plan is supported by a suite of Council Adopted Strategies, Plans and Policies which inform Council work and action on a range of issues. Relevant strategies for this assessment have been reviewed and summarised below, within Section 4.2.

4.2.3 Wyndham City Forest and Habitat Strategy (2017 – 2040)

The City Forest and Habitat Strategy (Wyndham City Council , 2017) provides a holistic approach to the management of Wyndham City's habitat and tree assets that will ensure integrated strategic plantings. The City Forest and Habitat Strategy highlights part of Wyndham's landscape features as having a national and state level of value, including:

- Native Grasslands
- Plains Grassy Woodlands

The strategy notes several significant and unique natural features located within the study area, including:

- The Western Treatment Plant wetlands; and
- Little River.

The City Forest and Habitat Strategy highlights that ecologically, Wyndham's is built on natural grassland areas in a low rainfall climate. Any landscape mitigation or recommendation should reflect this ecosystem and the areas natural grassland environment.

4.2.4 Wyndham Landscape Context Guidelines 2013

The Landscape Context Guidelines are designed to protect the characteristics that define the Wyndham landscape (Wyndham, 2013). The Guidelines consider natural and cultural landscapes as combined and interactive in 'local distinctiveness' and focus on the 'special places and landscapes' valued by the community.

The guidelines identify key themes of local distinctiveness and further identifies key sites within the study area. These sites and relevant landscapes identified include:

- Views of Brisbane ranges and You Yangs
- Cherry Tree Creek

The guideline is predominantly focused within Melbourne's Urban growth boundary of Wyndham. One of these areas is located to the east of the study area (Werribee Junction). The following landscape features have been identified within the guidance document to be of interest (refer to Section 5 for detailed baseline values):

- undulating volcanic plains
- agricultural landscape and windrows
- dry stone walls

- Viewsheds and View lines towards the Brisbane Ranges, the You Yangs and views of Melbourne's central business district
- Cultural Heritage Sites

4.3 Additional strategic context

4.3.1 Wyndham Urban Design Framework Plan (Princes Hwy/Geelong Rd Corridor) 2016

Within the Framework plan there is an area identified as the 'Princes Fwy Plains Boulevard sector' which is located adjacent the Werribee Junction precinct area and notes a framework plan for this road corridor (Planisphere, 2016). The road corridor is located towards the east of the study area; however, the themes, qualities and corridor treatment have been noted for a Landscaped entrance into Melbourne and Werribee. The theme of the area is stated as "a bush corridor revealing views of the big sky Western Plains landscape", it includes the objectives to:

- 1.1 Mark the entry point to metropolitan Melbourne and Werribee with major gateway features, which express the aspirations of the community and Council.
- 1.2 Create a high-quality linear park with Lollipop Creek at the centre, visible from the highway, and framed by well-designed buildings.
- 1.3 Ensure the waterways, particularly Lollipop Creek, are protected and enhanced as part of a blue infrastructure strategy.
- 1.4 Mound the landscape buffer between the freeway and Wests Road to provide an acoustic barrier; plant it with natives to provide additional screening, native habitat, and provide filtration of particulates and other pollution.
- 1.5 Ensure high quality and consistent design standards for buildings and signs visible from the freeway.

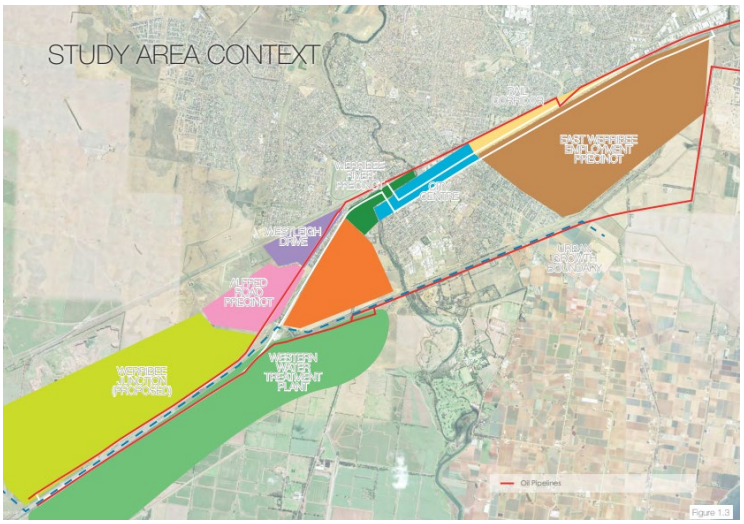

Figure 10: Urban Design Framework, Vision for the Princes highway / Geelong Road corridor (Planisphere, 2016)

4.3.2 Werribee Junction

The Werribee Junction Precinct is subject to future precinct structure planning to be undertaken by the Metropolitan Planning Authority, in consultation with Wyndham City Council. The Werribee Junction Precinct is north of the Princes Freeway, within the Urban Growth Zone. Currently the area is farmland and includes the Wyndham Refuse Disposal Facility, however, the future use of the area has been marked for potential future users and therefore the sensitivity has been noted within this LVIA.

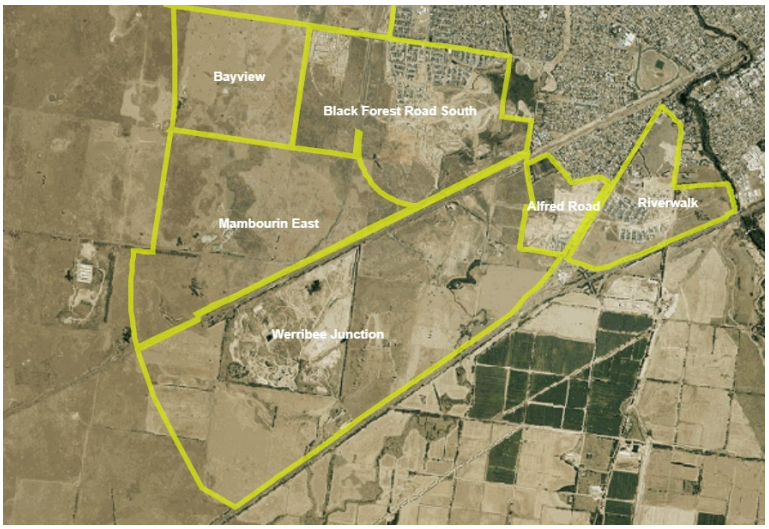

Figure 11: Werribee junction PSP context (Image from VPA, 2022)

4.3.3 The Outer Metropolitan Ring Road (OMR/E6)

The Outer Metropolitan Ring Road and Rail Corridor (OMR/E6) is a major orbital high-speed transport link through Melbourne's outer north and west, connecting the Metropolitan Ring Road, Hume, Calder, Western and Princes Freeways. The current indicative concept plans of the OMR is proposed to be located within this assessments study area, as shown within Figure 9 as an indicative location within the Public Acquisition Overlay (PAO5).

A viewpoint has been captured to represent the current existing conditions for this potential future receptor within Section 7.5. However, due to the stage of the Ring Road Project and the unknown condition of the future viewing experience, no additional assumptions have been made on the future receptors or future values of The Outer Metropolitan Ring Road.

4.3.4 Western Metropolitan Regional Trails Strategic Plan

The Western Metropolitan Regional Trails Strategic Plan 'West Trails' (Victorian Government, 2017) is a strategic plan seeking to improve the quality and usage of regional trails in Western Metropolitan Melbourne over the next decade. The Strategic Plan includes one trail that is located within this assessments study area, referred to as The Outer Metropolitan Ring Road Trail. This plan includes the action to implement a shared path in conjunction with the proposed OMR/E6 within the Western Metropolitan Region.

A representative viewpoint has been captured to represent the current existing conditions for the potential future receptor of the indicative OMR within Section 7.5 . However, due to the stage of the Ring Road Project and the unknown condition of the future viewing experience, no additional assumptions have been made on the future receptors or future values.

4.3.5 Avalon Corridor Strategy

The Avalon Corridor Strategy is a comprehensive land use strategy prepared by Hansen Partnership, the City of Greater Geelong and Wyndham City Council in collaboration with DELWP. It was developed in response to a Plan Melbourne 2017-2050 as well as similar policy objectives.

It seeks to maintain a 'green break' to protect significant cultural, landscape and biodiversity values and safeguard important infrastructure and assets, such as Avalon Airport and Western Treatment Plant.

The strategy encompasses the township of Little River and includes the Pacific National's preferred site.

Notably within the framework plan, the values that may be impacted by the Proposal include:

- *Long range views of the You Yangs from the freeway*
- *Long range views to the You Yangs from the Western treatment Plant*
- *The site is classified as an agriculture/rural landscape setting for the You Yangs*

Key principles mapped within the strategy (City of Greater Geelong and Wyndham City Council , 2022) that have been identified within the site area include:

1) Protect open rural landscapes and available viewsheds towards the You Yangs
2) *Encourage sustainable rural / agricultural activity, including potential opportunities associated with recycled water from nearby wastewater treatment facilities.*
3) *Discourage the further subdivision of agricultural and rural landscape land, and acknowledge and protect Extractive Industry Interest Areas.*
4) *Discourage small scale/ incremental development which would further fragment land use. be in conflict with broader land designations.*

4.3.6 South West Victoria Landscape Assessment Study

The South West Victoria Landscape Assessment Study (Department of Planning and Community Development, 2013), explores the landscape character types collected from field surveys, information archived from secondary sources, previous landscape character assessment and community feedback.

The study results suggest that the subject site is located within the Western Plains Character Type between Geelong and Melbourne and is defined by the Volcanic activity that has shaped much of Southwest Victoria's landscape. This extensive character type is formed by a flat to undulating basaltic plain scattered with volcanic features which create a unique visual landscape. The study area also includes areas defined as the Otway Plain and Central Victorian Uplands. The following aesthetic values of the surrounding landscape and views are defined within the study area:

- The You Yangs are located approximately 7.5km away from the proposal boundary and are a series of granite ranges that rise from the Plains between Melbourne and Geelong. Most of these rises are included in the You Yangs Regional Park. Flinders Peak is the highest point in the park with an elevation of around 350 metres. From the peak, views are available across the Brisbane Ranges, Geelong, Corio Bay and towards Melbourne. The triangular peaks of the You Yangs are a distinctive landscape feature that dominates the horizon from several viewing angles within the study area.
- View towards the You Yangs have been noted to be within a main viewing corridor of the Princes Freeway, adding to the pattern of viewing of the Princes Freeway (Planisphere , 2013).

The South West Victoria Landscape Assessment Study has no status within the Planning Scheme, but informs an understanding of the existing landscape context.

4.3.7 Cherry Creek Youth Justice Centre

Located to the east of the development site, the Cherry Creek Youth Justice Centre has recently been built within this landscape setting.

The youth Justice Centre includes a periphery security barrier of a solid 6m wall providing a physical and visual screen between the youth justice centre and the surrounding public areas (Victorian State Government, 2018). It is assumed that there would be no internal views outward from the Youth Justice Centre towards the project boundary area.

4.3.8 Wyndham Refuse Disposal Facility (Werribee Tip)

Located to the east of the development site, the existing facility has been operating since the 1970s at 470 Wests Road.

The Wyndham Refuse Disposal Facility is one of the major landfills in metropolitan Melbourne. While it currently has a strategic plan to transition from landfill to resource recovery to create 'green jobs' and 'support development in the Werribee Junction Precinct' (Wyndham City Council , 2019), its existing condition includes several landfill mounds, built infrastructure and associated landfill operations which are visible from the surrounding area.

A current permit allows a height of 44m AHD, or 24m above the surrounding ground level.

4.4 Policy Context – Key findings (relevant within this assessment)

The planning policy within the study area has been reviewed and the landscape and visual values identified have been included within the Baseline Values of this assessment (refer to Section 5). The following points are the most relevant findings from the Policy context within the study area:

- A portion of the Site is located within the Green Wedge Zone, which is recognised to protect and conserve the green wedge landscape. The south to southeast portion of the Site is affected by the Environmental Significance Overlay (ESO1)
- A portion of the Site is affected by the Heritage Overlay (HO133) 'Old Melbourne Road Walls'. The heritage place is identified as 'the dry-stone walls' along both sides of Little River Road/Old Melbourne Road'.
- Public Acquisition Overlays are present within the study area (including the Outer Metropolitan Ring Road in the east of the study area), future views may be possible from these areas.
- The You Yangs have scenic value, and views are valued to and from the natural landform (Wyndham, 2013).
- Views towards the You Yangs have been noted to be within a main viewing corridor of the Princes Freeway, adding to the pattern of viewing of the Princes Freeway (Planisphere , 2013).
- Wyndham city council notes the Little River and the Western Treatment Plant as significant and unique natural features within the area (Wyndham City Council , 2017)
- Wyndham City council notes the undulating volcanic plains, agricultural landscape and windrows, dry stone walls and cultural heritage sites to be of interest within the landscape context of Wyndham (Wyndham, 2013)
- The Western Plains grassland are a valued landscape of Wyndham.
- Future development is proposed in the east of the study area including Werribee Junction PSP, future views may be possible from these areas. However, views would be subject to the OMR/E6 development as it would be positioned between these views and the LRLP site area.
- Future development is proposed in the east of the study area including the strategic direction of the Wyndham Refuse Disposal Facility (Werribee Tip), future views may be possible from these areas. However, views would be subject to the OMR/E6 development as it would be positioned between these views and the LRLP site area.
- Future development proposed includes the Outer Metropolitan Ring Road Trail, future views may be possible from these areas. However, views would be subject to the OMR/E6 development as it may be positioned between these views and the LRLP site area.

Future development proposed includes a landscape buffer between the freeway and Wests Road to provide a planted acoustic barrier (Planisphere, 2016). This buffer may alter parts of the existing viewing corridor along the freeway and change a section of the existing pattern of viewing.

5 Baseline Values

This section provides a description and analysis of the conditions that currently exist within the study area and surrounds, along with conditions which are likely to exist in the future as a result of the continuation of existing site uses and activities.

The assessment provided is based against these baseline conditions.

5.1 Existing site

The site is located within an open plains' grassland landscape, predominantly agricultural in nature. The site area currently comprises of open pasture fields and includes existing grassland and moves towards a more typical wetland condition within the east of the site area. The overall Western Plain area has a landscape and scenic quality formed by the flat basaltic plain, scattered with volcanic features, a combination of shallow and incised watercourses and remnant vegetation of the Plains Grassland (EVC).

This grassland landscape is noted to contrast sharply with the isolated peaks, rugged peaks and forested slopes of the You Yangs. The existing appearance of the landscape within the site area is typical low-lying with a relatively low level of tall vegetation.

The landscape surrounding the site area includes the Little River tributary and the Western Water Treatment Plant, which contrast the flat Western Plain. The river tributary and wetlands reflect the Creekline Grassy Woodland (EVC) and the Plains Grassy Woodland ecosystems.

The existing conditions within the study area include the Youth Justice Centre facility (2km away from the proposed Warehouses) which includes the built facility and perimeter wall. The existing Wyndham Refuse Disposal Facility-Werribee Tip (located 4km away) includes mounding, various buildings, and associated operations and vehicles. There is an existing Quarry site area (4.5km away) on the northern side of the railway line.

The Little River settlement is highly connected to the cities on either side of the regional setting. The transport corridor railway line and Princes Highway run between Geelong and Melbourne is a prominent feature within the study area. The Outer Metropolitan Ring Road is proposed within the study area within the Public Acquisition Overlay identified within the study area, this would include a future transport corridor within the area.

Photo 1: Typical view over Site Area

Photo 2: Typical view over adjacent paddock towards Site Area

Photo 3: typical view over windrow/railway line, adjacent site area

Photo 4: typical view from elevated highway cross over towards site area

5.2 Land use

Existing and proposed land uses are described within Section 4.1.

5.3 Climate

The climate of the study area is broadly similar to central Melbourne but with a lower average rainfall. As an open plains landscape, the area is subject to relatively high wind levels (frequency and speed) and relatively high rates of evaporation.

With a warm, dry, temperate climate, Wyndham is characterised by hot summers and cool, moist winters and spring. Historically the average rainfall is 538mm per year. Summer temperatures are further impacted by hot northerly winds that blow across the open plains (Wyndham City Council , 2017).

The combination of expansive basaltic soils, high wind levels and low rainfall creates a relatively harsh environment that limits rates of plant growth and the viability of some plant species.

5.4 Vegetation

Vegetation within the site area historically would have been EVC132: Plains Grassland. The surrounding landscape would have included EVC 125: Plains Grassy Wetland, EVC 68: Creek line Grassy Woodland, EVC 291: Cane Grass Wetland, EVC 55: Plains Grassy Woodland and EVC 647: Plains Sedgy Wetland. Current strategic documents and the Detailed Flora and Fauna Assessment suggests that there is remnant vegetation of these classifications within the study area and surrounding landscape, refer to Figure 13.

Within the site boundary there has also been non-native vegetation identified, predominantly towards the western area of the site. Refer to the Detailed Flora and Fauna Assessment (Nature Advisory) for further detail and Figure 13.

The additional main vegetation characteristics within the study area include:

- The typical nature of the Western Plains- open plains grassland.
- The agricultural landscape typically includes windrow planting. Including plantations along roads and property boundaries and in locations associated with houses, it is noted to add a cultural layer to the landscape setting (Wyndham, 2013).

It has been noted that future mounding and buffer planting has been proposed to the north of the Princes Highway, entering Werribee along the interface of the future Werribee Junction as part of the proposed landscaped entrance to Melbourne and Werribee (Planisphere, 2016).

There are future / current vegetation planting mitigation from the Youth Justice Centre Facility Plan (Victorian State Government, 2018) included tree structure screening to mimic remnant shelter belts.

5.5 Landform (Topography & Hydrology)

The site is located within the Victorian Volcanic plain and the landform is predominantly typical of this bioregion and the Western Plains landscape character. The site topography is generally flat in nature and includes several subtle incised hydrological features (refer to Figure 15) within the study area, including: pedestrian

- Little River
- Smaller creeks including Lollypop Creek and Cherry Tree Creek
- Wetlands
- Swamps including Belfages, Ryans and Fresh Water Swamp
- local agricultural dams

The study area includes an excavation site within the northeast edge, south of the railway line, which comprises of highly modified landform.

The landscape beyond the study area consists of the undulating volcanic plains, interspersed with volcanic eruption points, stony rises, rocky outcrops, and numerous small freshwater wetlands. The You Yangs rise above the plain as the most dominant vertical feature, while the Werribee River is deeply incised into the basalt plain, towards the east. It contrasts with the ephemeral waterways (Lollypop Creek and Cherry Tree Creek and other un-named tributaries) that each take the form of a 'chain of ponds' or waterholes within the study area.

The following are the dominant topographic and hydrological features identified within the study area and the surrounding area (refer to Section 5.6 for further details):

- You Yangs
- Little River
- Cherry Tree Creek
- Western Treatment Plant