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Melbourne Energy and Resource Centre

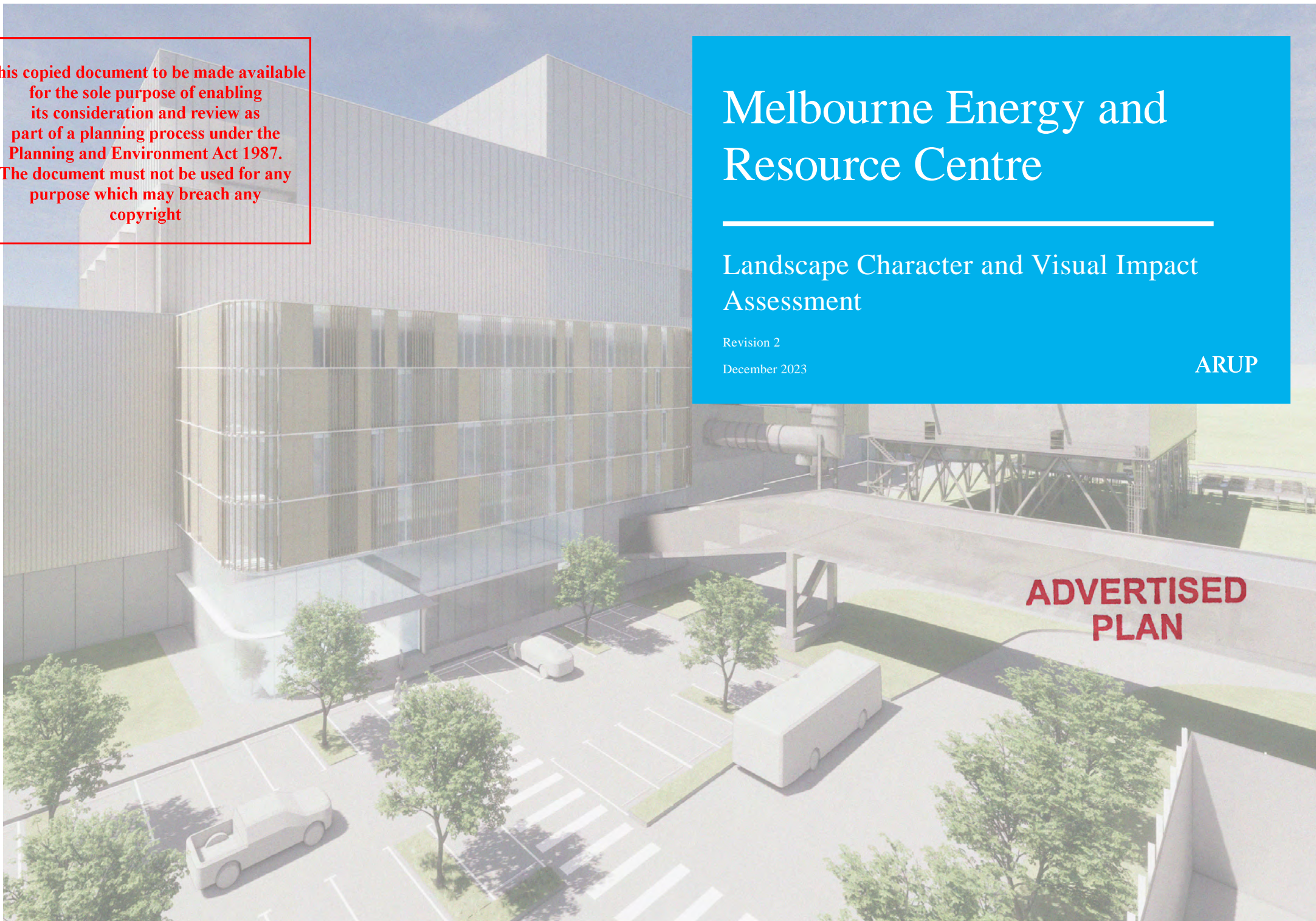
Landscape Character and Visual Impact Assessment

Revision 2

December 2023

ARUP

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Prepared for
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01

Introduction

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Purpose of this report

The purpose of this report is to present the assessment of the landscape character and visual impacts associated with the Melbourne Energy and Resource Centre (MERC) that may arise during construction and operation.

The results of this assessment will be used to support the required environmental and planning approvals for the Proposal, as required under the *Environmental Planning and Assessment Act 1978*, *Planning and Environment Act 1987* and *Environment Protection Act 2017*. It will also identify landscape and visual features that need to be considered during the design development phase of the Proposal.

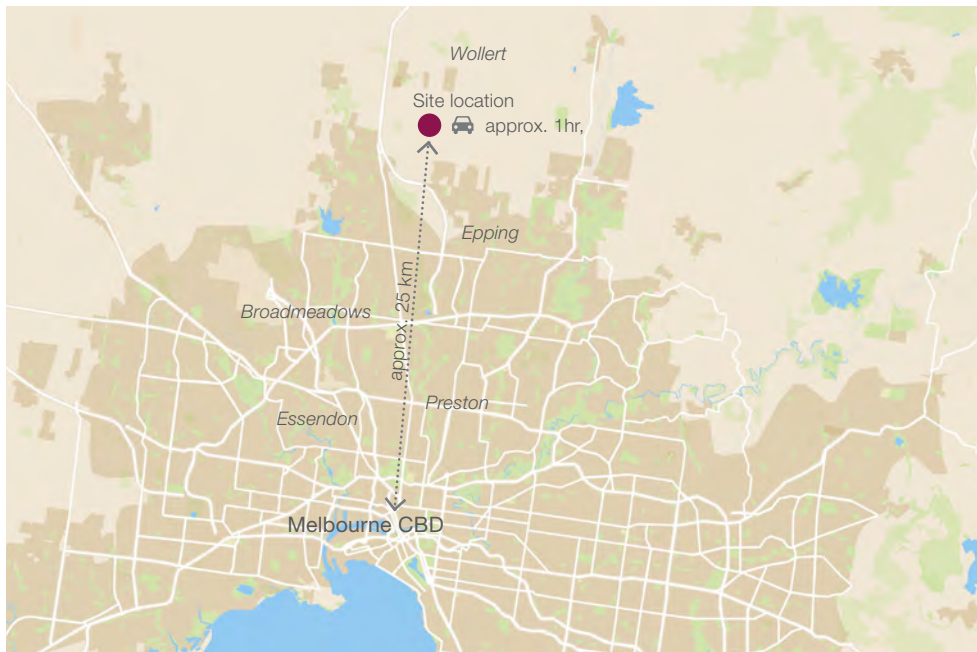


FIGURE 1 LOCATION MAP



Not to scale

Study objectives and report structure

Broadly summarised, the report is structured with reference to the following tasks:

- **Chapter 01 Proposal overview:**
Establishes an understanding of the Proposal relevant to the landscape and visual impact assessment; namely the location, form and scale of the Proposal and the relative physical differences between the current conditions and that which is proposed both during construction and during operation.
- **Chapter 02 Methodology:**
Provides the methodology against which the potential impacts are assessed, including the Proposal assumptions and limitations.
- **Chapter 03 Legislation and Policy:**
Identifies both planning and statutory components of the landscape and visual baseline which influence character and associated sensitivities.
- **Chapter 04 Context and Chapter 05 Baseline:**
Describes the existing landscape and visual character of the study area, via desktop studies and site work, as a means of establishing a baseline against which impacts associated with the Proposal can be assessed.
- **Chapter 06 Proposed Design:**
Provides a description of the key elements relevant to the Landscape Character and Visual Impact Assessment (LCVIA) within the Proposal.
- **Chapter 07 Impact assessment:**
Provides an assessment of the identified key landscape characters areas, representative viewpoints and impacts associated with lighting. This Chapter includes suggested mitigation measures considered to reduce and manage the impacts of the Proposal on the landscape, views and visual amenity.
- **Chapter 08 Conclusion:**
Provides a summary of the landscape and visual impacts measured throughout the report.

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Background

The Proposal

Cleanaway Operations Pty Ltd (Cleanaway), an Australian waste management, recycling and industrial services company, is developing a waste-to-energy (WtE) facility in Victoria known as the MERC (the Proposal).

The Victorian Waste to Energy Framework recognises the role of WtE to divert waste from landfills, helping Victoria's transition to a circular economy. Recycling Victoria recognises a role for WtE investment and supports WtE facilities where they meet best-practice environment protection requirements, reduce waste to landfill, support waste avoidance, reuse and recycling, and demonstrate social license with affected communities. The Victoria Environment Protection Authority (EPA) Energy from Waste Guideline (Publication 1559, 1 July 2017) also notes that efficient recovery of energy from the thermal processing of waste is considered a resource recovery as opposed to a waste disposal option. However, recovery of energy should not compete with avoidance, reuse or recycling.

Whilst some residual materials are produced because of the WtE process, including Incinerator Bottom Ash (IBA), boiler fly ash and air pollution control residue (APCr), the WtE process typically leads to about 90% reduction in the volume, or 80% reduction in mass (tonnes),

of waste that would otherwise go to landfill. If IBA is reused into construction products, this number increases further to about 95% reduction in volume and mass of waste that would otherwise go to landfill. However, diversion from landfill will be dependent on the classification and fate of the wastes generated by the WtE facility.

Context

The area immediately surrounding the Proposal site is predominantly industrial and agricultural development with scattered clusters of farm buildings. The site adjoins Summerhill Road and has good access to the wider road network, including the Hume Freeway (M31) to the east and Epping Road to the west. The site is within the City of Whittlesea Local Government Area and situated on Lot 10B PP2819 at 510 Summerhill Road, Wollert, Victoria and is approximately 800m north-east from the Brickworks Design Centre Wollert, located within the Austral Bricks quarry.

Historically the site and surrounding areas have been used for agricultural purposes and as a result is highly modified with extensive clearing, featuring a few scattered trees. A cluster of residential building and ancillary farm sheds, located 400m from Summerhill Road, are the only built forms within the site.

Two quarries are located about 2km from the site, Mountain View Quarries to the north-west and Austral Bricks Quarry to the south-west. A future quarry is planned in the lot adjoining the site to the east. Future industrial developments planned in Wollert are a sewer treatment plant and potential gas fired power station.

Two adjoining water courses traverses within the site boundary: Merri Creek on the west side and Curly Sedge Creek (a tributary of Merri Creek) on the east side.

The lot size is approximately 82 ha and the WtE facility will be developed in the bottom third of the entire Proposal area adjacent Summerhill Road.

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Proposal overview

Cleanaway Operations Pty Ltd (Cleanaway) is an Australian waste management, recycling, and industrial services company. Cleanaway is developing a waste-to-energy (WtE) facility in Victoria known as the Melbourne Energy and Resource Centre (MERC) (the Proposal).

The MERC has been designed to thermally treat a design capacity of 380,000 tonnes per annum (tpa) of waste feedstock, consisting of residual Municipal Solid Waste (MSW) and residual commercial waste, which is waste that would otherwise be sent to landfill. Waste feedstock processed by the MERC will be subject to a Waste Acceptance Protocol to determine eligibility and suitability for processing both prior to arrival and upon arrival on-site. The Proposal will also incorporate maturation and processing of bottom ash to recover recyclable metals, with the intent to utilise the remaining ash as an aggregate in construction.

Residual waste is waste that is left over from recycling and resource recovery operations and waste from source separated collections. Source separation involves separating waste into common material streams or categories for separate collection. Waste processed at the site will be subject to a Waste Acceptance Protocol to ensure only appropriate waste is used as feedstock.

The WtE process would generate approximately 46.3MW gross of electricity, 4.7MW of which

would be used to power the facility itself and the associated on-site by-product and residue handling processes, with 41.6MW (328,700 MWh/year) exported to the grid as base load electricity. In addition to supplying electricity to the grid, there is also potential to supply energy in the form of heat and/or process steam to local industrial users.

Some residual materials are produced because of the WtE process, including Incinerator Bottom Ash (IBA), boiler ash and flue gas treatment residue. The boiler ash and flue gas treatment residue are typically combined and together are referred to as Air Pollution Control residue (APCr). Overall, the WtE process typically leads to about 90% reduction in the volume, or 80% reduction in mass (tonnes), of waste that would otherwise go to landfill. If IBA is reused as an alternative construction product to virgin materials, this percentage increases further to approximately 95% reduction in volume and mass of waste that would otherwise go to landfill. The final volume of waste diverted from landfill is dependent on the classification and market for the residues and by-products generated by the WtE facility.

The Proposal includes the construction and operation of an IBA maturation and processing facility on site. The purpose of this facility is to store the IBA to mature (stabilise) it, before mechanically processing IBA from the WtE facility into an aggregate for reuse. As part of this process, both ferrous and non-ferrous metals will

be recovered from the IBA for recycling and sale to market.

The Proposal also includes a stabilisation facility for APCr, a necessary treatment step to immobilise leachable components of the APCr prior to removal from site by vehicle and disposal at an appropriately licenced landfill.

The Proposal will use best available techniques and technologies in the engineering design, operation, maintenance and monitoring activities associated with the MERC. Moving grate technology has been chosen as the means to thermally treat incoming waste to recover energy and other resources. Current international best-practice techniques, including automated combustion controls and advanced flue gas treatment technology will be applied so that air emissions meet stringent emission standards. The moving grate combustion system is a common form of thermal WtE technology in which the waste is fed through the combustion chamber on a travelling grate. This enables efficient and complete combustion of the waste, with primary combustion air introduced from below the grate and secondary combustion air introduced directly into the combustion zone above the grate. Moving grate technology has been used globally for over 100 years, and in that time the technology has been subject to continual improvement responding to regulatory, industry and public demands. There are approximately 500 similar operational examples

across Europe alone, the majority of which use the moving grate-type technology being proposed for the MERC.

The Proposal involves the building of all onsite infrastructure required to support the WtE facility, including site utilities, internal roads, weighbridges, parking and hardstand areas, stormwater infrastructure, fencing and landscaping. The Proposal will also include a visitor and education centre to help educate and inform the community on the circular economy, recycling, resource recovery, the benefits of landfill diversion and the WtE process. The intent behind this education is to drive a shift in community thinking and actions around waste management.

The Victorian Waste to Energy Framework (2021) recognises the role of WtE to divert waste from landfills, helping Victoria transition to a circular economy. Recycling Victoria recognises a role for WtE investment and supports WtE facilities where they meet best-practice environment protection requirements. This includes reducing waste to landfill, supporting waste avoidance, reusing and recycling, and demonstrating social license with affected communities. The Victorian Environment Protection Authority (EPA) Energy from Waste Guideline (Publication 1559, 1 July 2017) also notes that efficient recovery of energy from the thermal processing of waste is considered a resource recovery as opposed to a waste disposal option.

The EPA VIC Guideline: Energy from Waste stipulates that *'Proponents of EfW proposals... will be expected to demonstrate that the siting, design, construction and operation of EfW facilities will incorporate best practice measures for the protection of the land, water and air environments as well as for energy efficiency and greenhouse gas emissions management. Facilities should be able to provide evidence of how they minimise and manage emissions (including pollutants, odour, dust, litter, noise and residual waste) in accordance with relevant statutory requirements.'*

The WtE facility has been designed to meet the European Industrial Emissions Directive (IED) (2010) and the associated Best Available Techniques Reference (BREF) Document for Waste Incineration published December 2019, which sets the European Union environmental standards for waste incineration. The facility will also comply with the technical criteria set out in the EPA Victoria Guideline: Energy from Waste publication 1559.1.

The purpose of this specialist assessment is to demonstrate compliance with the various authority requirements, develop community support and social license.

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Construction method

Construction

The proposed construction staging, timing and activities will be developed while preparing the Development License Application and planning approval for the Proposal. The Proposal will be built and managed by a contractor under a Construction Environmental Management Plan (CEMP) prepared and approved in response to a condition of consent, and in accordance with relevant safety management plans.

The Proposal will be likely built in a sequence to reflect contractor requirements, material and equipment availability, and program and delivery schedules. The indicative construction methodology can be described under the following headings:

Demolition -

- Initial site enabling works to be undertaken including; environmental planning and management activities, construction of site perimeter fencing and security, sediment and erosion control measures, realignment of the overland flow path, provision of truck wheel-wash facility and set-up of initial site sheds.
- Demolition and clearing/remove existing vegetation, buildings, tanks and services.

Site establishment and enabling works -

- Environmental protection works and environmental management activities to meet the requirements of the approved CEMP.
- Site establishment, including construction of site compounds, hardstand and laydown areas, temporary internal and external roads and car parks.
- Permanent site security fencing.
- Bulk earthworks across the site for stripping topsoil and cut to fill activities, excavation for the waste bunker and preparation and compaction of working platforms.
- Services location and reticulation.
- Stormwater management.
- Piling and foundations including construction of temporary ground stabilisation works and hardstand areas to allow all-weather access for piling rigs, mobile cranes and delivery trucks.

Main construction works -

- Structures works (concrete and structural steel), process halls (process plant delivery, installation, testing and commissioning), materials handling (conveyors) and the construction of the stack and visitor and education centre.
- Fuel and water storage and reticulation.
- Finishes, including façades, roofing and internal finishes.
- Ancillary services, including mechanical, electrical, external substation and in-ground services.
- Internal operational roads, car parks and truck coupling and de-coupling areas.

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Testing and commissioning works -

- Commissioning of individual pieces of equipment, systems and functional testing of the whole facility.
- Commissioning of systems.
- Commissioning and functional testing of whole facility.
- Testing and commissioning of CEMS.
- Proof of performance trials.

Finishing and landscaping works -

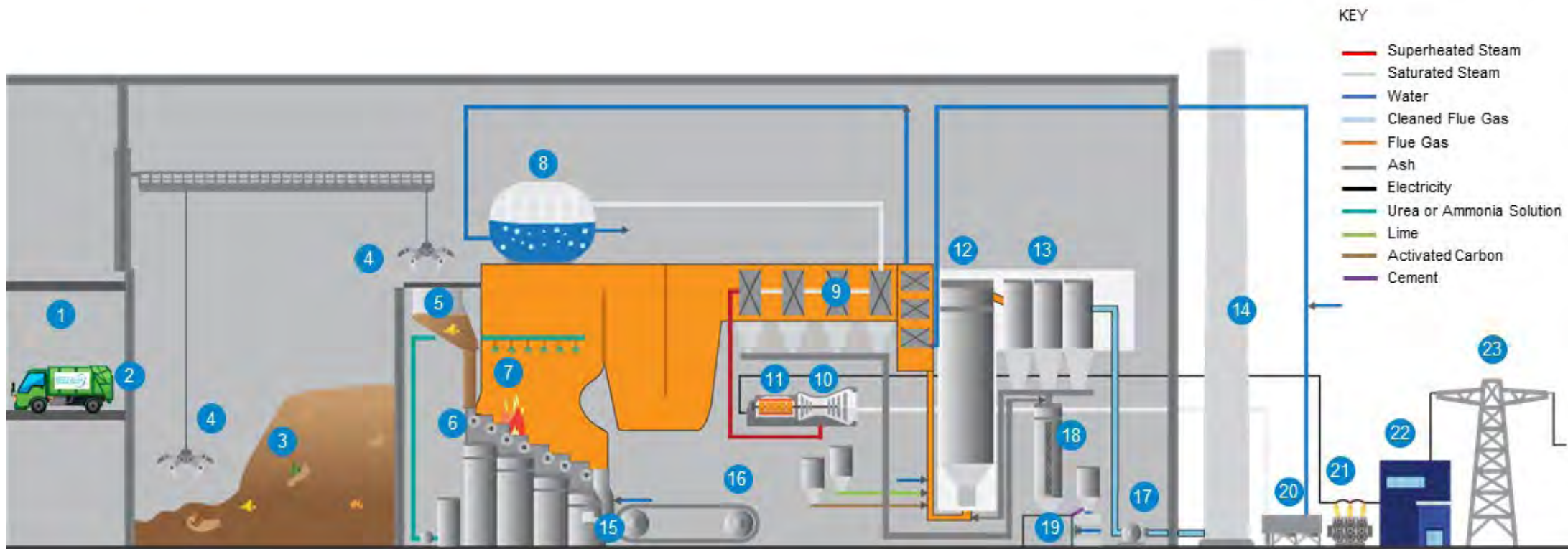
- Completion of internal roads and car parks.
- Truck coupling and decoupling areas.
- Landscape works.

Operations

Steps in a typical waste-to-energy operational process include:

1. Waste deliveries - waste will be delivered to site by enclosed waste delivery vehicles. Vehicles would enter the site via the site entrance off the Austral Bricks access road.
2. Waste receipt, intake and storage - waste will be unloaded into chutes which convey the waste to the storage bunker.
3. Combustion process - waste combustion will take place as it slowly progresses along a moving grate.
4. Energy recovery process - gases will pass through a heat recovery boiler where they will be gradually cooled while the excess heat is used to superheat steam.
5. Ash/residue management - ash from the combustion process will be discharged into a water bath and then to the bottom ash bunker.
6. Flue gas treatment residues (i.e. remove Air Pollution Control residues).
7. Water use - the steam leaving the turbine will be cooled and condensed to water in a condenser. The condensate will then be returned to the boiler feed water system.

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LEGEND

1	Waste receiving hall	7	Boiler with SNCR (de-NO _x)	13	Bag filter	19	Treated APCr to stabilization area for curing prior to removal off-site for disposal
2	Tipping bay	8	Steam drum	14	Stack	20	Air cooled condenser
3	Waste bunker	9	Heat exchangers	15	Incinerator bottom ash (IBA) quenching	21	Transformer
4	Waste crane	10	Steam turbine	16	IBA conveyor to treatment area for maturation and on-site metals recovery	22	Substation
5	Feed hopper (chute)	11	Generator	17	ID Fan	23	Local electricity grid or 'behind the meter' connection points
6	Moving grate	12	Semi dry reactor	18	Air Pollution Control residues (APCr) and boiler fly ash silo		

FIGURE 2 WASTE-TO-ENERGY SCHEMATIC DIAGRAM

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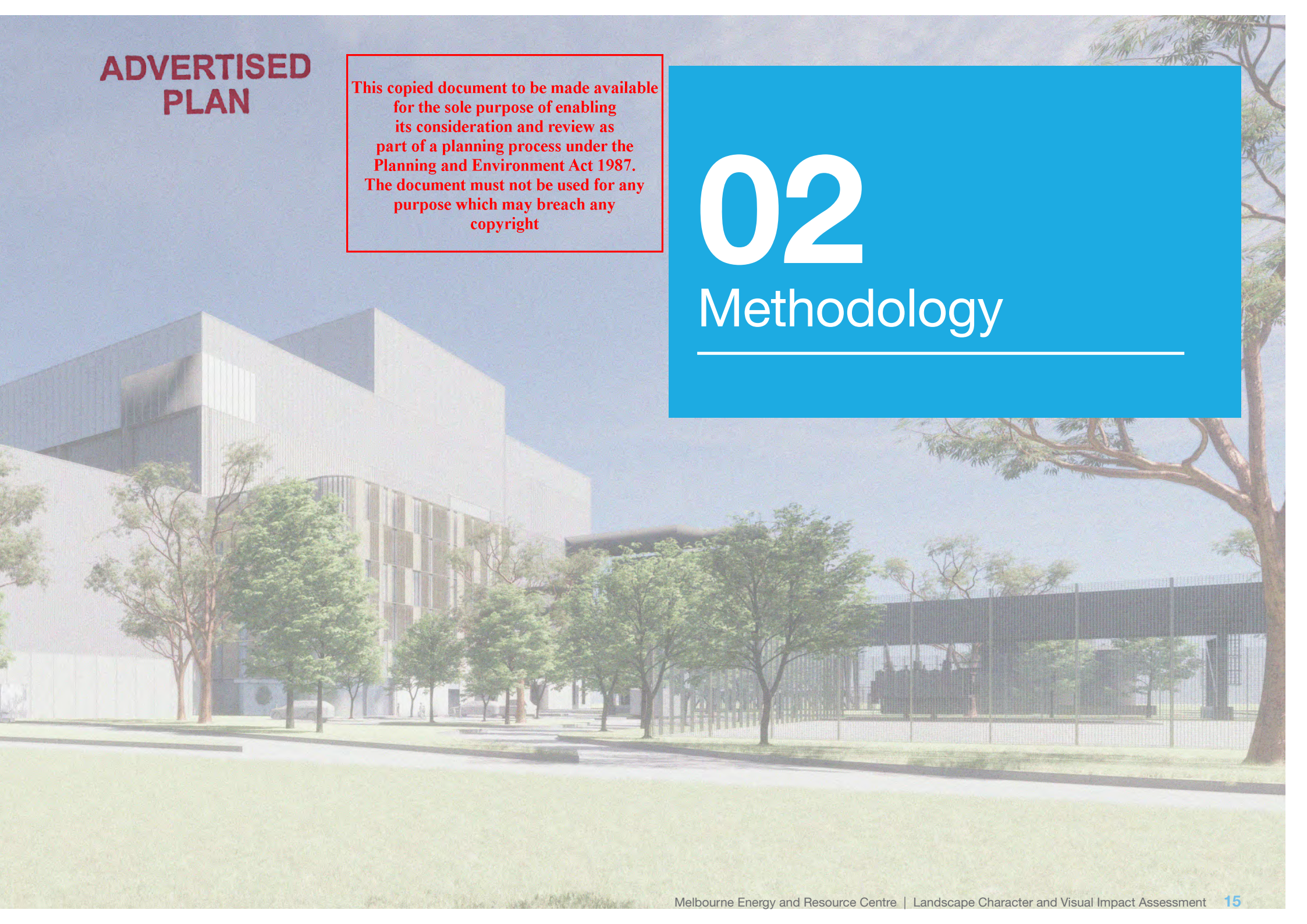
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02 Methodology



Assessment methodology

Assessment rationale

This Chapter describes the method to conduct the LCVIA for the proposal. The rationale follows guidance from best practice industry guidelines and outlining the steps and process for the assessment.

LCVIA considers all effects of change that may arise from the project in the landscape and visual scene that may impact visual amenity and landscape character.

It is concerned with how the surroundings of individuals or groups of people may be specifically affected both quantitatively (with regards to the physical extent of change) and qualitatively (with regards to the change to the qualities of the view or landscape).

Judgement as to the level of the effects is arrived at by a process of reasoning, based upon analysis of the baseline conditions, identification of landscape character zones and visual receivers (viewers of the scene) and assessment of their sensitivity. This is combined with an assessment of the magnitude and nature of change that may result from the project.

This assessment is an objective report and is based on a professional analysis of the visual and landscape environment and the project at the time of writing.

Guidelines and policy

The following documents have influenced the methodology for this assessment and are considered best practice within the industry. They set out a clear and systematic approach in documenting the baseline landscape character and visual conditions, potential impacts and mitigation. The assessment conforms with the direction offered by the following guidance documents:

- The Guidance for Landscape and Visual Impact Assessment, Third Edition, 2013, prepared by the Landscape Institute and Institute of Environmental Management & Assessment, UK.
- Transport for NSW Practice Note – Guideline for Landscape Character and Visual Impact Assessment EIA-N04.

The above mentioned documents are best practice industry guidelines for the UK and NSW for LCVIA process.

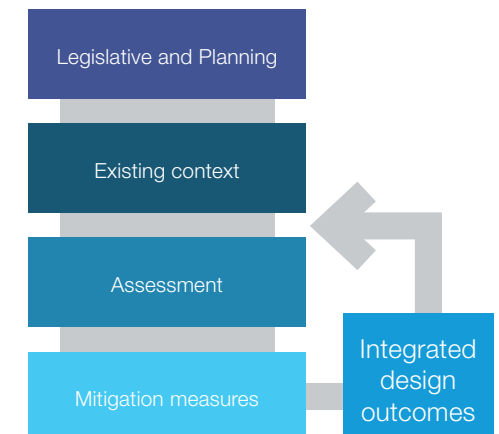
This report excludes the assessment of impacts of lighting and the smoke plume from the facility. Assessment of the lighting and plume will require additional information and studies such as lighting design and specialist evaluation of the smoke plume that is beyond the scope of this report. These assessment can be undertaken at the net design stage should these be required.

Report approach

The LCVIA approach follows an iterative process where key issues, constraints and mitigation related to the landscape character and visual assessment are integrated into the Proposal. The approach, as outlined in Chapter 01 Introduction, consists of the following steps:

- Legislative and planning context: a review of state, regional and local planning policy to gather information on the planning objectives and aims that are relevant to the LCVIA.
- Existing context: an analysis of the local context is undertaken with a focus on landscape and urban features, visual amenity through a selection of representative views, and landscape character. Determination of the sensitivity of the landscape and visual amenity is undertaken.
- Assessment: landscape character area and visual impact are assessed individually. The impact is assessed on the combination of sensitivity of the existing area or view to change and the magnitude (scale, contrast, quality, distance) of the Proposal on that area or view.
- Integrated design outcomes: review of the Proposal and the potential impacts that may arise are fed back in to the design development process to embed mitigation measures within the Proposal design.

- Mitigation measures: where potential impact cannot be resolved through the embedded design process, additional measures are to be explored and discussed further within the landscape strategy.



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Landscape character assessment

Landscape character can be defined as the aggregate of built, natural and cultural aspects that make up an area and provide a sense of place. It includes all aspects of a tract of land – built, planted and natural topographical and ecological features.

Landscape character zones

To enable the assessment of impacts on landscape character, landscape character zones (LCZ) are determined for the relevant area of study.

LCZ are defined as areas having a distinct, recognisable and consistent pattern of elements making one LCZ different from another.

Heritage

Heritage elements can, in their own right, define distinctive LCZs within the broader urban context. Alternatively, recognition of their presence within a LCZ is considered as these may provide added weight when assessing sensitivity to project impacts.

Following consideration of the planning framework, this report has identified relevant state and locally listed Aboriginal and non-Aboriginal heritage items and conservation areas located within identified LCZs.

Impact rating

The overall impact rating of the project on any given LCZ is based on themes of magnitude and sensitivity.

The severity of these impacts is calculated using matrix Table 4.1, taken from the Roads and Maritime Guidelines for Landscape Character and Visual Impact Assessment (Transport for NSW, v2.2, 2020).

Sensitivity - the degree to which a particular landscape type can accommodate change arising from a development, without detrimental effects on its character.

Sensitivity includes factors such as:

- Existing land use.
- The pattern and scale of the landscape.
- Visual enclosure, openness of views and distribution of visual receivers.
- The value placed on the landscape.

Areas with a high sensitivity to change include zones with important landscape features, landscape types with inherent natural values and landscapes with heritage or cultural values. Lower sensitivity is often associated with built up urban environments such as industrial areas.

Magnitude - the magnitude of the effects of the development within the landscape. Magnitude refers to the physical scale of the development, how distant it is and the contrast it presents to the existing condition.

Consideration is given to:

- Existing built form in the landscape and how closely the development matches this in mass, scale and form.
- The scale or degree of change to the landscape resource.
- The nature of the effect and its duration including whether it is permanent or temporary.

Table 1: Landscape and visual impact assessment matrix

		Magnitude			
		High	Moderate	Low	Negligible
Sensitivity	High	High Impact	High- Moderate Impact	Moderate Impact	Negligible
	Moderate	High-Moderate impact	Moderate Impact	Moderate - Low Impact	Negligible
	Low	Moderate Impact	Moderate - Low Impact	Low Impact	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

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Visual impact assessment

Visual Envelope Map

Visual Envelope Map (VEM) is a helpful tool for providing an overview as to the extent to which project elements may or may not be visible from the surrounding study area, assisting the site work.

A VEM study was first used to identify the theoretical areas of the landscape from which the most prominent built form elements of the project would potentially be visible - the ventilation outlets.

The VEM takes into account topography and built form. The VEM does not take into account natural landscape features above ground level that affect visibility such as trees, hedgerows or fences due to the variability of these elements. The results are therefore a worst-case scenario and have been used as a tool to inform site investigation.

Viewpoint selection

Following a thorough desktop study and site visits, representative viewpoints with the potential to be visually affected by some elements of the project are identified and selected for further analysis. Viewpoints were selected to illustrate:

- A range of receiver types including public and private domain views (residents, motorists and users of public open space).

- A range of view types including elevated, panoramic and filtered views.
- A range of viewing distance from the project.
- Key or protected views identified within the planning literature.

Viewpoints have been assessed for both the construction and operational stages of the project.

Limitations

It should be noted that selected viewpoints are by no means an exhaustive list of all receivers that might be impacted by the project. They have been selected to be representative of the spread and type of receivers throughout the study area.

Site access

For residential receivers, access was not always possible to the property itself and so accordingly a site assessment was made from the closest accessible public location with views towards the project. In these instances, the description of visual impact was estimated from the main dwelling area of the property.

Impact rating

The overall impact rating of the project on any given viewpoint is based on themes of magnitude and sensitivity. The severity of these impacts are calculated using matrix Table 4.1, taken from the

Roads and Maritime Guidelines for Landscape Character and Visual Impact Assessment (Roads and Maritime, v2.2, 2020).

Sensitivity - the quality of the existing view and how sensitive the view is to the proposed change. Each visual receiver type has an inherent and varied sensitivity to change in the visual scene based on their personal context in which the view is being experienced. Views from public reserves and open space are often given the highest weighting due to the increased number of viewers impacted.

Magnitude - a measure of the magnitude of the visual effects of the development within their setting. A series of quantitative assessments are studied to give an overall magnitude rating. Consideration is given to:

- Distance from development.
- Comparative to similar past projects.
- Quantum of view - openness of the view and the receiver's angle of view to the scene. A development located in the direct line of sight has a higher impact than if it were located obliquely at the edge of the view. Whether the view of the Project is filtered by vegetation or built form also affects the impact, as does the nature of the view (panoramic, restricted etc.). A small element

within a panoramic view has less impact than the same element within a restricted or narrow view.

- Period of view - the length of time the visual receiver is exposed to the view. The duration of view affects the impact of a development on the viewer - the longer the exposure the more detailed the impression of the proposed change in terms of visual impact.
- Scale of change - assessment of the change in compositional elements of the view. If the proposed development is largely similar in nature and scale to that of existing elements in the vicinity, the scale of change is low. If the development radically changes the nature or composition of the elements in the view, the scale of change is high.

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Photomontages

Five photomontages were prepared for the Proposal based on the proposed development. These photomontages are intended to act as artist's impressions, illustrating the general location, scale, and relationship of key visual elements with the surrounding landscape. These simulations were created using site photographs, computer modelling and photo editing as follows:

1. A 3D computer model was developed based on a digital terrain model with one metre contour data. The digital terrain model includes buildings and vegetation.
2. The model was positioned over the existing photograph using the GPS coordinates of the location, and a minimum of three existing elements within the photograph as reference points.
3. The photographs have been edited using Photoshop to reflect the likely changes to the view. There is an element of judgment used in the changes shown in these photomontages. The location of these visual simulations was selected to illustrate the range of impacts likely for the Proposal.

Photography

A number of photographs were taken to record key views to the site. Guidance states that a 50mm lens is closest to a human eye's interpretation (field of view and foreshortening). However, to capture the surrounding context in a single image usually requires a wider lens. The guidance accepts the photographer's judgement in this situation. These photographs were taken with a digital camera at a 24mm equivalent focal length.

Where multiple shots were taken in the same location, each photograph was taken with a minimum 40 per cent to maximum 70 per cent overlap to allow for merging into panoramas.

Assumptions and technical limitations

This assessment of potential landscape and visual impacts has been undertaken as described within the Development License Application and planning approval for the Proposal.

Proposed landscape treatments are assessed as being at an mature stage of growth (year 10 of project operation) to ensure a reasonable, approach to any beneficial effects of vegetative screening on the project. For the purposes of this assessment, the basic project concept - its location, form and key elements - has been assessed.

The following assumptions and technical limitations have informed this study:

- The photo simulations are based on the concept engineering design. The end built form may differ from that portrayed in the images and, therefore, these images are purely indicative at this stage.
- The Digital Terrain Model (DTM) developed for topographic mapping was based on a 30m grid derived from LiDAR model.
- The viewshed analysis or Visual Envelope Map (VEM) for the entire design was based on a 50m DTM (datum).

- The construction methodology described under Chapter 01 Introduction is indicative and based on standard construction method for the purpose of the LCVIA assessment. The construction method for the Proposal is to be confirmed through the CEMP.
- No detailed nighttime assessment has been undertaken.
- It is important to consider the conclusions of this assessment in the context of these limitations however; it is not considered that any of these limitations would have a significant effect on the assessment of impact.

Landscape assessment approach

Landscape sensitivity

A record of the inherent and intrinsic sensitivity of the landscape and the degree to which it can accommodate change.

- Value | The importance of the landscape to society
- Components | Contributing components, such as trees, woodlands, land use, heritage
- Characteristics | Patterns, scenic quality, tranquillity etc.
- Landscape Character Areas | Homogeneous areas with defining characteristics
- Replacement or substitution | The degree to which inherent components or characteristics can be reserved
- Trends of change | An account of the natural or human activities that may alter the landscape

Table 2: Landscape sensitivity level definitions

High sensitivity	<p>Landscapes which by nature of their character would be unable to accommodate change of the proposed type. Typically these would be:</p> <ul style="list-style-type: none">• Of high value with distinct elements and features making a positive contribution to character and sense of place• Likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale• Areas of special recognised value, through use, perception or historic and cultural associations.• Likely to contain features and elements that are rare and could not be replaced
Moderate sensitivity	<p>Landscapes which by nature of their character would be able to partly accommodate change of the type proposed. Typically these would be;</p> <ul style="list-style-type: none">• Comprised of commonplace elements and features creating generally unremarkable character but with some degree of place• Locally designated, or their value may be expressed in statutory local publications.• Containing some features of value through use, perception or historic and cultural associations.• Likely to contain some features and elements that could not be replaced.
Low sensitivity	<p>Landscapes which by nature of their characteristics would be able to accommodate change of the type proposed. Typically these would be;</p> <ul style="list-style-type: none">• Comprised of some features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place.• Not designated.• Containing few, if any, features of value through use, perception or historic and cultural associations.• Likely to contain few, if any, features and elements that could not be replaced.
Negligible sensitivity	<p>Landscapes which by nature of their characteristics would be able to accommodate change of the type proposed. Typically these would be;</p> <ul style="list-style-type: none">• Comprised of features and elements that are discordant, derelict or in decline, resulting in indistinct character with little or no sense of place.• Not designated.• Containing no features of value through use, perception or historic and cultural associations.• Likely to contain features and elements that could be readily replaced.

Magnitude of change

The scale, nature and duration of the change and the degree to which the effect can be mitigated

- The scale | Small, medium or large
- Nature | Negative (adverse) or positive (beneficial)
- Duration | Short, medium, long term permanent or temporary

- The mitigation | The degree to which the effect could be reduced

Table 3: Landscape magnitude of change level definitions

High adverse	Total loss or large scale damage to existing character or distinctive features and elements, and/or the addition of new but uncharacteristic conspicuous features or elements.
Moderate adverse	Partial loss or noticeable damage to existing character or distinctive features and elements, and/or the addition of new but uncharacteristic noticeable features and elements.
Low adverse	Slight loss or damage to existing character or features and elements, and/or the addition of new but uncharacteristic features or elements.
Negligible adverse	Barely noticeable loss or damage to existing character or features and elements, and/or the addition of new but uncharacteristic features and elements.
No change	No noticeable loss, damage or alternation to character or features or elements.
Negligible beneficial	Barely noticeable improvement of character by the restoration of existing features, and/or the removal of uncharacteristic features, or by the addition of new characteristic features.
Low beneficial	Slight improvement of character by the restoration of existing features, and/or the removal of uncharacteristic features, or by the addition of new characteristic features.
Moderate beneficial	Partial or noticeable improvement of character by the restoration of existing features, and/or the removal of uncharacteristic features, or by the addition of new characteristic features.
High beneficial	Large scale improvement of character by the restoration of features, and/or the removal of uncharacteristic features, or by the addition of new distinctive features.

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Visual assessment approach

Visual sensitivity

A record of the visual receptors within the study area and an analysis of the visual sensitivity

- Define visual study area | The areas within which the view is expected to be of concern of importance
- Identify the representative viewpoints | Record important public and provide view points.
- The expectation and occupation or activity to inform level of sensitivity | The most sensitive receptors may include residential and public outdoor facilities. Industrial areas may have a low level of visual sensitivity
- The importance of the view | Views that may be designated to safeguard their value or locations that are valued by the communities

Table 4: Visual sensitivity level definitions

High sensitivity	<p>Examples may include:</p> <ul style="list-style-type: none"> • Residential properties • Users of public footpaths or other recreational trails (e.g. National Trails) • Users of recreational facilities where the purpose of that recreation is the enjoyment of the landscape (e.g. National Parks and designated scenic lookouts) • Users of designated tourist routes • Large numbers of viewers
Moderate sensitivity	<p>Examples may include:</p> <ul style="list-style-type: none"> • Outdoor works • Users of scenic roads, railway corridors or waterways • Schools and other institutional buildings, and their outdoor areas • Moderate number of viewers
Low sensitivity	<p>Examples may include:</p> <ul style="list-style-type: none"> • Indoor workers • Users of main roads or arterial roads • Users of recreational facilities where the purpose of that recreation is not related to the views
Negligible sensitivity	<p>Examples may include:</p> <ul style="list-style-type: none"> • Limited numbers of viewers or infrequently accessed view points • Passing interest in their surroundings • Users of minor roads and views from the air

Magnitude of change

The scale, nature and duration of the change and the degree to which the effect can be mitigated

- Scale | With respect to the loss or addition of features in the view and changes in its composition
- Degree of contrast or integration | Form, scale and mass, line, height, colour, texture
- Nature of view in relation to the Proposal | Angle, distance and extent
- Mitigation | The degree to which mitigation would reduce the effect

Night time environmental zones

The categorised environmental zone demonstrating the degree of exterior lighting experienced within the landscape.

Table 5: Visual magnitude of change level definitions

High	The Proposal, or part of it, would become the dominant feature or focal point of the view.
Moderate	The Proposal, or part of it, would form a noticeable feature or element of the view which is readily apparent to the receptor.
Low adverse	The Proposal, or part of it, would be perceptible but not alter the overall balance of features and elements that comprise the existing view.
Negligible adverse	Only a very small part of the Proposal would be discernible, or it is at such a distance that it would form a barely noticeable feature or element of the view.
No change	No part of the Proposal, or work or activity associated with it, is discernible.

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03

Legislation and Policy



Planning Policy and Strategic Context

The planning and legislative framework provides an indication of the land use policies and objectives that relate to the study area for the Proposal. This Chapter provides a summary of the WtE policy within Victoria and highlight key criteria the ERRC will need to comply with and explores the zones, regional and state overlays which are of relevance to this landscape and visual technical assessment.

The following section briefly describes the relevant policies and controls that may provide a basis for the visual impact analysis process.

State and Regional Policy

[Plan Melbourne 2017-2050 and Plan Melbourne Addendum 2019](#)

Protect significant views, maintain non-urban breaks between urban areas, and conserve the cultural significance, tourism appeal and character of scenic rural landscapes. Recognised high-value landscape features include open farmed landscapes, sites of geological significance, ranges, hills and ridges and open coastal spaces. Iconic landscapes, such as the Great Ocean Road, Bellarine Peninsula, Macedon Ranges, Western Port, Phillip Island, Mornington Peninsula, the Yarra Valley and the Dandenong Ranges, attract high numbers of local and overseas visitors each year.

[Growth Corridor Plan: Managing Melbourne's Growth \(June 2012\)](#)

The Site is located within the North Growth Corridor and is identified for 'Non-urban/utilities' with the northern portion of the site identified for its biodiversity value.

The Growth Corridor Plan provides guidance around the valued landscape and scenic elements that should be considered as the corridor develops, as summarised below.

- [Section 5.1] Key challenges include ensuring the Northern Growth Corridor evolves as an attractive location for a wide range of businesses and a wide diversity of households. The Northern Growth Corridor Plan seeks meet these challenges by preserving and enhancing the natural features of the Growth Corridor, including the significant landscape and biodiversity values. New communities will benefit from an integrated open space network that provides a distinctive character and amenity, and existing biodiversity values will be preserved and enhanced.
- [Section 5.2] The vision for the corridor includes delivering distinct urban districts interspersed with open space and employment precincts. Each community will have a distinctive character, defined by its natural setting - the foothills, grasslands,

woodlands, creeks and waterways - and well designed, accessible town centres.

- [Section 5.3] The North Growth Corridor is characterised the hills flanking its western, northern and eastern edges, the flat plateau towards the western edge of the Corridor and the more undulating landform towards the east.
- [Section 5.3.1] The North Growth Corridor is characterised by a large valley floor, flanked by the foothills of the Great Dividing Range, and incised by the Merri and Darebin creeks. The key landscape features that form part of the broader setting for urban development include:
 - + Retention of key views to the hills that flank the Growth Corridor to the west, north and east;
 - + Retention of distant views from the Growth Corridor to the Great Dividing Range to the north and north east.
 - + Retention of an inter-urban break between the northern edge of the Growth Corridor and Wollan.
 - + The edge of urban development has been identified as just south of the saddle that commences at the

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intersection of Old Sydney Road and Beveridge Darraweit Road, and links south-east to Mt Fraser;

- + Retention of the red volcanic cones at Mt Frazer and Bald Hill, and the protection of vistas to these features from a range of vantage points across the Growth Corridor; and
- + Utilisation of the natural drainage system across the Growth Corridor to create a network of open spaces which connect different parts of the corridor in both visual and landscape terms. Merri, Kalkallo and Darebin Creeks are particularly important in this regard.
- [Section 5.4.2] The sense of place for each of these communities will be created from natural features, particularly the hills that frame the Growth Corridor, volcanic cones and the creeks and woodland reserves within and adjacent to it.
- The town centres at Donnybrook, West Beveridge, Mickleham and Wollert adjoin or are near natural features including creeks, high points and woodland/ grassland areas, and can be designed so as to integrate these features into the character of the town.

Melbourne Future Planning Framework (2021)

Melbourne's Future Planning Framework comprises of six Land Use Framework Plans to guide strategic land-use and infrastructure development for the next 30 years. The plans are currently in draft, however aim to provide a means of aligning state and local planning strategies and working collaboratively across government to implement Plan Melbourne. The Site is identified within the Northern region.

The following relevant commentary relating to landscape and visual impact is taken from Chapter 07 of the Draft Northern Metro Land Use Framework Plan:

The diverse landscapes of the Northern Metro Region range from the rolling hills in the region's east to the volcanic plains in the west. The region's landscapes are defined by waterways, remnant forests, grasslands and woodlands, volcanic cones and incised valleys. They are integral to its character and sense of place.

The region's key landscapes and biodiversity areas are described in table 12 (reproduced below). While much of the Northern Metro Region's biodiversity has been altered through urbanisation, there are many important natural assets that support biodiversity and provide critical habitat for the survival of some of our most threatened species.

Table 12

Key landscapes and biodiversity areas in the Northern Metro Region

Landscape and biodiversity area	Significance, protection and management
Waterways	The Yarra River flows into Melbourne from the Yarra Ranges, winding its way along the region's southern boundary from Christmas Hills to Ivanhoe. The region's major waterways of the Plenty River, Maribyrnong River, Moonee Ponds Creek, Diamond Creek, Merri Creek and Darebin Creek all flow into the Yarra River. Other waterways include Jacksons, Kalkallo, Emu and Steele creeks. The region's waterways are an important aspect of its landscape and biodiversity, and offer the opportunity for regional habitat and parkland connections.
Regional parks	The Northern Metro Region's north and north-east contain large areas of passive open space such as Quarry Hills Parkland, Plenty Gorge Park, the Organ Pipes National Park and Kinglake National Park which protect biodiversity and offer a connection to the underlying landscape.
Biodiversity areas	Sensitive ecosystems exist within grassy eucalypt woodlands throughout the region's green wedges. Craigieburn Grasslands, Merrifield/Kalkallo retarding basin and land conserved around water reservoirs offer areas of high biodiversity value. Substantial areas of river red gums are also scattered across the landscape. The region's waterways and green wedges provide highly significant areas of habitat for regional biodiversity, including endangered species such as the Growling Grass Frog and the Golden Sun Moth.

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Direction 18 of the framework is to “Protect and enhance the landscapes and biodiversity of the Northern Metro Region”. Under this, it is noted that [inter alia]:

The region’s landscapes are also a key aspect of its sense of place and regional distinctiveness.

The landscape values of the region’s waterways, wetlands, ridgelines and key view corridors should also be protected from the visual impact of development or infrastructure.

Within the Northern Growth Corridor areas of Lockerie, West Beveridge, Mickleham and Wollert, important landscape features should be retained and protected, including:

- + Views to the hills and ridgelines that flank the Northern Growth Corridor to the west, north and east
- + Distant views from the growth corridor to the Great Dividing Range to the north and north-east
- + Red volcanic cones at Mount Frazer and Bald Hill, and the protection of vistas to these features from a range of vantage points across the Northern Growth Corridor

- + The natural drainage system across the Northern Growth Corridor, which includes the Merri, Kalkallo and Darebin creeks.

Strategy 57 is to “work with traditional Owners to protect and enhance the landscape and conservation values of the distinctive hills and ridgelines, volcanic cones, waterways and grasslands of the Northern Metro region and integrate these features into growth area planning”.

Surrounding Precinct Structure Plans

The following PSPs surround the site:

- English St PSP
- Shenstone Park PSP
- Wollert PSP
- Craigieburn North Employment Area PSP

Each PSP provides direction with respect to protecting significant views and landscapes. However, in each PSP the views to be protected are in the opposite direction of the subject site, suggesting that there are no specified views to be protected in direct connection with the site.

Whittlesea Planning Scheme

The Whittlesea Planning Scheme provides specific land use and development controls. A summary of relevant provisions is provided, with the corresponding visual assessment considerations listed below.

Clause 02.01 - Context

The City of Whittlesea is characterised by an abundance of natural features that contribute greatly to the attractiveness and amenity of the region. The northern parts of the municipality are contained in one of Melbourne’s green wedge areas and comprise state forests, national parks, grasslands, woodlands and wetlands of national significance, recreation areas, water catchments, extensive rural areas, red gum woodlands,

elevated landscapes and a network of rivers, creeks and drainage lines which extend into the urban areas.

Clause 02.03-2 - Environmental and landscape values

Whittlesea contains significant environmentally sensitive areas and landscape features that are key areas for habitat, habitat corridors and the maintenance of biodiversity. They also play a range of vital roles in relation to open space provision and visual and landscape relief.

Clause 02.03-5 - Built environment and heritage

The City of Whittlesea contains many diverse urban and environmental features that have been identified for preservation and enhancement in order to retain the character of the municipality in the face of rapid urban development.

All forms of development and elements of the rural landscape contribute to the character of the municipality. Well-designed urban environments build connection to place and the community and contribute to the City’s image, amenity and community wellbeing.

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Council aims to [inter alia]:

- Facilitate the integration of local features or focal points including River Red Gums into the design of new communities.
- Retain local environmental features and landscape qualities.

Clause 02.04-3 - Environmental and landscape values plan

Refer map to the right-hand-side.

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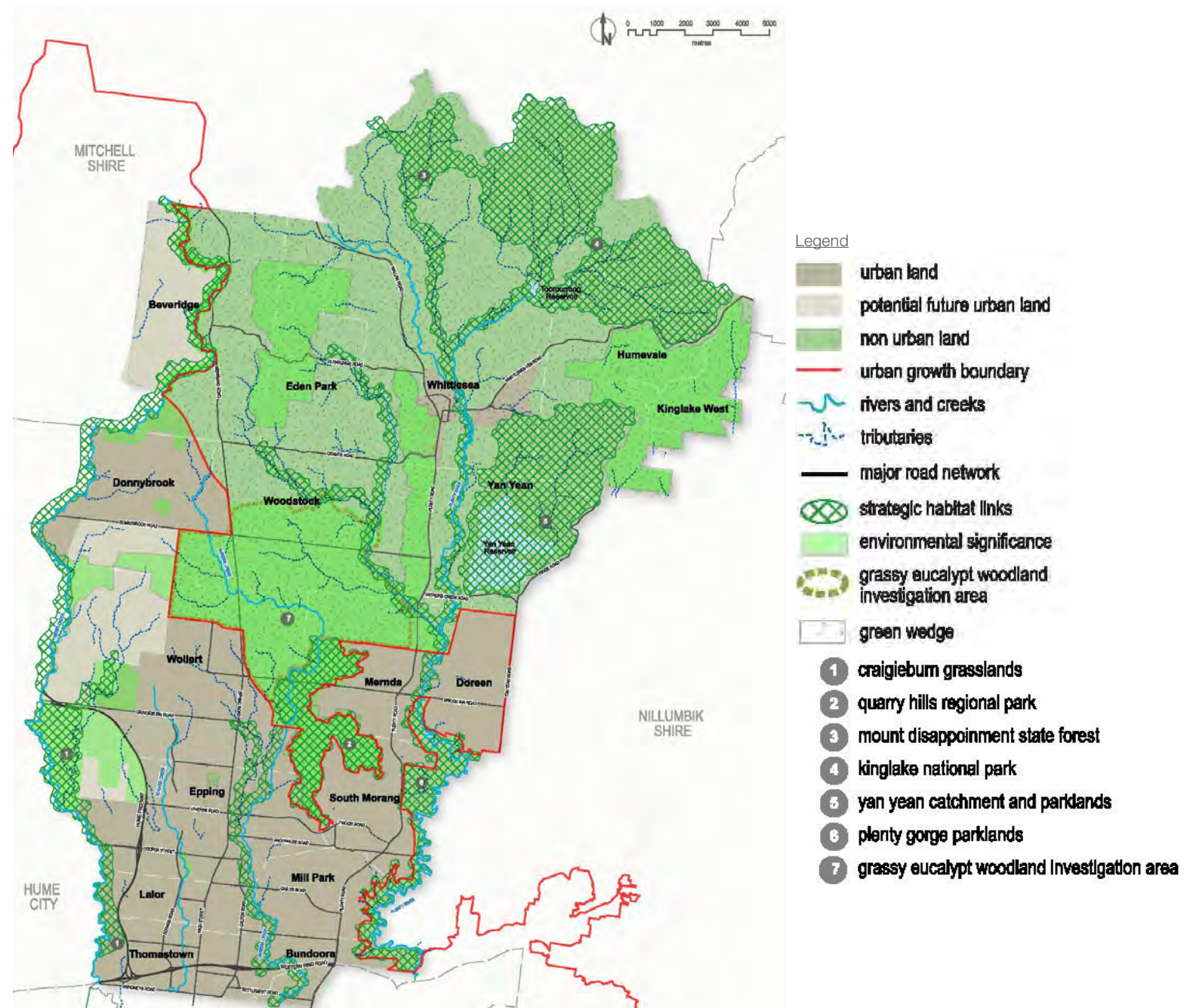


FIGURE 3 ENVIRONMENTAL AND LANDSCAPE VALUES PLAN (WHITTLESEA PLANNING SCHEME, CITY OF WHITTLESEA, 18/12/2020 C250WSEA)

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Clause 12.05-2S - Landscapes

The objective of this clause is:

- To protect and enhance significant landscapes and open spaces that contribute to character, identity and sustainable environments.

Strategies include:

- Ensure significant landscape areas such as forests, the bays and coastlines are protected.
- Ensure development does not detract from the natural qualities of significant landscape areas.
- Improve the landscape qualities, open space linkages and environmental performance in significant landscapes and open spaces, including green wedges, conservation areas and non-urban areas.
- Recognise the natural landscape for its aesthetic value and as a fully functioning system.
- Ensure important natural features are protected and enhanced.

Clause 35.07 - Farming Zone

The majority of the site is located within the Farming Zone.

There are no specific directions within Clause 35.07 relate to landscape and visual impact assessments.

Clause 35.06 - Rural Conservation Zone

A small portion of the site is located within the Rural Conservation Zone however the proposed use and development will not be located within this portion of the site.

Nonetheless, the purpose of Clause 35.06 is [inter alia]:

- To protect and enhance the natural environment and natural processes for their historic, archaeological and scientific interest, landscape, faunal habitat and cultural values.
- To provide for agricultural use consistent with the conservation of environmental and landscape values of the area.
- To conserve and enhance the cultural significance and character of open rural and scenic non urban landscapes.

Clause 42.01 - Environmental Significance Overlay

The purpose of Clause 42.01 is [inter alia]:

- To ensure that development is compatible with identified environmental values.

Schedule 4 (Rural Conservation Areal

An environmental objective to be achieved is:

- To enhance the environmental and landscape values of the area.

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04

Context

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Context

The Proposal area is located at 510 Summerhill Road, Wollert (VIC), approximately 25km north of Melbourne's CBD. The Proposal area is within the City of Whittlesea local government area (LGA). Adjoining LGAs are Mitchell and Hume councils.

The Proposal area covers approximately 82ha and is bound by Summerhill Road to the south, and open pastureland to the north, east and west. The nearest residential areas are Craigieburn (approximately 3km to the west) and Epping (approximately 2km to the south).

Site

The Proposal area lies to the north-west of the Wollert suburb boundary. Major road corridors borders the site: M31 Motorway, Hume Freeway/ Craigieburn Bypass to the west, Donnybrook Road to the north, Epping Road to the east and Craigieburn Road East to the south.

The Proposal area is located in an area with predominantly farming and industrial land uses. The landscape is defined by expansive views, granite outcrops and scattered clumps of trees and vegetation. The site is representative of the several large self-contained agricultural and industrial plots with small patches of remnant grassy woodland and interwoven water courses on an undulating plain in the region.

Water courses adjoins the west and east borders of the Proposal area – Merri Creek to the west and Curly Sedge Creek to the east. Darebin Creek, a notable water course within the plains, lies further east, just off Epping Road

Legend

- Local government / council boundary
- Proposal area
- Parkland and reserve
- Residential developments
- Watercourse
- T Train station

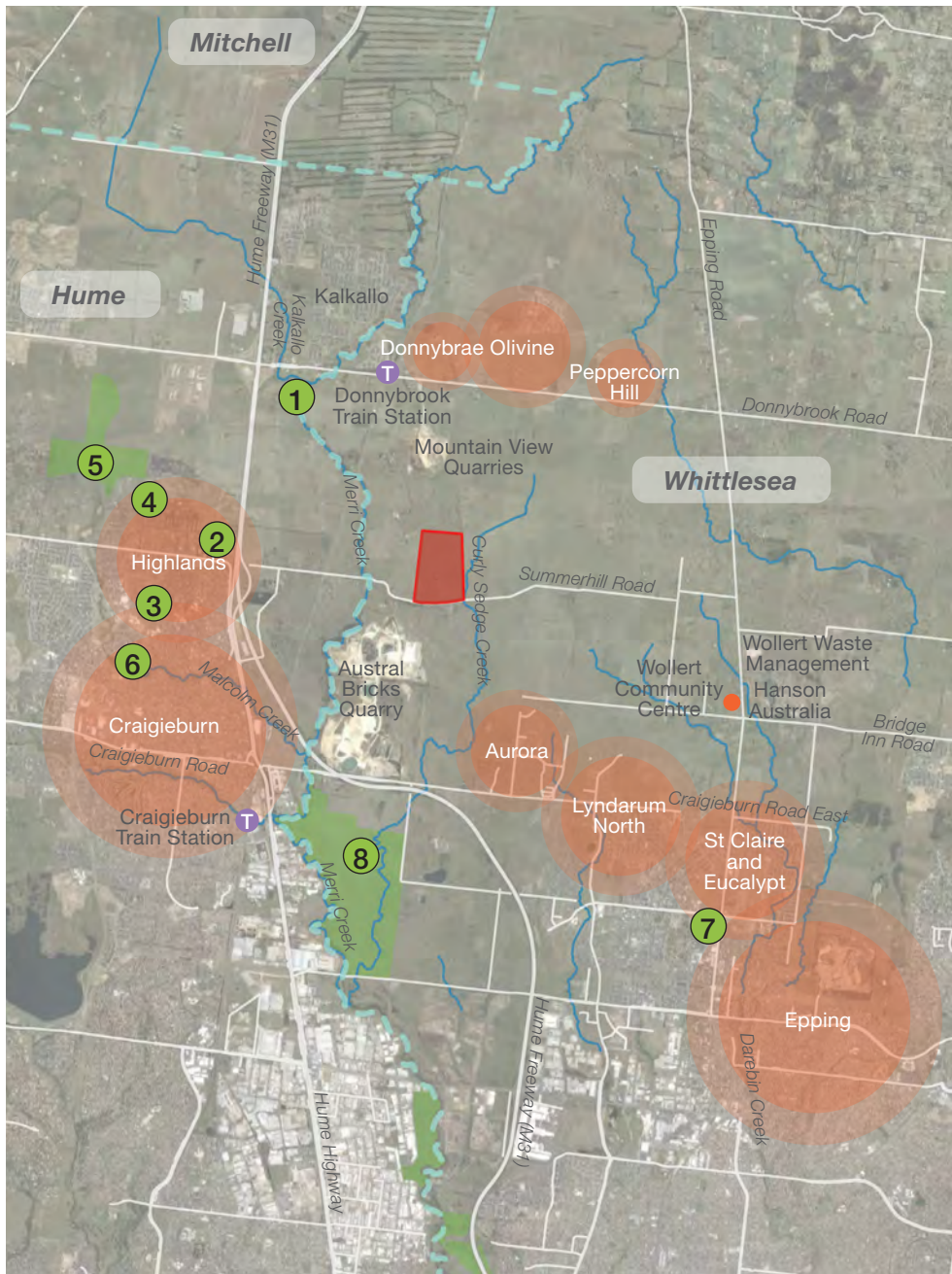


FIGURE 4 CONTEXT MAP



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Urban development

Types of urban development near the site are:

Industrial

A diverse range of industrial development operates near to the Proposal area. These are:

- Mountain View Quarries are to the north of the site and the Austral Bricks Quarry to the south.
- Hanson Australia plant is located near to the intersection of Epping Road and Bridge Inn Road.
- The Wollert Waste Management facility is to the north-east of the Hanson Australia plant.

Housing and community

Several housing developments and community amenities are located beyond the immediate surrounds of the site. These are:

- Kalkallo residential suburb, Donnybrae, Olivine and Peppercorn Hill located north of Donnybrook Road and near the Donnybrook Railway Station.
- Aurora, Lyndarum North, St Claire and Eucalypt to the south of the site along Craigieburn Road.
- Craigieburn and Highlands developments to the west of Hume Freeway and the Craigieburn Bypass.
- The Wollert Community Centre is located along Epping Road near to the intersection with Bridge Inn Road.

Parkland and reserve

Key parklands, reserve and public open spaces near the site are predominantly located to the north, west and south:

- **1** Donnybrook Reserve is located to the north-west and is bypassed by Kalkallo and Merri Creeks.
- To the west are:
 - **2** Mount Ridley Conservation Reserve (Mount Ridley Lookout).
 - **3** Highgate Recreational Reserve.
 - **4** Windmill Park Sanctuary.
 - **5** Mount Ridley Nature Conservation Reserve.
 - **6** Malcolm Creek Linear Park.Malcolm Creek traverses through Mount Ridley Nature Conservation reserve and Malcolm Creek Linear Park.
- To the south are **7** Harvest Home Recreational Reserve and **8** Craigieburn Grassland Nature Reserve through which Merri Creek and Curly Sedge Creek traverse.

The green spaces and parks along Merri Creek are in the process of expansion to create the Marram Baba Merri Creek Regional Parklands.

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Land use

Proposal area and immediate surroundings

The site is within land classed as Farming Zone, which extends to an area to the south-east. The current land uses adjoining the site is predominantly for agricultural farmland and quarrying and brick-making facilities that include these zoning categories: Farming Zone, Rural Conservation Zone (immediately to the north and north-west of the site) and Special Use Zone (immediately to the east and extends north from the site). Two quarries are located about 2km from the site within the Special Use Zone to the south of the site. Residential lots within the Urban Growth Zone are being developed, the closest development being about 2.5km from the site.

The site was previously utilised as a farm and residence similar to the neighbouring properties. The site can be accessed by major road corridors, classed under Transport Zone, namely the Hume Freeway (M31)/Craigie Burn Bypass to the east, Donnybrook Road to the north, Epping Road to the west and Craigieburn Road East to the south.

Planned future developments within the vicinity of the Proposal area are described in the following page.

Legend

- Proposal area boundary
- Railway line
- Train station
- Urban Growth Zone
- Township Zone
- Mixed Use Zone
- Comprehensive Development Zone
- Rural Conservation Zone
- Special Uses Zone
- Farming Zone
- Rural Living Zone
- Industrial Zone
- Green Wedge Zone
- Public Park & Recreation Zone
- Transport Zone
- Commonwealth Land



FIGURE 5 LAND USE MAP

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According to the Victorian Department of Energy, Environment and Climate Action (DEECA) areas zoned as Green Wedge contain a mix of agriculture, infrastructure and low-density activities such as:

- Major infrastructure that supports urban areas, including:
 - + Airports
 - + Water treatment facilities
- Major quarries used in the building industry
- Cultural heritage sites
- Biodiversity conservation areas
- Water catchments

Industrial development

Land directly south and slightly further north zoned as Special use Zone is currently being used as quarries - Mountain View Quarries (known as Woody Hill Quarry) to the north and the Austral Bricks Quarry to the south. It is planned for the lot adjacent to the site to the east is to be developed as another quarry.

Other existing industrial developments are the Hanson Australia plant and Wollert Waste Management facility. The facilities are located east of the Project area and adjacent to Epping Road.

A quarry development is planned to be constructed in the adjacent lot to the east of the Project area. Other future developments planned within the Special Use Zone and Industrial Zone include potential gas fired power station and sewer treatment plant.

Commercial development

A cluster of commercial development is situated to the south-west of the site adjacent to the Hume Highway and Hume Freeway/Craigieburn Bypass.

Infrastructure

Craigieburn Train Maintenance Facility is located to the south-west of the site to the southern portion of the Transport Zone adjacent to the Commercial Zone next to the railway line. The Craigieburn Line connects Melbourne to the north-eastern suburbs terminating at Craigieburn Station. The railway infrastructure also operates the regional service connecting Melbourne to Sydney northwards beyond Craigieburn Station.

Mickleham Post entry Quarantine Facility is located off Donnybrook Road west of the intersection with Hume Freeway to the north west of the site.

Primary Production Lots

Land immediately adjoining the site are predominantly large Primary Production Lots. The majority of these lots are still operating as agricultural farms. Some have been re-zoned as Special Use Zone for industrial developments and Urban Growth Zone for residential or commercial developments.

Areas classified as Rural Conservation Zone to the north and west of the site includes Merri Creek and remnants vegetation communities on lots currently being used for primary production

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FIGURE 6 HERITAGE MAP

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Heritage

At the time of European contact, the Wollert area and the surrounding region lay within the traditional lands of people from the Woi wurrung language group. The clan responsible for the Wollert area was the Wurundjeri willam. Wurundjeri willam in traditional East Kulin language means 'white gum tree dwellers'. The Wurundjeri willam was a patriline of the Wurundjeri balug clan (Clark 1990:385). The name of Wollert is thought to derive from an Aboriginal word meaning place inhabited by possums (VicPlaces 2022a).

The Traditional Owners for lands where the Proposal area is situated are the Wurundjeri People who are represented by the Wurundjeri Woi Wurrung Cultural Heritage Aboriginal Corporation.

The eastern edge of the Proposal area is covered by an area of Aboriginal Cultural Heritage Sensitivity, and this area includes a 200m buffer around a waterway on adjoining land.

Legend

- Proposal area boundary
- ||||| Railway line
- Heritage Inventory Area
- Heritage Register Area
- Cultural Heritage Sensitivity
- Watercourse
- + Mine shaft

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The desktop heritage assessment for the proposal indicates that a total of 174 Aboriginal Places, comprising a total of 774 components, have been registered within the geographic region. Most of these Places are located along or nearby waterways or low ridges and hills. Many Places have been recorded in situ due to the relatively undisturbed nature of the area. The database search and previous archaeological investigations found that the most likely Place type to be found within the Proposal area would be low density isolated artefacts. A review of previous archaeological investigations both in and around the Proposal area indicates that Aboriginal archaeological Places occur primarily in relation to reliable waterways, or along their tributaries, particularly on terraces or in elevated areas overlooking those resources.

Based on the findings of the desktop assessment it is considered likely that Aboriginal cultural heritage will be present in the activity area; therefore, based on the Aboriginal Cultural Heritage Management Plan Process, a standard assessment is required to assess the presence and nature of any Aboriginal cultural heritage in the Proposal area.

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FIGURE 7 VIEW ACROSS THE LANDSCAPE FROM 510 SUMMERHILL ROAD

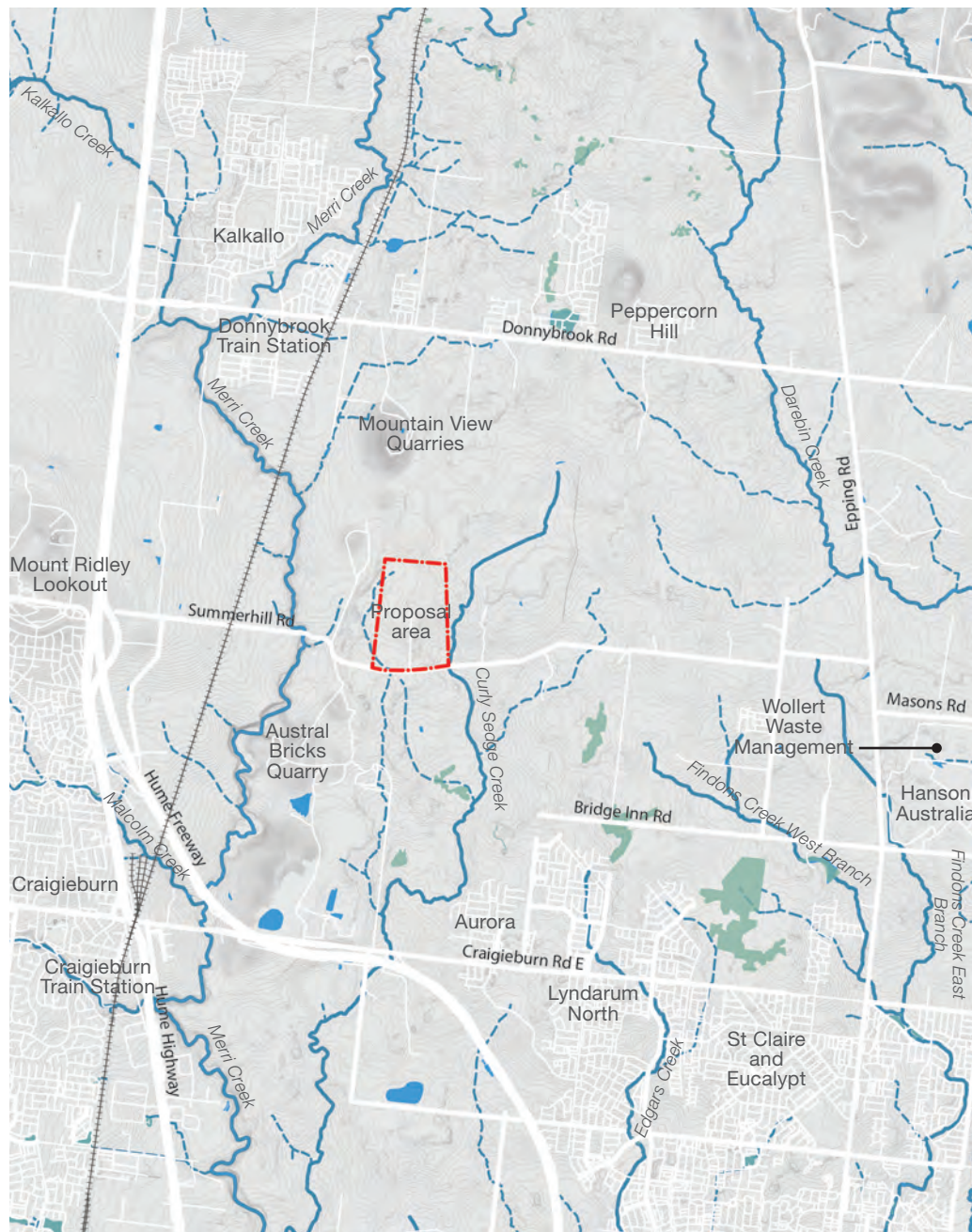
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Topography and Hydrology

Topography

The topography in and around of Wollert is mostly influenced by the low lying open landscape of the Victorian Volcanic Plain. The topography gently undulates over the plains surrounding the Proposal area. The terrain changes to pronounced hills to the north-east along Epping Road past Donnybrook Road, and to the west at Mount Ridley Lookout. There is a distinct hill north of the Peppercorn Hill residential estate.

Other distinct topographic features near the site are the mounds generated by the activities of the two quarries to the north and south of the site.



Legend

- Proposal area boundary
- + + + + + Railway line
- Wetland
- Waterbody
- Watercourse
- Drainage channel

FIGURE 8 TOPOGRAPHY AND HYDROLOGY MAP



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Hydrology

The Proposal area is located within the Merri Creek catchment with numerous waterways weaving through the low lying plains. Two watercourses are situated adjacent to the Proposal area: Merri Creek and Curly Sedge Creek. Merri Creek, the largest waterway in the region, is located approximately 735m from the western boundary of the Proposal area and runs parallel to its boundary. Curly Sedge Creek is located adjacent to the eastern boundary of the Proposal area.

The topography of the Proposal area diverts surface flow towards the western boundary into a flood conveyance reserve that traverses the project boundary to the north west and south west corners. Surface water for the remainder of the site flows into Curly Sedge Creek to the east. Both the flood conveyance reserve and Curly Sedge Creek flows southwards and eventually joins with Merri Creek about 7km from the Proposal area.

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FIGURE 9 NORTHERN CREEK LINE LOOKING SOUTH TOWARDS BRICKWORKS QUARRY

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Transport

Road

The site is connected to the road network by major road corridors. Access to the site from Melbourne and in a north-south-wards through the M31 Motorway, Hume Freeway/Craigieburn Bypass and Hume Highway to the west, or Epping Road to the east which then connects to Summerhill Road. Road connection to the site east-westwards is through Donnybrook Road to the north and Craigieburn Road East to the south.

Summerhill Road is the primary access route to the site and where most delivery trucks will be driving along. It is the current access road to the agricultural properties and to the Austral Brick quarry.

The road is currently an informal unsealed two-way carriageway, except at the section crossing over Merri Creek at the bridge portion where the road width is reduced to single traffic. Summerhill Road is planned for future upgrade to a sealed road, four lane traffic with a small median and shared paths as outlined in the Wollert Precinct Structure Plan - June 2017. The road widening is expected to be within the southern side of the road reserve and not affecting the reserve area adjacent to the site boundary.

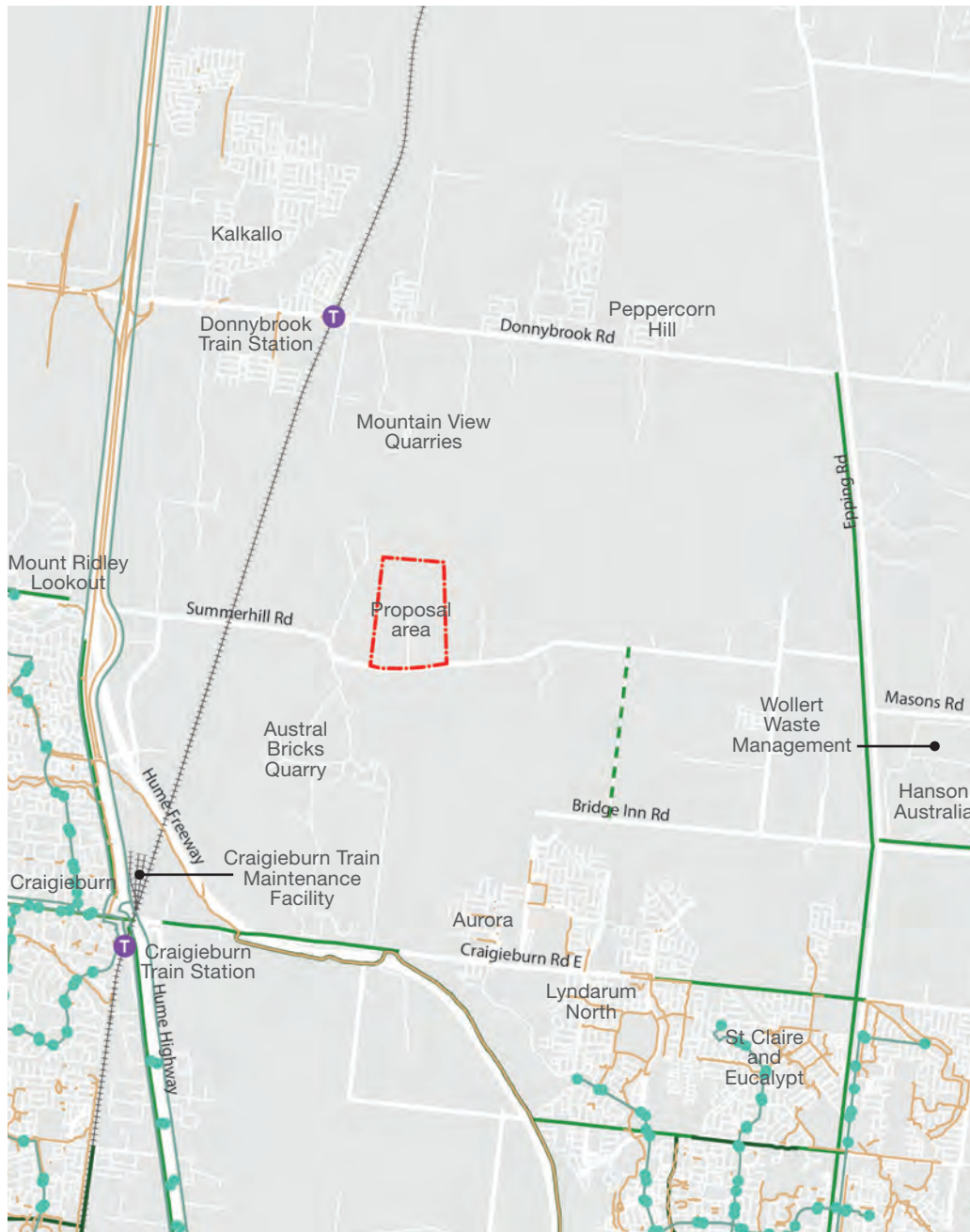


FIGURE 10 TRANSPORT MAP



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Train

The railway line runs in a north-south alignment, is situated west of the site and passes by the site about 2km at its closest distance. Two stations are located near the study area, Craigieburn Station and Donnybrook Station. Craigieburn Station is located to the south-west and about 4.5km from the site near Hume Highway and can be accessed through Craigieburn Road and Craigieburn Road East. Donnybrook Station is located to the north-west of the site at about 2.5km away along Donnybrook Road.

The railway provides direct service to Melbourne via the metropolitan train service and also operates as the regional Melbourne-Sydney service.

The Craigieburn Train Maintenance Facility is located just north of Craigieburn Station.

Bus

Bus routes are predominantly distributed to the residential areas west of Craigieburn Station and south of Craigieburn Road East near the intersection with Epping Road. Sydney Road/ Hume Highway is the main conveyor of bus traffic travelling north-south within the study area. The bus route is connected to Craigieburn Station.

Bicycle and pedestrian paths

The network of cycle and pedestrian paths are distributed to the same residential areas similar to the bus routes. There are no identified recreational and tourist trails within the study area.

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FIGURE 11 RAILWAY CROSSING AT SUMMERHILL ROAD

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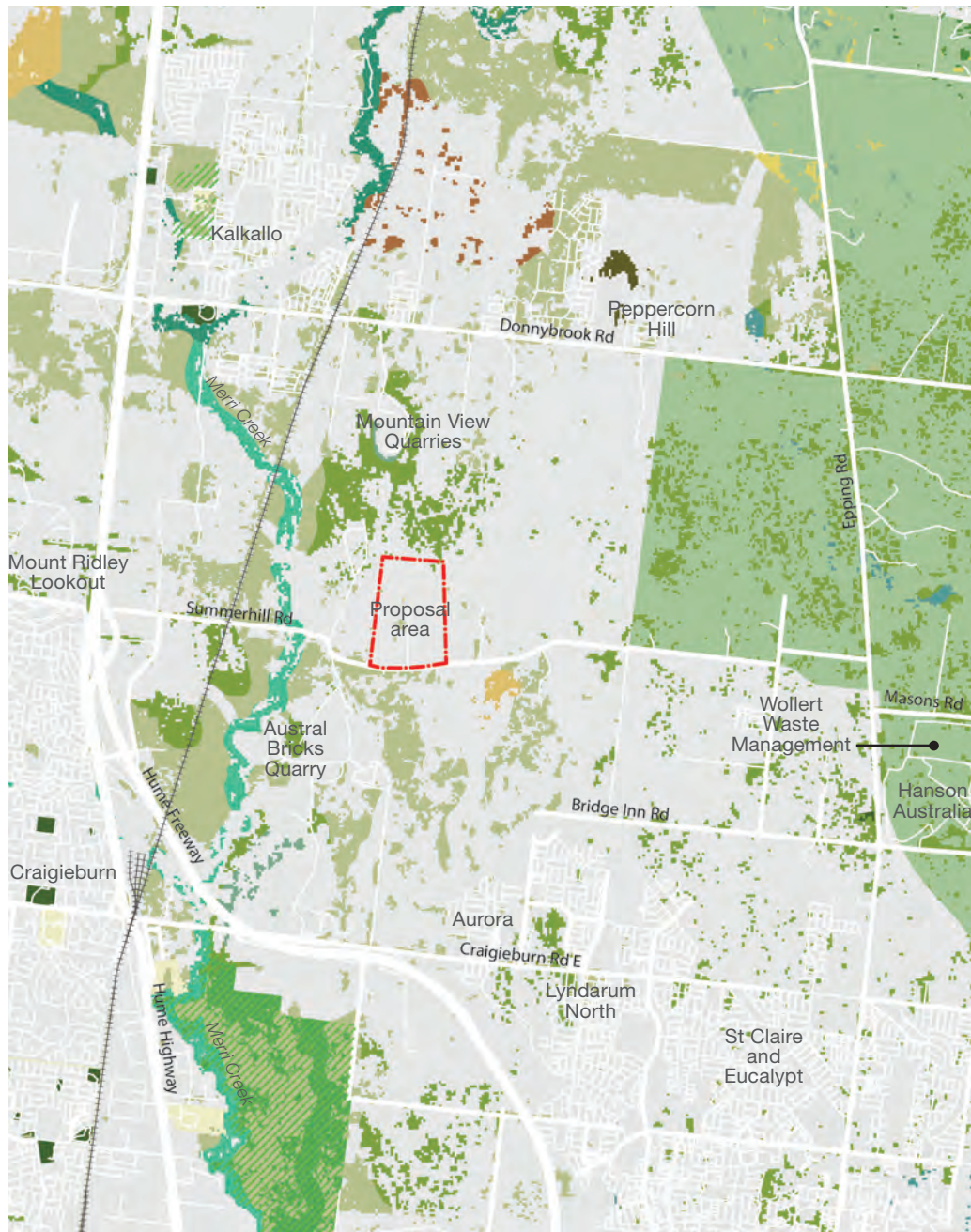


FIGURE 12 VEGETATION MAP



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Legend

- Proposal area boundary
- ||||| Railway line
- Green Wedge
- Public Park & Recreation
- EVC 55 Plains Grassy Woodlands
- EVC 132 Grassland
- EVC 125 Plains Grassy Wetlands
- EVC 895 Escarpment Shrubland
- EVC 22 Grassy Dry Forest
- EVC 894 Scoria Cone Woodland
- EVC 937 Swampy Woodland
- EVC Valley Grassy Forest
- EVC 191 Riparian Scrub

Vegetation

The site is located within the Victorian Volcanic Plains bioregion. Bioregions are a landscape-scale approach to classifying the environment using a range of attributes such as climate, geomorphology, geology, soils and vegetation. The Victorian Volcanic Plains bioregion, one of 28 bioregions identified within Victoria according to the Department of Environment, Land, Water and Planning (2022), occurs from the area north of Melbourne, including Wollert suburb and spans westwards almost to the edge of the state boundary. The bioregion is characterised by flat undulating basaltic plain and volcanic outcrops.

The site is located within the Melbourne Strategic Assessment (MSA) area, and any development is subject to approval conditions in accordance with the Biodiversity Conservation Strategy (BCS) (DEPI 2013a) (Biodiversity Conservation Strategy for 510 Summerhill Road, Wollert, Victoria). The proposal will therefore require assessment under the MSA program to determine the levy associated with the proposal to fund mitigation measures for impacts on biodiversity.

The site overlap over three Ecological Vegetation Classes (EVC):

- EVC 55 Plains Grassy Woodland - to the northern boundary of the site that includes the conservation area.
- EVC 125 Plains Grassy Wetlands - area within the site and to the northern portion.

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- EVC 132 Grassland (Plains Grasslands and Chenopod Shrublands) - covering the majority of the western, eastern and southern portions of the site.

The area to the east of the site classed as Green Wedge contain a mix of agriculture and low-density activities including infrastructure, industry, heritage sites, conservation areas and water catchments. The area is predominantly contain large agricultural lots with scattered built form and farm infrastructure (DELWP).

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FIGURE 13 EXISTING VEGETATION FROM SUMMERHILL ROAD

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Baseline

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Landscape character

Landscape character can be defined as the combination of built, natural and cultural aspects that make up an area and provide a sense of place. It includes all aspects of a tract of land – built, planted, natural topographical and ecological features. Landscape character assessment seeks to divide the landscape into distinct, broadly homogeneous units with defining characteristics. In this way each character area should be distinct from an adjoining area which will be defined by a different set of key parameters.

The Landscape Character Areas (LCA) identified as part of this assessment have been derived from a review of planning policy, GIS baseline analysis and site investigations. The extent of character area analysis is informed by an understanding of potential perceived area of change that may arise from the Proposal. This process included a review of the physical extent of the Proposal and visual analysis, discussed in further detail on the proceeding pages, Visual Context section within this chapter.

In order to complete the landscape and visual baseline to inform the LCVIA, as mentioned in Chapter 02: "Methodology" on page 15, the LCA baseline study area adopts the same scale of the context maps in order to document the surrounding context to the site and assist with the selection of the viewpoint locations. The study area is refined further during the assessment stage to evaluate the direct or indirect impacts as a result of the Proposal.

Three distinct LCAs have been defined, as illustrated in Figure 10. Further detailed analysis and subdivision of these LCAs is provided.

The LCAs include:

- LCA 1: Rural agriculture
- LCA 2: Suburban residential
- LCA 3: Quarry industrial

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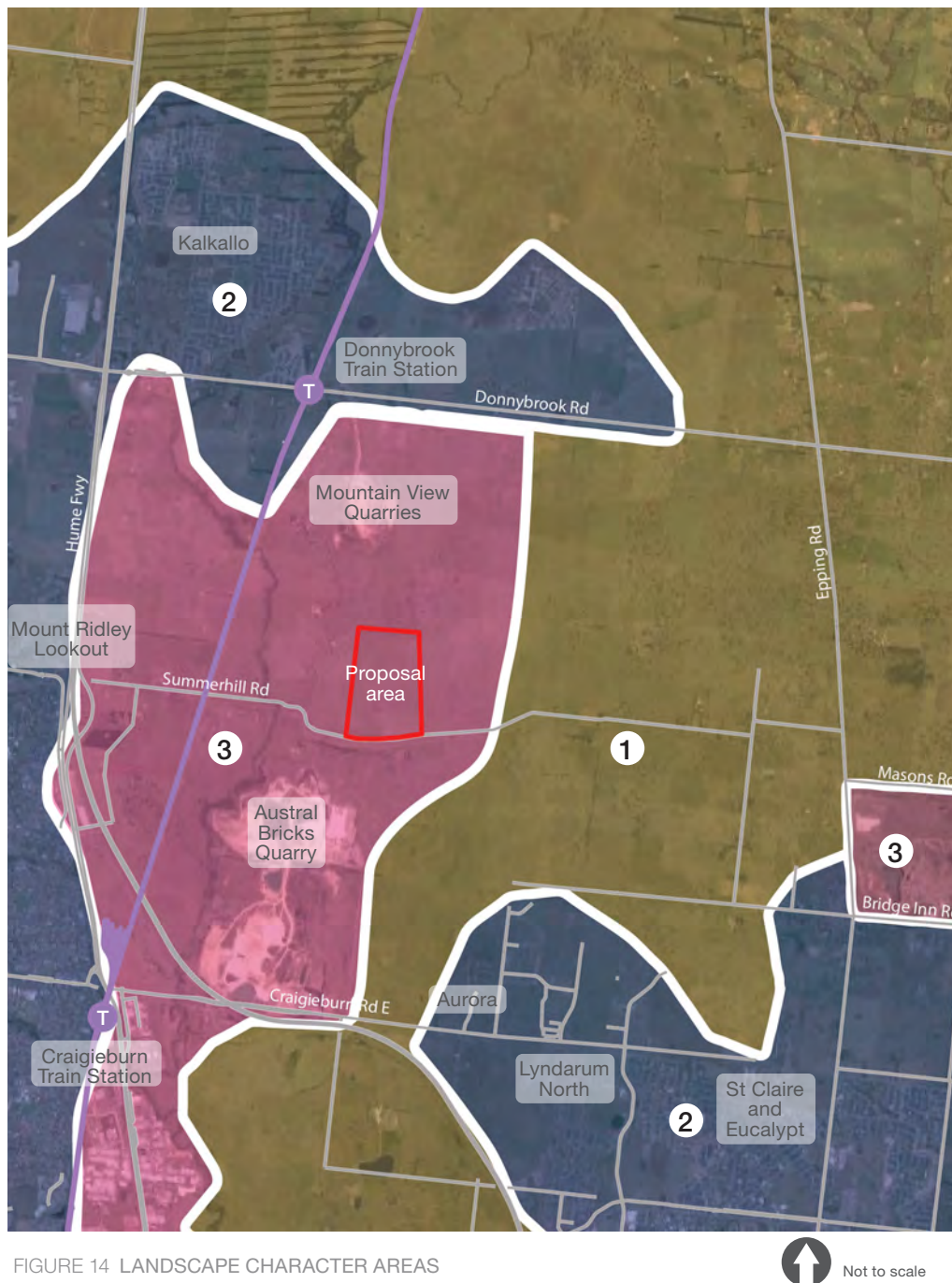


FIGURE 14 LANDSCAPE CHARACTER AREAS

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LCA 1: Rural agriculture



Sensitivity

The sensitivity of this LCA is judged to be **Moderate** due to the presence of the high voltage power lines and the adjoining industrial activities of the nearby quarries.

This LCA describes areas of agricultural farmland in large land lots with residential and farm buildings. The settings for the LCA is representative of the agricultural lands with industrial developments scattered within the area.

The LCA is characterised by:

- Open and extensive views to the landscape with scattered trees.
- Built form is of single storey dwellings and farm sheds arranged in small clusters within the large lots
- Grass verges in front of the properties with drystone walls or agricultural fences.
- Rows of screening vegetation with large shrubs and trees lining the road side predominantly near and around residential buildings.
- Presence of infrastructure such as high voltage power poles and lines.



FIGURE 15 PHOTOS TYPICAL OF LCA 1

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LCA 2: Suburban residential



This LCA describes areas of low to medium density residential developments. The settings for the LCA is representative of single dwellings on medium sized lots.

The LCA is characterised by:

- Single storey building with minimal street frontage.
- Streetscape with grass verge, single tree and driveway to each dwelling.
- Include pockets of public open space, recreational reserves, playgrounds, playing fields and shopping/commercial complexes dispersed within the development area.
- Buildings are in typical display home type and design style with pitched tiled or steel roofs.

Sensitivity

The sensitivity of this LCA is judged to be **Moderate** due to the proximity of the Proposal and the area being predominantly residential.



FIGURE 16 PHOTOS TYPICAL OF LCA 2

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LCA 3: Quarry industrial



Sensitivity

The sensitivity of this LCA is judged to be **Low** due to the presence of quarry mining and industrial infrastructure being of relatively large scale elements within the landscape.

The construction of the future quarry immediately to the east of the Project area will likely affect the level of the sensitivity of this LCA.

This LCA describes areas developed for commercial and industrial activities. The LCA includes the commercial, industrial and infrastructure zones.

It is to note that the property immediately to the east of the Proposal area is to be developed into a new quarry.

The LCA is characterised by:

- Large scale earthworks resulting from the quarry activities that dominate the landscape.
- Commercial building and warehouses predominantly clustered along Sydney Road in mostly single storey built form.
- Include pockets of public open space, recreational reserves, playgrounds, playing fields and shopping/commercial complexes dispersed within the development area.
- Include the railway line and the Craigieburn Train Maintenance Facility.



FIGURE 17 PHOTOS TYPICAL OF LCA 3

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Visual context

- ① Viewpoint 1 - 570 Summerhill Road, Wollert
- ② Viewpoint 2 - 620 Summerhill Road, Wollert
- ③ Viewpoint 3 - 11 Marlborough Drive, Wollert
- ④ Viewpoint 4 - Stonewall Drive, Wollert
- ⑤ Viewpoint 5 - Mount Ridley Lookout
- ⑥ Viewpoint 6 - Mount Aitken Reserve

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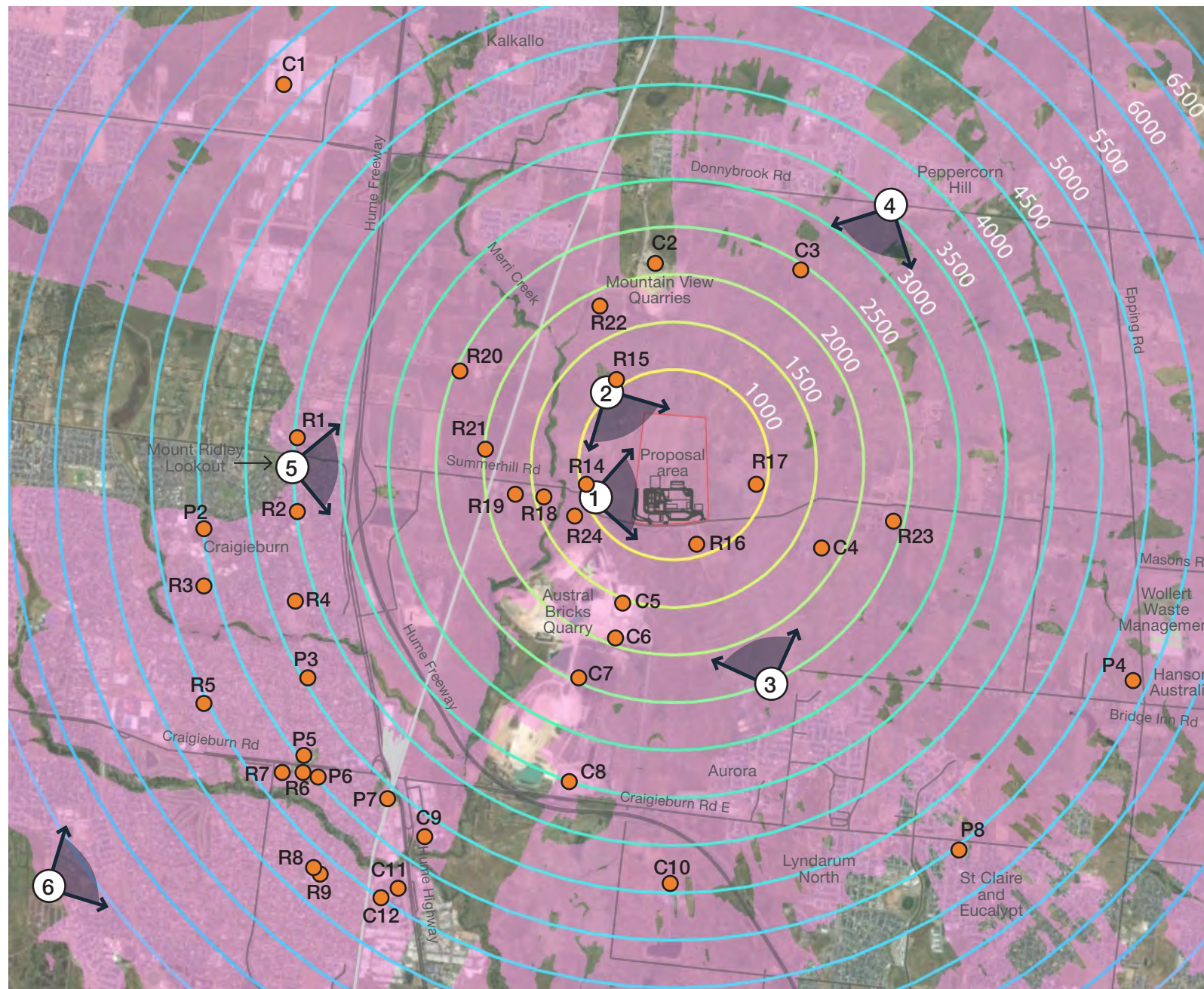


FIGURE 18 STUDY AREA AND VIEWPOINT LOCATION PLAN

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Table 5: Sensitive receptors list

Ref.	Address	Property name	Type
C1	15 Polaris Rd, Mickleham 3064	Dulux Paints Merrifield	Facility
C2	870 Donnybrook Rd, Donnybrook 3064	Mountain View Quarries - Donnybrook	Facility
C3	1030 Donnybrook Rd, Donnybrook 3064	Station	Oil and Gas
C4	289 Summerhill Rd Wollert 3750	Wollert Compressor Station	Facility
C5	1 Brick Makers Dr, Wollert 3750	Wollert Plant	Facility
C6	Summerhill Plant Craigieburn Rd East	Summerhill Plant	Facility
C7	Summerhill Plant Craigieburn Rd East	NUBRIK Plant	Facility
C8	600 Craigieburn Rd, Wollert 3750	Craigieburn Plant	Facility
C9	420 Hume Hwy, Craigieburn 3064	Craigieburn sewage treatment plant	Facility
C10	525 Craigieburn Rd East, Wollert 3750	Aurora sewage treatment plant	Facility
C11	1-9 Potter St, Craigieburn 3064	Note Printing Australia Limited	Facility
C12	1 Potter St, Craigieburn 3064	CCL Secure	Facility
P1	670 Donnybrook Road, Craigieburn 3064	John Laffen Memorial Reserve	Sports Facility
P2	229 Grand Blvd, Craigieburn 3064	Highgate Recreation Reserve	Sports Facility
P3	16-32 Pines Wy, Craigieburn 3064	Victor Foster Reserve	Sports Facility
P4	523-525 Epping Rd, Wollert 3750	Tuttle Recreation Reserve	Sports Facility
P5	136-170 Craigieburn Rd West Craigieburn 3064	D.S. Aitken Reserve	Sports Facility
P6	127-147 Craigieburn Rd, Craigieburn 3064	Craigieburn Leisure Centre	Sports Facility
P7	1 Walters St, Craigieburn 3064	Unique Female Fitness	Sports Facility
P8	405 Craigieburn East Rd, Wollert 3705	Lower Plenty Club Grounds	Sports Facility
R1	100 Mount Ridley Rd, Mickleham 3064	Hume Anglican Grammar	School

Ref.	Address	Property name	Type
R2	5-15 Windrock Ave, Craigieburn 3064	Mother Teresa School	School
R3	2-30 Hampton Street, Craigieburn 3064	Mount Ridley P-12 College	School
R4	87 - 91 Grand Blvd, Craigieburn 3064	Craigieburn Primary School	School
R5	54-62 Dorchester St, Craigieburn 3064	Willmott Park Primary School	School
R6	59 Craigieburn Rd Craigieburn 3064	Craigieburn Youth Centre	Library
R7	169-171 Craigieburn Rd, Craigieburn 3064	Our Lady's School	School
R8	102 Hothlyn Dr, Craigieburn 3064	Craigieburn Secondary College	School
R9	102 Hothlyn Dr, Craigieburn 3064	Craigieburn South Primary School	School
R13	510 Summerhill Rd, Wollert 3750	Residence	Private property
R14	570 Summerhill Rd, Wollert 3750	Residence	Private property
R15	620 Summerhill Rd, Wollert 3750	Residence	Private property
R16	475 Summerhill Rd, Wollert 3750	Residence	Private property
R17	430 Summerhill Rd, Wollert 3750	Residence	Private property
R18	655 Summerhill Rd, Wollert 3750	Residence	Private property
R19	675 Summerhill Rd, Wollert 3750	Residence	Private property
R20	50 Kinloch Crt, Craigieburn 3064	Residence	Private property
R21	730 Summerhill Rd, Wollert 3750	Residence	Private property
R22	105 Langley Park Dr, Donnybrook 3064	Residence	Private property
R23	275 Summerhill Rd, Wollert 3750	Residence	Private property
R24	Summerhill Rd, Wollert 3750	Residence	Private property

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Visual Catchment

Figure 18 represents the VEM defining the visual catchment study area for the Proposal and illustrating the theoretical area from which the building footprint and stack could be visible.

Representative viewpoints have been selected to comprehensively illustrate and document the visual amenity of the study area. Refer to Figure 18 for the viewpoints locations. The representative viewpoints were selected based upon a four-stage process:

1. Identification within the VEM;
2. Desktop studies identifying places of significance or within close vicinity of potential sensitive receptors;
3. Consultation with Cleanaway about the preliminary viewpoint selection; and
4. Ground-truth of viewpoints through a site visit conducted on 05 October 2022.

The selected viewpoints are from inherently sensitive receptors being from residential properties, and tourist and recreational areas. Two of the viewpoints are from the list of sensitive receptors developed for the project that includes residential properties, commercial and industrial businesses, schools and community facilities. The list of sensitive receptors are listed in Table 5 in the preceding page.

In the proceeding pages, the representative viewpoints have been analysed to document the existing visual composition of the views and assess the viewpoints level of sensitivity.

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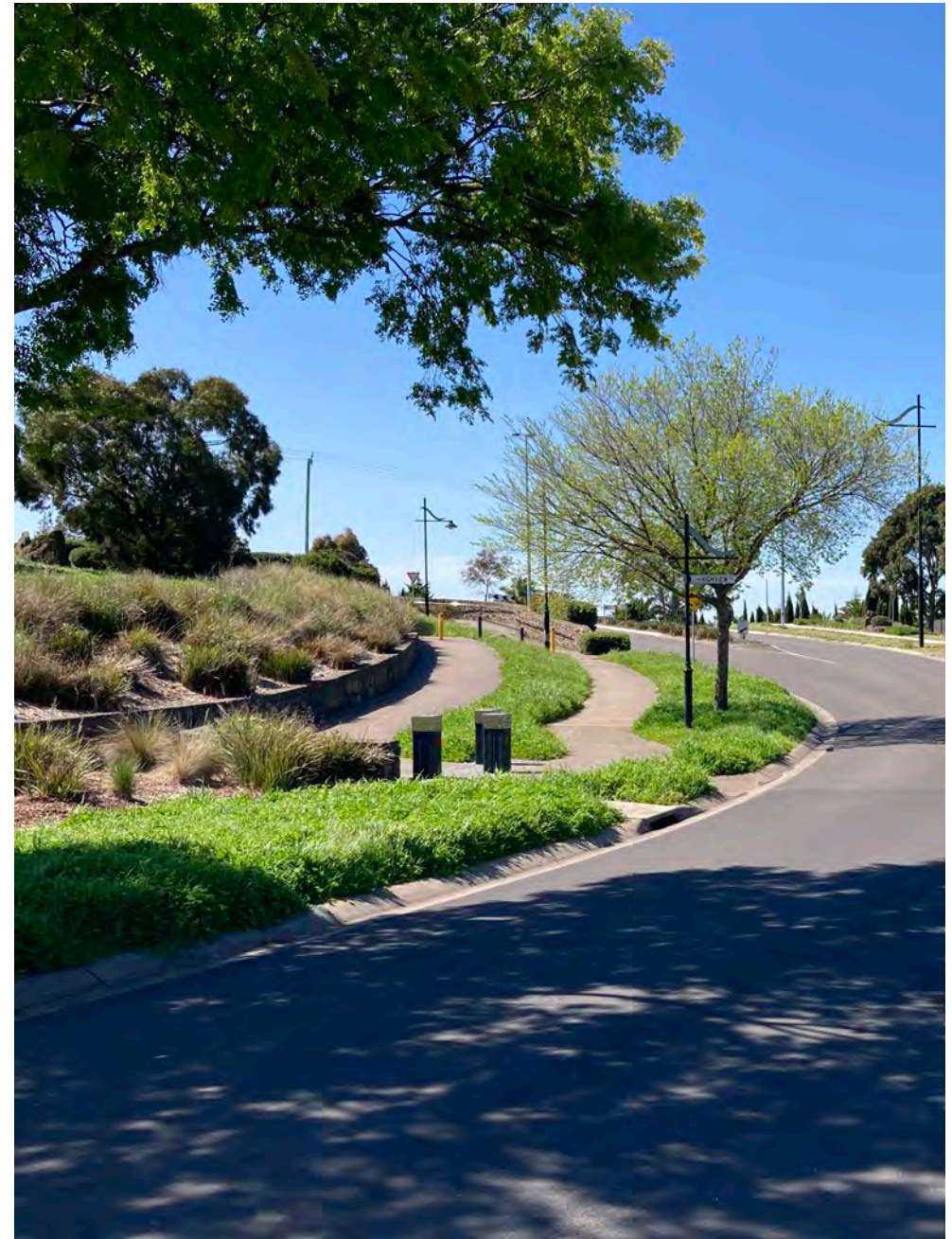
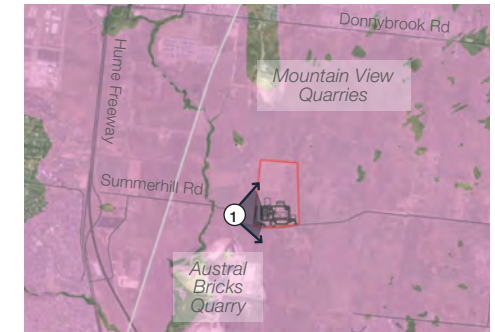


FIGURE 19 VIEW ALONG PARKSIDE RISE TOWARDS MT RIDLEY LOOKOUT

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Viewpoint 1 - 570 Summerhill Road, Wollert, looking east



Baseline description

This viewpoint is representative of the residential property at 570 Summerhill Road, identified by project as Sensitive Receptor R14.

The view is directed towards the location of the main facility building from the residential and farm buildings.

The view looks out across an open, low-lying undulating grassed field. The view is expansive with clumps of mature trees/single specimen, shrubs and scattered across the landscape.

A clump of mature trees provides partial screening towards the Proposal in the foreground. Elements of the landscape can be perceived in the background such as vegetation and the high voltage power lines.

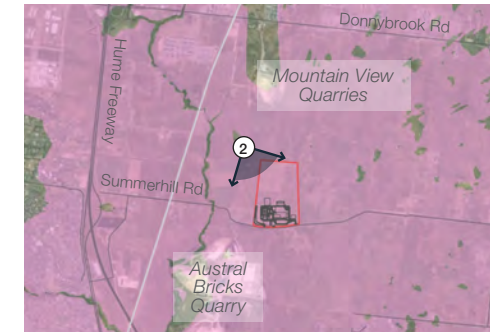
Sensitivity

The sensitivity of the representative viewpoint is judged to be **High** due to the following;

- Is representative of residents who have a high interest in their surroundings.
- The contained nature of the view.

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Viewpoint 2 - 620 Summerhill Road, Wollert, looking south-east



Baseline description

This viewpoint is representative of the residential property at 620 Summerhill Road, identified by project as Sensitive Receptor R15.

The view is from a slightly elevated position and looks out across an open, low-lying undulating grassed field. The view is expansive with scattered trees across the landscape.

The mature scattered trees provide partial screening towards the Proposal site in the foreground. Elements of the landscape can be

perceived in the background such as vegetation and the high voltage power lines.

Sensitivity

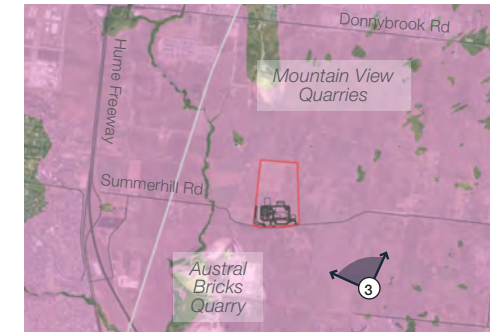
The sensitivity of the representative viewpoint is judged to be **High** due to the following;

- Is representative of residents who have a high interest in their surroundings.

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Viewpoint 3 - 11 Marlborough Drive, Wollert, looking north-east



Baseline description

This viewpoint is representative of the residential properties at the Aurora housing development.

The view is directed towards the location of the facility from the properties at the northern end of the development.

The view looks out across an open, low-lying undulating agricultural lands. The view is expansive across the landscape.

Elements of the landscape can be perceived in the background such as adjoining residential

development, vegetation and the high voltage power lines.

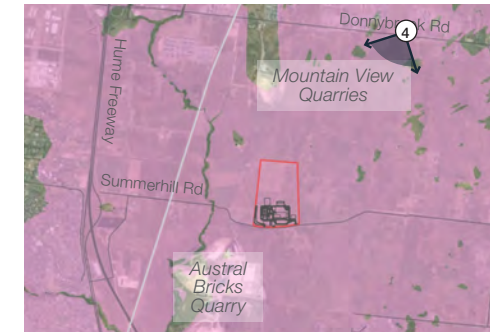
Sensitivity

The sensitivity of the representative viewpoint is judged to be **High** due to the following;

- Is representative of residents who have a high interest in their surroundings.

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Viewpoint 4 - Stonewall Drive, Wollert, looking south-west



Baseline description

This viewpoint is representative of the residential properties at the Peppercorn Hill housing development.

The view is directed towards the location of the facility from Stonewall Drive, the main access roadway, and properties at the southern end of the development.

The view looks out across an open, low-lying undulating agricultural lands with a road corridor, power lines, poles and street lighting in the foreground. The view is expansive across the landscape in the background.

Elements of the landscape can be perceived in the background such as vegetation and the agricultural lands.

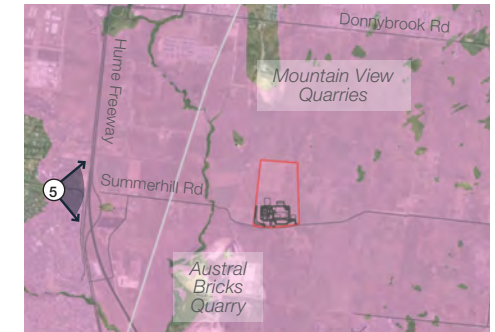
Sensitivity

The sensitivity of the representative viewpoint is judged to be **High** due to the following;

- Is representative of residents who have a high interest in their surroundings.

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Viewpoint 5 - Mount Ridley Lookout, looking east



Baseline description

This viewpoint is representative of visitors at Mount Ridley Conservation Reserve and lookout and adjoining residential properties.

The view is directed towards the location of the facility from Mount Ridley Lookout.

The view looks out across the expansive landscape in the distance. The foreground is partially screened by rows of mature trees.

Elements of the landscape can be perceived in the background such as residential development,

vegetation, the high voltage power lines and the quarry developments.

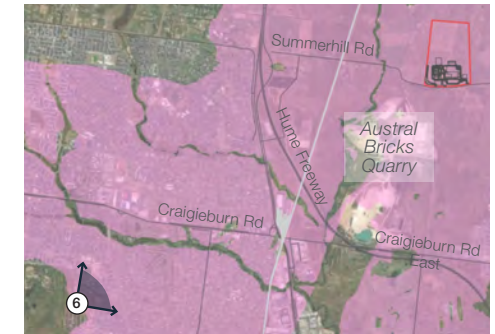
Sensitivity

The sensitivity of the representative viewpoint is judged to be **Moderate** due to the following;

- Is representative of recreational users, visitors and tourists.
- Is representative of students using the park from the adjoining school.

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Viewpoint 6 - Mount Aitken Reserve, looking north-east



Baseline description

This viewpoint is representative of the residents and visitors using Mt Aitken Reserve.

The view is oriented towards the location of the facility from the pedestrian footpath at Mt Aitken Reserve that overlooks the Wollert area.

The view is from an elevated location and looks across an open, low-lying undulating landform. The adjoining industrial tanks forms a prominent feature of the view in the foreground. In the middle ground the hill at Mount Ridley Lookout is situated to the left and the industrial and quarry

developments to the right of the view. The hills at Mount Sugarloaf can be seen in the background.

Sensitivity

The sensitivity of the representative viewpoint is judged to be **Moderate** due to the following;

- Is representative of residents and the local community using the park with high interest in the surrounding views.
- The industrial developments are noticeable features of the view, including the prominence of the industrial tanks.

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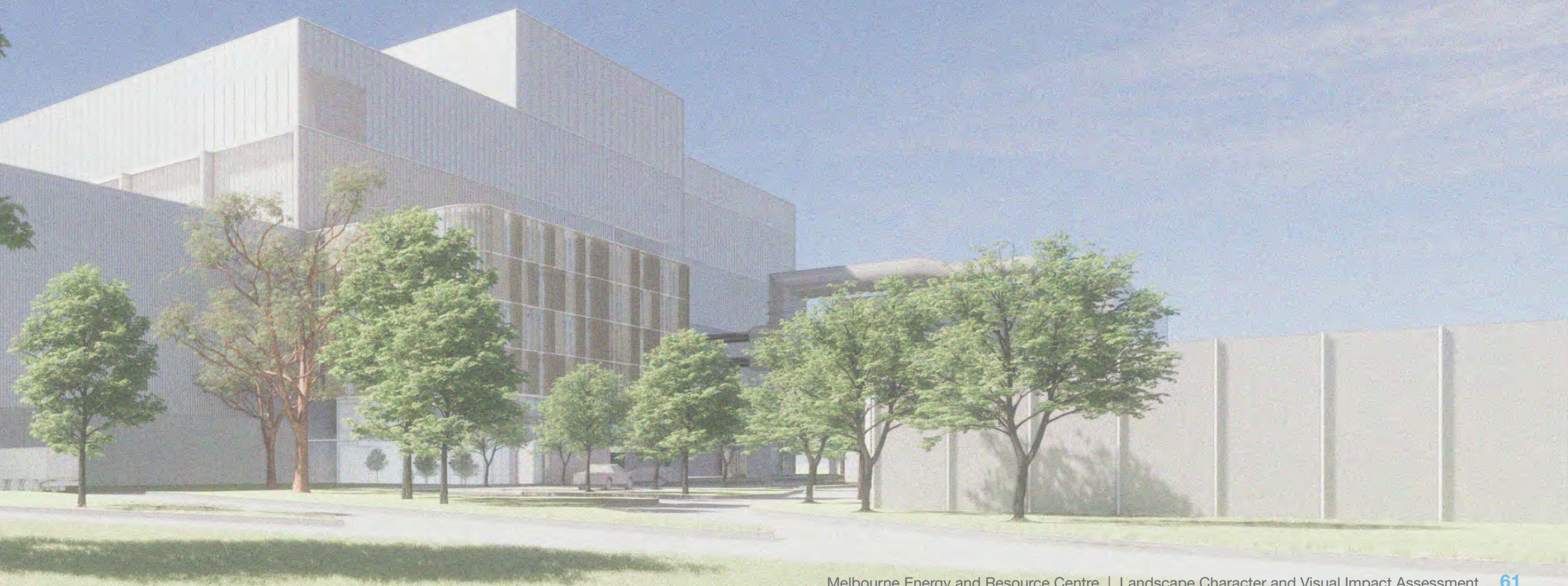
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06

Proposed Design

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Landscape concept

The landscape design aims to create an inviting and welcoming workplace that recognises the local setting and considers the environment and the community by incorporating sustainable initiatives and enhancing the visual amenity of the facility through thoughtful materials selection and planting.

The landscape design addresses the Proposal's requirement for referral to be assessed under the Environmental Effects Act 1978 which will determine whether an Environment Effects Statement (EES) is required. The design also incorporates the recommendations of the Landscape Character and Visual Impact Assessment (LCVIA) which proposes mitigation measures against the impact of the Proposal in the existing landscape setting (refer to Chapter 07 of this report).

The landscape design focuses attention to the areas of the site that are disturbed or modified during the construction works of the facility to provide amenity and improve biodiversity using vegetation that complements the architecture and materials selection of the buildings.

The preceding pages describes the landscape design moves and mitigation measures for the proposal. These are extracts from the Architecture and Landscape Design Strategy Report (MERC-ARU-MEL-ARBU-RPT-001) prepared for the Proposal that includes details about the design process, objectives, drivers and principles that guided the proposed design.

Design response

The landscape design has been developed to respond to the following key drivers:

- The outlook from and around the visitor and education centre building to be attractive for visitors and showcasing the facility.
- Provide a space for learning and awareness for the community about waste.
- The landscape to assist in 'grounding' the large scale of the building to local features and be sympathetic to the surrounding landscape.
- Re-use site excavated materials as landscape features for screening and sound dissipation.
- Incorporate built elements such as gates and fences as part of the landscape treatment and features for an integrated approach to design.
- Positivity impact local micro-climate through new planting, trees and material selections to mitigate the urban heat island effect.
- Selection of materials and design methodology that is site-specific to the built form/architecture referenced above.

Sustainability initiatives

The following key points outline the sustainability and biodiversity objectives of the landscape design:

- Select endemic species from the Ecological Vegetation Classes (EVC) of the area within the Victorian Volcanic Plains bioregion. The plant species are used throughout the intervention areas including in the feature planting at the visitor and education centre entry and building
- Increase tree canopy cover for the development for shade and provides opportunity for habitat and foraging for native fauna
- The use of gabion walls and rock outcrops throughout the landscaped areas enables further habitat opportunities for smaller animals and insects to the development site, consequently attracting birds to the site
- Implement vegetated swales and bioretention basins for collection and treatment of storm water runoff from roads and hard paved areas.

Visitor and education centre

The entry driveway and car park will be distinct and legible for way-finding and orientation. Planting treatment including an ornamental appearance with mass plantings of native grasses and flowering shrubs to differentiate from the industrial entry to the east of the Proposal area. The car parking is to be framed by garden bed planting and shade trees to the pathways leading to and around the visitor and education centre building.

The feature planting will extend around the building to the area adjoining the deck that overlooks the planted attenuation basin to the west of the building. This is to provide a connection between the landscape and the building. Public access to the landscape and outdoor area will incorporate informational signage on wetlands, native fauna, and endemic plant species to help educate and prompt awareness by visitors about the landscape restoration opportunities for the proposed development.

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Operational facilities

Planting treatment throughout the operational area will be a native grass mix to complement the existing vegetation typology as grass plains. Excavated rock boulders are reused throughout the landscape as features reflecting the rocky outcrops present in the area. Boulders are proposed at several locations within the facility, specifically at locations south of the buildings where shadowing of the planter beds are most likely to occur such as the southern end of the main facility and IBA buildings, and underneath the air cooling condenser (ACC).

Shrubs will be planted to screen ancillary infrastructure such as the substation, water tanks and sheds. Planting is proposed to the road verges and medians to soften the impact of the hard paved areas particularly adjacent to the truck deliveries and processing facilities.

Trees are generally placed in clumps to be in-keeping with the landscape context and character of the site. Tree planting are proposed with sufficient setback from the roadways to maintain clear sightlines for the road traffic. In some areas such as to the west of the substation and in car parks, trees are arranged in rows to provide effective screening and shade where there are space restrictions.

Screening

Earth mounds are introduced using excavated soils and boulders as topographic features, screening elements and to assist with sound dissipation. Feature mounds are predominantly located at the perimeter of the site to the west, east and south of the Proposal area. Smaller scale mounds are introduced between the truck route to the Waste Reception Hall and the visitor and education centre and car park area to screen and reduce the noise level between

the operational area of the facility and the visitor areas. The surface of the mounds will be finished with boulders of varied sizes on one face and planted on the other faces. The height of the mounds will be no more than 2-2.5m so that they are not over-scaled elements within the landscape and the human scale. The grade for the mounds shall not be steeper than 1V:2H where boulders are installed and 1V:3H for planted areas.

Native trees are proposed adjacent to the mounds as additional landscape elements to supplement the screening measures. The tree canopy will screen views towards the facility above the height of the mounds.

The perimeter mound between the internal truck route and Summerhill Road has a noise barrier comprising of integrated mound and noise wall, shrub screening, and tree screening.

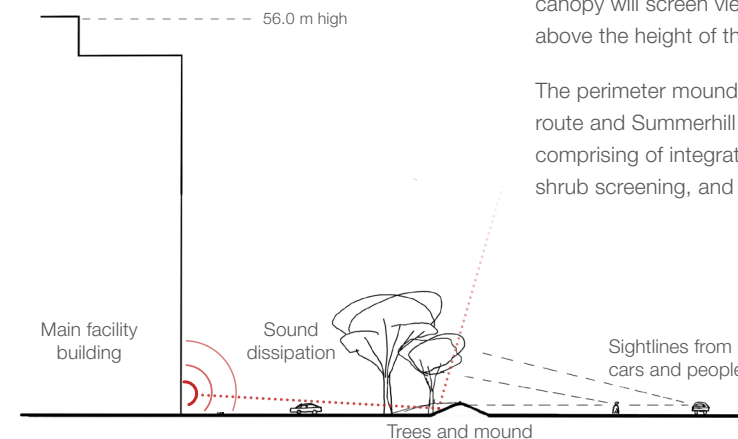


FIGURE 20 SIGHTLINES AND SCREENING DIAGRAM

Water capture and treatment

Water capture within the landscape is achieved through vegetated swales located to the west, north and east side of the development site. A smaller swale in the visitor and education centre car park area will collect runoff from the paths and roadways near the building.

The swale embankments are to be stabilised with a geotextile and planted with native grasses and riparian species. To create a natural appearance and to assist with slowing water flow, rocks and boulders of varying sizes are to be placed along the base of the swale.

Storm water and hard-stand run-off will be collected and discharged into attenuation basins. Two attenuation basins are planned for the site, one adjacent to the visitor and education centre and Summerhill Road and the other towards the eastern boundary. Planting in the shallow bioretention basin will filter out pollutants and helping mitigate water quality impacts. The bioretention zone/basin within the attenuation basin will have a shallow pool of water during high rainfall periods while the detention zone/basin will remain predominantly dry unless during a flood event.

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Landscape concept plan

- 1 Arrival/wayfinding: the planting design assists with directing users to the visitor and education centre upon arrival to the site. This includes mass native planting in a mix of endemic grasses and flowering shrubs. The planting celebrates the landscape character through the use of plant species from the Victorian Volcanic Plains bioregion. This feature planting treatment extends to the areas surrounding the visitor and education centre building including parking, pathways and outdoor viewing area. Entrance to the visitor and education centre area features gabion walls as a fence with integrated gates. Gabion walls will use excavated boulders as fill.
- 2 The attenuation basin is comprised of a bioretention basin (2a) and on-site detention basin (2b): sedges, grasses and rushes are proposed to improve water quality and create habitats where possible. The bioretention basin is the wetter part of the attenuation basin but will not hold a permanent body of water. The detention basin will be predominantly dry for most of the time.
- 3 Low earth mounds with planting and trees separating the truck route and the visitor and education centre area for amenity, screening and noise mitigation. Screening trees are positioned to allow framed views of the facility building from the visitor and education centre.

- 4 Overland flow channel: embankments covered with native grasses and toe of swale to contain riparian planting with occasional boulders assist with slowing water movement and infiltration.
- 5 Perimeter screening with mounds, physical noise barrier, trees and shrub planting to mitigate visual impacts. The mounds will be formed with excavated soil and finished with native grasses and boulders.
- 6 Entry and exit to the facility for staff and delivery trucks. The area will be framed with mounds and gabion walls with an integrated gate. Planting features native grasses, shrubs and trees for screening and amenity.
- 7 Staff car park: Trees within the car park for shade and amenity. Trees and shrubs are proposed adjacent to the substation compound for screening and amenity.
- 8 Landscape treatment within the facility grounds: Trees for shade and screening with under storey native grasses and rock boulders arranged within the planted areas. Boulders of varied size are proposed within the planted areas to achieve a naturalistic aesthetic. Trees are not proposed to areas identified for future works

- 9 Location for on-site wastewater treatment plant for re-use as toilet flushing and irrigation. Recycled wastewater from the treatment plant will be used for irrigation as an opportunity to ensure healthy plant growth at the visitor and education centre and perimeter screening.
- 10 Mix of predominantly boulders and planting is proposed to areas where planter beds are mostly shaded. This approach is intended for areas where vegetation is not likely to be feasible under shady conditions such as beneath ACC using sculptural boulders and gravel path where service access may be required.
- 11 Trees and shrubs planting to screen the facility form adjoining properties located to the north-west of the site.
- 12 Re-vegetation to create a biodiversity area to the north-east corner of the site: an area that includes the blast zone and land within the high-voltage power line easement where no built form is to be located.

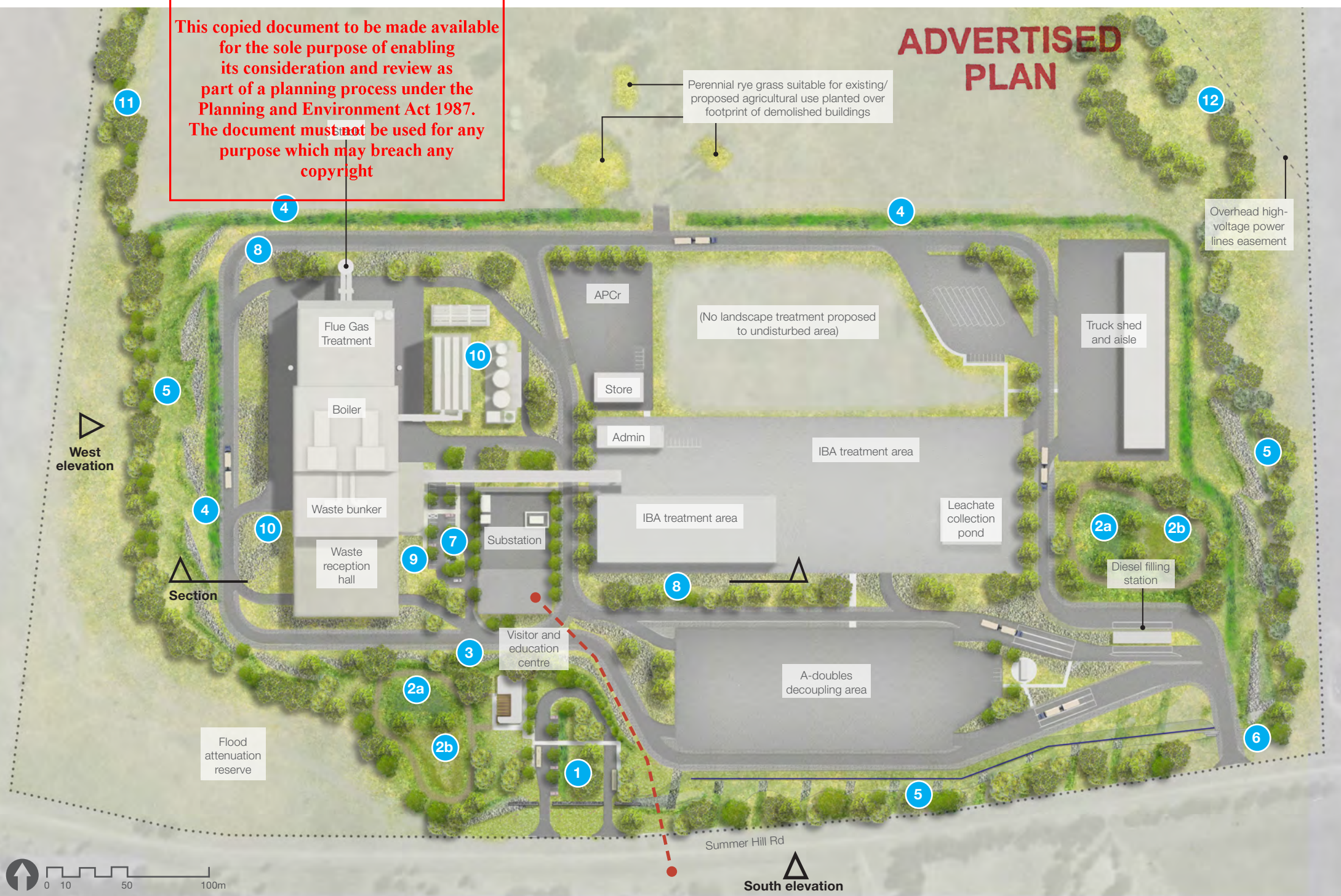
LEGEND

- Site boundary
-  Proposed trees
-  Native planting with boulders
-  Overland channel swale
-  Feature mound
-  Access road with gravel shoulder
-  Attenuation basins
-  Access footpaths
-  Feature gabion walls as entry markers and gates
-  Feature planting at entry and Visitor and education centre
-  Perimeter screening with feature mounds, noise barrier and screening planting
- - - - ● Power line connection

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Section



Waste Reception Hall

**Control room /
Offices**

Substation

IBA sorting building

Planting

Grasses and feature boulders.

Native grass plant mix that reflects the Plains Grassland character.

Staff parking

Grasses, trees and feature boulders.

Trees and planting to provide shade to the park area and amenity to the office block. Native grass plant mix that reflects the Plains Grassland character.

Screening

Grasses, shrubs, trees and feature boulders.

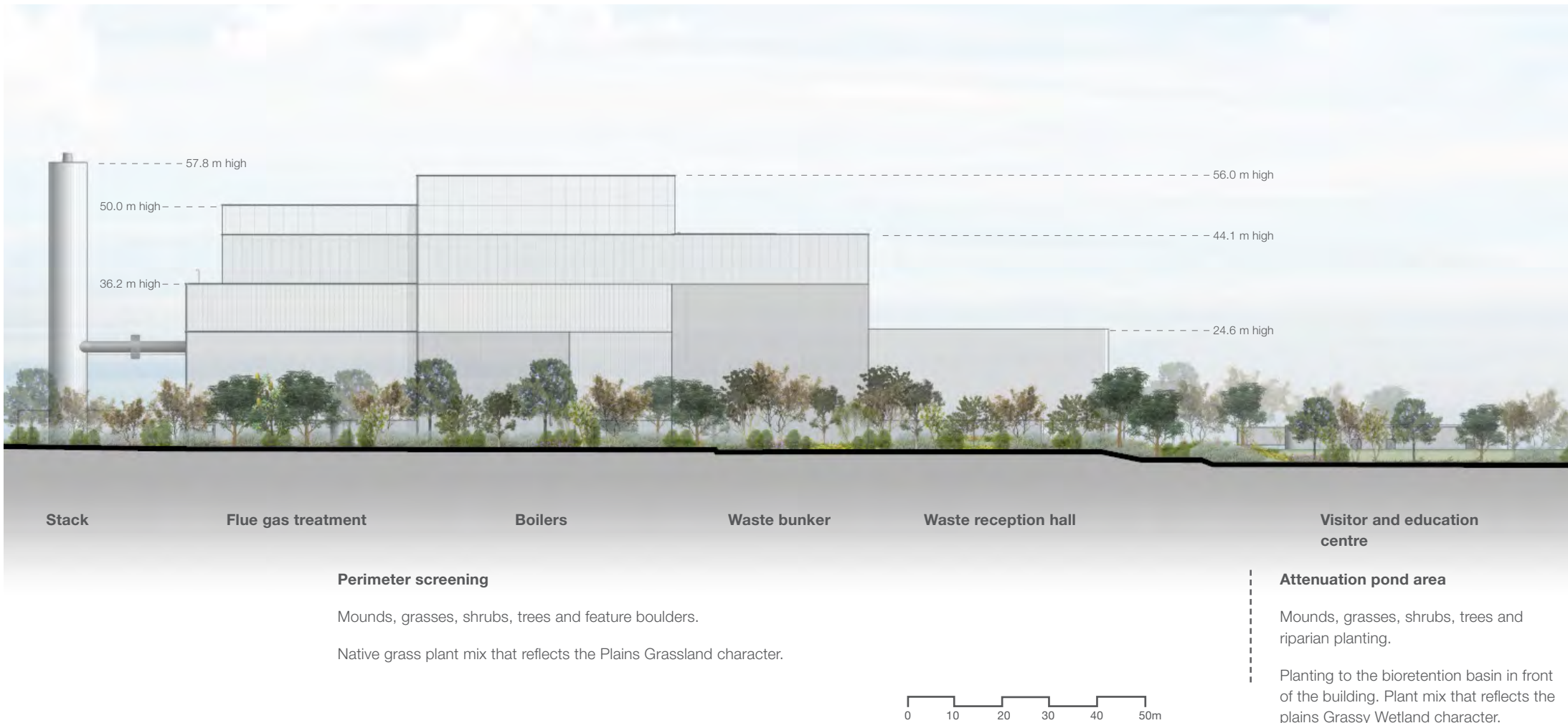
Planting and trees to screen the substation and IBA building. Native grass and shrubs plant mix that reflects the Plains Grassland character.



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West elevation



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South elevation



Main facility building

Perimeter screening

Mounds, grasses, shrubs, trees, swale and feature boulders.

Native grass plant mix that reflects the Plains Grassland character and riparian species to the swale.

Attenuation pond area and visitor and education centre front view

Mounds, grasses, shrubs, trees and riparian planting.

Planting to the bioretention basin in front of the visitor and education centre. Species to improve water quality, including ephemeral and macrophyte species that can withstand submerged periods of time. Plant mix that reflects the plains Grassy Wetland character.

Visitor and education centre + main entry

Entry / signpost

Formal arrival and entrance framed by mounds, gabion walls and feature planting.

Plant mix with predominantly flowering species from the Basalt Plains Grasslands and Red River Gum Gray Woodland vegetation communities.

IBA sorting building

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Screening

Mounds, trees, shrubs, noise barrier (comprising earth mound and noise wall) screening this area of the facility.

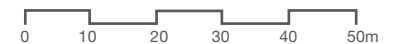
Native grass plant mix that reflects the Plains Grassland character and blending into the existing verge vegetation.

Facility access

Secondary/service entry

Entrance framed by mounds, gabion walls.

Native grass plant mix that reflects the Plains Grassland character and blending into the existing verge vegetation.



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Indicative plant palette

TREES			
Botanical Name	Common Name	Size	Treatment type
<i>Acacia implexa</i>	Lightwood	15m H x 10m W	Screening, amenity and shade
<i>Allocasuarina littoralis</i>	Black She-oak	7m H x 3m W	Screening, amenity and shade
<i>Banksia marginata</i>	Silver Banksia	12m H x 4m W	Screening, amenity and shade
<i>Eucalyptus camaldulensis</i>	River Red Gum	40m H x 20m W	Screening, amenity and shade
<i>Eucalyptus ovata</i>	Swamp Gum	25m H x 20m W	Screening, amenity and shade
<i>Eucalyptus viminalis</i>	Manna Gum	30m H x 15m W	Screening, amenity and shade

Source:

- City of Whittlesea, Benefits of Native Pastures.
- City of Whittlesea, List of Indigenous Plants found in the City of Whittlesea.
- City of Whittlesea, Your Indigenous Garden, Sustainable gardens for local wildlife.
- City of Whittlesea, Eucalyptus of the City of Whittlesea.
- Department of Sustainability and Environment, EVC/Bioregion Benchmark for Vegetation Quality Assessment, Victorian Volcanic Plain bioregion.
- Department of Sustainability, Environment, Water, population and Communities, Nationally Threatened Ecological Communities of the Victorian Volcanic Plain: Natural Temperate Grassland & Grassy Eucalypt Woodland.

SHRUBS AND FEATURE SPECIES			
Botanical Name	Common Name	Size	Treatment type
Shrubs			
<i>Acacia acinacea</i>	Gold-dust Wattle	2.5m H x 0.2m W	Understory
<i>Acacia verticillata</i>	Prickly Moses	4m H x 3m W	Understory
<i>Bursaria spinosa</i>	Sweet Bursaria	4m H x 3m W	Understory
<i>Solanum laciniatum</i>	Large Kangaroo Apple	3m H x 3m W	Understory
Feature planting at entry and visitor and education centre			
<i>Atriplex semibaccata</i>	Berry or Creeping Saltbush	0.4m H x 0.2m W	Understorey feature species
<i>Chrysocephalum apiculatum</i>	Common Everlasting	0.6m H x 0.25m W	Understorey feature species
<i>Stylidium graminifolium</i>	Grass Trigger-plant	0.75m H x 0.2m W	Understorey feature species
<i>Viola hederacea</i>	Ivy-leaf Violet	0.25m H x 0.5m W	Understorey feature species
<i>Wahlenbergia stricta</i>	Tall Bluebell	0.3m H x 0.5m W	Understorey feature species

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NATIVE GRASSES			
Botanical Name	Common Name	Size	Treatment type
<i>Austrodanthonia duttoniana</i>	Brown-black Wallaby-grass	0.8m H x 0.25m W	Native Grasses
<i>Austrostipa rudis</i>	Veined Spear-grass	1.3m H x 0.5m W	Native Grasses
<i>Bothriochloa macra</i>	Red-leg Grass	0.9m H x 0.25m W	Native Grasses
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	1m H x 1m W	Native Grasses
<i>Microlaena stipoides</i>	Weeping Grass	0.8m H x 0.2m W	Native Grasses
<i>Poa labillardierei</i>	Common Tussock-grass	1.3m H x 0.5m W	Native Grasses
<i>Themeda triandra</i>	Kangaroo Grass	1m H x 0.4m W	Native Grasses

SWALES AND BIORETENTION			
Botanical Name	Common Name	Size	Treatment type
<i>Amphibromus nervosus</i>	Common Swamp Wallaby-grass	1.2m H x 0.3m W	Swales and bioretention
<i>Eleocharis acuta</i>	Common Spike-sedge	0.9m H x 0.3m W	Swales and bioretention
<i>Eleocharis pusilla</i>	Small Spike-sedge	0.3m H x 0.7m W	Swales and bioretention
<i>Juncus flavidus</i>	Gold Rush	1.2m H x 0.35m W	Swales and bioretention
<i>Juncus holoschoenus</i>	Joint-leaf Rush	0.9m H x 0.4m W	Swales and bioretention
<i>Lomandra longifolia</i>	Spiny-headed Mat-rush	1m H x 1m W	Swales and bioretention
<i>Schoenus apogon</i>	Common Bog-sedge	0.25m x 0.12m W	Swales and bioretention

Trees



Eucalyptus camaldulensis
River Red Gum



Banksia marginata
Silver Banksia



Austrostipa rudis
Veined Spear-grass



Poa labillardierei
Common Tussock-grass



Chrysocephalum apiculatum
Common Everlasting



Wahlenbergia stricta
Tall Bluebell



Acacia acinacea
Gold-dust Wattle

Native grasses

Feature planting

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07

Impact assessment



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Landscape character assessment

This Chapter documents the components that have the potential to change or influence the landscape (magnitude of change) and the potential impacts that may arise on the LCAs.

The assessment is undertaken based on the subdivided LCAs defined within Chapter "05" "Baseline" on page 45.

Impacts arising on these LCAs during construction and operation have been assessed.

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FIGURE 21 STREET CHARACTER NEAR MT RIDLEY LOOKOUT

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LCA 1: Rural agriculture



Construction phase

The magnitude of change is considered to be **Moderate adverse** due to the following:

- Partial loss of existing character and features, particularly the expansive views over the landscape that contributes to the rural agricultural setting.
- Introduction of construction phase related items, such as sites workshops, cranes, laydown areas and maintenance equipment.

The *Moderate* sensitivity and *Moderate* magnitude of change would result in a **High-Moderate** landscape impact.

Operational phase

The magnitude of change arising from the Proposal is assessed to be **Moderate adverse** due to the following:

- The Proposal is considered to be a prominent feature within the landscape, however it is not considered to be incongruous with the current and adjoining industrial and quarry operations.
- The facility is considered to result in an incremental increase in the scale of industrial facilities within the area.
- Extension to the presence of infrastructure within this LCA.

The *Moderate* sensitivity and *Moderate* magnitude of change would result in a **High-Moderate** landscape impact.

Landscape Character Type / Proposal phase	Impact	
	Sensitivity	
	High	
Magnitude of Change: Construction phase	Moderate	High-Moderate
Magnitude of Change: Operational phase	Moderate	High-Moderate

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LCA 2: Suburban residential



Construction phase

The magnitude of change is considered to be **Low adverse** due to the following:

- Changes are not anticipated to result in direct physical impacts to this LCA
- Gradual introduction of elevated components, such as the stack and presence of associated construction machinery, would result in an incremental expansion of the industrial characteristics influencing the setting of this LCA.

The *Moderate* sensitivity and *Low* magnitude of change would result in a **Moderate - Low** landscape impact.

Operational phase

The magnitude of change arising from the Proposal is assessed to be **Low adverse** due to the following:

- The Proposal is an extension to the presence of industrial land-uses in the area, such as the adjacent quarry developments.
- The Proposal is considered to result in a prominent feature, however it is not considered to result in a direct change to this LCA or the overall setting.
- The Proposal is considered to be of a sufficient distance that does not alter the existing characteristic balance of the LCA.

The *Moderate* sensitivity and *Low* magnitude of change would result in a **Moderate - Low** landscape impact.

Landscape Character
Type / Proposal phase

Impact

Sensitivity

Moderate

Magnitude of Change:
Construction phase

Low

Moderate
- Low

Magnitude of Change:
Operational phase

Low

Moderate
- Low

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LCA 3: Quarry industrial



Construction phase

The magnitude of change is considered to be **Low adverse** due to the following:

- Slight loss of existing character and features, particularly the expansive views over the landscape that contributes to the rural agricultural setting.
- Temporary construction related items, such as increased construction phase traffic and construction cranes are not considered to be incongruous with character of this area.
- Gradual introduction of elevated components, such as the stack, that would result in an incremental expansion of the industrial characteristics that define the eastern edge of this LCA.

The *Low* sensitivity and *Low* magnitude of change would result in a **Low** landscape impact.

Operational phase

The magnitude of change arising from the Proposal is assessed to be **Low adverse** due to the following:

- The Proposal is considered to be a prominent feature, however it is considered to be congruous with the current and adjoining industrial and quarry operations.
- The scale of the built form is as dominant element in the landscape.
- The facility is considered to result in an incremental increase in the scale of industrial facilities within the area.
- Extension to the presence of infrastructure within this LCA.

The *Low* sensitivity and *Low* magnitude of change would result in a **Low** landscape impact.

Landscape Character Type / Proposal phase

Sensitivity

Magnitude of Change:
Construction phase

Magnitude of Change:
Operational phase

Impact

	Low	
Low	Low	
Low	Low	

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Visual assessment

- ① Viewpoint 1 - 570 Summerhill Road, Wollert
- ② Viewpoint 2 - 620 Summerhill Road, Wollert
- ③ Viewpoint 3 - 11 Marlborough Drive, Wollert
- ④ Viewpoint 4 - Stonewall Drive, Wollert
- ⑤ Viewpoint 5 - Mount Ridley Lookout
- ⑥ Viewpoint 6 - Mount Aitken Reserve

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FIGURE 22 STUDY AREA AND VIEWPOINT LOCATION PLAN

Consistent with the baseline analysis, five representative viewpoints have been assessed to represent the potential visual impacts that may arise as a result of the Proposal.

The viewpoints are illustrated on the proceeding pages and are accompanied by a description of the design components that have the potential to change the existing visual composition (magnitude of change) and the potential impacts that may arise.

The design treatment illustrated should be considered as indicative and subject to further review in concept design.

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Viewpoint 1 - 570 Summerhill Road, Wollert, looking east

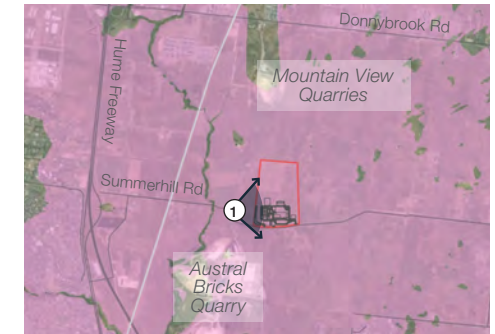


FIGURE 23 VIEWPOINT 1 - SITE CONTEXT



FIGURE 24 VIEWPOINT 1 - PHOTOMONTAGE

Magnitude of change

The representative viewpoint from property 570 Summerhill Road is situated approximately 330m from the Proposal boundary.

The magnitude of change arising from this proposal is considered to be **High** due to:

- The large scale and high contrast of the Proposal in comparison to the existing landscape seen on site from the view.
- The Proposal will become the dominant feature of the view.
- The planting proposed as part of the landscape design response (page 61) aim to screen and improve the appearance and overall condition of the site, however, the scale of the Proposal would be in contrast to the scale of the existing built form on site and the planting treatment.

Due to the weather condition at the time the viewpoint photo was taken, the sky in the photomontage for the viewpoint has been amended to illustrate the scale and form of the building on a clear day.

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Visual Impact

Construction

Views are anticipated towards the western area of the site designated for mobile cranes during the construction and installation of the 60m stack and the main facility building. The construction phase impacts are assessed to be of a temporary nature and consistent with the operational phase impacts, resulting in a *High* magnitude of change and a **High** impact during construction.

Operation

The *High* sensitivity and *High* magnitude of change is judged to result in a **High** impact during operation.

Embedded design mitigation

Views towards the main facility building and stack will require visual screening and embedded mitigation techniques.

Embedded mitigation:

- Careful selection of colour and material to allow the building and stack to appear recessive above the skyline.
- Provide perimeter planting to screen views into the site.
- Architecture to minimising the overall height of the building where possible.

Sensitivity	Impact	
	High	
Magnitude of Change: Construction phase	High	High
Magnitude of Change: Operational phase	High	High

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Viewpoint 2 - 620 Summerhill Road, Wollert, looking south-east

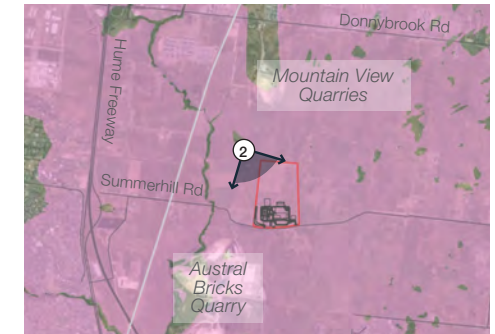


FIGURE 25 VIEWPOINT 2 - SITE CONTEXT



FIGURE 26 VIEWPOINT 2 - PHOTOMONTAGE

Magnitude of change

The representative viewpoint from property 620 Summerhill Road is situated approximately 1km from the Proposal area.

The magnitude of change arising from this proposal is considered to be **High** due to:

- The large scale and high contrast of the Proposal in comparison to the existing composition of the view.
- The Proposal will become the dominant feature of the view.
- The anticipated visibility of the plume from this view which will introduce a degree of contrast against the rural setting. (The plume is expected to be visible from a height of 69m to 138m above ground based on the Air Quality Assessment report for the project.)

Due to the weather condition at the time the viewpoint photo was taken, the sky in the photomontage for the viewpoint has been amended to illustrate the scale and form of the building on a clear day.

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Visual Impact

Construction

Views are anticipated towards the northern area of the site designated for mobile cranes during the construction and installation of the 60m stack and the main facility building. The construction phase impacts are assessed to be of a temporary nature and consistent with the operational phase impacts, resulting in a *High* magnitude of change and a **High** impact during construction.

Operation

The *High* sensitivity and *High* magnitude of change is judged to result in a **High** impact during operation.

Embedded design mitigation

Views towards the main facility building and stack will require visual screening and embedded mitigation techniques.

Embedded mitigation:

- Careful selection of colour and material to allow the building and stack to appear recessive above the skyline.
- Provide perimeter planting to screen views into the site.
- Architecture to minimising the overall height of the building where possible.

Sensitivity	Impact	
	High	
Magnitude of Change: Construction phase	High	High
Magnitude of Change: Operational phase	High	High

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Viewpoint 3 - 11 Marlborough Drive, Wollert, looking north-east



FIGURE 27 VIEWPOINT 3 - SITE CONTEXT

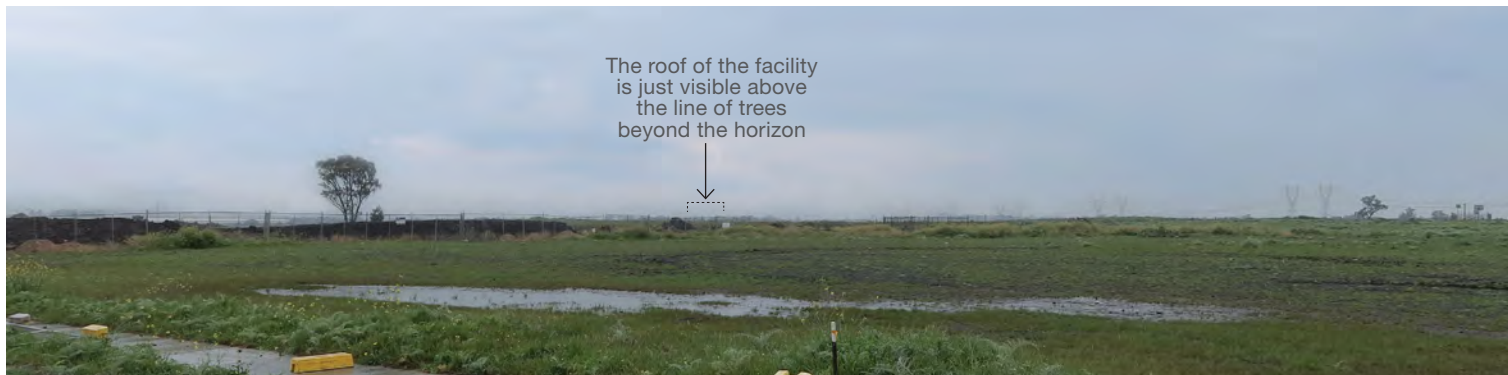
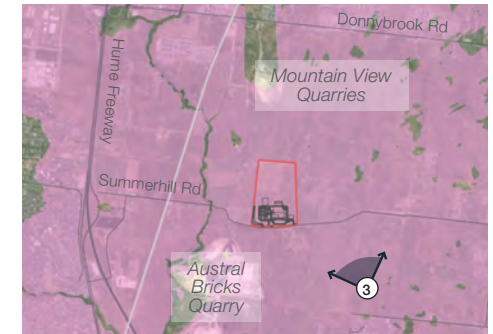


FIGURE 28 VIEWPOINT 3 - PHOTOMONTAGE



Magnitude of change

The representative viewpoint is situated approximately 2.3km from the Proposal area.

The magnitude of change arising from this proposal is considered to be **Negligible adverse** due to:

- The Proposal is at such a distance and screened by existing vegetation and topography in the background that it will be barely noticeable feature or element in the view.
- The plume is anticipated to be visible above rural landscape from the viewpoint location. (The plume is expected to be visible from a height of 69m to 138m above ground based on the Air Quality Assessment report for the project.)

Due to the weather condition at the time the viewpoint photo was taken, the sky in the photomontage for the viewpoint has been amended to illustrate the scale and form of the building on a clear day.

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Visual Impact

Construction

During construction, views towards the cranes may be experienced. The construction phase impacts are assessed to be of a temporary nature and consistent with the operational phase impacts, resulting in a *Negligible* magnitude of change and a **Negligible** impact during construction.

Operation

The *High* sensitivity and *Negligible* magnitude of change is judged to result in a **Negligible** impact during operation.

Embedded design mitigation

Views towards the Proposal will require visual screening and embedded mitigation techniques.

Embedded mitigation:

- Careful selection of colour and material to allow the building to appear recessive above the skyline.
- Architecture to minimising the overall height of the building where possible.

Sensitivity	Impact	
	High	
Magnitude of Change: Construction phase	Negligible	Negligible
Magnitude of Change: Operational phase	Negligible	Negligible

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Viewpoint 4 - Stonewall Drive, Wollert, looking south-west

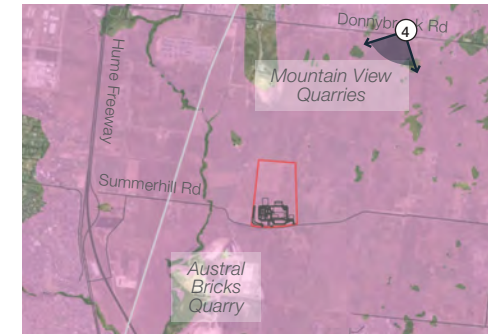


FIGURE 29 VIEWPOINT 4 - SITE CONTEXT



FIGURE 30 VIEWPOINT 4 - PHOTOMONTAGE

Magnitude of change

The representative viewpoint is situated approximately 3.8km from the Proposal area.

The magnitude of change arising from this proposal is considered to be **Moderate** due to:

- The Proposal is perceptible in the distance as a noticeable feature of the view and apparent to the receptors.
- The Proposal is partially screened by the existing trees in the landscape.
- The plume is anticipated to be visible above rural landscape from the viewpoint location. (The plume is expected to be visible from a height of 69m to 138m above ground based on the Air Quality Assessment report for the project.)

Due to the weather condition at the time the viewpoint photo was taken, the sky in the photomontage for the viewpoint has been amended to illustrate the scale and form of the building on a clear day.

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Visual Impact

Construction

During construction, views towards the cranes may be experienced. The construction phase impacts are assessed to be of a temporary nature and consistent with the operational phase impacts, resulting in a *Moderate* magnitude of change and a **High-Moderate** impact during construction.

Operation

The *High* sensitivity and *Moderate* magnitude of change is judged to result in a **High-Moderate** impact during operation.

Embedded design mitigation

Views towards the Proposal will require visual screening and embedded mitigation techniques.

Embedded mitigation:

- Careful selection of colour and material to allow the building to appear recessive above the skyline.
- Architecture to minimising the overall height of the building where possible.
- Provide perimeter planting to screen views into the site.
- The future proposed quarry concept design considers an earth mound to the northern perimeter to screen the quarry development. The delivery of this earth mound may assist with reducing views towards the Proposal, however the design and time frames are currently unknown. The proposed mound will likely influence the magnitude of change rating for the view.

Sensitivity	Impact	
	High	
Magnitude of Change: Construction phase	Moderate	High-Moderate
Magnitude of Change: Operational phase	Moderate	High-Moderate

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Viewpoint 5 - Mount Ridley Lookout, looking east

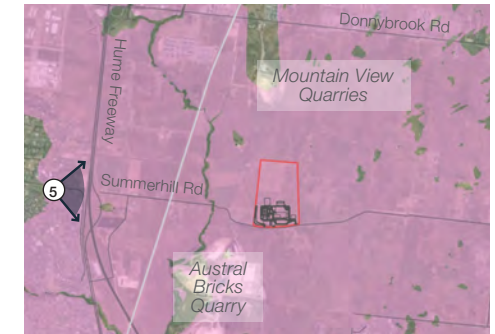


FIGURE 31 VIEWPOINT 5 - SITE CONTEXT

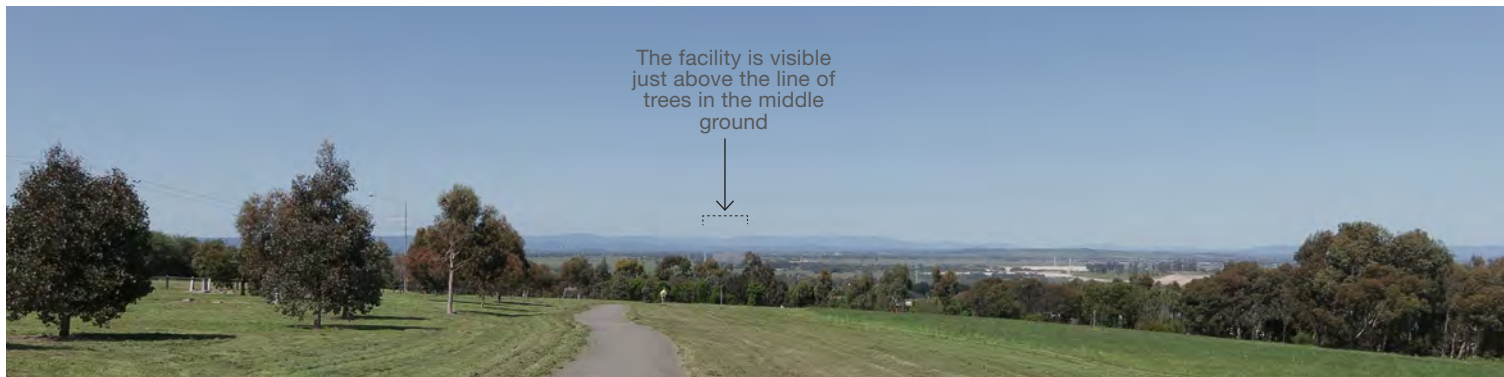


FIGURE 32 VIEWPOINT 5 - PHOTOMONTAGE

Magnitude of change

The representative viewpoint is situated approximately 3.7km from the Proposal area.

The magnitude of change arising from this proposal is considered to be **Low adverse** due to:

- The Proposal is perceptible in the distance as a noticeable feature of the view and apparent to the receptors but not alter the overall balance of the features comprising the existing view.
- The view includes features of other industrial developments such as the quarries.
- The Proposal is partially screened by the rows of mature trees in the middle ground.
- The proposed materials and colour selection for the proposal is congruous with the colour palette of the features and elements in the context of the view, refer visualisation on the next page.
- The plume is anticipated to be visible above rural landscape from the viewpoint location.

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Visual Impact

Construction

During construction, views towards the cranes may be experienced. The construction phase impacts are assessed to be of a temporary nature and consistent with the operational phase impacts, resulting in a *Moderate* magnitude of change and a **Moderate** impact during construction.

Operation

The *Moderate* sensitivity and *Low adverse* magnitude of change is judged to result in a **Moderate-Low** impact during operation.

Future industrial developments in Wollert proposed near the Project area will likely influence the magnitude of change rating for the view.

Embedded design mitigation

Views towards the Proposal will require visual screening and embedded mitigation techniques.

Embedded mitigation:

- Careful selection of colour and material to allow the building to appear recessive above the skyline.
- Architecture to minimising the overall height of the building where possible.

Sensitivity	Impact	
	Moderate	
Magnitude of Change: Construction phase	Moderate	Moderate
Magnitude of Change: Operational phase	Low adverse	Moderate - low



FIGURE 33 VIEWPOINT 5 - PHOTOMONTAGE AT DIFFERENT TIME OF DAY

A visualisation was prepared for the view with a different sun angle from the initial one setup for the viewpoint to illustrate the different luminance of the proposal at a different time of day. The initial sun angle setup was to match the time when the photo was taken.

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Viewpoint 5 - Mount Aitken Reserve, looking north-east

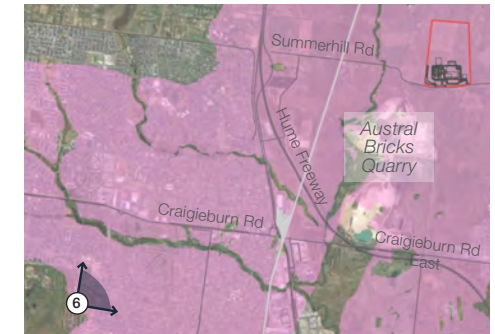


FIGURE 34 VIEWPOINT 6 - SITE CONTEXT



FIGURE 35 VIEWPOINT 6 - PHOTOMONTAGE

Magnitude of change

The representative viewpoint is situated approximately 8km from the Proposal area.

The magnitude of change arising from this proposal is considered to be **Low adverse** due to:

- The Proposal is perceptible in the distance as a noticeable feature in the background of the view and apparent to the receptors but not alter the overall balance of the features comprising the existing view.
- The view includes features of other industrial developments such as the tanks and quarries.
- The proposed materials and colour selection for the proposal is congruous with the colour palette of the features and elements in the context of the view, refer visualisation on the next page.
- The plume is anticipated to be visible above rural landscape from the viewpoint location.

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Visual Impact

Construction

During construction, views towards the cranes may be experienced. The construction phase impacts are assessed to be of a temporary nature and consistent with the operational phase impacts, resulting in a *Moderate* magnitude of change and a **Moderate** impact during construction.

Operation

The *Moderate* sensitivity and *Low adverse* magnitude of change is judged to result in a **Moderate-Low** impact during operation.

Future industrial developments in Wollert proposed near the Project area will likely influence the magnitude of change rating for the view.

Embedded design mitigation

Views towards the Proposal will require visual screening and embedded mitigation techniques.

Embedded mitigation:

- Careful selection of colour and material to allow the building to appear recessive above the skyline.
- Architecture to minimising the overall height of the building where possible.

Sensitivity	Impact	
	Moderate	
Magnitude of Change: Construction phase	Moderate	Moderate
Magnitude of Change: Operational phase	Low adverse	Moderate - low



FIGURE 36 VIEWPOINT 5 - PHOTOMONTAGE AT DIFFERENT TIME OF DAY

A visualisation was prepared for the view with a different sun angle from the initial one setup for the viewpoint to illustrate the different luminance of the proposal at a different time of day. The initial sun angle setup was to match the time when the photo was taken.

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08

Conclusion

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Conclusion

Landscape Character Impacts

The physical impact to the landscape character during construction would be concentrated to the immediate proposed site extents. The impact of the project is not considered to be incongruous with the character of surrounding LCAs with regards to the existing quarry and industrial land uses in close proximity of the Proposal. There would however be a noticeable change with an overall **Low to Moderate** impact.

LCA 1 (Rural Agriculture) is evaluated to be impacted to a **Moderate** degree by the construction and operational phases of the project. The LCA has a **Moderate** sensitivity and it is expected that the Proposal will primarily impact the existing expansive views and is likely to incrementally increase the industrial character of the area. Though the project is expected to have a moderate impact on the LCA, it is in line with the surrounding quarrying operations in the area and approved additional expansion of quarry operations to the east of the site.

LCA 2 (Suburban Residential) is evaluated to be impacted to a Low degree by the construction and operation phases of the project. The LCA has a low sensitivity and it is not expected that

the development will have a direct impact on the LCA. It is expected that the project will increase the industrial character surrounding however is congruous with the surrounding quarrying operations.

LCA 3 (Quarry Industrial) is evaluated to be impacted to a **Low** degree by the construction and operational phases of the project. The LCA has a **Low** sensitivity and it is expected that the project will impact the expansive views within the LCA however it is consistent with the quarrying operations within the area. It is expected that the project will increase the industrial character of the area.

LCA 1: Rural agriculture		Impact	
Sensitivity		High	
Magnitude of Change: Construction phase	Moderate	High-Moderate	
Magnitude of Change: Operational phase	Moderate	High-Moderate	

LCA 3: Quarry industrial		Impact	
Sensitivity		Low	
Magnitude of Change: Construction phase	Low	Low	
Magnitude of Change: Operational phase	Low	Low	

LCA 2: Suburban residential		Impact	
Sensitivity		Moderate	
Magnitude of Change: Construction phase	Low	Moderate - Low	
Magnitude of Change: Operational phase	Low	Moderate - Low	

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Visual Impacts

Visual impacts during construction are expected to result from the presence of machinery including cranes which would be visible during the construction phase. The impacts related to this phase will be temporary in nature. Operational impacts are expected to be consistent with those during the construction phase.

Viewpoints with the highest impact include Viewpoint 1 and Viewpoint 2 which are expected to be highly impacted by the project. These viewpoints are expected to result in a **High** magnitude of change as the project will become the predominant feature in these viewpoints. Whilst it is indicated that these viewpoints will result in a **High** magnitude of change, it should be noted the Proposal includes the implementation of an integrated architectural and landscape design approach that includes mitigation measures proposed in this report.

Viewpoint 3 is considered to be **Negligibly** impacted by the Proposal. The building will not be highly noticeable due to the topography and existing vegetation from the viewpoint.

Viewpoint 4 is expected to be impacted to a **High-Moderate** degree. The viewpoint is expected to experience a **Moderate** magnitude of change.

Viewpoint 5 is considered to be impacted at a **Moderate-Low** degree. The Proposal will be visible in the distance set adjacent to adjoining industrial developments. The scale and height of the Proposal form a distinct element of the view.

Viewpoint 5 is considered to be impacted at a **Moderate** degree. The Proposal will be visible to the receptor as a noticeable feature in the background.

Vegetation screening around the perimeter of the site will assist in the mitigation of visual impact. Choices in colour and materials palette and keeping building height to a minimum has aimed to mitigate impacts however, the volume and height of the stack and plume will be prominent features above the existing and proposed vegetation.

	Baseline		Construction impact		Operation impact	
	Sensitivity		Viewpoint		Viewpoint	
	Visual	Magnitude	Impact	Magnitude	Impact	
Viewpoint 1	High	High	High	High	High	
Viewpoint 2	High	High	High	High	High	
Viewpoint 3	High	Negligible	Negligible	Negligible	Negligible	
Viewpoint 4	High	Moderate	High-Moderate	Moderate	High-Moderate	
Viewpoint 5	Moderate	Moderate	Moderate	Low adverse	Moderate-Low	
Viewpoint 6	Moderate	Moderate	Moderate	Low adverse	Moderate-Low	

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