AJM Joint Venture

MELBOURNE AIRPORT RAIL

LANDSCAPE AND VISUAL IMPACT ASSESSMENT

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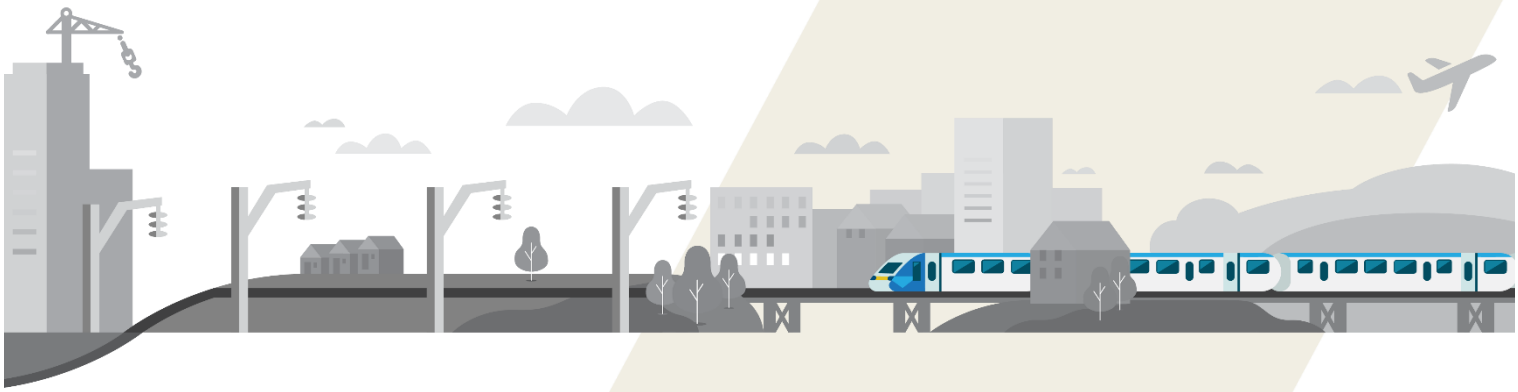

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Glossary and Abbreviations

Table 1.0 Glossary

Term	Definition
AHD	Australian Height Datum
AJM-JV	The Aurecon Jacobs and Mott MacDonald Joint Venture (AJM-JV) are a Joint Venture comprising Aurecon Australasia Pty Ltd, Jacobs Group (Australia) Pty Ltd and Mott MacDonald Australia Pty Ltd.
COR	The Corridor Section, defined in Table 1.1
DELWP	Department of Environment, Land, Water and Planning
Designated landscape	Areas of landscape identified as being of importance at international, national or local levels, defined in statute.
EPRs	Environmental Performance Requirements
ESO	Environmental Significance Overlay
Foreground	The area that immediately surrounds the project up to a distance of 0.5 kilometres.
HO	Heritage Overlay
JV	Joint Venture
km	Kilometre
Landscape	Its constituent elements, its character and the way this varies spatially, its geographic extent, its condition, the way the landscape is experienced, and the value attached to it.
LVIA	Landscape and visual impact assessment: the assessment of the impacts of the project on landscape and visual values.
LCA	Landscape character assessment: the process of mapping, describing and evaluating landscapes based on the presence and arrangement of various landscape features.
LCT	Landscape Character Type
LPPF	Local planning policy framework: Local planning policies are tools used to implement the objectives and strategies of the Municipal Strategic Statement.
m	Metres
MAR	Melbourne Airport Rail
MAR Viaduct	The proposed elevated rail viaduct, which is located from north of Sunshine Station, over Ballarat Road and to northwest of St Albans Road.
Middleground	An intermediate area that is 0.5 kilometres to 2 kilometres
Modification level	The degree to which a development contrasts or blends with its setting.
MRB	Maribyrnong Rail Bridge: the proposed rail bridge located over the Maribyrnong River Valley
MSS	Municipal Strategic Statement: the Council's key land use strategic planning document and is comprised of the local planning policy framework, and local planning policies.
PPR	Principal Project Requirements: Overarching principles that clearly articulate the required outcomes for the project.
Receptor	A location or type of user for which views of the project may be possible.
Significant landscape	The designation of a particular landscape as special or important arising from its cultural landscape values, including aesthetic values (both visual and non-visual) historic, environmental, scientific, social, or other values such as economic.
(the) Site	The extent of the Project impact area, including key Project elements and construction compounds.
SUN	The Sunshine Section, defined in Table 1.1
Study Area	The Study Area includes the Project extents (the Site) and a conservative viewshed analysis of a two-kilometre radius from the Site boundary.

Term	Definition
SUP	Shared Use Path: is a form of infrastructure that supports multiple recreation and transportation opportunities, such as walking, bicycling, skating, and people in wheelchairs. The path is typically a minimum of 3m wide (plus 0.5m clearance either side) and is marked in the centre to designate direction of travel.
Urban design	Urban design is the collaborative and multi-disciplinary process of shaping the physical setting for life in cities towns and villages the art of making places design in an urban context.
UDS	Urban Design Strategy
VHR	Victorian Heritage Register – the VHR is a register of heritage places and objects of state significance established under the *Heritage Act 2017*.
Viewer perception	The way in which people respond to what they are seeing as influenced by things other than purely visual, for example noise and economic benefits.
Viewpoint (VP)	Moderate or high sensitivity location from which views to the construction process or elements of the project may be possible.
Viewshed	The area visible from a particular viewing location.
Visual	Establish the area in which the development may be visible, the different groups of people who may experience views of the development, the places where that will be affected and the nature of the views and visual amenity points.
Visual amenity	The qualities of a landscape setting that are appreciated and valued by a viewer.
Visual catchment	The area over which an object can be seen within the landscape based on the line of sight.
Visual impact	The result of assessing the sensitivity level of a viewer and the modification level of a development.
Visual sensitivity	The degree to which various user groups would respond to change based on their expectation of a particular experience in a given setting for example the expectation of a high level of visual amenity in a national park.
Zone of visual influence	A computer-generated map to identify the likely (or theoretical) extent of visibility of a development.

1. Executive summary

The Melbourne Airport Rail (MAR) project (the Project) will integrate Melbourne Airport into the urban and regional transport network through Sunshine Station by a heavy rail connection. This connection will improve accessibility to the airport and provide a frequent and consistent rail service to support Melbourne Airport as a transport gateway.

The purpose of this report is to present the findings of the Landscape and Visual Impact Assessment (LVIA) associated with the Project. The assessment used the LVIA-relevant criteria of the *Ministerial Guidelines for Assessment of Environmental Effects* under the *Environment Effects Act 1978* (EE Act). Only works within the State Project Land were considered, specifically the public and privately-owned land within the Corridor (COR) and Sunshine (SUN) Sections. Works under the Airport Section of the Project were not considered within this report as these works are subject to a different legislative framework than the State Project Land.

Approach to the assessment

A desktop review was undertaken to establish the landscape and visual baseline within the Study Area. The analysis was based on a review of legislation and planning schemes from local councils, aerial photography, mapping and topographical information, environmental impact studies to define the underlying landscape (topography and hydrology), land cover (environmental significance, land use, cultural and built features), and landscape value. The analysis was confirmed through field observation.

Site visits were undertaken to obtain photographs and investigate potential screening and filtering effect of these views from topography, existing vegetation and built form. Viewpoints (VP) were selected to illustrate a range of receptor types including public and private domain views, view types including elevated panoramic and filtered views, viewing distance from the project, main or protected views in the Study Area and areas of heritage significance.

The Study Area has been defined within a radius of two kilometres from the boundary of the Project, with viewpoint locations selected within 500m of the closest project elements. This viewshed area captures where the Project would be most visible, based upon the potential screening and filtering effect on views from topography, existing vegetation and built form within the Study Area.

For the assessment of landscape and visual impacts, the working draft design has been appraised for this assessment. The design is an iterative design process, with identification of sensitive areas and potential for high adverse impacts mitigated where possible. The assessment is of the worst-case scenario, assessed against the baseline conditions, and identifies the landscape and visual impacts during construction, operation (2 years post construction) and residual impacts which are based on preliminary mitigation measures at 10 years post construction.

The report's key focus is on the visual sensitivity being the tolerance of the viewer to a change to a landscape setting due to the proposed development. The visual impact of the Project is determined by evaluating the degree of its visual fit in the context of the visual sensitivity of the surrounding land uses.

The Project as relevant to this LVIA comprises of two geographically distinct sections on State Project Land:

- Corridor Section (COR): the Albion-Jacana rail corridor between Jacana Station and south of Barwon Avenue, Sunshine North, as well as land between Sharps Road, Tullamarine and the Albion-Jacana rail corridor.
- Sunshine Section (SUN): the existing rail corridor between Barwon Avenue, Sunshine North and Middle Footscray Station. The Sunshine Section also includes the Sunbury rail corridor to Ginifer Station and the Brooklyn freight corridor to Newport Station.

The baseline analysis identified a total of eight distinct Landscape Character Types (LCTs) within the Study Area, which are defined by the land use and site context (appraisal of topography, hydrology, ecological values and cultural heritage).

There were 38 representative viewpoints identified within the Study Area that were assessed from public and private areas. Rendered photomontages were created by combining reference design 3D model information

and a photograph of each viewpoint, indicating the visual modification of the Project at operation. The viewpoint assessment in covered in section 6 of this report.

Landscape and visual assessment findings

Although the project results in several moderate or high residual adverse visual impact ratings, it is recognised that the Project lies within a Study Area highly influenced by existing rail and road networks, as well as an abundance of built form with limited natural open spaces. The surrounding highly visual sensitive uses are already influenced by road or urban infrastructure such as industrial or rail settings and can absorb the changes proposed by the Project.

Landscape character

The ability for the landscape to absorb the type of change proposed, was assessed with the following results:

- Industrial (LCT 1) and Railway infrastructure (LCT 8) are highly modified and would have a high ability to absorb change.
- A moderate absorptive capability was determined for Commercial (LCT 3), Airport environs (LCT 7) and very low to moderate for Waterway Reserves (LCT 4).
- Residential (LCT 2) and Recreational Parks (LCT 5), Grasslands (LCT 6) and Waterway Reserves in the instance of the Maribyrnong River Valley (LCT 4) have been determined to have a very low to low ability to absorb change, due to their unique qualities and associated value, and the viewers sensitivity to changes within their immediate surrounds.

Construction impacts

The assessment of construction visual impacts is based on the proposed location of temporary worksites as well as the proximity to proposed key Project elements which will require temporary construction activity.

In the SUN Section, construction visual impacts are experienced from viewpoints in close proximity to the Sunshine Station up-end concourse (VP2), MAR Viaduct and associated worksites, including recreational users of HV McKay Memorial Gardens (VP3), wetland reserve visitors (VP16), SUP users at Talmage St (VP7); residents at Anderson Rd south and Talmage St (VP5 and VP8), and public transport users at Albion Station (VP14).

Three construction worksites likely to be experienced by highly visual sensitive residential areas, have the potential to be reduced from high to moderate with the introduction of site hoardings at the north end of HV McKay Memorial Gardens (VP5), Barclay Reserve and Talmage St (VP7 and VP8).

Within the COR Section, high construction visual impacts are experienced as a result of the Cranbourne Avenue pedestrian overpass by residents (VP17 and VP19), as well as removal of street trees along Gilmour Road as experienced by residents and SUP users (VP16). The Maribyrnong River Bridge (MRB) is proposed to have large construction worksites in areas of high visual sensitivity, resulting in high visual impacts for Sterling Drive residents (VP22) and recreational users (VP24 and VP25). The construction worksite at Border Drive Reserve will be a high visual impact for recreational users and adjacent residents. Removal of street trees and shrubs for construction of a noise wall will be a high level of modification to the existing setting experienced by residents at Moyangul Drive (VP29).

Operational impacts

In the SUN Section, the Project proposes key elements within the existing rail corridor and to the Sunshine and Albion stations to accommodate the MAR rail network. Key elements which are likely to be a noticeable to dominant visual influence include an up-end concourse at Sunshine Station, the MAR Viaduct and Albion Gateway. Subsequent works will be noticeable at a close distance from elements including Albion Station precinct upgrades, realignment of the existing SUP (including continuation from Albion Station to St Albans Road), existing rail corridor modifications and existing road network modification.

High levels of visual impacts at operation are expected from those viewpoints in close proximity to large scaled elements within the Project. These include:

- MAR Viaduct – high visual impacts experienced as the result of large scaled element in areas of high visual sensitivity including residential areas of Talmage St and Sydney Street (VP8 and VP9) and recreational users of the Anderson Road bridge SUP at the south end of Talmage St (VP7).
- Albion Gateway – the feature over Ballarat Road is most noticeable from the nearby residential area to the west of the railway station in Sydney Street (VP9), and at Albion Station carpark (VP14).
- Sunshine Station – the up-end concourse, whilst commensurate with the existing station structures, is a new element in close view by residents at Station Place.

In the Corridor Section, the Project proposes key elements within the existing rail corridor and proposes a new rail bridge over the Maribyrnong River Valley, and an elevated rail splitting from the Albion-Jacana rail line, to connect to the Melbourne Airport. Key elements which are likely to be a noticeable to dominant visual influence include the Maribyrnong River Bridge, the M80 Western Ring Road bridge, Airport Viaduct and Cranbourne Avenue pedestrian overpass. The new MAR twin tracks within the COR rail will also have Over-head Wiring (OHW) with gantries at regular intervals. These will be noticeable along the corridor which is currently not electrified. Subsequent works will be noticeable at a close distance including two new substations, noise walls and realignment of the existing SUP at Fullarton Road, existing rail corridor modifications and existing road network modification.

High levels of visual impacts at operation are expected from those viewpoints in close proximity to large scaled elements within the Project. These include:

- M80 Western Ring Road Bridge and Airport Viaduct – there are two viewpoints with a high visual sensitivity in adjacent residential areas at Moorna Drive/Roberts Road (VP30) and representative of residential backyards along the west side of Parer Road (VP35).
- Cranbourne Avenue pedestrian overpass – pedestrian overpass is proposed over the existing rail corridor connecting from the end of Cranbourne Avenue on the east to Gilmour Road (near Clayton Street) on the west. There are private residential houses which have potential views of the structure, with viewpoints representing these highly visual sensitive areas assessed at VP17 and VP19. There is a high level of visual modification due to the introduction of the structure (at a height of approximately 12m), providing more of an urban setting to the residential streets. Furthermore, proposed noise walls impose visual obstruction across the rail corridor between residential areas.
- Noise walls – 2.5-3.5m high noise attenuation walls have been proposed to the rail corridor boundary adjacent to residential houses in Sunshine North and Keilor East. This has spatial effects on the landscape setting, as well as obstructing visual permeability of and through the rail corridor, with resulting high visual impacts to VP17, VP18 and VP19 in Sunshine North, and VP29 in Keilor East.

Moderate visual impacts are expected from assessed viewpoints as the result of the Maribyrnong River Bridge (MRB), with potential visual impacts of the proposal are in context of the effects that the MRB will have in the landscape setting of the Maribyrnong River Valley and its existing level of landscape modification, as set out in the Maribyrnong River Valley Design Guidelines (2010), a recognised state strategic planning document.

- Maribyrnong River Bridge – the most highly visual sensitive receivers are residents at Sterling Drive (VP22) and moderate visual sensitivity for recreational users on the Maribyrnong River Trail (VP24 and VP25). The level of visual modification from these viewpoints is moderate, due to the close proximity and scale of the MRB prominent within the view, although there is an existing bridge in the viewpoint of the same height. Overall, visual impacts are moderate.

Residual impacts

Avoidance of adverse impacts has been sought through the design process to propose visually recessive key elements. Generally, the design mitigation measures proposed to improve landscape amenity have the potential to reduce visual impacts, though these are limited to smaller scaled elements such as noise and retaining walls, experienced by high visual sensitivity receptors. Additionally, construction mitigation measures which do not form a part of the draft working design, have the potential to mitigate visual impacts of construction worksites experienced by residential and recreational receptors.

- Sunshine Station - the up-end concourse introduces a structure at a scale that will be noticeable and potentially intrusive to a low number of high visual sensitive residential receptors. Tree screening within the SUP corridor has the potential to reduce the residual visual impact.
- MAR Viaduct and Albion Gateway -– introduces an elevated rail structure of noticeable size, scale and geographical extent, that is prominent to surrounding land uses in close proximity to Albion Station, including residential houses, public transport users and motorists. Although the structure is positioned over the existing rail corridor, the height and scale limits screening to reduce the visual impact. Proposed upgrades to the Albion Station precinct and carpark are not expected to reduce the visibility of the MAR Viaduct or the Albion Gateway. Proposed landscaping along Talmage St reserve will interrupt views of the elevated structure and together with an enhanced landscape setting.
- Cranbourne Avenue pedestrian overpass - High residual impacts are expected to be experienced by residents on Cranbourne Avenue (VP17) and moderate for resident of Gilmour Road (VP19). The structure provides a contrast to the existing residential setting through the scale of the structure, additionally noise walls propose a reduction in visual permeability of the rail corridor and adjacent residential areas. The visual impact is expected to affect a low number of residents.
- Maribyrnong River Bridge – The Heritage Design Guidelines are followed to minimise the visual impact of the new rail bridge to the existing heritage listed Albion Viaduct within the Maribyrnong River valley. The setting and height of the MRB means it cannot effectively be screened, consequently there is no change in the residual visual impacts.
- M80 Western Ring Road Bridge and Airport Viaduct – Visible by residents above the existing heritage rail embankment in Keilor East. The visual modification is considered moderate as there is an existing elevated rail corridor in this setting however mitigation of the proposed structure is limited due to the height and scale. There are a low number of residents likely to experience this view.
- Noise walls – Vegetation screening to public facing noise walls helps to soften the appearance of the walls. This results in reduced residual visual impacts at Gilmour Road (VP19), Mansfield Ave (VP18) and Moyangul Drive (VP29).

Environmental Effects

In consideration of the relevant *Environment Effects Act 1978* (EE Act) referral Self-Assessment criteria, this LVIA identifies the Maribyrnong River Valley as having landscape values of regional importance. The assessment has found that any visual impacts are not expected to have an extensive or major effect on the landscape character of the area. For the potential effects on the amenity of residents, although the assessment has identified high residual impacts to some residential properties, the number of residents directly impacted by the Project is not considered significant. Where possible, the Project has implemented mitigation measures to manage the potential impacts.

Following the above, this LVIA has found that there are unlikely to be any extensive landscape and visual effects as a result of the Project.

2. Introduction

Rail Projects Victoria (RPV) appointed Aurecon Jacobs Mott Macdonald Joint Venture (AJM-JV) to prepare the Melbourne Airport Rail (MAR) State Landscape and Visual Impact Assessment (LVIA) (the Impact Assessment).

2.1 Purpose

The purpose of this report is to present the findings of the LVIA associated with the MAR project (the Project). Only works within State Project Land were considered, specifically the public and privately-owned land within the Corridor (COR) and Sunshine (SUN) Sections. Works under the Airport Sections of the Project are not considered within this report.

The specific objectives of the Impact Assessment are to:

- Understand the natural and built landscape and visual characteristics in the vicinity of the Project, including their relationship to land use patterns and history.
- Identify areas of sensitivity to landscape and visual change associated with the Project.
- Assess the landscape and visual impacts associated with the Project.
- Identify mitigation opportunities to limit adverse effects to the visual environment from a precinct perspective and for the Project's elements.
- Satisfy regulatory requirements under the *Planning and Environment Act 1987*.
- Collate a sufficient level of information to inform the *Environment Effects Act 1978* (EE Act) self-assessment.

2.2 Structure of the report

The structure of the report is outlined below.

- Section 1 – provides an executive summary.
- Section 2 – introduces the report.
- Section 3 – background of the Project.
- Section 4 – describes the methodology for the assessment.
- Section 5 – identifies relevant landscape and visual policy and legislation pertinent to the Project.
- Section 6 – describes the existing Site conditions and landscape setting.
- Section 7 - describes the Project's features and operation.
- Section 8 – assesses the potential visual impacts of the Project.
- Section 9 – recommendations for mitigation.
- Section 10 – summarises the assessment findings.

3. Background

3.1 Strategic Context

The MAR Project is a once-in-a-generation transformation of Victoria's transport network, connecting Melbourne Airport's Integrated Terminal Precinct with a rail service for the first time.

Melbourne Airport handled more than 37 million passenger movements in 2018-19[1] and by 2038, this figure is projected to almost double to more than 67 million[2], which is an average growth of 3.2% per annum. Transport connectivity from Melbourne Airport to Melbourne's Central Business District (CBD) is currently limited to the Tullamarine Freeway, and therefore, the Victorian Government is committed to delivering an efficient and competitive alternative to cater for the ongoing increase in passenger numbers at Melbourne Airport.

In 2002, the Victorian Government considered possible corridor and alignment options for a Melbourne Airport Rail Link, ultimately selecting the Sunshine route as the preferred option. At this time, land was reserved between the Albion-Jacana rail corridor and extending through to Sharps Road, Tullamarine for the construction of a rail link.

In 2018, the Victorian Government released the *Melbourne Airport Rail Link Sunshine Route Strategic Appraisal (*the Strategic Appraisal), which confirmed that the Sunshine route remains the best solution for an airport rail link. The Sunshine route would provide superior connections to regional Victoria, Melbourne's growth areas in the north and west and Melbourne's south eastern suburbs and could be delivered sooner and at a significantly lower cost than other route options.

3.2 State Project Land

The State Project Land defines the land within which the Project components and construction activities are planned to be contained. It sets out the full extent of land identified as potentially required for the delivery of the Project.

The Project Land encompasses all State land areas that would be used for permanent structures and temporary construction areas. It provides the basis for the LVIA.

Project Land relevant to State-based approvals generally includes land from Jacana Station in the north-east to Newport Station in the south-west and Middle Footscray Station in the east. Specifically, this largely includes:

- Land between Sharps Road and the Albion-Jacana rail corridor, including land crossing the M80 Freeway.
- The existing Albion-Jacana rail corridor generally between Jacana and Albion Stations
- Land around Sunshine and Albion Stations, including the existing rail corridor.
- The extent of the State Project Land is shown in Figure 3.1.

[1] https://www.bitre.gov.au/publications/ongoing/airport_traffic_data
[2] https://www.melbourneairport.com.au/Corporate/Planning-projects/Master-plan

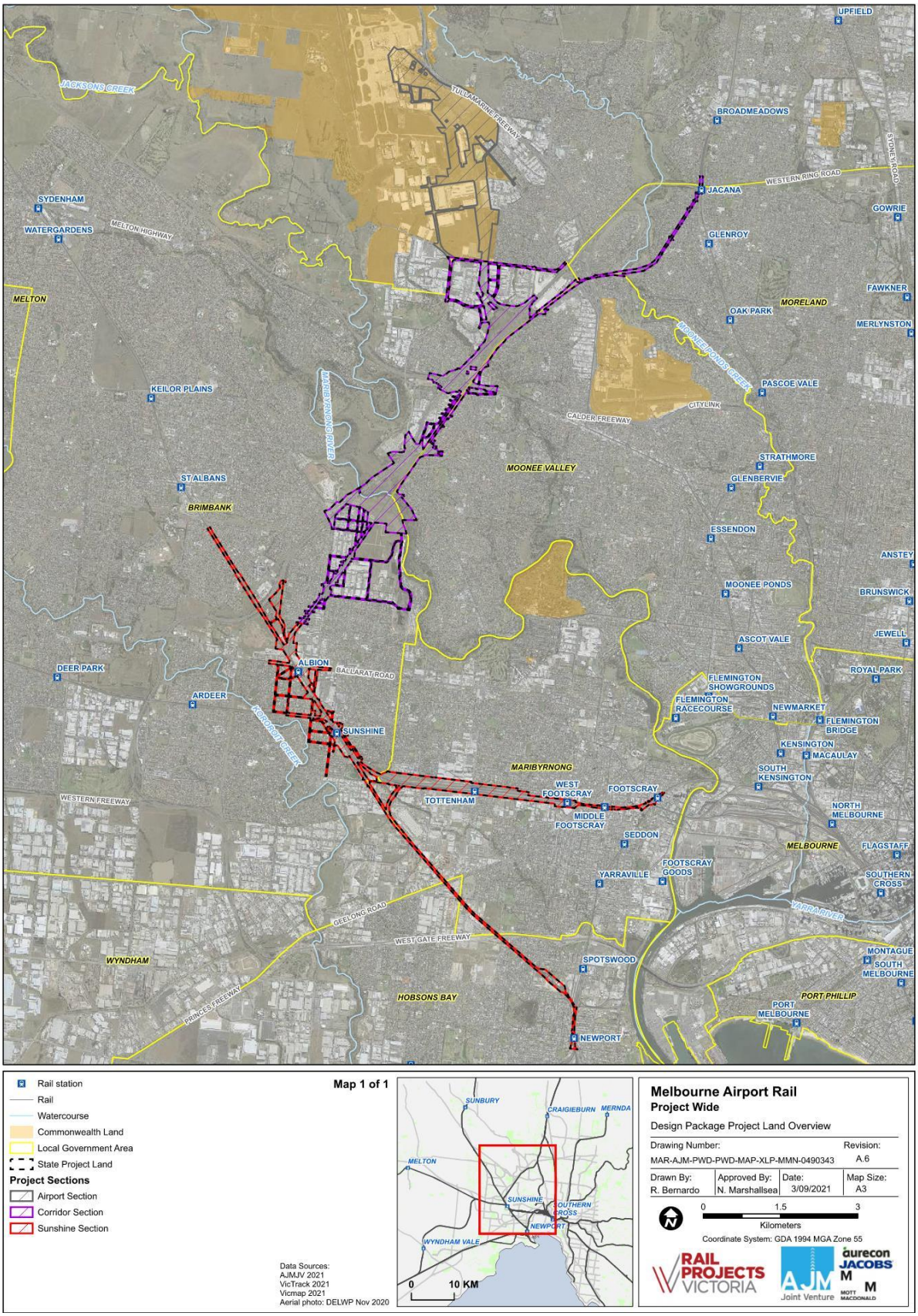

Figure 3.1 MAR State Project Land

3.3 Main Works Scope

3.3.1 Project Sections

The main works for the Project comprise of three geographically distinct sections. The sections are summarised in Table 3.1 and the location of the sections are shown in Figure 3.1.

Table 3.1 Summary of Project sections

Section	Summary
Airport section Works under this section of the Project are not considered within this report	The Airport section generally includes all land relevant to the Project between Sharps Road, Tullamarine and Melbourne Airport and is located on Commonwealth owned land and is subject to a separate approvals process under the *Commonwealth Airports Act 1996*
Corridor section	The COR section generally includes the Albion-Jacana rail corridor between Jacana Station and south of Barwon Avenue, Sunshine North, as well as land between Sharps Road, Tullamarine and the Albion-Jacana rail corridor.
Sunshine section	The SUN section generally includes the existing rail corridor between Barwon Avenue, Sunshine North and Middle Footscray Station. The SUN Section also includes the Sunbury rail corridor to Ginifer Station and the Brooklyn freight corridor to Newport Station.

3.4 Corridor Section Summary

The COR section of the Project includes the following main works:

- Construction of the new MAR tracks, comprising an approximately 8 km dual track railway and associated overhead line equipment (OHLE), combined services route (CSR) and track drainage works, including:
    - A 2.3 km long elevated twin track viaduct structure between Sharps Road, Tullamarine and the Albion-Jacana rail corridor, crossing Steele Creek and the Western Ring Road including emergency and maintenance access points.
    - New at-grade MAR tracks within the existing Albion-Jacana rail corridor, located on the Western side of the existing Australian Rail Track Corporation (ARTC) tracks.
    - An elevated twin track viaduct structure across the Maribyrnong River valley, adjacent to the Western side of the existing state significant heritage bridge.
    - Slewing of ARTC tracks between Keilor Park Drive and the Calder Freeway.
    - Electrification of the MAR rail including new OHW and gantries at regular intervals.
- Signalling works along the Albion-Jacana rail corridor between Jacana Station and Barwon Avenue, Sunshine North and within the new MAR corridor North of the Western Ring Road.
- Construction of an intake supply substation at Terror Street or the Northeast area of Brimbank Park and two traction substations at Fullarton Road and within the McIntyre Sidings, Sunshine North.
- Construction of two new Digital Train Radio System (DTRS) facilities one North or South of Keilor Park Drive, Keilor East and a second at Airport Drive, Tullamarine.
- Diversion, relocation and replacement works associated with utilities and underground services, including the existing ARTC CSR, high voltage (HV) transmission lines and numerous miscellaneous assets
- Protection works associated with the Joint User Hydrant Installation (JUHI) jet fuel pipeline along the Albion-Jacana rail corridor.
- Modifications to existing structures, including structural modifications and strengthening works at Calder Freeway inbound and outbound bridges, Fullarton Road bridge, Western Ring Road on-ramp and off-ramp bridges, Keilor Park Drive and McIntyre Road bridges.

- Fullarton Road SUP will be an opportunity to improve the bridge due to new throw screens required over the rail corridor.
- Replacement of shared use path (SUP) connections at Calder Freeway / Fullarton Road, provision of a new SUP overpass at Cranbourne Avenue, and provision of a Strategic Cycling Corridor link between Western Ring Road and Airport Drive via Steele Creek.
- The provision of retention basins at several locations along the Albion-Jacana rail corridor
- Establishment of temporary construction laydown areas, site offices, worksites, storage, parking areas and access roads

3.5 Sunshine Section Summary

The SUN section of the Project includes the following main works:

- Construction of a new 1.8 km long MAR twin track viaduct structure, including associated OHLE and CSR between Sunshine Station and the Albion-Jacana corridor, crossing Anderson Road, Ballarat Road, the Sunbury rail corridor, St Albans Road and Stony Creek.
- Signalling works, including the installation of trackside equipment along the Sunbury line towards Ginifer Station, along the Brooklyn freight corridor towards Newport Station, and along the Western rail corridor to West Footscray Station.
- Modifications to the tracks, formation, drainage, CSR, OHLE and signalling equipment for the MAR, Sunbury and Bendigo tracks from Albion to the beginning of the Jacana freight corridor
- Modifications to the Western and Eastern Albion Station forecourts and car parks.
- Modifications to Sunshine Station, including modifications to platforms, the Sunshine Station western car park and the construction of a new concourse.
- Modifications to the existing Sunshine and Sunshine West substations
- Diversion, relocation and protection of existing utilities and underground services.
- Establishment of temporary construction laydown areas, site offices, worksites, storage, parking areas and access roads

4. Methodology

4.1 Approach to the Assessment

The location of the Project is predominantly within an existing rail corridor, adjacent to current urban land uses such as public park and recreation, residential, commercial and industrial land use. As such, determination of an adverse impact to a landscape character from a proposed development is treated as being of a lower relevance in those areas where the Project is commensurate with the existing conditions. A new rail corridor is proposed from north of Fullarton Road, crossing the M80 Western Ring Road and Steele Creek to Sharps Road, which proposes some changes to the existing land use, comprising mostly road and industrial uses, with some recreational use.

The report's key focus therefore is on the visual sensitivity being the tolerance of the viewer and the landscape setting to change due to the proposed development. In summary, the visual impact of the Project is determined by evaluating the degree of its visual fit in the context of the visual sensitivity of the surrounding land uses (based on the land use zones of the applicable planning scheme).

The level of visual impact resulting from the proposed development has been assessed against the following elements:

- Visual sensitivity made up of the following:
    - Viewer sensitivity - the sensitivity of the viewer to the development/change and distance from the viewpoint.
    - Landscape sensitivity - the ability of the landscape setting to absorb the development/change.
- Scale of modification – how well the development/change contrasts or blends with the surrounding land use based on varying levels of visual prominence.

Establishing the level of visual impact involves assigning levels of visual sensitivity and modification such as high, medium low or very low. A determination matrix is then used to assign an overall level of visual impact.

Figure 4.2 illustrates the key steps for the methodology of the assessment.

4.2 Study Area

The limit of the Study Area for this impact assessment is derived from a conservative viewshed analysis, of a two-kilometre radius from the Project. Key Projects elements have the potential to be visible within this Study Area, which is different to the Project extents (the Site) where there may be works that propose no visual change to existing conditions.

The extent of the Site's potentially visible surface area from a given viewing location was identified during a desktop study using topographical data. Potential viewpoints were identified and then validated during a field visit to account for potential screening and filtering effect on these views from topography, existing vegetation and built form. The Study Area is shown in Figure 4.1.

A viewshed is defined as the surface area visible from a given viewing location. As the distance increases from any proposed development, the field of view decreases causing the visibility of elements to diminish. Views at or greater than two kilometres would visually be insignificant or the degree that it intrudes on the view would be minimal. Appendix A defines this diminishing visual prominence rationale.

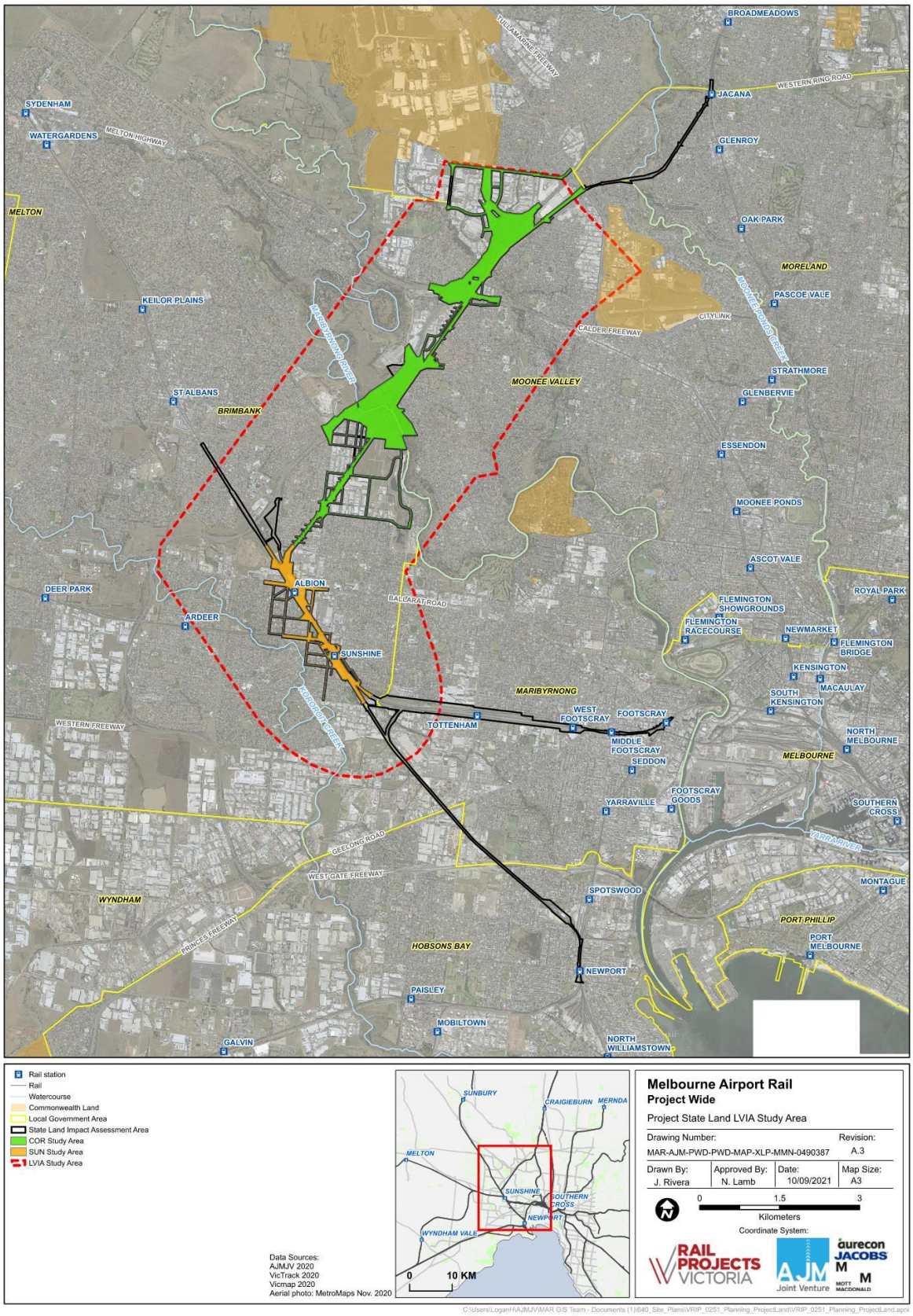

Figure 4.1 Project State Land Study Area

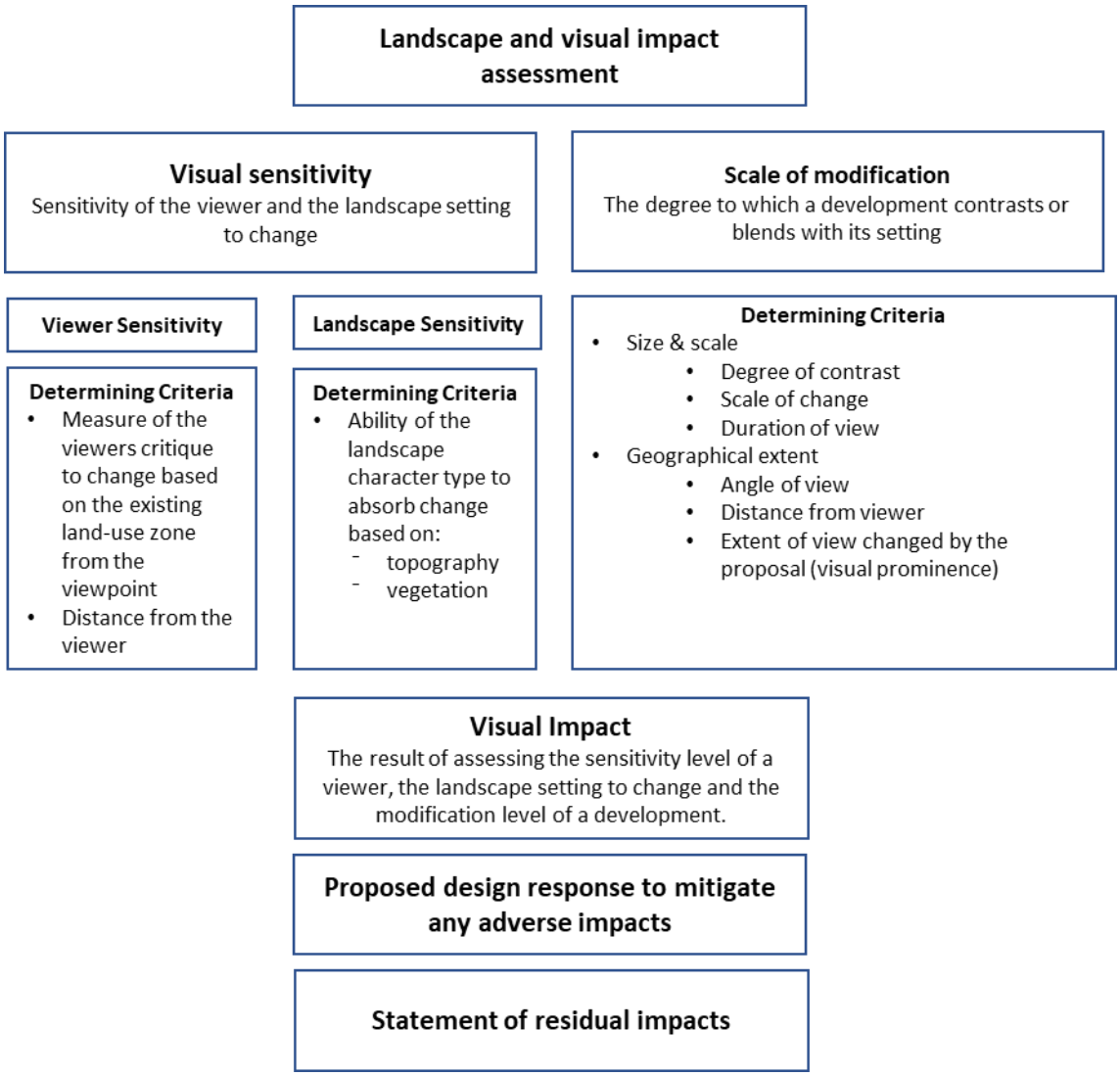

Figure 4.2 LVIA methodology diagram.

4.2.1 Visual sensitivity

Visual sensitivity is composed of two parts: viewer sensitivity and landscape sensitivity.

4.2.1.1 Viewer sensitivity

Viewer sensitivity is a measure of how critically a change to the existing landscape setting would be regarded based on (1) the land use of the area and (2) the distance from where it is viewed.

Various landscape settings have differing indexes to the relative importance the viewer places on them. For example, individuals would view changes to the visual setting of their residence more critically than changes to the visual setting in which they travel or work.

As such, levels of viewer sensitivity are based on land use because this largely defines a viewer's expectation of what they would typically expect within a particular setting. This approach is consistent with the visual management system (*Landscape Aesthetics – A Handbook for Scenery Management*, United States Department of Agriculture & Forest Service, 1995).

The viewer sensitivity levels relating to existing land use zones within the study area are outlined in Table 4.4.1.

The next critical component to rating the viewer sensitivity is the distance of the Project from the identified land use area. As illustrated in Table 4.4.1, there are three viewing distances to consider:

- Foreground (0 – 500 metres)
- Middleground (501 – 2000 metres)
- Background (> 2000 metres).

As outlined in Appendix A, as the distance increases from the land use area the field of view decreases causing the visibility of the Project elements to diminish or be absorbed in the landscape setting. Consequently, as distance from the viewer to the Project increases, the level of viewer sensitivity reduces.

Table 4.4.1 Viewer sensitivity determination matrix

LAND USE (Sensitivity of the viewing location)	DISTANCE FROM THE PROJECT				
	FOREGROUND		MIDDLEGROUND		BACKGROUND
	0 – 200 m	201 – 500 m	501 – 1000 m	1001 – 2000 m	> 2000 m
Residential / Accommodation	H	H	H	M	L
Parks and reserves	H	H	H	M	L
Health care facilities	H	H	M	M	L
Educational facilities	H	M	M	L	L
Community facilities	H	M	M	L	L
Shared use paths	M	M	M	L	VL
Commercial	M	M	L	L	VL
Public transport facilities	M	L	L	L	VL
Local road	L	L	L	VL	VL
Arterial road	L	L	VL	VL	VL
Industrial areas	VL	VL	VL	VL	VL
Legend - H = High, M = Medium, L = Low, VL – Very Low					

4.2.1.2 Landscape Sensitivity

To understand the sensitivity of a landscape and its ability to absorb change, landscape character types (LCTs) need to be identified and defined. Identifying the LCTs of an area provides the basis for understanding the features that are important, and how different types of development would sit within a particular landscape

LCTs are defined based on physical characteristics such as:

- topography
- vegetation
- drainage patterns
- geology
- land use patterns.

Once the LCTs are defined, an assessment is undertaken of how well the landscape units can accommodate or absorb change, such as a development.

The key factors considered in determining a LCTs absorptive capability are:

- topographic variation
- presence of and patterning of vegetation and density

- human modification such as presence of built from and/or extensive clearly resulting in a highly altered landscape.

In areas of elevated topography with no or lowland vegetation, open and unobstructed views towards a proposed development is highly likely. The ability for this particular setting to absorb the development and/or screen views using vegetation, for example, would be hard to achieve. Consequently, the ability to absorb the development in this scenario would be very low.

Conversely, in areas where there are bands of dense vegetation in the surrounding landscape or the presence of built form that inhibit views towards the proposed development, the setting would have a greater capacity to absorb change compared to a cleared, expansive landscape or no structures.

Areas that contain signs of human modification, such as farming land and industrial areas are typically not considered as high-quality landscape settings compared to natural landscapes such as mountain ranges. As such, the higher level of human modification the greater capacity the landscape has to absorbing change.

The absorptive capability levels relating to landscape sensitivity are outlined in Table 4.4.2.

Table 4.4.2 Landscape absorptive capability level

Landscape absorptive capability level	Description
Very Low	The extent of alteration would result in the landscape losing significant natural landscape features, its character and/or sense of place. Open, expansive, and bare landscapes. Elevated, bare and/or groundcover vegetation. The viewer is highly sensitive to changes in their immediate surroundings such as residents or 'natural' areas such as National Parks.
Low	The extent of alteration would result in the landscape partially losing some natural or designed landscape features, its character and/or sense of place. Open, expansive and moderately vegetated landscapes including canopy trees. Elevated and vegetation landscape including canopy trees. The viewer is moderately sensitive to changes in their immediate surroundings such as users of regional and local reserves.
Moderate	Modified landscapes with an abundance of built form and limited natural characteristics. Built-up landscapes typically interspersed with canopy trees. The viewer is aware of the change but not overly sensitive to changes in their immediate surroundings such as users of commercial areas.
High	Highly modified and/or degraded landscapes with limited to no natural characteristics. Undulating or elevated topography with dense tree cover. The viewer is not critical/sensitive to changes in their immediate surroundings such as industrial areas.

Impacts on the LCT are either:

- Direct: impacts which may occur upon LCTs which are a direct result of the presence of the Project within an area of a particular landscape character; or
- Indirect: impacts which may occur upon LCTs which are adjacent to the Site. As these LCTs fall outside of the project area there is no potential for loss or removal of landscape elements such as trees or existing landform. Therefore, effects are restricted to changes in landscape character that may occur when modifications within the LCT occupied by the Project itself indirectly affect perceptions of adjacent LCTs.

4.2.1.3 Assigning a level of visual sensitivity

The visual sensitivity is a result of combining the viewer sensitivity level with the landscape absorptive capability level using the visual sensitivity determination matrix illustrated in Table 4.4.3.

Table 4.4.3 Visual sensitivity determination matrix

Viewer sensitivity level

Landscape absorptive capability level	H	M	L	VL
VL	H	H	M	L
L	H	M	L	VL
M	M	L	L	VL
H	L	VL	VL	VL

VL = Very low
L = Low
M = Moderate
H = High
Level of visual sensitivity

4.2.2 Visual modification

Visual modification is not easily predicted objectively; thus, interpretation and professional judgment is applied. A clear picture of the modification is determined from a combination of the degree of change to the view due to the Project including the extent of the area over which changes would be visible, the period of exposure to the view and reversibility.

The assessment of visual modification is based on the Project design outlined in Section 7.

The assessment of visual modification does not include an evaluation of the merit of the urban design. It is recognised that that assessment of urban design outcomes is highly subjective, therefore an assumption has been made that the changes are adverse. Table 4.4.5 Impact determination matrix outlines the four categories of modification used for determining the degree of visual modification potentially resulting from the Project.

The key considerations in determining the level of visual modification as outlined in Table 4.4.54 include:

- Size and scale:
  - The scale of the change in the view with respect to the loss or addition of features in the view, and changes to the composition including the proportion of the view occupied by the project elements.
  - The degree of contrast or integration of the project elements in the landscape setting with the existing or remaining elements including form, mass, line, height, colour, texture and materiality.
  - The nature of the view towards the project elements in terms of duration of the view.
- Geographical extent:
  - The angle of the view in relation to sensitive land use.
  - The distance of the viewpoint from the project element(s).
  - The extent of the area over which the changes would be visible.

Table 4.4.4 Criteria for determining the visual modification level

MODIFICATION LEVEL	DESCRIPTION
High	The Project is highly visible and intrusive in regard to the size, scale and geographical extent, and would disrupt views currently experienced from sensitive land use areas and/or strongly contrasts with the existing landscape setting which has limited capacity for change.

MODIFICATION LEVEL	DESCRIPTION
Moderate	The Project partially intrudes in regard to the size, scale and geographical extent or somewhat obstructs current views from sensitive land use areas and/or a noticeable compositional change to the existing landscape setting in which there is moderate capacity for change.
Low	The Project is barely perceptible resulting in minor deterioration to the view currently experienced from sensitive land use areas; and/or results in a small change to the existing landscape setting in which change is possible without harm.
Very low	There is minimal compositional contrast and a high level of integration of form, line, shape, pattern, colour or texture values between the Project and the environment in which it sits. In this situation, the Project may be noticeable, but does not markedly contrast with the existing landscape setting.
Not apparent	There are no views of the Project elements and as such, there is no impact.

4.2.3 Assigning a level of impact

The visual impact therefore is a result of combining the visual sensitivity level with the degree of visual modification using the visual impact determination matrix illustrated in Table 4.4.5.

The consequence of the application of the matrix is that (except where the Project cannot be seen) the Project would have some adverse impact, whether low, moderate or high, depending on the level of visual modification and viewer sensitivity from the location at which the Project can be viewed.

Table 4.4.5 Impact determination matrix

Visual Sensitivity

Degree of modification

	H	M	L	VL
H	H	H	M	L
M	H	M	L	VL
L	M	L	L	VL
VL	L	VL	VL	VL

VL – Very low
L = Low
M = Moderate
H = High
Level of Visual impact*

*Adverse, Neutral or Beneficial

4.2.3.1 Consideration of night lighting impacts

There is little guidance locally on the assessment of night-time visual impact. Therefore, the methodology applied to this report is drawn from the United Kingdom. The Institute of Lighting Professionals (ILP) *Guidance Notes for the Reduction of Obtrusive Light* (2020) includes four categories or zones with which to describe the lit situation of the landscape. These environmental zones are supported by design guidance for the reduction of light pollution which can then inform proposed mitigation techniques (refer to Appendix B).

A full night-time visual assessment has not been undertaken; however, this report has included a broad assessment of likely impacts. This assessment includes identification of existing lighting levels within the Study Area (referencing the ILP environmental zones), identification of the likely sources of lighting associated with the Project and consideration of likely lighting impacts.

4.2.4 Mitigation measures

Once the landscape and visual impacts have been determined, mitigation actions are recommended for viewpoints and locations of highest visual sensitivity.

Generally residual impacts would be reduced by at least one level where landscape measures have been proposed and matured due to filtering or inhibiting views to the proposal.

4.2.5 Residual impacts

A residual impact occurs when the mitigation measures have a limited effect on reducing or avoiding landscape or visual impacts. Impacts which are assessed as being moderate to high are those which should be given greatest consideration in decision making, relative to other levels of landscape and visual impacts.

Minor to moderate levels of impact are of progressively reducing importance, but nonetheless requiring consideration especially near to sensitive receptors.

The residual impact assessment level has considered the existing view in comparison to the view ten years after project opening. Maturation of the landscape plantings that have been included in the design would filter or inhibit views at some locations, potentially reducing the visual impact of the project over time. These are discussed in the viewpoint assessments in Section 8.

4.3 Links to other Technical Reports

Some of the technical requirements include other aspects and impacts that are not directly related to this report and are covered in the following specialist disciplines:

- *MAR State Land Traffic and Transport Impact Assessment*
- *MAR State Land Historic Heritage Impact Assessment*
- *MAR State Land Terrestrial Ecology Impact Assessment*
- *MAR State Land Use Planning Impact Assessment*
- *MAR State Land Aboriginal Cultural Heritage Existing Conditions Assessment*

4.4 Limitation and Assumptions

4.4.1 Limitations

There are the following limitations associated with this assessment:

- This LVIA is based on the MAR Project working draft design and has been coordinated with revision B design packages and the scope of works and mapping presented in the 'MAR Project Description for Environmental Specialists' (MAR-AJM-PWD-PWD-MEM-XLP-NAP-0001505, Revision C) (the Project Description).
- There are limited specifications for the assessment of landscape and visual impacts specific to Victoria or Australia. Therefore, the below guidelines have been used as a basis for the methodology for this assessment.
    - The *Guidance for Landscape and Visual Impact Assessment* (GLVIA), Third Edition (2013), prepared by Landscape Institute and Institute of Environmental Management & Assessment (IEMA, UK)
    - *Guideline for Landscape Character and Visual Impact Assessment* (August 2020), Transport for New South Wales
    - *Guidance Note for Landscape and Visual Assessment* (June 2018), Australian Institute of Landscape Architects (Queensland chapter).
- The LVIA process aims to be objective and, as such, seeks to describe any changes factually. Potential changes resulting from the Project have been defined. However, the significance of these changes requires qualitative (subjective) judgements to be made. Therefore, the conclusions to this assessment combine both objective measurement and subjective professional interpretation. This assessment has attempted to be objective, however it is recognised that visual assessment can be highly subjective, and individuals are likely to associate different visual experiences to the Study Area.
- The Impact Assessment relates only to public and privately-owned State land and does not consider Commonwealth-owned land or the Airport Section. This is because Commonwealth land is not subject to Victoria's legislative framework. Impact Assessments associated with Commonwealth land, specifically land at Melbourne Airport, will form part of a separate suite of impact assessments.
- The impact assessment is based on the current land uses and zoning.
- Access to sensitive viewpoints on private land, such as residences or accommodation, were not undertaken for this LVIA. However, where there are expected impacts from private properties,

representative viewpoints are assessed adjacent the property boundaries looking towards the proposal to capture the typical existing visual conditions. Where these viewpoints were not adjacent public land, access to rail land was permitted to capture the representative viewpoints (VP26, VP27 and VP35). It is noted that the accuracy of these viewpoint assessments for private residents are limited to what is visible in the viewpoint.

- Photographs and subsequent assessment of views from Ballarat Road east or west bound was not possible due to road safety rules and no other publicly accessible vantage points available. Therefore, a discussion of the visual assessment from Ballarat Road was undertaken based on viewing from driving a vehicle and the visual report prepared by Tract for Brimbank City Council (Darling Flour Mill View Line Assessment – June 2014).
- Methodology, program, and timing of the construction works are currently indicative and dependent upon planning approvals.
- Architectural design and materiality of the station building and associated structures, and the elevated SUP are currently unresolved and dependent upon stakeholder engagement. Consequently, finished design impacts such as materials and colours have not been assessed in this report.
- The LVIA does not consider the potential urban renewal areas adjacent to the Project. The uncertainty around the future land use and development design within these areas would make any assessment highly subjective. Further, it is not possible to predict other changes to the viewshed that would need to be considered in any assessment. Consequently, this LVIA only appraises the impacts on areas of visual sensitivity that currently exist.

4.4.2 Assumptions

- The methodology adopted for this landscape and visual impact assessment assumes that if the works would not be seen, there is no impact.
- For the assessment, an unobstructed viewpoint from a publicly accessible location has been used as a worst-case scenario of potential visual impacts.

4.5 Production of photomontage renders

A photomontage is a technique whereby an image of the proposed development is produced using an existing photograph, overlayed with a render of the key Project elements, to provide an indicative representation of the scheme. The process entails inserting a computer–generated model of the proposal into a photograph taken from a geographically referenced viewpoint, using existing elements of a known size, location and scale to suitably locate the digital representation within the photograph.

A series of photographs have been taken and stitched together to form a panoramic image of approximately 120 degrees (equal to the central field of vision for the human eye – see Appendix A), or the extent of Project visibility. It is expected that there is a degree of lens distortion within these wide panoramas. The rendered images have been divided and stitched together to match the perspective of the panoramas and accurately depict the scale and positioning of key elements. Objects, such as buildings in the existing view have been modelled to create a reference point to match in the photos.

The preliminary renders are of the working draft design and do not indicate design mitigation measures. This provides the bulk and form of the key elements to demonstrate the worst-case scenario.

The preliminary renders depict the current design of key elements, as were available at the time of preparing this report. As the Project design is still in development for the working draft design section, it is acknowledged that there may be some changes however the visual assessment has focused on the bulk, scale and geographical extent of key elements in the field of view.

All viewpoints have preliminary rendered photomontages prepared that are indicative of the Project at 2 years after construction has been completed. Proposed vegetation in these renders are based on trees being immature, to indicate where screening may occur, however, not to hide any key Project elements or potential impacts.

Viewpoints that have been assessed as having reduced residual impacts have an additional preliminary rendered photomontage prepared that are indicative of the Project at 10 years post construction.

There are two preliminary renders (VP13 and VP35) that are representative of views from roads. For safety reasons, site photos were not taken from these viewpoints and either a Google Street view or existing photograph have been used to demonstrate existing conditions.

4.6 Urban design considerations of the Project

Development of the design of the Project has been an iterative process, with consideration of safety, environmental and operational risks being central to the design evolution.

Urban design principles and objectives for the Project are being prepared to promote good design outcomes that contribute to a coherent and appealing urban environment. This is being presented in consultations being undertaken with key stakeholders, including local councils to ensure shared principles and objectives for the Project are met.

This report assesses the landscape and visual effects of the Project having regard to the level of visual modification proposed from viewer sensitive locations and the level of sensitivity at those locations based on existing land use. It makes no comment on the merits or otherwise of the architectural and urban design response. It is recognised that the opinions of architectural and urban design outcomes would vary between individuals and because the likely community response to the urban design is not known, an assumption has been made that the changes are adverse.

To reduce the potential of misleading the community and affected landholders, this assessment presents information informed by a worst-case visual scenario, with a focus on the Project key elements. This ‘worst case’ approach ensures a comprehensive assessment of the potential extent of landscape and visual influence, which will inform the finalisation of infrastructure layout. Therefore, the assessment is conservative.

5. Legislation and Policy

Legislation, policies, and guidelines that have been reviewed and that are applicable to this impact assessment are outlined below, noting only legislation that permits project works to commence (i.e. Primary Approvals) has been considered. Refer to the *MAR Land Use Planning Impact Assessment Report* for the comprehensive planning discussion.

5.1 Commonwealth legislation

Commonwealth legislation applicable to the Project includes:

- *Environment Protection and Biodiversity Conservation Act 1999.*

5.2 State legislation

Victorian legislation contains several Acts that are relevant to the Project, including:

- *Major Transport Projects Facilitation Act 2009*
- *Transport Integration Act 2010*
- *Planning and Environment Act 1987* (P&E Act)
- *Environment Effects Act 1978*
- *Aboriginal Heritage Act 2006*
- *Heritage Act 2017.*

5.3 Municipal Planning Schemes

The Project is located within the municipalities of Hobsons Bay, Maribyrnong, Brimbank, Moonee Valley, Moreland and Hume and is subject to their local planning schemes. The respective planning schemes set out the relevant planning controls which determine whether planning approval is required for the use and/or development of land. These controls include zones, overlays, and particular and general provisions. The P&E Act is relevant to the project as land use planning studies have shown that a variety of approvals are triggered by the proposed works.

There are a variety of pathways via which planning approval may be obtained for rail projects. The planning approval pathway for the Project will be confirmed through further consultation with DELWP.

While the State Project Land intersects six local government areas, the Study Area covers two, including Brimbank City Council and Moonee Valley City Council.

5.3.1 Planning Policy Framework

The Planning Policy Framework (PPF) seeks to ensure the objectives of planning in Victoria are fostered through appropriate land use and development planning policies and practices. The PPF contains policies at Clauses 10-19 that deal with settlement, environment, housing, economic development, infrastructure, and particular uses. The PPF applies to all land in Victoria and must be considered by planning authorities when preparing planning scheme amendments or considering applications to use and develop land.

The following is a summary of the clauses relevant to this assessment:

- Clause 11.03-5S ‘Distinctive Areas and Landscapes’
- Clause 12.03-1S ‘River corridors, waterways, lakes and wetlands’
- Clause 12.05-1S ‘Environmentally sensitive areas
- Clause 15.03-1 ‘Heritage Conservation’
- Clause 15.01-5S ‘Neighbourhood Character’.

5.3.2 Local Planning Policy Framework

The Local Planning Policy Framework (LPPF) sets the strategic policy context for a municipality and outlines the key planning issues and intent for the municipality. Generally, the relevant policies and objectives relate to urban design, transport and infrastructure, and seek to address traffic congestion and reduce the conflict between traffic and residential areas. The relevant aspects of the LPPF are briefly identified in Table 5.1 and in the following Sections. The following summaries provide insight into the policies and objectives that guide land use planning, specifically relating to landscape and visual amenity within the Study Area.

Table 5.5.1 Relevant local planning policies

Document	Clauses relating to views
Planning Scheme – Brimbank City Council	Clause 21.05 Natural Environments Objective 2: To retain, protect and improve the natural and landscape environs along the Maribyrnong River, Kororoit Creek, Taylors Creek, Jones Creek, Steele Creek and Stony Creek escarpments and adjoining open space areas. Strategy 2.3: Retain the natural ridgelines and views along the Maribyrnong River and Kororoit Creek by ensuring the river and creek corridors are not dominated by buildings and works.
	Clause 21.06-1 - Heritage Objective 1: To conserve and enhance historic buildings, features and precincts that contribute to the community's understanding of the development within the municipality. Objective 3: To ensure new development is sympathetic to the character of the surrounding buildings and places.
	Clause 21.06-3 – Escarpments and Ridgelines Objective 1: To ensure that any new development on the ridgelines or adjacent to the escarpments provides a positive interface with the waterways. Objective 2: To ensure the use of building materials and the siting and height of new buildings respect the preferred character of the river valley and surrounding natural environment.
	ACZ Schedule 1, Clause 5.4-2 Precinct objectives: To preserve existing view corridors to the Darling Flour Mill from Ballarat Road in accordance with the Darling Flour Mill View Line Assessment, Tract, June 2014.
Planning Scheme – Mooney Valley City Council, June 2020	Clause 12.03-1L Maribyrnong Rivers and Creek Corridors Relevant strategies seek to ensure new development within the Maribyrnong River valley has regard to the preferred character type as outlined in the Maribyrnong River Design Guidelines (Department of Planning and Community Development, 2010) for each distinct character length.
	Clause 12.03-1L Relevant strategies seek to maintain the distinctive historic character and visual cohesion of streetscapes within heritage precincts.

5.3.3 Other Relevant Strategies and Policies

There are several State strategic planning documents informing the PPF and LPPF which are of relevance to the Project. Of particular importance is *Plan Melbourne 2017-2050* (Plan Melbourne), which provides guidance on the development and growth of Melbourne to 2050 and is the key strategy for supporting jobs, housing and transport. It also seeks to integrate long-term land use, infrastructure, and transport planning. Relevant directions under Plan Melbourne include the following:

- Delivery of the Project supports the integrated land use outcomes and intensification sought within Sunshine to Albion.
- Outlines improvements to local travel options including creation of pedestrian friendly streets, cycle networks, safety and accessibility and improved streetscapes.
- As a National Employment and Innovation Cluster (NEIC), Sunshine will need high levels of amenity to attract businesses and workers, including public transport, walking and cycling paths.
- Promotes urban design excellence in the built environment with the Victorian Government to lead by example, with a focus on great place-making outcomes.

Plan Melbourne acknowledges that State and local policy identifies the Sunshine Metropolitan Activity Centre (MAC), which includes Albion as an area of future urban renewal and intensification. This is highlighted by its

designation as an NEIC and Priority Precinct under Plan Melbourne. There are several state and local strategic planning documents that drive the future use and development of the area, with the Project contributing to improving transport connectivity and providing precinct improvements at Sunshine and Albion Stations.

State strategic planning documents also highlight the importance of protecting and enhancing biodiversity and cultural and built heritage. Particularly, development in the Maribyrnong River Valley Parklands is guided by the *Maribyrnong River Valley Design Guidelines* (MRVDG)[3]. The MRVDG is a reference document to the planning schemes. The MRVDG has characterised the Maribyrnong River into segments, with the Study Area at the transition between two-character areas. Key guidelines in relation to landscape and visual character are identified in Table 5.5.2.

Table 5.5.2 Maribyrnong River Valley Design Guidlines

Document	Guidelines relating to views
Maribyrnong River Valley Design Guidelines, 2010	2.1 Landscape: Ensure river structures and new development is sympathetic to the river valley, protect and enhance the character of each river length.
	2.2 Preferred River character • 'Brimbank length: a natural river'. The naturalistic and remote character of this length of the river is its most valued characteristic. There is a need to continue to strike a balance between recreation and conservation/revegetation outcomes. There is also a need to control urban intrusions in order to maintain the uninhabited and remote feel of this length. • 'Steele Creek length – a secluded river' New development to be minimised or setback and appropriately landscaped to preserve the remote character.
	4.8 Infrastructure design – design guideline 22 • Ensure infrastructure along or near the river is sympathetic to the river valley landscape • Lights should be baffled to avoid light spill to waterway open space areas. • Bridges should provide for the convenient, safe and attractive continuation of the riverside path. Bridges and other public infrastructure should be designed to harmonise with the preferred character of the river length and specific locality

5.3.4 Zones and overlays

5.3.4.1 Land Use zones

The area surrounding the Site, as described in Section 3, has a variety of land uses including residential, recreation and public open space, community facilities, industrial sites and utilities as shown in the Appendix C.

The Site is situated predominately within a rail corridor boundary zoned Public Use Zone 4 Transport (PUZ4). Adjacent zoning is a mix of land use comprising mostly of Road Zone Category 1 (RDZ1), Industrial 1 Zone (IN1Z), Public Park and Recreation Zone (PPRZ), Activity Centre Zone (ACZ1) and General Residential Zone (GRZ1).

The Site includes the following land use zones:

- RDZ1 converge with the Site at several instances including Anderson Road, Ballarat Road, St Albans Road, Keilor Park Drive, Fullarton Road, M80 Western Ring Road and Airport Drive.
- ACZ1 is located adjacent the rail corridor, with direct impacts proposed at Albion Triangle development adjacent the railway line at Albion Station, and Sunshine Market and commercial precinct adjacent the Site.
- PPRZ land includes Barclay Reserve which is an area parallel to the railway at Talmage St, HV McKay Memorial Gardens, Sunshine Energy Park, Maribyrnong River Valley, Brimbank Park, Border Drive Reserve and Steele Creek Tributary Reserve. The Maribyrnong River Valley includes the reserves at the top of the escarpments, accessed from Sterling Crescent and Brimbank Park via the Maribyrnong River

[3] Maribyrnong River Valley Design Guidelines (MRVDG), April 2010, Department of Planning and Community Development

Trail. At Steele Creek, the PPRZ is a narrow and disjointed zone, surrounding by industrial and road land use zones.

- GRZ1 and Neighbourhood Residential (NRZ1) zones surround the Site. The residential suburbs of Sunshine, Sunshine North, Albion and River Valley Estate are within the Brimbank council area. Within the Moonee Valley municipal area are the suburbs of Keilor East, Avondale Heights, Airport West and Tullamarine. There are some areas of Residential Growth Zones that are adjacent to the Site, located near to Sunshine Station, Chaplin Reserve and Ballarat Road (west). Additionally, included within this land use zoning are small neighbourhood reserves, private schools, and some aged-care facilities.
- Industrial land use zones (IN1Z and IN3Z) are throughout the Site. IN1Z comprises manufacturing, storage and distribution facilities and is located: south of Sunshine Station; areas north of Ballarat Road; at Kealba landfill west of the Maribyrnong River; north and south of Fullarton Road/M80 interchange; and in the area between the M80 and Sharps Road. Light industry (IN3Z) is located within the industrial estates of Sunshine North industrial area (Terror Street in Sunshine North) and east of Brimbank Park, covering Maribyrnong River embankments to the west side of the river and to the south of the railway line (PUZ4).
- Public Conservation and Resource Zone (PCRZ) includes the protected the Sunshine Diuris and associated native grasslands in Sunshine rail reserve area.
- Public Use Zones are located within the Study Area, including:
    - Service and Utility (PUZ1) at various easements, Jones Creek channel, Stony Creek culvert and wetland reserve, Maribyrnong River Trail and the Western Ring Path which are used by recreational pedestrians and cyclists.
    - Education (PUZ2) at Victoria University (Sunshine Campus), Albion Primary School and Aged Care facilities.
    - Cemetery (PUZ5) located south of Calder Freeway, east of Brimbank Park.
    - Local Government (PUZ6) in areas within Albion.
- Special Use Zone (SUZ) includes Dodds Street electrical substation located southeast of Brimbank Park, adjacent the M80, with transmission towers and lines intersecting with the Site and travelling to the north and south.
- Commercial 1 Zone (C1Z) at the auction yards on McIntyre Road, Sunshine.
- Urban Floodway Zone (UFZ) at Anderson Road/Kororoit Creek.

5.3.4.2 Overlays

The area surrounding the Site comprises various planning overlays as shown in Appendix C. The purpose of the relevant overlays in relation to the LVIA are described the following.

- Environmental Significance Overlays (ESO) are identified significant areas and development should be compatible with identified environmental values. The following schedules of the ESO in the Site are:
    - Schedule 3 (Brimbank ESO3) is relevant to Baldwin Ave/Solomon Heights, to the south-west of the Site, with an objective to protect and enhance the indigenous vegetation cover of National, State and Regional significance. General protection of Maribyrnong River including habitat corridors and vegetation.
    - Schedule 5 (Brimbank ESO5) is relevant to the Maribyrnong River and Environs, protecting the ecological values of the river from loss and degradation. The river is recognised as a natural river with a remote and natural non-urban character. The ESO5 identifies several reference documents including, *Maribyrnong River Valley Design Guidelines* (2010) and *Brimbank Green Wedge Management Plan* (2010) which identify characteristics to be preserved and protected for future development.
    - Schedule 6 (Brimbank ESO6) protects sites of known biological significance including rail corridor land adjacent to Matthews Hill Reserve, Sunshine Diuris Triangle and land adjacent to

Steele Creek north. Values of biological significance include Plains Grassland, Escarpment Shrubland, Riparian Complex and Plans Grassy Wetland.

  - Schedule 3 (Moonee Valley ESO3) covers the Upper Maribyrnong River and Maribyrnong River Escarpment, identifying the significance of the corridor habitat and native vegetation.

- Design and Development Overlay - Schedule 1 (DDO1) generally seeks to protect areas along the Maribyrnong River from visual intrusion caused by the inappropriate siting or appearance of buildings and works.
- Incorporated Plan Overlay - Schedule 1 (IPO1) relates to the Lower Maribyrnong River Concept Plan that seeks the following:
  - Co-ordinating development along the Maribyrnong River, its banks and its environs.
  - Preserving the natural beauty and to prevent deterioration of the river and its environs.
  - Improving facilities on the river, its banks and environs to enable the full enjoyment by the public.
- Melbourne Airport Environs Overlay – Schedule 1 (MAEO1) and Schedule 2 (MAEO2) which relate to land use and development to be compatible with the operation of Melbourne Airport, specifically in accordance with the relevant airport master plan and with safe air navigation for aircraft approaching and departing the airfield.
- Heritage Overlay (HO) in planning schemes acknowledge the need to maintain the visual prominence of places protected under a HO. There are a number of heritage places located close to the railway line, particularly those associated with the Sunshine Harvester factory site in Albion (further discussed in Section 6.1.3). A full list of the Heritage Overlays is provided in Appendix D. The HOs relevant to the LVIA include:
  - HO sites close to the railway line:
    - HO28 Albion V.R. DC Substation adjacent Albion Station
    - HO53 HV McKay Memorial Gates outside Barclay Reserve on Talmage St, Albion
    - HO42 Talmage Street Sugar Gum row.
  - Several sites affected by HOs are also protected under the *Heritage Act 2017,* as sites on the Victorian Heritage Register (VHR), which overrides considerations under the planning schemes:
    - HO3 Massey Ferguson Complex offices in Devonshire Road (VHR: H1966)
    - HO4 John Darling and Son Flour Mills adjacent Albion Station (VHR: H0829)
    - HO10 HV McKay Memorial Gardens on Anderson Road, Albion (VHR: H1953)
    - HO5/HO107 Albion Viaduct spanning the Maribyrnong River Valley (VHR: H1197)

The planning overlays which are most relevant to the LVIA are ESOs and HOs. These are further discussed in Section 6.1.2 and 6.1.3.

6. Existing Site Context

6.1 Overview

The Project is located in Melbourne's northwest, 11 kilometres to 15 kilometres from the CBD. The Sunshine Section is within Brimbank City Council and includes the suburbs of Sunshine and Albion. The Corridor Section intersects Brimbank City Council and Moonee Valley City Council, including the suburbs of Sunshine North, Keilor East, Avondale Heights, Airport West and Tullamarine. These areas have a number of land uses, as described in Section 5.3.4.1, with the residential and industrial areas prominent adjacent to the railway line.

Albion and Sunshine are important centres in Melbourne's west for industry and commerce, with many heavy and light industrial companies situated in and around the area. These suburbs also play an important role as a key transport corridor contributing to the Principal Public Transport Network (PPTN), which comprises a mix of rail and bus networks, linking the stations and major interchanges to and around the activity centre, as well as Melbourne CBD and western regions.

The Sunshine-Albion landscape, once a grassland setting, has transformed into an urbanised area with a mixture of traditional suburban built form typologies, and commercial and industrial precincts with further urban densification. It also has a strong industrial heritage character, which is reflected through numerous historical buildings and landscape features throughout the surrounding area.

The ACZ1 applies to areas of Sunshine and Albion surrounding the rail corridor, with the train stations providing public transport hubs, near to retail precincts to the east of the railway line. There are a few public parks that have an attractive setting, despite also having views of the railway corridor.

The Maribyrnong River Valley and surrounding landscape has transformed over time from being surrounded by grasslands, to being near traditional suburban built form typologies, industrial precincts and crossed by roads and rail.

The Maribyrnong River Valley has steep escarpments to the east and west sides, and the Maribyrnong River flowing south at the valley floor. The valley is a natural setting with large areas covered in native vegetation. There is a high percentage of native vegetation with some areas of good quality indigenous Floodplain Riparian Woodland and Escarpment Shrubland, mostly on the east escarpments. The west escarpments have remnant patches of Plains Grassland species and is criss-crossed by four-wheel vehicle tracks.

6.1.1 Topography, landform and waterways

As illustrated in Appendix C, the topography in the suburbs of Sunshine and Albion are relatively flat, gently descending south to south-easterly from approximately 50 metres Australian Height Datum (AHD) in the north at Sunshine Energy Park to 20 metres AHD at Kororoit Creek.

Road overpasses and underpasses intersecting with the rail corridor provide built variation in an otherwise flat landscape.

The surrounding landscape is dominated by built environment with only a few natural landscape features remaining. The key waterway assets include two relatively large riparian corridors, Kororoit Creek and Maribyrnong River (further east). Stony Creek, to the east of Albion, flows through a concrete channel culvert between Furlong Road to Anderson Road (Figure 6.1). The Upper Stony Creek Transformation Project (Figure 6.2) adjoins Gilmour Road to the north-west and is currently under construction. The project aims to re-naturalise Stony Creek creating waterway, wetland and recreation spaces between the Albion-Jacana Corridor and the M80.

The landform rises from 41m AHD at Stony Creek wetland reserve, to 60m at the top of the west embankment to Maribyrnong River Valley. The elevation at the top of the escarpments along the existing railway line is approximately 50 metres (AHD) and falls to approximately 5-8 metres AHD at the river.

Figure 6.1 View of Stony Creek concrete channel culvert looking south from St Albans Road (image: AJMJV)

Figure 6.2 View of Upper Stony Creek Transformation project looking west from Gilmour Road (image: AJMJV)

The Maribyrnong River Valley has steep escarpments to the east and west sides, and the Maribyrnong River flowing south at the valley floor. The river has a natural form, winding through the valley and around the steeper escarpments, within a well-vegetated valley. Views of the water are not always clear through the vegetation coverage and the narrow width of the river.

The presence of built form is limited within the Maribyrnong River Valley. The EJ Whitten road bridge to the west and the Albion Viaduct within the Site are the only built structures in an otherwise expansive vegetated valley. The open, rolling landscape with the presence of steep escarpments that are set back from the surrounding built form offer extensive views across the valley creating a sense of remoteness as illustrated in Figure 6.3 and Figure 6.4.

The landform continues to rise northeast of the valley up to around 80m AHD at Sharps Road, dipping around Steele Creek. Steele Creek is an approximately 9km long tributary of the Maribyrnong River, flowing under the M80 Western Ring Road and through Tullamarine, Keilor Park, Airport West, West Essendon, reaching the Maribyrnong River at Avondale Heights. The creek environs are largely urbanised, and the original flows and morphology are significantly altered. The corridor features linear recreational trails and usable local open space.

Figure 6.3 Photo showing the steep escarpments to both side of the river valley (Image: AJMJV)

Figure 6.4 Photos showing the built form set back from the top of escarpments (Image: AJMJV)

6.1.2 Ecological Values

Results from the assessment of ecological values within the MAR State Project Land were published in *MAR State Land Terrestrial Ecology Impact Assessment*. The ecological values relevant to this LVIA are native vegetation and any identified key ecological areas, which are identified below and in Table 6.1. The type and presence of vegetation within an area informs part of the landscape character.

Table 6.1 Native Vegetation in the study area

Ecological Vegetation Class (EVC)	Bioregional Conservation Status	Location
EVC 55: Plains Grassy Woodland	Endangered	Occurs in relatively small, degraded fragments across the State Project Land. Includes some areas of revegetation.
EVC 56: Floodplain Riparian Woodland	Endangered	Present along the alluvial terraces of the Maribyrnong River.
EVC 125: Plains Grassy Wetland	Endangered	Two small patches in a disturbed drainage line along Gilmour Road, Sunshine North within the rail corridor.
EVC 132_61: Plains Grassland	Endangered	Patches in the Sunshine Railway Line Linear Reserve and Matthews Hill Reserve along the railway line. Adjacent in the Sunshine Diuris Triangle. Multiple small patches within the rail corridor: along Gilmour Road, Sunshine North; Mansfield Avenue, Sunshine North; Cromer Avenue, Sunshine North; and Elwood Avenue, Sunshine North in Solomon Heights Industrial Area. Patch in the Maribyrnong River Valley within the rail corridor and patches in the Maribyrnong River Valley. Patches along Steele Creek North and in the surrounds along the Western Ring Road Path and Beverage Drive.
EVC 821: Tall Marsh	Endangered	Patches adjacent to the Sunshine Diuris Triangle along the railway line. Patch on the north escarpment in the Maribyrnong River Valley. Patch to the east of the Western Ring Road, along Steele Creek in Airport West and Moonee Ponds Creek.
EVC 851: Stream Bank Shrubland	Endangered	Patch along Steele Creek North and in between the Western Ring Road and the railway line.
EVC 895: Escarpment Shrubland	Endangered	Present on both sides of the Maribyrnong River escarpment in the Maribyrnong River Valley.

In addition to the above, there are a number of key ecological areas within the Site, many of which have State threatened values (i.e. flora and fauna) listed under the *Flora and Fauna Guarantee Act 1988* (FFG Act) and also National threatened ecological species and communities listed the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The key ecological areas relevant to this assessment are identified as follows:

- Sunshine Railway Linear Reserve
- Matthews Hill Reserve (Figure 6.5)
- Sunshine Diuris Triangle
- St Albans Biosite
- Rail corridor adjacent to Sunshine Energy Park
- Maribyrnong River Valley

- Solomon Heights and adjoining rail corridor
- Steele Creek and Steele Creek North.

With a long history of industrial activity and expansion with accompanying landscape modification in this area, there has been intensive disturbance to vegetation, particularly along Stony Creek and the Maribyrnong River to the east of the Project as seen in Appendix C.

There are some naturalised and remnant patches of native vegetation along the rail corridor. Within the Sunshine rail corridor to the north of Ballarat Road adjacent to the Sunshine Energy Park, there is an area of Plains Grassland, including patches of EPBC Act listed Natural Temperate Grasslands of the Victorian Volcanic Plain.

Surrounding streetscapes and public car parks generally contain plantings of canopy trees, while several parks, including HV McKay Memorial Gardens and MB Lynch Gardens, contain several predominately exotic overstorey species.

Talmage Street, Albion which adjoins the western boundary of the Site comprises large Sugar Gums which are heritage protected (Figure 6.6).

The Maribyrnong River Valley and escarpments are a Site of Biological Significance (SOBS), with identified areas under ESO3 and ESO5. It is a well vegetated area, with a number of EVCs occurring within the Upper Maribyrnong River valley, including Floodplain Riparian Woodland and Escarpment Shrubland (Figure 6.7).

Baldwin Ave/Solomon Heights, to the west of the Site contains remnant patches of Plain Grassland, including patches of EPBC Act listed Natural Temperate Grasslands of the Victorian Volcanic Plains.

Steele Creek Tributary Reserve (Figure 6.8) is partially protected by an ESO6 due to its environmental values. The creek corridor provides habitat for several EPBC Act listed species, including the Growling Grass Frog, as well as some other native and common birds, reptiles and amphibian species.

Figure 6.5 Grassland adjacent Matthew Hill Reserve (image: AJMJV)

Figure 6.6 View of Sugar Gums on Talmage Street looking northwest (image: AJMJV)

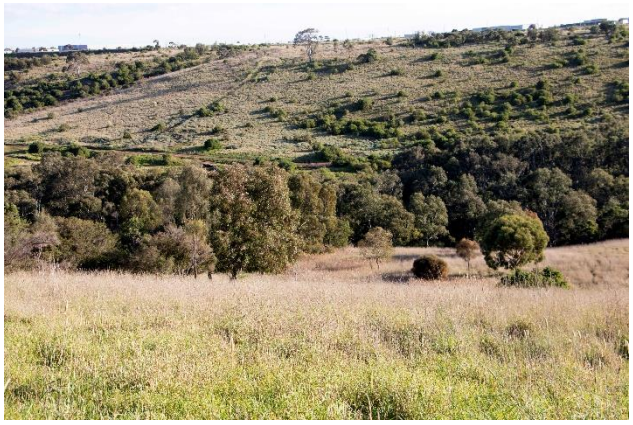

Figure 6.7 River Valley Vegetation (Image: AJMJV)

Figure 6.8 Steele Creek Tributary Reserve (Image: AJMJV)

6.1.3 Heritage

6.1.3.1 Cultural Heritage

The State Project Land is within the boundaries of two appointed Registered Aboriginal Parties (RAP):

- Wurundjeri Woi-wurrung Cultural Heritage Aboriginal Corporation (Wurundjeri) is the RAP for the State Project Land from West of Footscray Station to East of Geelong Road, Seddon and West of Stony Creek South to South of Sharps Road, Tullamarine.
- Bunurong Land Council Aboriginal Corporation (BLCAC) is the RAP for the State Project Land East of Stony Creek South to West of Geelong Road, Seddon.

Sections of the State Project Land are located within areas of Cultural Heritage Sensitivity (CHS). Notably, these areas are located within 200m of rivers and creeks such as Maribyrnong River, Steele Creek and Stony Creek (Appendix C). Areas of CHS are also located on land within 50m of registered cultural heritage places.

The key areas of CHS within the State Project Land are the following:

- Maribyrnong River Valley – Several reports prepared within the RAP area, highlight the high archaeological sensitivity of the land surrounding the Maribyrnong River. There are several scattered artefacts throughout this location. Additionally, low density artefact distributions have been recorded in this location. One Aboriginal place – River Valley Terrace 1 (Maribyrnong) (VHR 7822-4014) – has been assessed as having high scientific and cultural significance. The Aboriginal place consists of an artefact scatter located on the Maribyrnong River terrace adjacent to the existing Rail Bridge (Albion Viaduct). Cultural deposits are very likely to extend further north within the State Project Land, along the terraces associated with the Maribyrnong River.
- Steele Creek – Assessments of Steele Creek have revealed significant quarries feature in the upper reaches of Steele Creek and scattered artefacts have also been recorded. Several reports prepared within the RAP area, highlight the high archaeological sensitivity of the land surrounding Steele Creek. This is confirmed with the quantity of Aboriginal places currently recorded around these waterways.

Overall, the above areas are the most archaeologically sensitive and are considered relevant to this assessment.

6.1.3.2 Historical heritage

The *Heritage Act 2017* (Heritage Act) provides protection and conservation of places and objects of cultural heritage significance. It establishes two registers, the Victorian Heritage Register (VHR) and the Victorian Heritage Inventory (VHI).

There are five VHR listed places located within State Project Land and within the Study Area. These are relatively near to the railway line and Project works. Three of these places are located in Sunshine and are related to HV McKay; these include the remnants of the Sunshine Harvester factory site (known as the Massey Ferguson Complex, VHR H0667), the HV McKay Memorial Gardens (VHR H1953) cross the railway line to the west of the factory and the company's 1909 offices in Devonshire Road (H1966).

Only remnants of the extensive original manufacturing complex of the Massey Ferguson Complex are present as it was largely cleared in the late 1980s and 1990s and the site was redeveloped. Surviving structures and buildings here include a pair of relocated c. 1922 gates (Figure 6.9) and a clock tower surviving from the 1956 administration building. There is also a substantial brick store located on the broader site. The surviving elements have a heritage value as related to their historical associations with the Sunshine Harvester manufacturing operation.

The HV McKay Memorial Gardens (Figure 6.10) are protected under the VHR for their state historical, social and aesthetic (landscape) significance. The Gardens are a cohesive and intact heritage place with a retainment of the original layout and landscape character since they were established in 1909.

The 1909 HV McKay Offices building is located on the south side of Devonshire Road. It is of state historical and architectural significance, which largely relates to its direct association with HV McKay and the Sunshine Harvester Works.

The VHR-registered place in Albion is the John Darling and Son Flour Mill (VHR H0829) (Figure 6.11). It is a place of state historical and architectural significance. Particularly, it is protected for its distinctive T-shaped form and architectural treatment, which is considered unusually elaborate and picturesque for a mill building. As mentioned in Table 5.5.1, view corridors from Ballarat Road to the VHR John Darling and Son Flour Mill, which is of State architectural/aesthetic and historical significance, are to be preserved under the Brimbank City Council Planning Scheme objectives.

North of the above VHR-registered places is the Albion Viaduct (also known as Maribyrnong River viaduct and Quarter Mile Bridge) (Figure 6.12). It is a state significant heritage site (VHR H1197). The rail bridge spans 383 metres in length across the gully, supported by 12 steel girders between abutments, up to 54 metres above the valley floor. Aesthetically, the bridge is an iconic presence in the Maribyrnong River valley and is a landmark in the local area. The bridge is visible from numerous viewpoints in the surrounding area. Long distance views to the bridge are possible from most directions, including from the Western Ring Road which is located approximately 450m to the west of the bridge. A lookout is located to the east, accessed from Sterling Drive. Heritage considerations and design guidelines have been outlined in the 'Maribyrnong River Bridge – Heritage Design Guidelines'[4].

There are two Victorian Heritage Inventory (VHI) places included in State Project Land, including Dodds Homestead Ruins/Brimbank Park Ruins (H782-004/H047). The Former Tottenham Station (H7822-0842), is within State Project Land but not included in the Study Area.

In the area northeast of the Site and north of the M80 Western Ring Road within Brimbank Park, the Dodd Homestead Ruins or Brimbank Park Ruins (H7822-0004/HO47 Brimbank) lie. The Dodd Homestead Ruins comprises a group of features related to the farming use of the land established by the Dodd and Delahey families in the 1840s. The site is of archaeological significance and is generally in a ruinous state

Furthermore, a HO28 under the Brimbank Planning applies to the Albion VC DC Substation. Albion V.R. DC Substation is only protected locally, although the *MAR Historic Heritage Impact Assessment* found that it had heritage significance in a Melbourne metropolitan context as evidence of the first phase of electrification of the metropolitan railway system.

[4] Maribyrnong River Rail Bridge – Heritage Design Guidelines, September 2020, Lovell Chen for AJMJV

Figure 6.9 HV McKay Memorial Gates - HO53 (image: AJMJV)

Figure 6.10 Path within HV McKay Memorial Gardens - HO10 (image: AJMJV)

Figure 6.11 John Darling and Sons Flour Mill - H0829 (image: AJMJV)

Figure 6.12 Albion Viaduct – HO5/HO107 (image: AJMJV)

6.1.4 Residential

Within the Sunshine Section, to the west of the Site, the land use is predominately residential. The HV McKay Sunshine Harvester Works which opened in 1905, was one of the largest employers of the area and provided housing for its staff on privately bought land. These housing estates were developed with reference to ideals of the 'Garden City' urban planning movement. As seen in Figure 6.13 and Figure 6.14, the existing residential typology in this western area is made up of low density single storey character homes with weatherboard cladding and tin roofing. North and south of the Site around Gilmour Road and Riley Street respectively, the housing estates are also predominately single storey, typically constructed from brick and tiled roofs.

Figure 6.13 Housing style on the corner of Sydney and Drummartin Streets (image: AJMJV)

Figure 6.14 Housing style on the corner of Sydney Street and King Edward Avenue (image: AJMJV)

Keilor East and Avondale Heights to the north of the Site is typical of the 'Garden Suburb' character style. Its significance lies in the large number of pocket parks and distinctive street layout designed in a curvilinear way typical of the suburban subdivision pattern created by Walter Burley Griffin and Marion Mahony Griffin in the 1920s.

As seen in Figure 6.15 the existing residential typology in this area is made up of low density single or double storey character homes. Houses have an outlook to the street frontage, with tall timber paling fences typically at sides and backs of houses. The houses located adjacent the Maribyrnong River Valley and the railway line, typically have timber paling fences inhibiting outward looking views. Within Airport West, there are larger houses with established gardens (Figure 6.16).The ages of housing ranges from the 1960s to within the last ten years. Housing material is a mix of brick with tiled roofing in older houses, and brick and renders with tiles or metal roofing. There are few streets trees within the area and most of the houses have a small garden area.

Figure 6.15 View Along Sterling Crescent, Keilor East, East of the Site (Image: Google Street View)

Figure 6.16 View along Moorna Drive in Airport West, east of the Site (Image: Google Street View)

6.1.5 Public Parks and Recreation

There are numerous public parks and recreational open spaces that adjoin or are in the State Project Land.

The VHR listed HV McKay Memorial Gardens lie to the south of the Site adjoining the southwest boundary. These gardens predominately comprise exotic storeys and formalised layouts which wrap around the Sunshine Presbyterian Church (HO54) as seen in Figure 6.17. Within the southwestern corner of the HV McKay Memorial Gardens, a pedestrian overpass with lifts, connects the east-west precincts over the rail corridor. To the west of the Site at Albion lies Barclay Reserve that intersects with Talmage Street and King Edward Avenue and is home to Sunshine Eagles Baseball Club (Figure 6.18).

The Sunshine Energy Park lies to the north-west of the Site. This former quarry that was later converted to a landfill, is undergoing rehabilitation and is earmarked to become a significant recreational asset for the area.

There are a number of connecting shared use paths (SUPs) within the Project area. These include:

- Sunshine trail traverses the eastern side of the railway from at Sunshine Station, continuing further southeast to Footscray and into Docklands. The SUP crosses from east to west of the railway at Anderson Road, connecting HV McKay Memorial Gardens and Barclay Reserve.
- Western Ring Road Trail (Figure 6.19) runs approximately 43 kilometres following the M80 from the eastern Section at Diamond Creek Road, connecting at the west end to Kororoit Creek Trail which travels south to Altona and Port Phillip Bay. The paved trail is surrounded by infrastructure with the M80 and high voltage towers, occasionally connecting with or traversing parklands.
- Maribyrnong River Trail (Figure 6.20) is a recreational shared use path, which runs approximately 25 km alongside the river from Brimbank Park, north of the M80 through to Footscray Road. The trail, situated on the northeast side of the river, has a sense of remoteness, with native trees and shrubs screening views to the surrounding valley and parklands.

The Maribyrnong Valley Parklands, including Brimbank Park (Figure 6.21), adjoins the surrounding landscape to the Project area. The aesthetic quality of waterways along with their abundance of flora and fauna, make these areas valued landscapes for recreation and for conservation of native flora and fauna. Brimbank Park is a large nature reserve with trails, open grassed areas, playgrounds and many groups of mature native trees. To the top of the Maribyrnong River Valley there are some smaller residential reserves with expansive views across the valley (Figure 6.22).

Within the residential areas there are small reserves and playgrounds. There is a pattern within Keilor East for reserves to be surrounded by the high timber paling fences of houses, with narrow entries providing a sense of isolation such as in Moyangul Reserve in Figure 6.23.

Border Reserve (Figure 6.24) adjacent the railway line at Keilor Park Drive, is a sports reserve and playground. There is a mix of native trees to its perimeter with a stand of Palm trees along Keilor Park Drive.

Figure 6.17 Sunshine Presbyterian Church within HV McKay Memorial Gardens (image: AJMJV)

Figure 6.18 Barclay Reserve from Talmage St, Albion (image: AJMJV)

Figure 6.19 Western Ring Road Trail, south of Steele Creek at the end of Terror St (image: AJMJV)

Figure 6.20 Maribyrnong River Trail near Albion Viaduct (image: AJMJV)

Figure 6.21 Brimbank Park – north of the EJ Whitten Bridge (Image: Western Melbourne Tourism) (image: AJMJV)

Figure 6.22 Residential reserve atop Maribyrnong River Valley (image: AJMJV)

Figure 6.23 Reserve on Moyangul Drive, Keilor East (image: AJMJV)

Figure 6.24 View of Border Drive Reserve, Keilor East (image: AJMJV)

6.1.6 Education

Victoria University has a Sunshine campus located on Ballarat Road, east of the railway corridor. Other education facilities within the surrounding area include Albion and Saint Theresa's primary schools, located to the west of Albion Station, Sunshine Primary School to the west of Sunshine Station and a Catholic private school on Station road to the east of Sunshine Station. To the east of the Site on Fullarton Road is Niddrie Primary School and Essendon Keilor College.

6.1.7 Commercial

Large commercial buildings are located predominately to the east of the railway corridor within Sunshine, dominated by the Sunshine Marketplace precinct with a small section to the west that encompasses the John Darling & Son Flour Mill site. Bulky good stores such as Bunnings and Harvey Norman are located along Ballarat Road (Figure 6.25 and Figure 6.26).

Figure 6.25 View of bulky goods stores along McIntyre Road (image: AJMJV)

Figure 6.26 View of bulky good stores facing Ballarat Road (image: AJMJV)

6.1.8 Industrial

Large parcels of industrial use activities are located north of the Site along Ballarat Road, St Albans Road and Gilmour Road. As seen in Figure 6.27 and Figure 6.28, large warehouses, open storage yards and associated expansive car parking areas are dominate elements in the landscape.

An industrial estate is located at Sunshine North, to either side of the Site (Figure 6.29 and Figure 6.30). This area contains business units, depots and service centres, within a relatively uniformed character of large warehousing sheds, some with office frontages. This typology continues to the west to of the railway corridor up to Sharps Road and Airport Drive.

Figure 6.27 View of industrial activities west of rail corridor from St Albans Road SUP (image: AJMJV)

Figure 6.28 View of industrial facility east of rail corridor at Gilmour Road (image: AJMJV)

Figure 6.29 View of Bunnett Street, south of Maribyrnong River Valley (image: AJMJV)

Figure 6.30 View at Ralston St within the Sunshine North industrial estate (image: AJMJV)

6.1.9 Roads

Numerous roads intersect with the Study Area with arterial roads crossing over the railway line at Hampshire, Anderson, Ballarat and St Albans roads within the SUN Section, also McIntyre Road, Keilor Park Drive, Calder Freeway and Fullarton Road within the COR Section.

North of Sunshine Station, Hampshire Road overpass has two lanes in each direction from the west which divide into two separate ramps over the railway corridor. There is a pedestrian walkway to the station underneath the bridge (Figure 6.32). Further north, Anderson Road is the only rail underpass within the Study Area, with a rail bridge and SUP (Figure 6.31).

Ballarat Road is a major urban arterial road consisting up to six lanes wide at its widest point, with service lanes either side (at Anderson Road intersection) and connects from the Western Highway through to Flemington. The elevated carriageway of Ballarat Road comprising four lanes and slip lanes (Figure 6.33), cuts through the Study Area north of Albion Station and is a dominant element in the landscape surrounding the station precinct.

St Albans Road provides access to the station off Anderson Road to the east and meanders its way under Ballarat Road, with an overpass over the rail corridor just south of Gilmour Road (Figure 6.34).

There are a few local streets that align parallel with the railway corridor including Harvester Road. Talmage Street and Gilmour Road (SUN Section), plus Mansfield Ave, Sterling Drive and Slater Parade (COR Section). Many other local streets terminate adjacent to the railway corridor, providing narrowed views of the railway.

The Western Ring Road (M80) lies to the north of the Project area, with EJ Whitten Bridge crossing the Maribyrnong River Valley (Figure 6.35). The bridge has five lanes in each direction, a traffic barrier to the centre with light poles, safety barriers and screens to the edges. The concrete piers of the portal structure are approximately 50 metres at the highest point above the valley floor. The M80 is an orbital freeway connecting the western and northern suburbs with the M1 Princes Freeway, M79 Calder Freeway, M2 Tullamarine Freeway and Greensborough Bypass.

Keilor Park Drive (KPD) crosses the M80 a short distance north of the Project area, with two bridges rising to cross the M80 and the railway corridor. The landform between the M80 and the rail corridor rises to the level of KPD bridges, contouring down around freeway ramps, with steeper embankments and retaining walls along the railway. There are high voltage towers and wires in this area and few trees, allowing views out from KPD for motorists and for users for the SUP located to the north side of the bridge.

There is a large highway interchange where the Calder Freeway and Fullarton Road bridges cross over the M80 and railway corridor (Figure 6.36). There are five bridge structures at this location over the railway. The landscape surrounding the interchange is dominated by high voltage towers and landform between the road bridges and ramps, with retaining wall to either side of the railway. There is a SUP located to the north side of Fullarton Road bridge.

Figure 6.31 Anderson Road rail underpass and SUP (image: AJMJV)

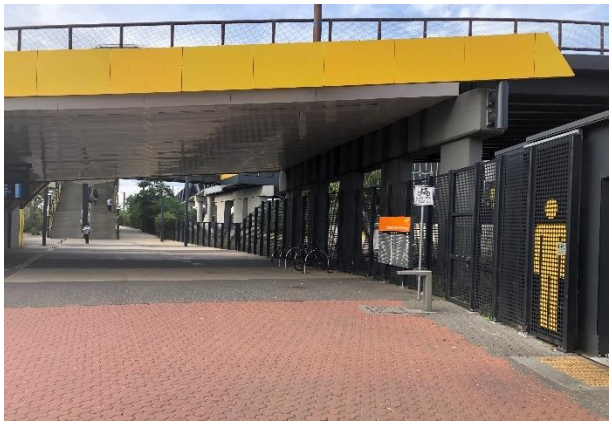

Figure 6.32 Hampshire Road rail overpass near Sunshine Station (image: AJMJV)

Figure 6.33 View of Ballarat Road from intersection of Anderson and McIntyre roads looking west (image: AJMJV)

Figure 6.34 View from St Albans Road pedestrian path looking south towards the road over rail bridge (image: AJMJV)

Figure 6.35 EJ Whitten Bridge Traffic on Road North of the Site (image: AJMJV)

Figure 6.36 View of M80 freeway from Fullarton Road overpass (image: AJMJV)

6.2 The Project Site

The Project Site (the Site) is situated predominately within a rail corridor, with some adjacent areas acquired for key Project elements as described in Section 7.1. During the construction phase there are some adjacent open space areas utilised temporarily for construction worksites and specific roads allocated for construction traffic. The MAR State Project Land is indicated in Figure 3.1.

The rail corridor is a highly modified area comprising a level area with rail tracks surrounded by ballast, overhead wire gantries and signals. Grassed embankments and mesh safety fencing are typically situated parallel to the corridor (Figure 6.39).

The rail crosses several waterways within the Site including Stony Creek (channel), the Maribyrnong River and Steele Creek. There are ESOs located within Maribyrnong River Valley and Steele Creek areas. The VHR listed Albion Viaduct over the Maribyrnong River (Figure 6.40) is located parallel to the Site.

Rail infrastructure crosses over existing roads at Anderson Road, Ballarat Road, St Albans Road near Stony Creek (Figure 6.38) and is proposed over M80 Western Ring Road. MAR rail infrastructure crosses under McIntyre Road, Keilor Park Drive, Calder Freeway and Fullarton Road. There are associated retaining walls and bridge structures at road and river crossings.

Existing pedestrian rail overpasses are located at HV McKay Memorial Gardens (Figure 6.37), a level pedestrian crossing at Drake Street in Sunshine, and underpasses at Barwon Ave in Sunshine and at Albion Station.

Built form surrounds the Site including residential, industrial and activity centres. Sensitive sites include heritage listed HV McKay Memorial Gardens, John Darling & Son Flour Mill, both associated with the Sunshine Harvester works.

Figure 6.37 Rail corridor from pedestrian overpass at HV McKay Memorial Gardens (image: AJMJV)

Figure 6.38 Albion-Jacana rail corridor view from St Albans Road rail overpass (image: AJMJV)

Figure 6.39 Albion-Jacana rail corridor view from Fullarton Road SUP (image: AJMJV)

Figure 6.40 Albion Viaduct over Maribyrnong River Valley (image: AJMJV)

6.3 Landscape Character Types

The Landscape Character Types (LCT) of the area and their sensitivity relative to their capacity to absorb change have been identified and described in the following Section. Generally, the greater the extent of human modifications the lesser its sensitivity to change.

The landscape character of the area has been assessed through a process of desktop studies including the land use zones identified in Section 5, the Site context appraisal in Section 6 and analysis of site images. Eight existing landscape types have been identified within the Study Area which are defined in Table 6.2 and shown in Figure 6.41 and Figure 6.42.

Table 6.2 Landscape types

Landscape type	Description
LCT 1: Industrial	Industrial complexes are a common presence along the MAR corridor, with the railway contributing to the establishment of some of these areas. Industrial activity includes depots for distributors, automotive and mechanical works; within large storage yards with sheds up to four storeys in height. These are highly modified landscapes with little to no natural characteristics. Creeks that flow through some of the areas are predominantly within channels, taking limited space that provides negligible influence on the character. Buildings are typically of little aesthetic value, including large sheds and factories made from building materials ranging from corrugated steel and concrete, with mid-century buildings having a higher use of brick.

Landscape type	Description
	Medium industrial activity includes depots for distributors, automotive and mechanical works; within large storage yards with sheds up to four storeys in height. These areas are frequented within standard working hours, by workers or visitors seeking goods or services. Heavy industrial use to the north of the M80 includes the Kealba landfill and Caltex service station. The large transmission towers running parallel of the M80 towards the Dodds Street substation, contribute to the industrial character due their scale and clearance of trees and structures around them. Impacts which may occur as result of the Project are indirect to this LCT, except for the construction worksites and substation proposed in industrial areas.
LCT 2: Residential	Residential areas have a perception of value for those people who live there and are more sensitive to their surroundings. Within these residential suburbs of Sunshine, Sunshine North, Albion and Keilor East, there are occasional local neighbourhood parks which consist of larger trees, grassed areas and playgrounds. Within the SUN Section Study Area there is generally a homogenous style of residential suburban development within gridded streets. Dwellings are typically one to two stories in height and setback from the road, with low fencing to the fronts and high fencing to the sides and back. The streetscapes are complimented with grassed nature strips and occasional trees. A heritage overlay applies to McKay Housing Estate (HO24), the Services Homes Estate (HO26) and 22-24 Talmage Street house and trees (HO77) which are post-war housing associated with the former Sunshine Harvester/ Massey Ferguson factory. The native street trees within Talmage Street are also heritage protected (HO42). Within Keilor East and Airport West, part of the COR Section Study Area, there is generally a homogenous style of residential suburban development within curvilinear streets and cul-de-sacs. Dwellings are typically one to two stories in height and setback from the road, with low fencing to the fronts and high fencing to the sides and back. Dwellings typically face onto the street and do not overlook the adjacent LCTs. The streetscapes are complimented with grassed nature strips and occasional trees. The presence of built form (houses and roads) are more prevalent than natural features. Impacts which may occur as result of the Project are typically indirect to this LCT, except for those residences where a noise wall is proposed to their boundary.
LCT 3: Commercial	The commercial areas are based on the mapped activity zones, centred to the east of the railway corridor. The Sunshine Marketplace is dominated by car parking at Harvester Road. Most buildings are up to two storeys in height and there are a few newer commercial/ office high-rises (up to 10-storeys) within Sunshine to the east of the rail corridor. The multi-culturalism of these suburbs is presented through the types of restaurants available and shop signage in multiple languages. This is particularly within the shopping strips along Ballarat and Hampshire roads. The street refurbishment of Hampshire Road in Sunshine has provided areas for outdoor seating and landscaping, allowing patrons to linger within the alfresco streetscape. There are several sites that have heritage overlays that are also VHR sites within the activity zone. This includes the Sunshine Market (HO91) and commercial precinct, Former Massey Ferguson Complex (H03) and John Darling and Son Flour Mills (H04). These sites provide a layer of history connecting to the industrialisation, with unique architecture. Sunshine has a rich industrial heritage character, which is reflected through numerous historical buildings developed and influenced by the Sunshine Harvester Works. Within the COR Section Study Area there are no Activity Centre Zones. There is only a commercial zone at Westfield Drive in Airport West, comprising shopping centre and a large car park surrounding by roads and rail infrastructure. Direct impacts will occur within Albion Station precinct, where revitalisation to the east forecourt at the base of the John Darling & Sons Flour Mill is proposed. Elsewhere within the Project, impacts are considered indirect to this LCT.
LCT 4: Waterway reserves	The aesthetic quality of waterways along with their abundance of flora and fauna, make these areas valued landscapes. The reserves are popular for recreation with shared use paths along Kororoit Creek, Maribyrnong River, Moonee Ponds Creek and much of Steele Creek. These paths connect larger reserves and suburbs. The Maribyrnong River and Moonee Ponds Creek have deep V-shaped valleys within the Study Area, providing wider reserve areas and vast valley views. The waterways within the study area are winding creeks and rivers, except for concrete channelled Section in Stony and Steele Creeks. The Upper Stoney Creek naturalisation project is currently in development and is designed to be a public open space including wetlands and increased vegetation. The creek within this site was previously within a concrete channel. The site is triangular in shape, located on Gilmour Road, surrounded by Albion-Jacana rail corridor (LCT 8), industrial complexes (LCT 1) on St Albans Road and Sunshine North residential area (LCT 2). Impacts which may occur as result of the Project are direct to this LCT, within the Maribyrnong River Valley and Steele Creek Tributary Reserve.

Landscape type	Description
LCT 5: Recreation parks	The parks provide mainly local visitors with outdoor amenities for play, sports or for passive recreation. Each park has its own unique design and the below description highlights similarities about the parks and reserves. • Garden parks are designed parks that showcase exotic and native planted species. HV McKay Memorial Gardens has a heritage overlay applied to it (HO10) and is associated with the former Sunshine Harvester/ Massey Ferguson factory. • Neighbourhood parks generally have a playground, picnic benches, canopy trees and garden beds. Occasionally these comprise just open grassed areas. These are often located on street corners, sometimes with mature native trees. Within the Study Area these include Matthew Hill Reserve, 1A Talmage St and Moyangul Reserve. • Sports reserves are larger grassed ovals with perimeter paths, lighting and fencing. These are typically used by local sports groups and individuals. Within the Study Area are Barclay Reserve and Border Reserve. Direct impacts as a result of the Project are anticipated at HV McKay Memorial Gardens, Barclay Reserve, 1A Talmage St and Border Reserve.
LCT 6: Grasslands	Brimbank, Mooney Valley and Hume lies within the Bioregion of the Victorian Volcanic Plains (VVP). Natural Temperate Grasslands and Grassy Eucalypt Woodlands used to be widespread across the Victorian Volcanic Plain, in the state's south west, which today are listed as critically endangered under the Environmental Protection Biodiversity Conservation Act (1999). Few patches remain due to pasturalisation and urban development. There are several conservation reserves within the study area which contain higher densities of grassland species. Some of these areas are contained within the rail reserve where the lack of access has limited their disturbance and assisted in their conservation. The spaces characterised within this study as 'grasslands' typically have a sense of openness or vastness, on flat or slightly undulating topography and either trees or buildings framing their perimeter. Impacts which may occur as result of the Project are indirect to this LCT.
LCT 7: Airport environs	This vast area is highly modified, contrasting from the area north and west of the airport runway, which is more natural containing grasslands and scattered native trees. There are no distinguishing features that are unique to its location, with built form prominent over natural features. Typical elements within the LCT include: • Multiple runways, large planes and large terminal buildings forming the airport. With supporting areas including: • Industrial buildings to the south leading from the city to the airport. • Large areas for passenger car parking and freight movement. • Wide, multi-laned roads/boulevards leading to the airport, with many directional signs hanging on gantries. Impacts which may occur as result of the Project on State land are indirect to this LCT and will be covered in a separate LVIA report for Commonwealth land.
LCT 8: Railway infrastructure	The railway line within the study area contains between three to five tracks within a wide corridor, with high mesh fencing to either side. The tracks are used for freight and passenger trains. The tracks are typically level to its surrounds with little to no natural elements with the exception of grassed or weedy edges. The corridor contains ballasted tracks, overhead gantries at regular intervals and signals. There are a few buildings associated with the railway including: • Station buildings and platforms • Pedestrian overpass bridges or underpass tunnels • Signalling buildings and substations. Structures of higher sensitivity due to the heritage significance and aesthetic design include: • Albion Viaduct (VHR H1197), built in 1927 • Rail embankment (HO37). Impacts which may occur as result of the Project are direct to this LCT.

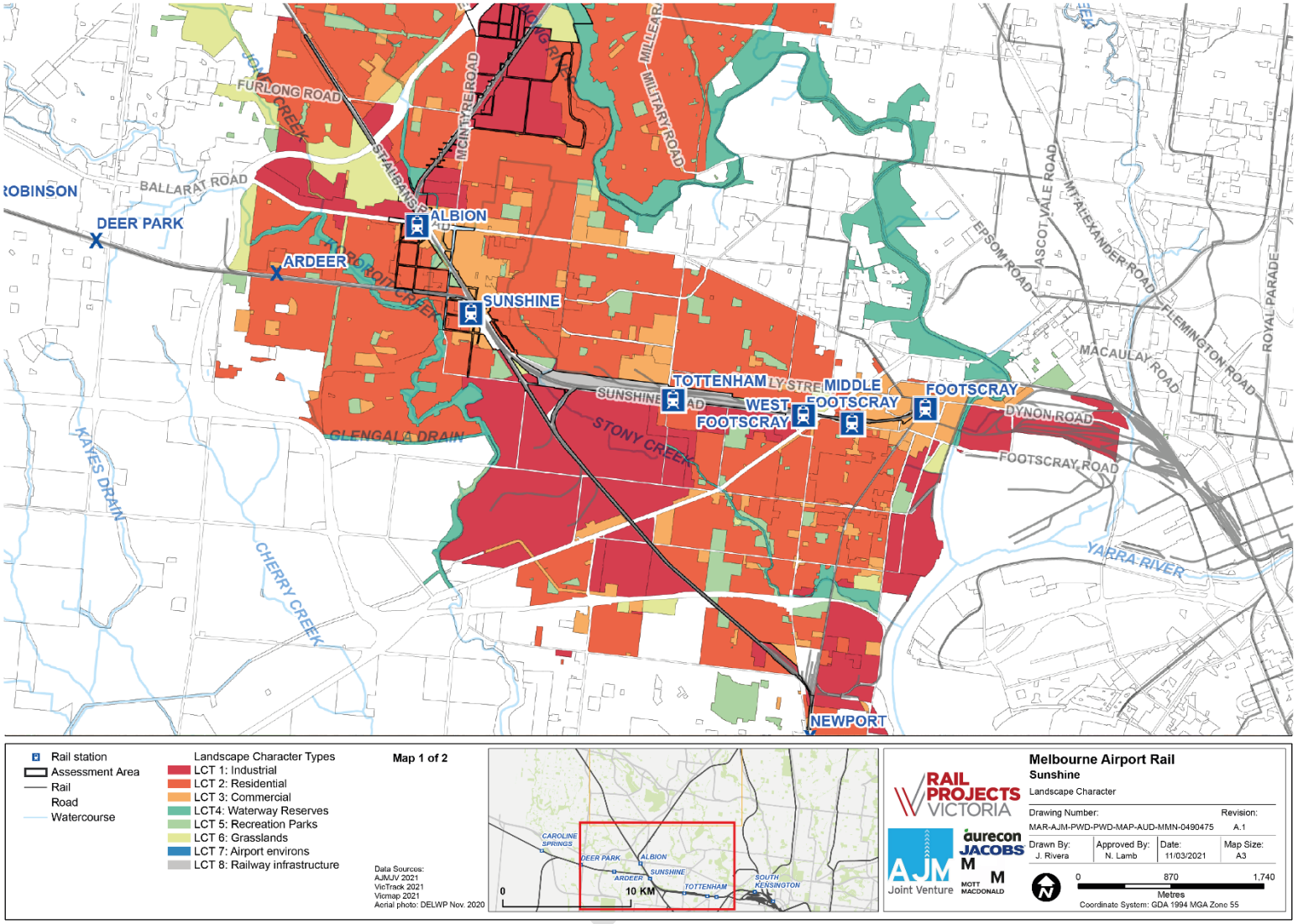

Figure 6.41 Landscape Character Type plan (1 of 2)

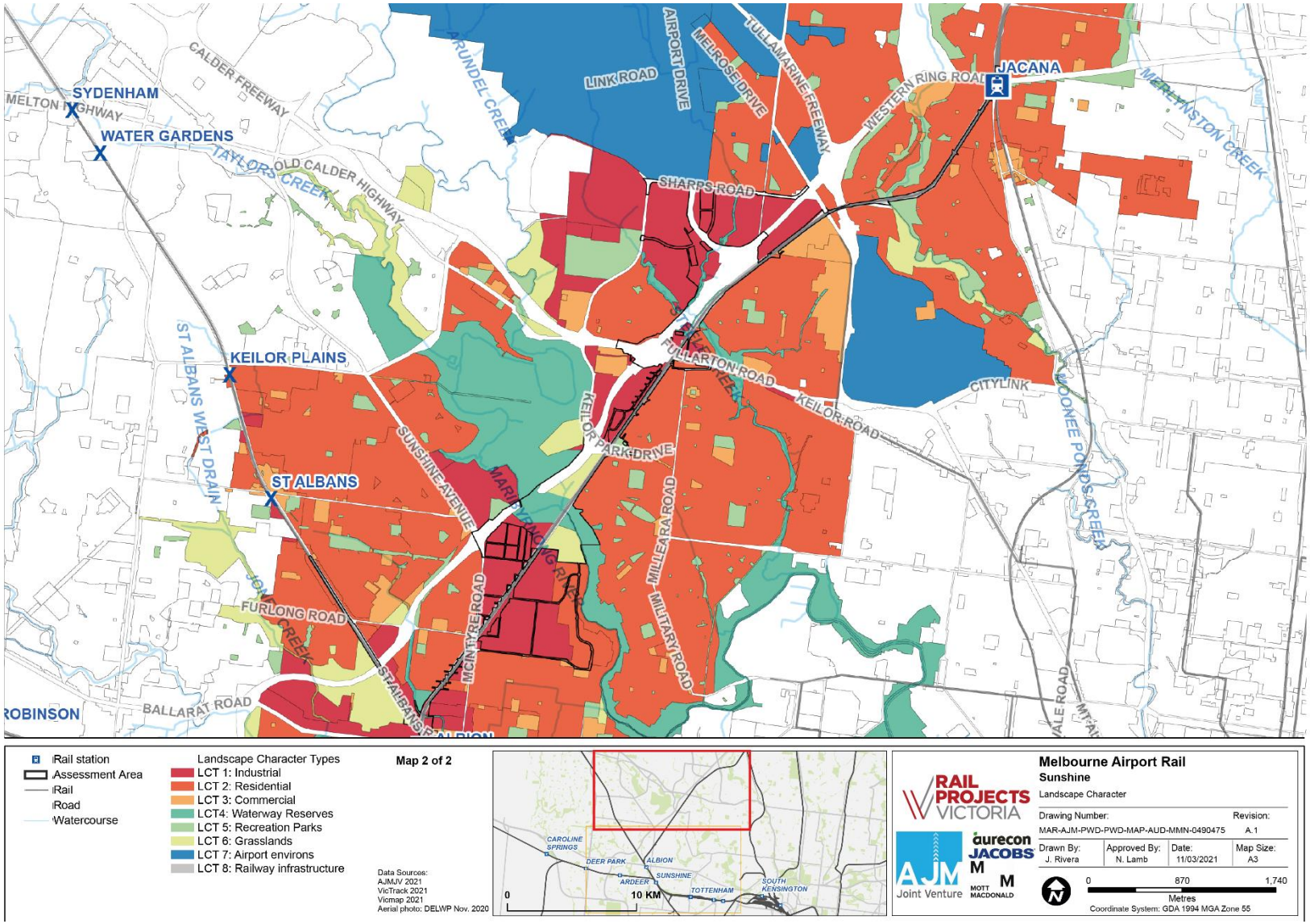

Figure 6.42 Landscape Character Type plan (2 of 2)

6.4 Absorptive capability of the landscape character types

The ability of the landscape types to absorb change has been assessed and is outlined in Table 6.3 below.

Table 6.3 Landscape Types absorptive capability

Landscape Type	Ability to absorb change	Comments
LCT 1: Industrial	High	The scale and extent of these complexes are prominent within the Study Area are highly modified landscapes and provide significant capacity to absorb further change.
LCT 2: Residential	Very Low	Changes that are immediately adjacent to a viewer's residence are always critically reviewed. As such, it is always assumed that the viewer is highly sensitive to changes in their immediate surroundings.
LCT 3: Commercial	Moderate	Within the commercial spaces there are an abundance of built-form and streetscape elements. Many areas are dominated by large carparks surrounding a shopping centre. There are a few areas in Sunshine and Albion with their own sense of place created within the shopping and café areas.
LCT 4: Waterway reserves	Low	Within the Study Area, this LCT varies in the ability to absorb change based on the whether the setting is influenced by infrastructure, such as highways and industrial areas, or has a sense of naturalness. These spaces are valued for their vegetation and waterways; thus, there is a low ability to absorb change.
LCT 5: Recreation parks	Very Low	These landscapes are obviously designed, containing areas of vegetation, paths, and recreational uses. They are valued for their public amenity and aesthetics. Therefore, these spaces have a very low ability to absorb change.
LCT 6: Grasslands	Low	The viewer within local reserves is moderately sensitive to changes in their immediate surroundings. There are some areas of endangered flora and fauna, which are already vulnerable, and are highly sensitive to any development. These spaces are valued for their native grasses and open spaces; thus, they have a low ability to absorb change.
LCT 7: Airport environs	Moderate	The Airport environs is a built-up landscape interspersed with various buildings, roads and some canopy trees. The viewer is not overly sensitive to changes in their immediate surroundings; however, there is some sense of place.
LCT 8: Railway infrastructure	High	The LCT is highly modified and provides significant capacity to absorb further change.