



Development Plan Report

Carlingford & Mosaic Living



Amendment C71 to the Whittlesea Planning Scheme

A Development Plan for an Integrated Community

May 2008

Prepared by Coomes Consulting Group on behalf of
Abah Group Pty Ltd and Cedar Woods Properties Pty Ltd

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Lalor Development Plan

The Development Plan was approved by the City of Whittlesea on 4 July 2008, amended on 15 September 2015 and on 1 August 2023, in accordance with Clause 43-04 Schedule 20 of the Whittlesea Planning Scheme.

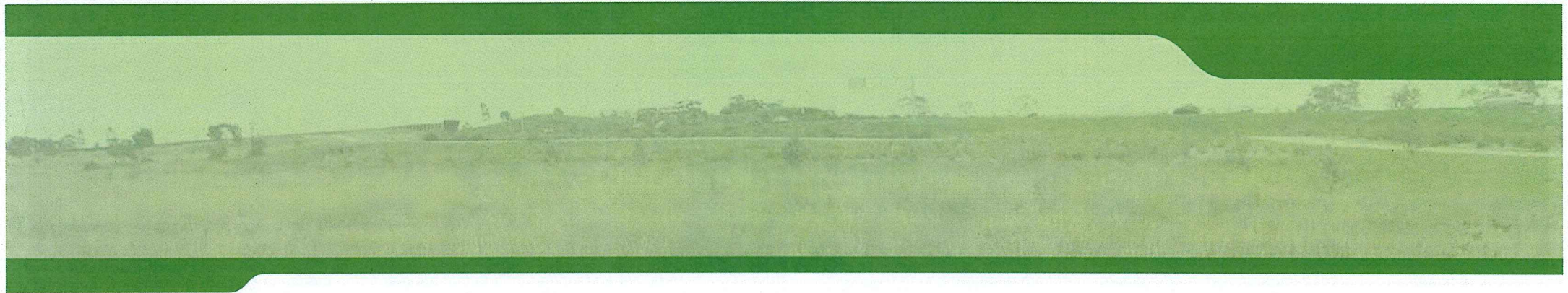
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Signature of the Responsible Authority



acknowledgements and recognition

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This report has been prepared for ABAH Group Pty Ltd and Cedar Woods Properties Ltd. Collectively, these firms will develop land in Lalor affected by Amendment C71 to the Whittlesea Planning Scheme for residential purposes (refer Figure 1).

ABAH Group's interest is with land at the former Lalor Golf Course, whilst Cedar Woods interest is the land formerly known as the Estate of Moffat McKee (refer Figure 1). Cedar Woods also has interest in a smaller residual triangle of land, directly north of the subject site (refer Figure 1). This land we will refer to in this report as the "triangle site".

The "triangle site" is a residual parcel of land which was not required by the State Government when acquiring land for the Melbourne Wholesale Markets, and is outside of land defined by Amendment C71. In order to be developed for urban purposes, the "triangle site" will be the subject of a separate planning scheme amendment process.

The purpose of this report is to advance and justify a proposed Development Plan for the land contained in Amendment C71.

1.1 The proponents

ABAH Group is part of the Redera Group of Companies – a premium construction and project management group. Redera has developed an extensive range of experience, knowledge and best practice across the breadth of the construction industry, earning industry award recognition. As a master builder, Redera Constructions takes pride in its high quality residential renovation, detailed restoration and new built works. The group has been honoured with six 'Excellences in Housing' awards and three 'Merit' awards from the Master Builder's Association of NSW in recent times.

Similarly, Cedar Woods has a vast portfolio of property development and investment in Australia, with most assets located in Western Australia and Victoria. The organisation's main interests are in urban land subdivision for residential, commercial and industrial purposes. The company has extensive experience in the property industry with particular expertise in adding value to land holdings. Cedar Woods' projects are sensitively developed in consideration of environmental and community interests and built to a high quality that is respected in the marketplace. Cedar Woods has received nine UDIA awards including 'Best Large Scale Residential Development in Australia, 2005'.

Collectively, ABAH Group and Cedar Woods seek to develop the subject site primarily for residential purposes, with a small group of convenience services. Specifically, ABAH Group are seeking to develop that part of the site which is the former Lalor Golf Course for a residential project to be known as "Mosaic Living," comprising 57.08ha of new residential and mixed use development, including substantial areas of open space. Alongside and integrating with Mosaic Living, Cedar Woods is seeking to create its own distinct residential estate to be known as "Carlingford". This estate is to comprise 43.69ha of residential land and several sizable open space and conservation areas.



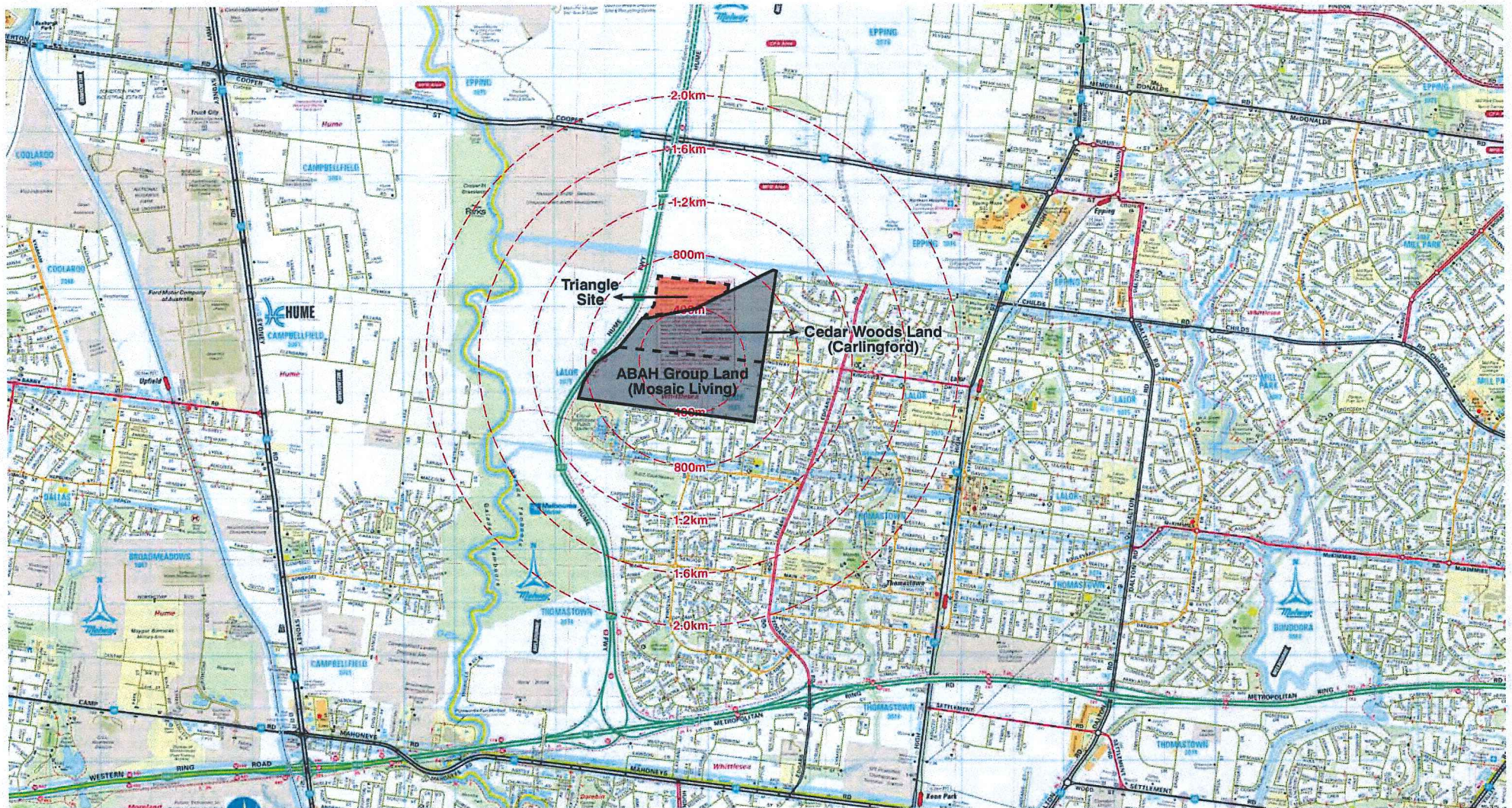
1.2 Background

Amendment C71 to the Whittlesea Planning Scheme provides for the rezoning of the subject land from Rural Zone (RUZ), Urban Floodway Zone (UFZ) and Special Use Zone 4 (SUZ4 – Extractive Industry) to Residential 2 (R2Z). The amendment also removes the Land Subject to Inundation Overlay (LSIO) affecting a small part of the site, whilst applying the Development Plan Overlay – Schedule 20 (DPO20 – Lalor Development Plan) over the entire site.

DPO20 requires a 'Development Plan' to be prepared for the whole site to facilitate the redevelopment of the land. ABAH Group and Cedar Woods have marshalled their resources to prepare a single Development Plan based upon thorough site and context investigations, as well as consultation with Council, surrounding land owners, public authorities, other stakeholders, and the general community.

This report substantiates and justifies the proposed Development Plan. Specifically, Sections 8, 9 and 10 of this report outline how the Development Plan responds to the specific requirements of DPO20.

Figure 1 Site Location Plan



2.0 The Planning Context

This section of the report provides a brief outline of the statutory and strategic planning context applicable to the subject land.

2.1 Zoning

Pursuant to Amendment C71, the land is wholly contained within the Residential 2 Zone (R2Z) (refer Figure 2). In addition to implementing the State and Local Planning Policy Frameworks, the purposes of the R2Z are:

- To encourage residential development at medium or higher densities to make optimum use of the facilities and services available.
- To encourage residential development that respects the neighbourhood character.
- In appropriate locations, to allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs.

2.2 Overlays

The C71 land is affected by a number of overlays, including the:

- Development Plan Overlay (DPO20) – refer Figure 3
- Design and Development Overlay (DDO2 and DDO9) – refer Figure 4
- Special Building Overlay (SBO) – refer Figure 5

Development Plan Overlay (DPO20)

The land is wholly affected by a Development Plan Overlay – Schedule 20 (DPO20) (refer Figure 3). In addition to implementing State and Local Planning Policy, the purposes of the DPO are:

- To identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.
- To exempt an application from notice and review if it is generally in accordance with a development plan.

Schedule 20 relates to the "Lalor Development Plan". The specific requirements of the DPO20 are detailed in Section 6 of this report. However, in summary, the schedule seeks to facilitate the orderly and timely development of the area in a sustainable manner, and in doing so address issues concerning:

- housing diversity and choice,
- traffic and access,
- open space provision,
- infrastructure provision,
- cultural and ecological significance,
- energy efficiency, and
- amenity.

Design and Development Overlay (DDO2)

The C71 land is affected by the DDO2, relating to the Hume Freeway – Metropolitan Ring Road to the North of Craigieburn (refer Figure 4). The design objective of this overlay is:

To ensure that the development of land near the future alignment of the Hume Freeway between the Metropolitan Ring Road and Mount Ridley Road is undertaken with appropriate noise attenuation measures to minimise the impact of traffic noise on noise sensitive activities.

Design and Development Overlay (DDO9)

The northerly part of the C71 land is partially affected by the DDO9 which relates to the Melbourne Wholesale Markets Interface Noise Attenuation. The design objectives of the overlay are:

- To protect the amenity of residential areas adjacent to the Melbourne Wholesale Market.
- To preserve the future operation of the Melbourne Wholesale Market.

Special Building Overlay (SBO)

Finally, a small portion of the southern boundary of the site is affected by the SBO (refer Figure 5) which seeks to ensure land identified as being liable to overland flows from the urban drainage system is managed appropriately. It also seeks to ensure new development maintains the free passage and temporary storage of floodwaters, minimises flood damage and will not cause a significant increase in flood levels or velocity.

Figure 2 Zoning Plan of C71 land

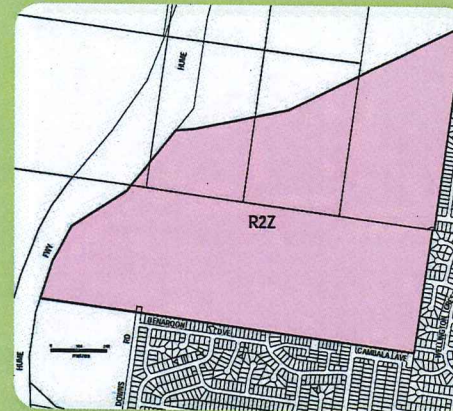


Figure 3 Development Plan Overlay (DPO20) affecting C71 land

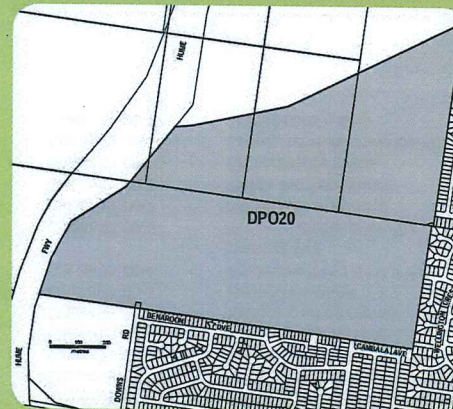


Figure 4: Design and Development Overlay (DDO2 and DDO9) affecting C71 land

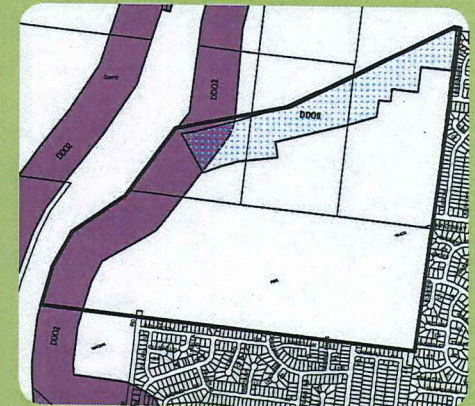


Figure 5: Special Building Overlay (SBO) affecting C71 land



2.3 Particular and general provisions

In addition to the zone and overlays, the following provisions generally apply to the proposed redevelopment of the land:

- Clause 52.01: Public open space contributions and subdivision
- Clause 54: One dwelling on a lot
- Clause 55: Two or more dwellings on a lot
- Clause 56: Residential subdivision
- Clause 65: Design guidelines
- Clause 66: Referrals

2.4 Planning policy

The State Planning Policy Framework (SPPF), including Melbourne 2030, seeks to balance the various competing objectives of the planning scheme to facilitate sustainable development that provides a net community benefit.

In particular, policy seeks to ensure future development is responsive to the site and its local context, and takes full advantage of existing infrastructure and services.

The following State planning policies of the Whittlesea Planning Scheme are most significant for this proposal:

Clause 11.03	Principles of land use and development planning
Clause 12.01	A more compact city
Clause 12.02	Better management of metropolitan growth
Clause 12.04	A more prosperous city
Clause 12.05	A great place to be
Clause 12.07	A greener city
Clause 12.08	Better transport links
Clause 14.01	Planning for urban settlement
Clause 15.01	Protection of catchments, waterways and groundwater
Clause 15.05	Noise abatement
Clause 15.06	Soil contamination
Clause 15.09	Conservation of native flora and fauna
Clause 15.10	Open space
Clause 15.12	Energy efficiency
Clause 16.01	Residential development for single dwellings
Clause 16.02	Medium density housing
Clause 17.01	Activity centres
Clause 17.02	Business
Clause 18.01	Declared highways, railways and tramways
Clause 18.02	Car parking and public transport access to development
Clause 18.03	Bicycle transport
Clause 18.09	Water supply, sewerage and drainage
Clause 18.10	Waste management
Clause 18.12	Developer contributions to infrastructure
Clause 18.13	Telecommunications
Clause 19.01	Subdivision
Clause 19.03	Design and built form

In addition to the State policies, the following local planning policies also apply to the proposal:

Municipal Strategic Statement (MSS)

Clause 21.01	Introduction
Clause 21.02	A Snapshot of the City of Whittlesea
Clause 21.03	State Planning Policy Framework
Clause 21.04	Vision
Clause 21.06-1	Residential growth areas
Clause 21.06-2	Managing urban growth
Clause 21.06-3	Housing provision
Clause 21.06-4	Employment and economic development
Clause 21.06-6	Transport and accessibility
Clause 21.06-7	Infrastructure provision
Clause 21.06-9	Image and appearance
Clause 21.06-10	Environmental assets
Clause 21.06-11	Leisure, recreation and tourism
Clause 21.06-12	Heritage and culture

Local Planning Policies (LPPs)

Clause 22.01	Open space
Clause 22.04	Subdivision design
Clause 22.10	River redgum protection area
Clause 22.11	Development contribution plan policy
Clause 22.13	Telecommunications conduit policy

The detailed analysis and assessment of the site for the purposes of residential use and zoning with community services and areas of open space has been the subject of extensive documentation, debate and commentary in the submission to, and report of the Independent Panel considering Amendment C71 to the Whittlesea Planning Scheme. For the purpose of brevity, the following commentary identifies the key relevant themes of policy which the Development Plan gives effect to.





Settlement: Clause 14.01 seeks to encourage the orderly development of urban areas, and ensure sufficient land is set aside for various forms of development, including residential, recreational and commercial ventures. It seeks to encourage the consolidation of existing urban areas within the Urban Growth Boundary while respecting neighbourhood character, and encouraging higher density and mixed use development near existing infrastructure, including public transport.



Economic development: The subject site forms part of a significant pocket of undeveloped land, which is being progressively contained by the outward expansion of urban development. Historically, the Whittlesea Planning Scheme foreshadowed the development of land in this general area for economic and industrial purposes (Clause 21.06-4). However, as agreed to by the Panel considering C71, the subject site is constrained for such uses for various reason, including its shared boundaries with established residential development and lack of direct access to the established arterial road network. For these reasons, Council has agreed that the land is no longer suitable for industrial development purposes, and an alternative land use ought to be facilitated.



Residential land use: The subject site has instead been identified as having a significant residential role to play. Historically, the residential policies of the Whittlesea Planning Scheme have focused upon 'growth areas' identified in metropolitan strategy. While significant and major housing opportunities are evident in the municipality, smaller infill opportunities outside of 'growth areas' land (but within the Urban Growth Boundary) are not generally recognised.

The subject site instead clearly constitutes what Melbourne 2030 (Direction 1, Policy 1.3) and Clause 12 of the Scheme define as a "significant development site", the policy for which states:

"Locate a substantial proportion of new housing in or close to activity centres and other strategic development sites that offer good access to services and transport by:

- Increasing the proportion of housing to be developed within established urban area, particularly at activity and other strategic sites, and reduce the share of new dwellings in greenfield and dispersed development areas"*

As such, the site is ripe for residential development.



Housing outcomes: In terms of specific housing outcomes, Clause 16.02-1 (Medium density housing) seeks to encourage the development of well designed medium density housing which respects neighbourhood character, improves housing choice, makes better use of existing infrastructure and improves energy efficiency.

The Residential 2 Zone (R2Z) provides explicit direction and encouragement for such a medium density outcome. Such an outcome on the site would address those policy objectives that seek to secure a greater diversity of housing opportunities, choices and types.

The subject site represents a relatively discrete area where these medium density outcomes might be achieved without widespread impact on established areas, provided that the immediate interfaces with existing housing are handled sensitively.



Infrastructure: With regard to infrastructure, specifically water supply, sewerage and drainage, Clause 18.09 seeks:

"To plan the provision of water supply, sewerage and drainage services that efficiently and effectively meet State and community needs and protect the environment".

Clause 21.06-7 specifically addresses the issues of infrastructure provisions and the sewer capability problems of the Cooper Street area including the subject site seeking:

To actively pursue resolution of provision of key strategic items of physical infrastructure for unserviced growth areas and to plan for and identify means to fund the establishment and maintenance of social and physical infrastructure in a timely and efficient manner.

The policy notes that sewer capacity is a key issue for Whittlesea. Significantly, the Cooper Street Precinct is one such area that requires short and longer term servicing strategies to be prepared and implemented. This Development Plan and report specifically address this constraint with a Sewer Management Plan (SMP) provided in the accompanying technical volumes. (Refer Section 9.8 of this report for further details.)



Environment: Finally, in terms of the environment, State policy (Clause 15) seeks the sustainable use and conservation of valuable natural resources. Specifically, Clause 15 seeks to protect and enhance water resources, conserve native flora and fauna, and places of cultural heritage significance. It also seeks to create a diverse and integrated network of public open space, protect sensitive uses from noise effects, and ensure that potentially contaminated land is suitable for its intended future use and development. The local section of the Whittlesea Scheme furthers these objectives at a local level, seeking to integrate significant environmental assets, including habitat areas and River Red Gum trees, into new development where practicable, particularly in the form of open space reserves (Clause 21.06-10 and Clause 22.10).

3.0 Analysis of the Development Plan Area

3.1 Introduction

The Development Plan Area (DPA) comprises that area of land in Lallor affected by Amendment C71 (refer Figure 6). This area includes two parcels of land under separate ownership, totalling approximately 101 hectares.

The southerly most portion of land is owned by the ABAH Group and is to be developed as 'Mosaic Living' residential estate. The land totals approximately 57 hectares and is identified as part of Lot 2 on PS519650R, Title Volume 11014, Folio 335 (refer Technical Documentation).

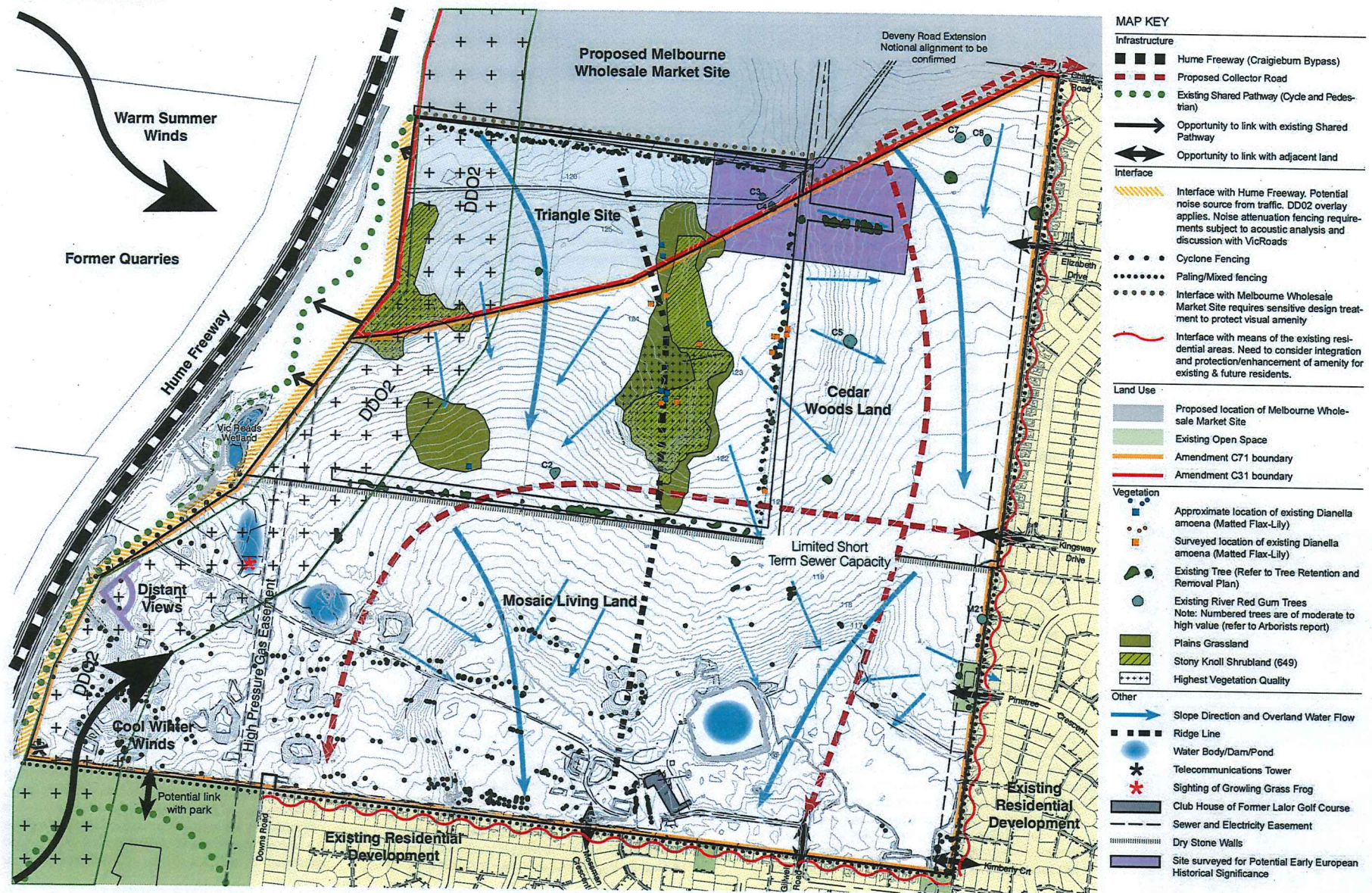
The northerly portion of land is owned by Cedar Woods and is also to be developed for residential purposes as the "Carlingford" estate. This land comprises approximately 44 hectares, and is identified as part of Lots 1, 2 and 3 on PS544515F, Title Volume 10962, Folios 347, 348 and 349 respectively (refer Technical Documentation). The "triangle site" (outside of the Development Plan area) comprises part of Lots 1 and 2 of this plan of subdivision.

The following is a synopsis of the main features and characteristics the DPA. It should be read in conjunction with the Site Analysis Plan at Figure 7.

Figure 6: Aerial photo of Development Plan Area (DPA)



Figure 7: Site Analysis Plan



3.2 Encumbrances on title

A high pressure gas main and easement bisects the western portion of the two land holdings as indicated on the site analysis plan. The northern portion of the site is affected by a covenant concerning the easement for the pipeline with a "buffer zone" on either side which has restrictions on it. The width of the easement varies from 21m to 35m over both certificates of title, resulting in an awkward and disjoined alignment. The proposed resolution of this anomaly is substantiated in Section 9.7 (page 60).

There is also a 2.5m wide sewerage and electricity easement running along the eastern boundary of the Development Plan area.

3.3 Previous land uses

The southern portion of the site includes the eastern part of the former Lalor Golf Course which was bisected and terminated by the Craigieburn By-Pass. Remaining elements of the former golf course include the club house, a number of dams and water bodies, and a telecommunications tower. During its use as a golf course, the land was altered to provide greens and fairways, whilst some uncontrolled fill was placed in areas of natural depression on the land. Fertilizers have also been used on the land to maintain the golf course.

Prior to use as a golf course, the land was used primarily for farming purposes. More recently, the site was utilised as a site office by the Abi Group for the construction of the Hume Freeway (Craigieburn Bypass).

The northern portion of the DPA has a long history of agricultural use, including grazing and pasture. It is presently used for grazing purposes. As such, there are no buildings or structures existing on this site, apart from debris.

3.4 Topography

The site comprises mainly basalt soils on relatively flat land. The cross fall of the land is approximately 11m from the north-west corner to the south-east corner. The western section of the site is slightly elevated, with areas of artificially placed fill in the south-western region. The elevated land captures views across to the city skyline.

Four natural drainage lines extend across the site; two along the eastern boundary, and two along the western side. These existing drains provide a context for the location of wetlands, and water retardation basins on site for the future management of stormwater runoff.

A number of dry stone walls and naturally occurring rocky basalt rises are also scattered throughout the site, particularly in the north. Along the edge of these rises are a number of very shallow, seasonally wet areas. Besides from the artificial dams on the land, there are no permanent natural water features on site.

3.5 Flora and fauna

A number of assessments have been prepared for the DPA in relation to flora and fauna (refer Technical Documentation). An initial report prepared by Practical Ecology (refer Technical Documentation) concluded that whilst the site has been significantly degraded since settlement, areas of environmental significance remain which should be integrated into any subsequent development proposals for the land. The majority of these features are contained in the northern portion of the site, with the southern area comprising few items of significance.

A number of more recent ecological assessments have been conducted, including several by Brett Lane and Associates (refer Technical Documentation). Collectively, these reports find that due to past uses, the subject site is largely a modified environment, characterised by predominantly exotic pasture grasses, introduced weed species and scattered planted native and exotic trees. However, consistent with the Practical Ecology findings, some remnant patches of indigenous vegetation remain in the north of the site. A number of habitat areas also occur on the site, however, none of these have a "high" conservation value; only areas of "low" and "moderate" value exist.

In relation to fauna, reports by Brett Lane & Associates conclude that the site accommodates a number of fauna species; some of which have conservation significance. In particular, a specimen of the nationally endangered or 'vulnerable' Growing Grass Frog was detected in the north-west corner of the site. Measures to protect this species in future development are detailed in Section 9.5 (page 53) of this report.

It is also noted that the 'vulnerable' Striped Legless Lizard and 'critically endangered' Golden Sun Moth have the potential to inhabit the site, though they have not been detected to date. An assessment of vegetation mix and quality, however, indicates that it is unlikely such species will be found on site; at all in the case of the Golden Sun Moth, though a small number of Striped Legless Lizards may be present. Measures to protect this species are noted in Section 3.5.4 (page 9).

The above flora and fauna characteristics of the DPA are described in greater detail overleaf.

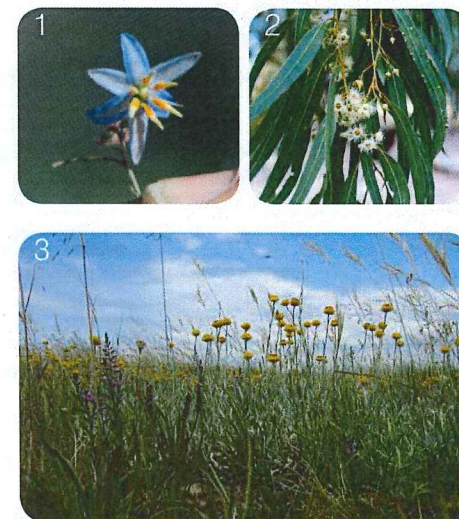


Photo 1: Matted Flax Lily
Photo 2: Eucalypt
Photo 3: Plains Grassland

3.5.1 Flora

Exotic vegetation

The majority of vegetation within the subject site is either exotic or planted with little or no conservation value. This includes pasture grasses, introduced weed species and scattered plantations. Significantly, there are a number of noxious weeds present on the site, including the State Prohibited Weed Uruguayan Needle-grass or Lobed Needle-grass in the north of the site which must be removed.

Significant native vegetation

The remnant patches of indigenous vegetation found in the northern portion of the site represent the Plains Grassland and Stony Knoll Shrubland Ecological Vegetation Classes (EVCs):

- Plains Grassland is an endangered species of State significance. It occurs in two main areas in the north-western parts of the site. (refer Site Analysis Plan)
- Stony Knoll Shrubland is a species of endangered High Regional conservation significance. This shrubland occurs in several patches on the site associated with rocky basalt rises. (refer Site Analysis Plan)

Whilst the quality of the Stony Knoll and Plains Grassland patches vary from low to moderate, these species are considered endangered and/or extinct and therefore of high to very high conservation value, and should be retained where practicable.

Two other native flora species – the Matted Flax-lily and River Red Gum – have also been detected on the site:

- Several colonies of the nationally and state endangered Matted Flax-lily were found in the north of the DPA. In total, 20 specimens were detected. Expert ecological advice obtained for this project recommended that 16 of these specimens be translocated to the proposed open space conservation reserves in the north of the DPA (refer Technical Documentation). The recommendation includes a detailed translocation protocol to be undertaken by the developer. As the Matted Flax-lily is a species listed for protection under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), a Referral application to translocate the specimens has been submitted to and approved by the Commonwealth Minister for the Environment and Water Resources.

- A number of scattered River Red Gums are also present on the site which support limited fauna habitat values. Whilst these specimens do not require planning approval to be removed (as they were artificially planted), Cedar Woods has negotiated with Council to retain two of the most prominent trees (known as "trees 5 and 7" according to the tree surveys in the Technical Documentation) in the north east part of the DPA. These trees will be retained in designated open space conservation areas (ie Deveny Reserve and Central Park).

A number of artificially established plantations also exist on the site, which include indigenous and non-indigenous native trees and tall shrub species. These include those structured line plantations in the north of the site, running north-south and east-west, as well as the trees and shrubs around the golf course facilities in the south. These plantations, however, are of little conservation significance or retention value.

3.5.2 Arboricultural values

Two arboricultural assessments have been prepared for the northern and southern sections of the DPA respectively (refer Technical Documentation). Collectively, these reports find that existing vegetation on the site, particularly in the southern portion, is predominantly of minimal arboricultural value. However, two River Red Gum trees in the north of the site, and one in the south have been identified as suitable for retention. Each of the two reports contain 'tree protection strategies' to ensure that any trees which are to be retained as part of future development proposals will be protected from damage during development.

3.5.3 Habitat areas

The subject site has been found to comprise a number of habitat areas. None of these areas, however, were found to be of high value. Only habitat areas of low to moderate value were identified on the site.

Those of 'moderate' value include the stony rises grassy shrubland and the artificial water bodies which can provide habitat for waterbird and frog species. Habitats of 'moderate-low' value include the plantations in the northern part of the site. The remaining habitat areas considered to be of low value include exotic-dominated grassland, the former golf course and areas of former stock grazing.

3.5.4 Fauna

The various ecological assessments conducted for the site determined that the land can and does accommodate a number of faunal species, including birds, mammals, reptiles, frogs and insects. Whilst a number of threatened or near threatened native faunal species tend to occur in the wider region, the subject site is unlikely to accommodate most of these species given the lack of suitable habitat areas occurring on the land. Despite these findings, one specimen of the 'vulnerable' Growling Grass Frog was detected on the site as discussed below.

Growling Grass Frog

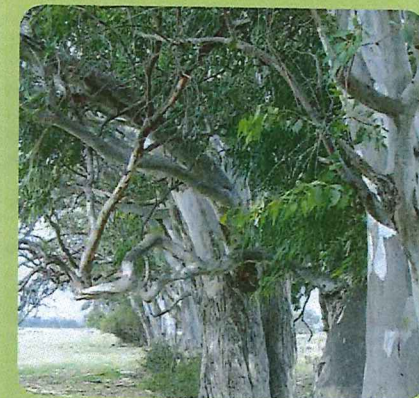
An individual Growling Grass Frog was heard in the south-western portion of the DPA. This species is listed under the EPBC Act as a vulnerable species. A complete study and report on the implications and management of the frog population has been made and is included as part of this report (refer Technical Documentation).

A referral has also been made to the federal Department of Environment and Heritage (DEH) in support of the proposed development on the site. The Commonwealth government has requested that the proponent consider ways of integrating the species into the development to avoid the gradual loss of habitat that may occur with the incremental development of the Merri Creek valley for urban purposes in coming decades.

The proposed integration and protection of land within the DPA identified as supporting the Growling Grass Frog is outlined in Section 9.5 (page 53) of this report. It is noted that the referral application to the DEH is awaiting approval pending the gazettal of Amendment C71.

Striped Legless Lizard

As previously noted, whilst it has not been detected, and has a low probability of occurring on the DPA, the northern part of the DPA is considered to support habitat for the Striped Legless Lizard - an "endangered", 'vulnerable' species listed in the EPBC Act. Habitat for this species is mostly restricted to the stony rises on site, much of which will be protected in the conservation reserves to be retained on site as detailed in this report. A salvage protocol, as recommended by Brett Lane & Associates, can be implemented for those remaining areas of the site where construction may impinge on stony areas to minimise risk to individual lizards.



3.6 Cultural context

A number of archaeological assessments have been conducted for the DPA in recent years (refer Technical Documentation). These reports reveal that there are no previously listed sites of archaeological significance within the DPA. The following additional findings however, were made:

Mosaic Living

Given its heavily modified state due to past and present land uses, no elements of Aboriginal or Early European heritage significance have been detected within the southern portion of the DPA. One site of potential Aboriginal archaeological sensitivity – a hill rise located at the western boundary of the land – was subject to more detailed survey work which did not reveal any sites or elements of significance (refer Site Analysis Plan). Given no sites of Aboriginal cultural heritage significance have been detected, no Cultural Heritage Management Plan is required to be prepared for this part of the land pursuant to the *Aboriginal Heritage Act 2006*.

Carlingford

The northern portion of the DPA was also found to be devoid of any elements of Aboriginal cultural heritage. In relation to Early European heritage significance, a sole historic site in the form of a section of drystone wall of unknown age (which forms part of a current property boundary in conjunction with a timber and wire fence) was identified. The wall is in an advanced state of disrepair with some areas being completely collapsed or even removed altogether. A site card for this feature has been submitted to Heritage Victoria. The wall will receive a D-listing with Heritage Victoria, which comprises a database record with no statutory controls.

In addition, an area of land surrounding a corner in the property had been previously identified as the potential location of a house or homestead (refer Site Analysis Plan). Upon inspection, however, this site was found to have no cultural heritage significance.

Given no sites of Aboriginal cultural heritage significance have been detected within this part of the DPA, no Cultural Heritage Management Plan is required to be prepared pursuant to the *Aboriginal Heritage Act 2006*.

3.7 Soil contamination

A number of soil contamination studies were conducted for the DPA (refer Technical Documentation). Collectively, the studies concluded that whilst some areas within the DPA may potentially comprise contaminated soils due to the presence of fill on the site, and past agricultural uses, the DPA generally poses a low risk with respect to future sensitive uses and development on the site. There would be negligible risks to human health during construction, to future residents and visitors, and negligible impacts on the surrounding environment due to possible leaching of contaminants into groundwater.

Potential areas of contamination on the site include areas of artificial fill in the south-western portion of the land, and those areas in the north-east corner which were previously heavily exposed to herbicides and fertilizers, south of Deveny/Childs Road. Whilst contaminated fill presents no human threat, it may present ecological implications for certain plant and tree species.

It is recommended that those areas of fill in the south of the site that may be contaminated be landscaped; and that all underground and above ground fuel tanks, fuel lines and bowzers be removed from the site, along with all former agricultural machinery and equipment. Further detailed soil testing is also recommended prior to development and works, to ascertain the exact extent of contamination, and to determine any necessary clean up or remediation measures. This can be managed via appropriate conditions on future planning permits.

3.8 Infrastructure and site services

The surrounding area is undergoing significant change, and a substantial amount of new infrastructure is being implemented to supplement existing, and facilitate new development.

Sewer

Yarra Valley Water (YVW) is the sewerage authority responsible for the DPA. Preliminary investigations indicated that there were significant constraints on the sewerage capacity of the site in the short term. However, extensive consultation with YVW has shown that there is indeed sufficient and manageable supply in the short term.

There is capacity within the Cooper Street area to service 4,750 equivalent residential lots prior to the provision of a permanent sewer outlet in 2011. The DPA is situated in the

Merri Creek sewer catchment which currently has capacity for 1,500 lots. This is in excess of the 1,305 lots expected to be generated from full development of the DPA.

Council has expressed a preference for 'allocating' this capacity to employment areas ahead of residential development. The Development Plan includes a Sewer Management Plan (SMP) which addresses these constraints (refer Section 9.8 of this report), ensuring that in servicing the DPA, there is no subsequent detriment to development of the proposed Melbourne Wholesale Markets or the Cooper Street Employment Area to the north of the DPA.

It is also noted that, at the time of preparing this report YVW have committed to a revised sewerage strategy for the Epping North - Cooper Street area, including the construction of a large diameter branch sewer from the proposed Merri Creek extension along the creek to Barry Road, through the C71 site, Melbourne Wholesale Markets site to Cooper Street.

YVW have commenced geotechnical investigations to inform their selection of a branch sewer alignment and will confer with the developers to select an alignment to suit the proposed redevelopment of the site. This will include the computation of lot modules and road reserves to ensure the sewer is located in public property.

Water supply

YVW is also the water supply authority for the DPA. There are existing water mains in the connecting streets to the south and east of the subject site which could provide a water supply service to the site. Development above the 120 metre contour will require extension of supply from Childs Road, east of Edgars Road, depending on the timing and scope of works required to supply the proposed Melbourne Wholesale Markets site.

Drainage

Melbourne Water is the Main Drainage authority for the DPA. Part of the site (on the Mosaic Living portion) is constrained by the possibility of flooding. Engineering and design solutions can be found to cope with overland flows and drainage runoffs using amelioration measures. This may include wetlands and/or retarding basins, located within areas of proposed open space and additional reservations. On-site stormwater controls would also be a requirement for development of the Cedar Woods land.



Electricity

TXU is the relevant service authority for the provision of reticulated electricity for the DPA. TXU have provided written advice (letter dated 12th July 2006, ref: 74140335) stating that the SP Ausnet distribution network in the area has capacity to meet the overall needs of the development without major head works and with normal extension of the network throughout the DPA.

Gas

Envestra is the principal Gas Authority responsible for the provision of gas reticulation to service the DPA. Gas reticulation mains are located up to the site from the surrounding streets of Pinetree Crescent, Kimberley Street, Mossman Crescent and Gillwell Road. Extension arrangements can be made. The proposed treatment of the high pressure gas main and associated easement, as negotiated with Gasnet is outlined in Section 9.7 of this report.

Telecommunication

Telstra is the principal authority for the provision of telecommunication facilities to service the DPA. Main and local cables located in surrounding streets provide for ready extensions to the Telstra Network.

4.0 Surrounding Context

The following is an analysis of the surrounding context of the DPA, including its regional and local strategic context, immediate interfaces, movement networks, and access to social and community facilities.

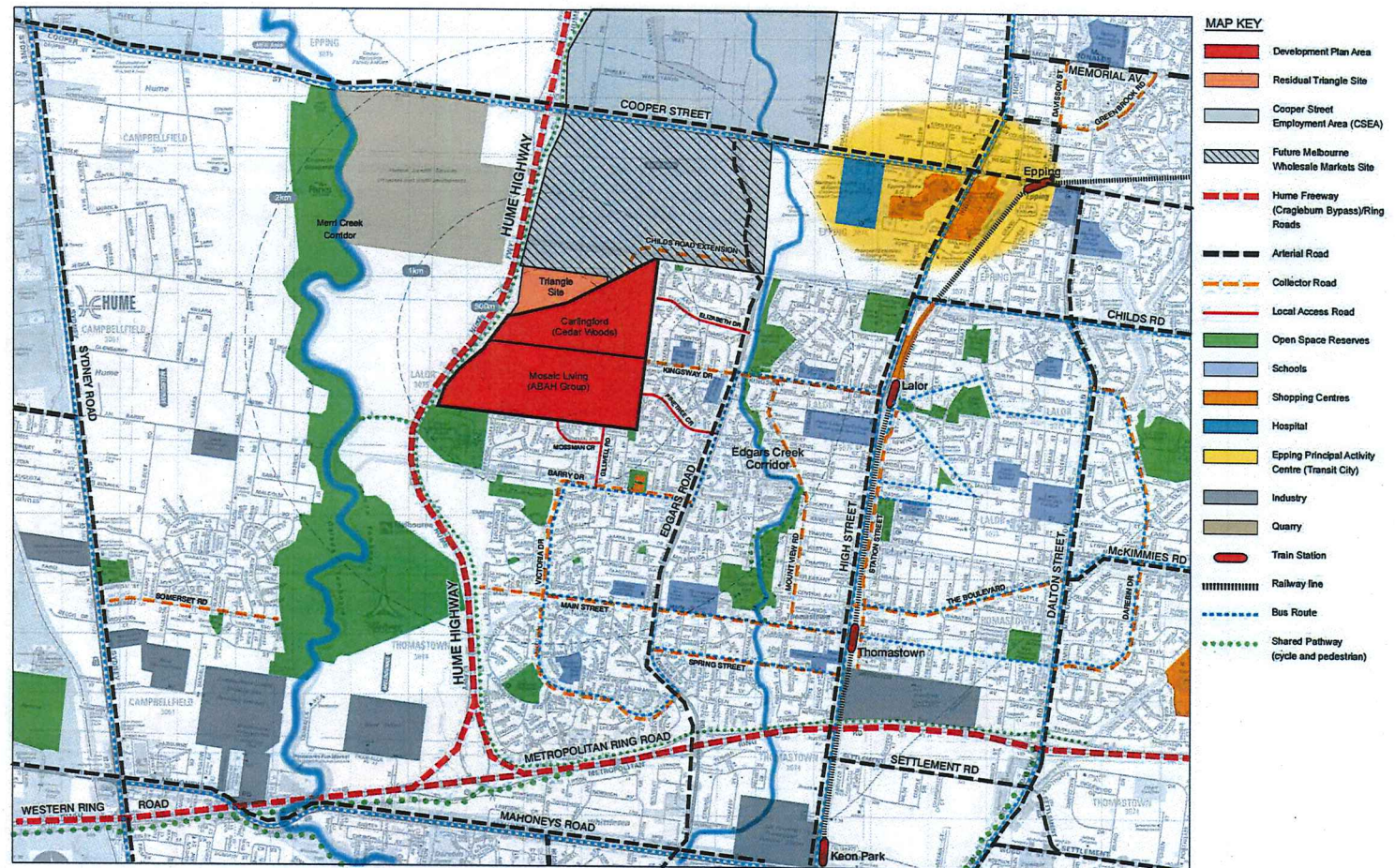
4.1 Local and regional strategic context

The DPA is located south-west of the designated Epping Principal Activity Centre (a 'Transit City'), and the surrounding residential areas comprising the Epping North Growth Corridor.

The Cooper Street area, to the north of the DPA, has been designated by Whittlesea City Council as a significant metropolitan industrial and commercial area, known as the 'Cooper Street Employment Area' (CSEA). The area comprises that land north and south of Cooper Street and east of the Craigieburn Bypass, including the future site of the Melbourne Wholesale Markets.

A Development Plan - the 'Cooper Street Employment Area (CSEA) Development Plan (Part 1) - has been prepared by Council for that part of the CSEA north of Cooper Street (refer Figure 9). The Development Plan forms part of Amendment C31 to the Whittlesea Planning Scheme. It is the first of what is envisaged to be two (or more) development plans relating to the whole of the CSEA.

Figure 8: Regional Context Plan

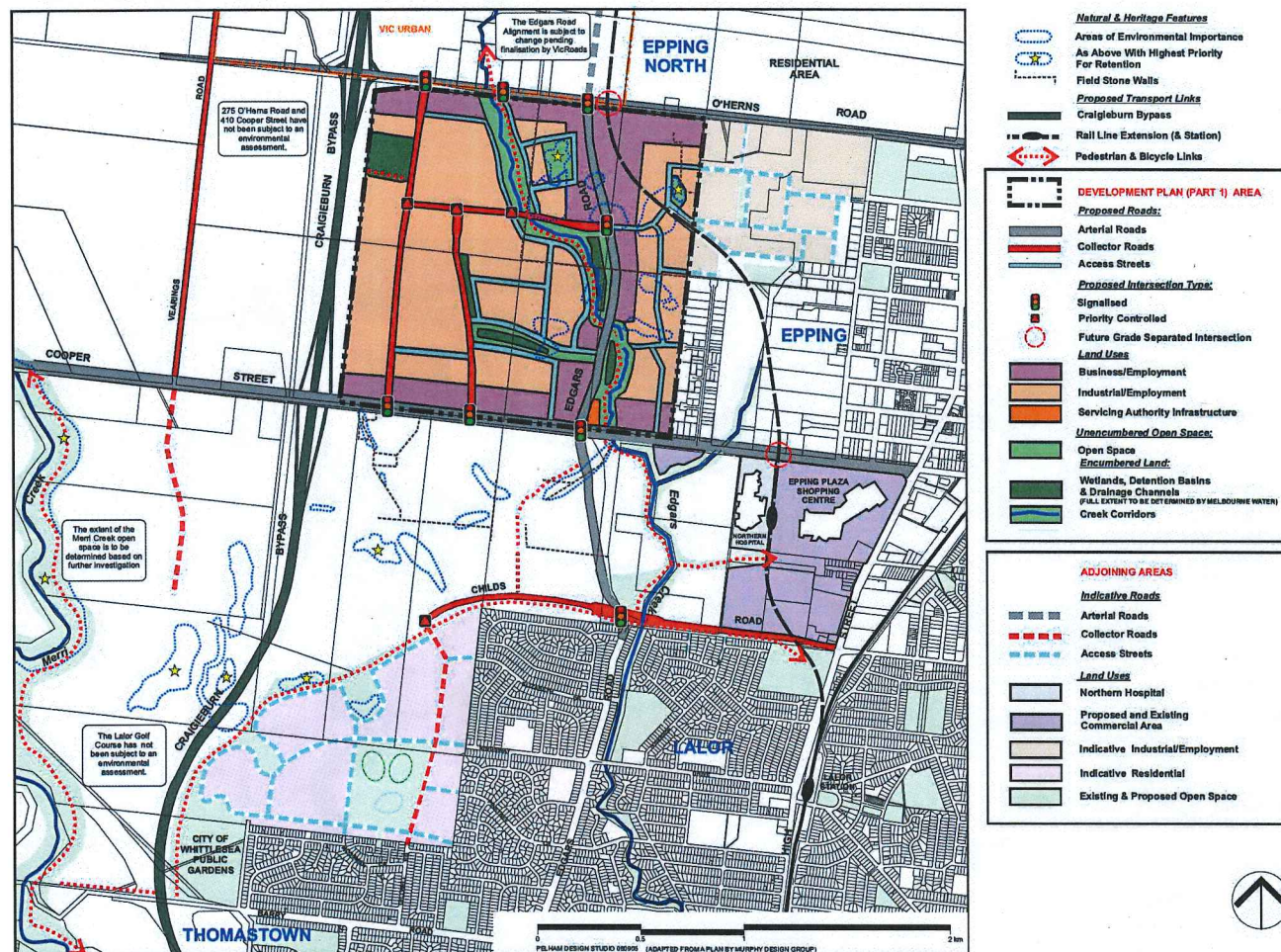


This first Development Plan aims to facilitate the establishment of the Cooper Street area for employment generating uses including industrial and business activities which will be of benefit to the City of Whittlesea and the Northern Region.

The area of land acquired for the Markets site has not yet been fully planned, however, it has recently been rezoned to the Comprehensive Development Zone as part of Amendment 100 to the Whittlesea Planning Scheme, and is soon to undergo detailed planning and design.

The previous land uses of quarrying in the general area are now largely redundant given the major road access to the area and the growth potential of Epping North and the CSEA. There are also minimal non-urban areas remaining within the vicinity, with the subject land being one such site. As depicted in Figure 9, Whittlesea City Council has designated the subject site for residential purposes.

Figure 9: Cooper Street Employment Area Development Plan (Part 1)



Source: Cooper Street Employment Area (Part 1) Development Plan, October 2005, Panel Version, City of Whittlesea p.40

4.2 Adjoining land uses

The following is a synopsis of the key boundary interfaces of the DPA. A discussion of how the proposed Development Plan responds to each of these interfaces is contained in Section 9.6 of this report.

Northern boundary

The northern boundary of the DPA abuts the proposed Childs Road / Devery Road extension, and the interface with the CSEA, specifically the future Markets site. An appropriate buffer and/or other design techniques will be required between the DPA and the Markets site to protect the amenity of future residents on the DPA. Such measures will be required to be implemented by the relevant agent of change.

Southern boundary

The southern boundary of the DPA is abutted by suburban residential development at conventional densities, for approximately 75% of its length. There are existing points of road access to the site via Gillwell Road, with potential access points at the termination of Mossman Crescent and Downs Road (which is as yet unconstructed).

The remainder of the southern boundary abuts the Whittlesea Public Gardens. These gardens comprise wetlands and associated facilities such as a car park, public toilets and BBQs. The parkland has a pedestrian access route that connects across a bridge over the Hume Freeway (Craigieburn Bypass) to the Merri Creek parkland to the west. An additional two small municipal reserves also abut the southern boundary of the DPA, including:

- Hartwell Green (containing a playground)
- A small reserve in the south-east corner of the site, accessed from both Cambala Avenue and Kimerley Street.

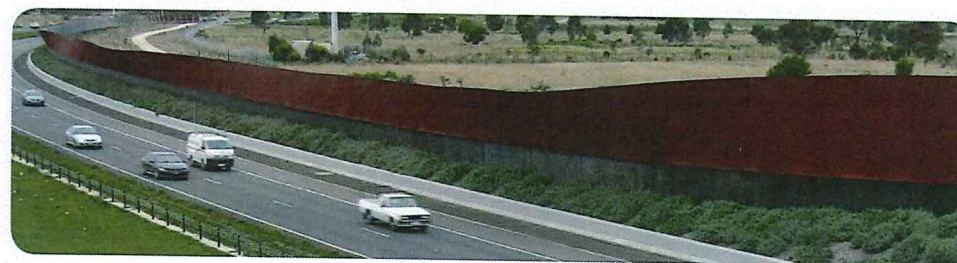
Eastern boundary

As with the southern boundary, the eastern boundary of the DPA abuts existing suburban residential development at conventional densities. There are several road access points to the DPA, including at the termination of Kimberly Street, Pinetree Crescent and Kingsway Drive.

Western boundary

The DPA shares its western boundary with the recently constructed Craigieburn Bypass. This freeway extension presents significant noise amenity issues for future occupants of the DPA which need to be addressed before sensitive residential development can occur on the site.

The Bypass includes a bicycle path adjacent to the subject site, extending from Whittlesea Public Gardens in the south, and north to the CSEA and Epping Plaza. VicRoads has also proposed acoustic fencing and a fauna underpass along this western boundary.



4.3 Movement network

4.3.1 Roads and access

The DPA can readily be accessed via a number of existing roads, including arterial and collector roads, with a series of other roads constructed in such a way that they may be extended to connect to the DPA.

Kingsway Drive, which leads directly to the site, is a designated collector road that accesses Edgars Road (a secondary arterial road) and High Street (a primary arterial road). These two arterials provide access to the Western Ring Road, the Hume Freeway, Epping Plaza and Cooper Street.

Edgars Road has been constructed to the north to enable direct access to Cooper Street. In addition, a new collector road off Edgars Road (ie. Childs Road / Devery Road extension) is proposed to provide access to the DPA.

The site is also connected to a series of local access streets, including Gillwell and Mossman Crescent to the south, and Elizabeth Drive and Pinetree Crescent to the east – each of which were constructed to allow extension into the DPA.

The Craigieburn Bypass contains major interchanges at Cooper Street to the north of the site, and also at the Western Ring Road to the south, which presents excellent linkages to the freeway network.

4.3.2 Public transport infrastructure

The DPA has access to a range of public transport services. The Epping Railway Line is approximately 2kms to the east of the site; with access to the Lalor Train Station via Kingsway Drive. The greater area of Epping is serviced by numerous bus routes allowing residents more than adequate access both to the commercial and business areas and to the greater metropolitan train network via the Epping railway line.

Several bus routes service the existing residential precinct to the south and east of the site. Bus route No.557 stops less than 400m from the DPA via Barry Road and circulates in a small local loop, connecting patrons to the Lalor and Thomastown train stations. It travels through the Lalor Shopping Centre and Thomastown strip shopping mall on High Street. Opportunities exist to extend this network of services into the DPA.

4.3.3 Pedestrian and bicycle network

The DPA has access to an established network of bicycle and pedestrian paths. A shared pathway system has recently been constructed in association with the Craigieburn Bypass. It runs north-south alongside the Freeway, connecting north through to Craigieburn, and south down to Thomastown and Reservoir. The network also provides access to the Galada Tamboora and Merri Creek reserve. Access is also provided to the Western Ring Road and Metropolitan Ring Road shared path network. The shared path can be accessed at three main locations along the DPA's western boundary.

There are also sections of shared path connecting to the City of Whittlesea Public Gardens as well as the R.G.C Cook Reserve. Additional shared paths are provided along Edgars Creek open space corridor, with opportunities to provide further connections between these elements and local community facilities.

4.4 Open space network

The DPA has direct access to the City of Whittlesea public gardens to the south-west of the site. As previously described, this parkland offers picnic, playground and BBQ facilities. Other local facilities include Hartwell Green (containing a playground) and a small reserve in the south-east corner of the site, accessed from both Cambala Avenue and Kimerley Street.

The DPA is also in close proximity to Edgars Creek to the east, providing substantial areas of open space and recreation including two reserves, a local swimming centre and bike paths. In addition, the site has access to the Galada Tamboora and Merri Creek reserve, as well as to the south to the R.G.C Cook Reserve.

In terms of future open space provisions for the DPA, Council has confirmed from the outset that it will require a sizeable portion of land to be set aside on the land for two senior ovals.



4.5 Community and social infrastructure

Predominantly, community and social facilities are situated to the east of the DPA, in established residential and commercial areas around Epping and Thomastown. This is largely due to Merri Creek segregating the district and limiting local access to the west. The network of community facilities and services is varied, including a number of shopping centres, schools, childcare centres, and the like.

The DPA is in close proximity to the Lalor Shopping Centre and Thomastown strip shopping mall on High Street. It is also within the regional catchment of the Epping Plaza Shopping Centre.

Several local primary schools and colleges are close by, including Lalor West and St Catherine's (800m from the DPA). There are also five kindergartens, two childcare centres, two community centres and a local library – each within 2km. Finally, the DPA is within the regional catchment area of the Northern Hospital.



5.0 Synopsis of opportunities and constraints

Given the previous site and context analysis, it is clear that the DPA has many opportunities, with a few significant constraints. The key opportunities and constraints in relation to the DPA's redevelopment for residential purposes are summarised as follows:

Principal opportunities:

- The DPA is located within an existing urban area experiencing considerable change and growth. The land is an 'infill site', the development of which will aid in reducing pressure for continued urban sprawl and expansion of the Urban Growth Boundary.
- The DPA is abutted on two sides by existing residential development. This provides an opportunity for the DPA to be developed in a manner to create a consistent land use, and an integrated pattern of development. It also means that, in most cases, there is ample existing infrastructure onto which newly constructed services can be connected. This will assist in keeping development costs down and promote housing affordability.
- The DPA is abutted to the north by the regionally significant CSEA, therefore presenting a considerable opportunity to provide substantial areas of residential land use in support of this key economic region.
- The DPA has established access points to a comprehensive road network and public transport system. It is readily accessible by private, public and non-automated modes of transport to a Major Activity Centre, a wide range of other community, shopping, entertainment, education and recreational services and facilities, and areas of major employment, including the CSEA.
- The DPA is in close proximity to an established framework of public open space and associated recreational facilities. There is particular opportunity to enhance the interface with Whittlesea Gardens and bicycle network along the Hume Freeway corridor.
- The DPA presents an opportunity to promote community interaction and participation through open space and pedestrian linkages between the subject site and the surrounding community.
- The east and south regular boundaries of the DPA will allow for sensitive interface treatments onto existing residential development, as well as a more contemporary form of dwelling design and higher intensity of land use within the site without adversely affecting the amenity of abutting residents or creating a drastic change in character.
- Much of the existing vegetation on the land is of little ecological significance. Therefore, potential arises for removing much of the existing vegetation, including weeds, to facilitate subdivision and development whilst simultaneously providing scope to establish additional native and/or indigenous plantings in public spaces and along road reservations to improve local flora features and habitats for native fauna. This also provides the opportunity to introduce landscaping elements with minimal watering and maintenance requirements in response to drought conditions.

- That vegetation which is of value, is clustered and sited such that significant proportions of higher quality flora can be retained and incorporated into future development. This includes the stony knoll shrublands and plains grasslands in the north of the site, as well as some River Red Gums. Opportunities also exist to transplant populations of Matted Flax-lily to establish viable populations in appropriate locations; including future reserves and parklands on the site.
- Despite the presence of native and indeed endangered species of fauna on the site, appropriate landscaping elements can provide encouragement for native wildlife to re-habitat the site. Specifically, there is a significant opportunity to provide for a designated and enhanced habitat area to ensure the ongoing conservation of the nationally significant Growing Grass Frog.
- There are currently no elements of cultural heritage significance on either of the two parcels of land that would otherwise require protection measures to be put in place.
- Existing drainage corridors on the site will provide guidance for the location of wetlands, water retardation and quality functions to be provided on site for the future management of stormwater runoff.

Principal constraints:

- The site is primarily constrained by the need to provide adequate sewerage services commensurate with residential development requirements. In particular, there is a need to provide a short term Sewer Management Plan to offset the capacity constraint in the local sewer system prior to 2011.
- Similarly, the site is constrained by the need to provide adequate drainage measures to cope with overland flows and drainage runoffs.
- The site's proximity to the Hume Freeway means that there is also a need to provide adequate noise mitigation measures to protect future residents from nuisance noise emissions emanating from the Bypass.
- The amount of developable land on the site, and therefore overall potential residential lot yield, will be constrained by the need to accommodate elements of natural and ecological significance into the future development of the site.
- Issues of potential soil contamination on the Mosaic Living site will need to be overcome before sensitive residential land uses can be accommodated on the land.
- The alignment of the high pressure gas main easement bisecting the western portion of both land holdings will need to be varied at a later stage to align boundaries and land use units once agreement is reached from the appropriate beneficiaries of the easement.
- Appropriate design treatments will need to be provided to existing sensitive residential interfaces to the east and south to ensure the current amenity of these residents is reasonably protected. This may place constraints in terms of where built form can be sited and what scale and density can be achieved.
- Finally, appropriate noise mitigation technology (ie double glazed windows) may need to be incorporated into dwellings interfacing with the Melbourne Wholesale Markets site, to the north.



6.0 The Requirements of a Development Plan

Draft Schedule 20 to the Development Plan Overlay (DPO20), specifically Sections 4.0 and 5.0, set out the requirements of a 'Development Plan' for the DPA (refer Technical Documentation).

Significantly, Section 4.0 of the DPO20 requires that a Development Plan be prepared for all of the land affected by Amendment C71. The Development Plan must be generally in accordance with the 'Outline Development Plan' prepared by Coomes Consulting Group (refer Figure 10).

As shown in the Outline Development Plan, the proposed Development Plan must specifically incorporate the following principal elements:

- The northerly extension of Gillwell Road to connect to the proposed extension of Childs Road at the northern end of the land and the westerly extension of Kingsway Drive.
- Areas identified as having environmental importance in the report of Practical Ecology dated April 2001 must be set aside in open space reserves.
- The provision of land for active recreation that is to contain two senior football ovals, a pavilion, car parking and associated buffer areas around the ovals to the satisfaction of Council;
- The provision of a bicycle/pedestrian path along the northern boundary of the site that connects with the existing path provided alongside the Craigieburn Bypass to the south and that proposed along Edgars Creek as part of the Cooper Street Employment Area Development Plan to the north;
- A linear open space area along the northern and western boundaries of the land; and
- The location and layout of proposed flow control facility (otherwise referred to as the "pump station"), wetlands or retarding basins.

In summary, the Development Plan must be based on sound site and context analysis and be informed by various technical and expert assessments. It must address several aspects including:

- Cultural heritage (archaeological sensitivities)
- Flora and fauna (including arboricultural and net gain assessments)
- Land use framework and housing targets
- Noise attenuation (specifically from the adjacent highway)
- Sustainable transport networks and traffic management
- Telecommunications conduit plan
- Stormwater and sewerage management plans
- Open space and landscape masterplans
- Energy efficiency
- Amenity (both existing and future)

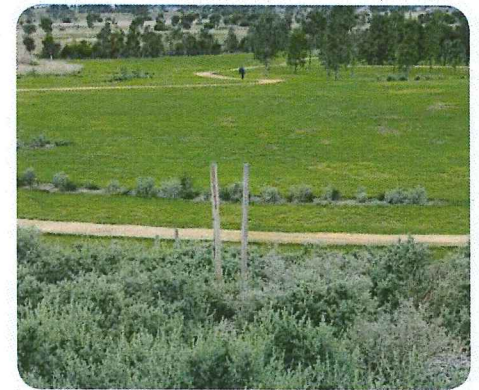
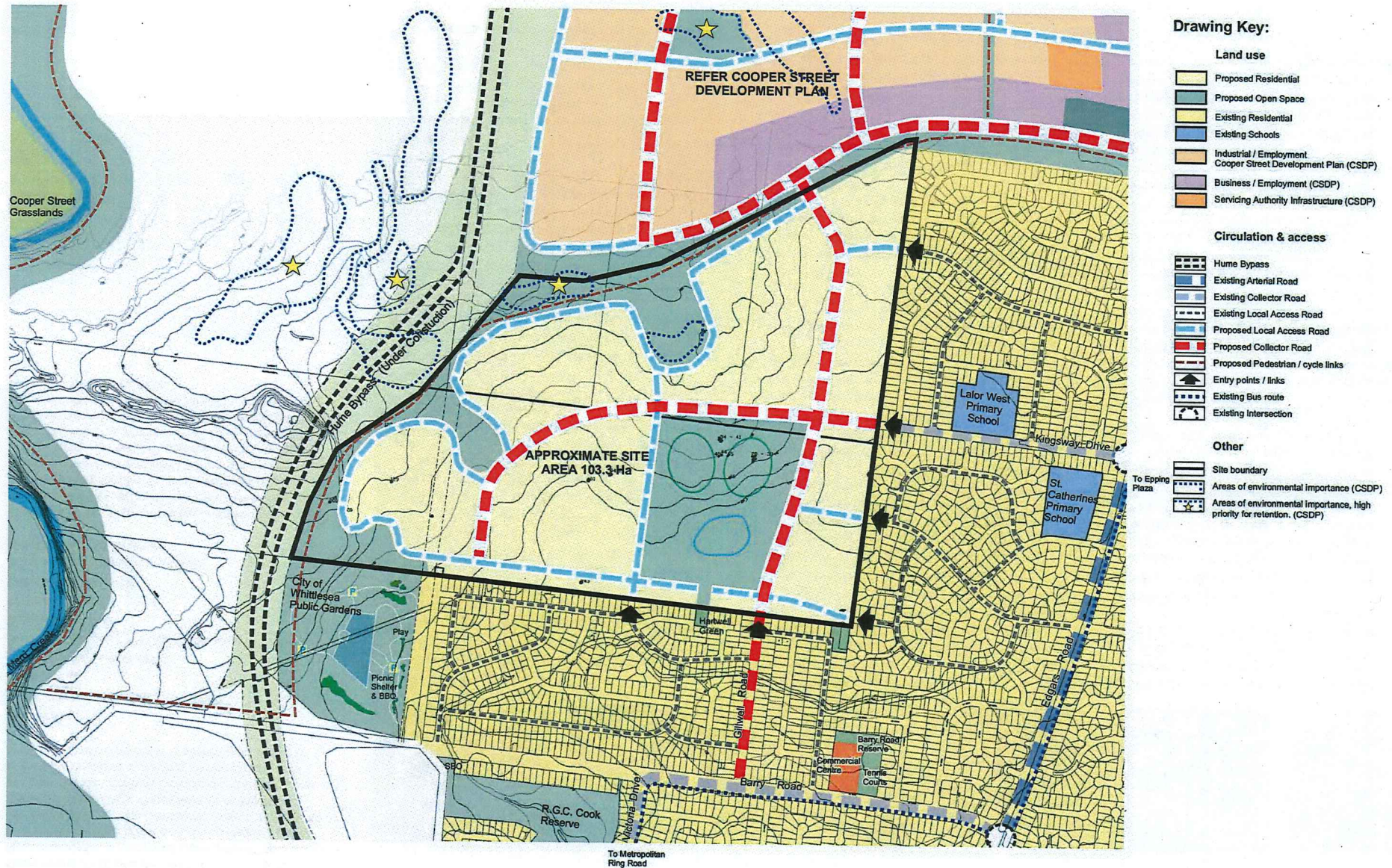


Figure 10: Outline Development Plan



7.0 Vision for a New Community: Facilitating Sustainable Development

Based on sound principles of Ecologically Sustainable Development (ESD) as espoused by Clause 56 "Sustainable Neighbourhoods", the proposed Development Plan provides for a substantial new community to be created and grafted into the physical, social and economic context of Lalor. Both ABAH Group and Cedar Woods have joined together to integrate their ideas for both Carlingford and Mosaic Living to create a community that enjoys the benefits of careful consideration of key principles of sustainability, including:

- Site planning;
- Biodiversity and ecosystem management;
- Landscaping;
- Sustainable forms of transport;
- Building design and construction methods;
- Energy efficiency;
- Waste minimisation;
- Water conservation; and
- Water sensitive urban design (WSUD) and stormwater management.

The manner in which each of these principles will be adopted throughout the Development Plan Area is detailed opposite. In adopting these principles, the proposed development meets the challenge of State and local planning policies which seek to foster "great places to be", attractive, vibrant and health communities that meet the diverse and complex needs of residents, by providing for a design response sensitive to its social, economic and environmental setting, achieving an overall net community benefit.

Adopted Principles of Ecologically Sustainable Development



Site planning

- Creating a design that is responsive to the site's opportunities and constraints and surrounding context;
- Ensuring a high degree of connectivity is achieved to open space areas and other community facilities to promote walking and efficient transportation routes;
- Providing block sizes and orientations conducive to walking and cycling to reduce reliance on vehicular transport;
- Siting residential blocks within the land to achieve maximum northerly solar access; and
- Relying on the site's existing slope for drainage, thereby minimising costs associated with servicing and the physical requirements for infrastructure provision.

Biodiversity and ecosystem management

- Providing for the retention and protection of elements of environmental significance that are either native or indigenous to the locality, including Stony Knoll Shrublands, Plains Grassland, Matted Flax Lilies and River Red Gums within dedicated conservation areas and/or public parklands;
- Offsetting the removal of any native vegetation which can not be accommodated on the land in off-site locations to contribute to the consolidation, renewal and conservation of local areas of environmental significance;
- Creating a "habitat link" north of the site for the protection and movement of local fauna between key areas of open space and conservation; and
- Creating new habitats, including the wetlands for the Growing Grass Frog, to encourage native fauna to thrive in the area.

Landscaping

- Maintaining and enhancing, where ever possible, existing areas of native vegetation;
- Establishing native species within public open spaces and along road reserves; and
- Utilising native tree plantings that have lower water demand than exotic species, resulting in lower water use.



Sustainable forms of transport

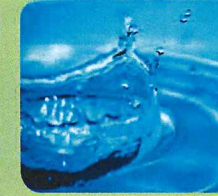
- Providing block sizes and orientations conducive to walking and cycling to reduce reliance on vehicular transport;
- Encouraging the use of alternate forms of transport to the car within the site by providing for the extension of a local bus service through the land connecting future residents to local services and facilities including the Epping Major Activity Centre to the north-east;
- Providing for the extension and integration of a pedestrian and bicycle network through the site by establishing a new shared path network which connects residents to key areas of public open space, recreation and local convenience shopping, as well as to the regional shared path network extending along the Hume Freeway.

Building design and construction methods

- Providing for building guidelines to be based on ResCode which ensure the orientation of buildings will allow maximum solar penetration to living areas and private open spaces; and
- Providing for building guidelines which ensure the upper floors of dwellings are set back from boundaries and from the rear to minimise overshadowing.

Energy efficiency

- Providing a subdivision layout which facilitates energy-efficiency building design by allowing for the siting of buildings to maximise the northerly aspect of both private and open space and living spaces, with in excess of 70% of lots complying with Standard C9 of Clause 56.04-3;
- Through the use of Siting and Design Guidelines and/or contractual arrangements, encouraging future residents and/or builders to achieve the highest energy efficiency ratings possible for individual homes based on performance measures;
- Encouraging energy saving appliances within dwellings by including requirements within building guidelines;



- Ensuring community facilities within the site aim to achieve a high level of energy efficiency; and
- Adopting the most energy efficient and cost effective street / public lighting available at the time of construction.

Waste minimisation

- During the construction phase of the project, providing appropriate recycling facilities to assist waste minimisation and diversion of recycling materials to landfill which can be enforced by Council through the buildings and works approval process; and
- Providing Council-standard recycling services to future residents and ensuring adequate room is accommodated within each lot to store appropriate recycling bins in accordance with Council requirements.

Water conservation

- Encouraging water saving appliances within dwellings by including requirements for such devices within building guidelines. Devices include reduced flush toilet systems, low flow water fittings in bathrooms and laundries, and water saving appliances in the laundry; and
- Encouraging the use of recycled water from alternative water sources for the proposed Recreation Reserve within the Mosaic Living site.

Water sensitive urban design (WSUD) and stormwater management

- Implementing a Stormwater Management Plan which includes the application of principles of water sensitive urban design (WSUD) and best practice measures for the protection of water quality and natural systems, and measures for the integration of stormwater treatment into the landscape; and
- Relying on additional sustainable measures such as retention basins and wetlands in place of underground infrastructure to generate a more natural and environmentally sensitive system.

8.0 The Proposed Development Plan

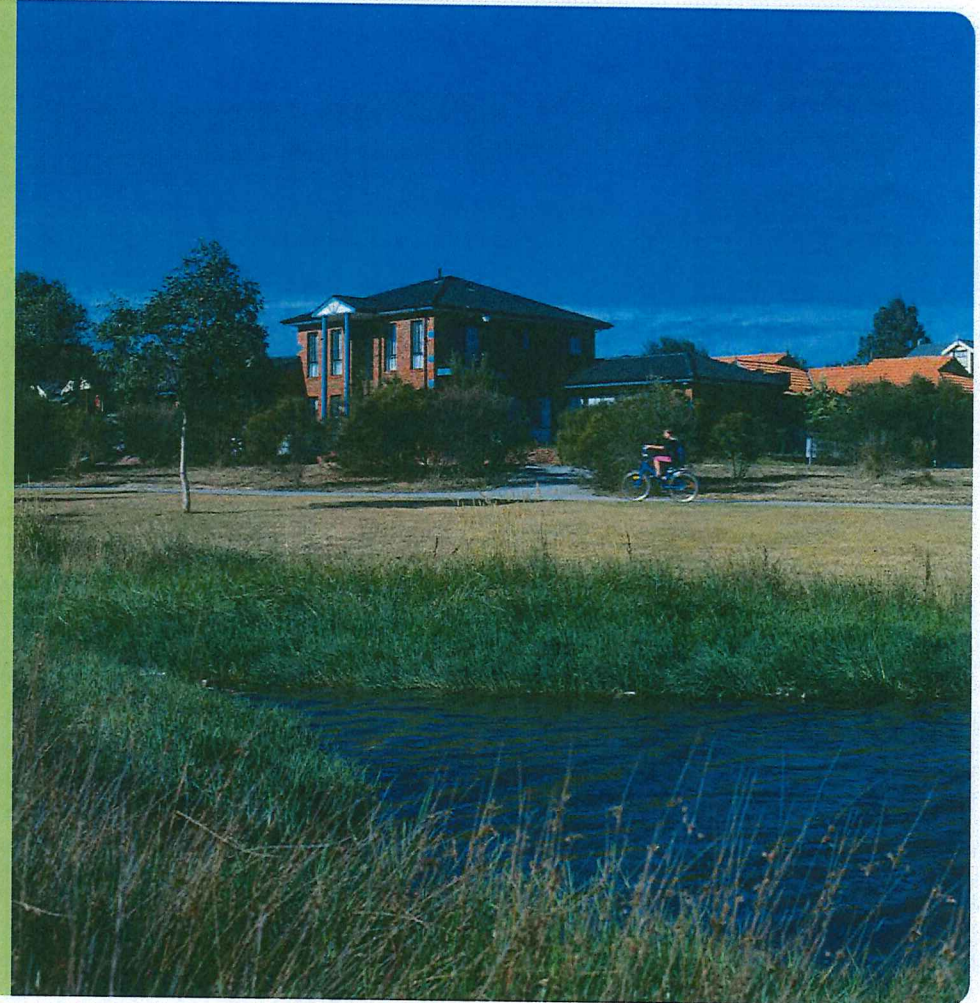
The proposed Development Plan is illustrated in Figure 11. The conceptual neighbourhood break down of the Development Plan in terms of open space, street block pattern, road pattern and local neighbourhoods is shown in Figure 12.

The principal features and outcomes of the Development Plan are outlined below.

Principal Features and Outcomes

- A street network and lot diversity which not only integrates seamlessly with, but enhances the character of the existing urban fabric.
- A variety of lot configurations including conventional allotments, medium density allotments and integrated housing sites to encourage housing diversity with a variety of people, at varied lifecycle stages and with different incomes to become part of the inclusive community.
- An area of land set aside in the south (Mosaic Living development) for an integrated residential age in place estate
- The northerly extension of Gillwell Road to connect to the proposed extension of Childs Road (Deveny Road) at the northern end of the land and the westerly extension of Kingsway Drive.
- A simple network of streets and associated pedestrian/cycle paths, typically orientated north-south to maximize solar access or "fanned" to open view-sheds to major open spaces. This includes a bicycle/pedestrian path along the northern boundary of the site that connects with the existing path provided alongside the Craigieburn Bypass to the south and that proposed along Edgars Creek as part of the CSEA Development Plan to the north.
- An interconnected network of fine-grain thoroughfares, designed for pedestrians and cyclists, to encourage walking and cycling within the local area and also between surrounding attractors.
- The provision of a total of 9.18 hectares of public open space for the purposes of drainage, conservation, passive recreation and active recreation. This includes the provision of generous areas of public open space to ensure the retention of natural features identified as having environmental importance, such as remnant grasslands. This includes a linear open space area along the outer northern and western boundaries of the land to provide for the movement of native flora and fauna.
- A designated enhanced Growling Grass Frog habitat reserve is also provided in the north-western portion of the Mosaic Living site to promote the protection and conservation of this nationally threatened species.
- The provision 6.24 hectares of land for active recreation purposes, including the two football ovals. The two full sized football ovals include the potential for two soccer pitches. Room for a pavilion and car park has also been provided.
- A central piazza area at the core of the development to form a physical and social focal point overlooking wetlands and open space. The piazza will form a mix of uses including a café, restaurant, convenience store as well as multi-level apartments. Medium density allotments have been located in close proximity to support the function of this central precinct.
- Connectivity to a range of regional retail & health services in the nearby Epping Major Activity Centre.
- Wetlands, retarding basins and other appropriate engineering measures to ensure appropriate management of stormwater.
- A staging plan that sees the site evolve from east to west, commensurate with market demand and the ability to manage short term sewer capacity constraints.

These principle features and outcomes are described in detail in the balance of this report.



NOTE
The ultimate location and alignment of this road will be subject to the resolution of the Deveny Road alignment with the Responsible Authority and DPI.

Shared path to extend to Edgars Road.
TO EDGARS ROAD
CHILDERS ROAD (DEVENY ROAD)

MAP KEY

DRAINAGE

 Proposed Wetland
(Indicative only with Melbourne Water)

RESIDENTIAL

 Standard Residential
(lots between 450-700m² in size)

 Medium Density Residential
(lots between 300-450m² in size)

 Integrated Housing

 Optional Medium Density

 Integrated Residential Age in Place Estate

 Piazza/Mixed Use

 Existing Residential

LAND USES

 Open Space

 Conservation Reserve

 Reserve Parking

 Sports Pavilion

 Shared Pathway

 Noise Wall

VEGETATION

 Indicative Tree Planting

NOTE

1. It is noted that, depending on detailed design, rear laneways may be utilised to provide access to medium density lots.
2. Design detail of intersection between Deveny and Gillwell Roads is yet to be determined and will require approval from the responsible authority and the Department of Primary Industries (DPI).
3. Downs Road is a no through road and will not provide access into the site.
4. Council may at its discretion consider applications for use and development of land for dwelling densities which may vary to those identified on this Plan where it is considered that the proposal has planning merit and does not adversely impact on adjoining and nearby residents to Council's satisfaction.

Amendment C71 Development Plan

Client ABAH Group Date 16.06.11
Reference No 6319 001 Revision 15

file name 631900VA.psd layout name A3L @ 5000 (Development Plan)
file location P:\Estate\Mosaic Living\Archive_Mosaic Living\6319

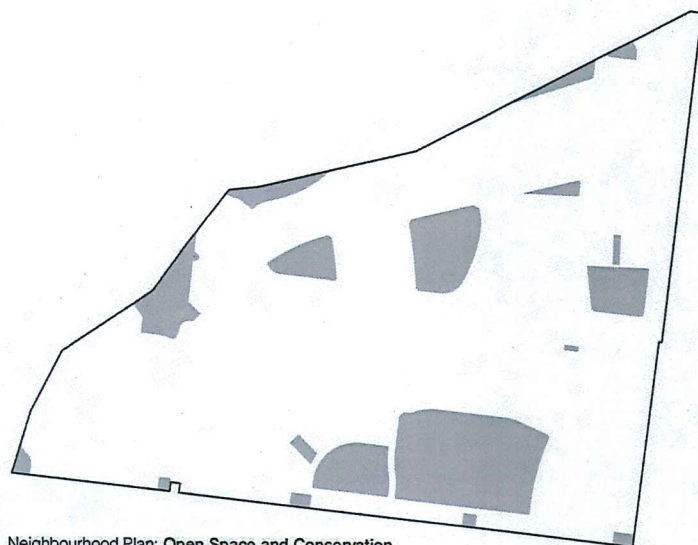
Bosco Jonson Pty Ltd
A.B.N 95 282 532 642
P.O. Box 5075, South Melbourne, Vic 3205
16 Eastern Road South Melbourne
Vic 3205 Australia DX 20524 Emerald Hill
Tel 03) 9699 1400 Fax 03) 9699 5992



NORTH
Scale 1 : 5000
50 0 50 100 150m

Development Plan

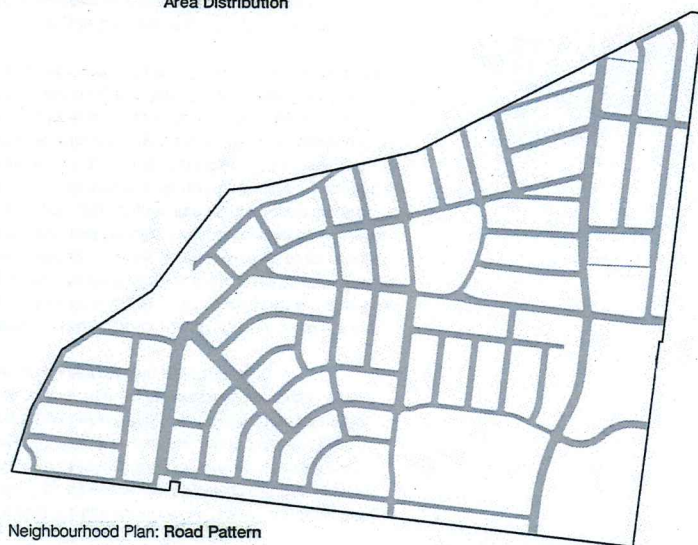
Figure 12: Neighbourhood Plans



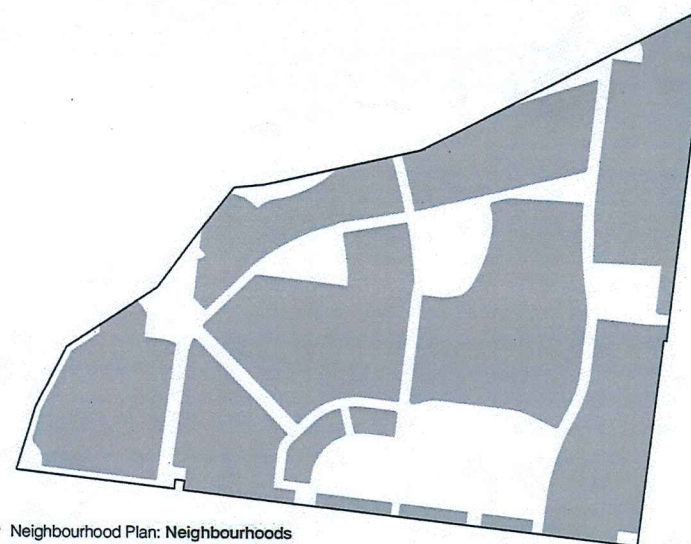
Neighbourhood Plan: Open Space and Conservation Area Distribution



Neighbourhood Plan: Street Block Distribution



Neighbourhood Plan: Road Pattern



Neighbourhood Plan: Neighbourhoods

9.0 Details of the Development Plan

9.1 Land budget

The land use framework plan in Figure 13 provides for a relatively intense residential outcome commensurate with the R2Z zoning of the DPA. However, in doing so, it also provides for a range of residential densities and house types which both contrast and complement the more uniform housing opportunities that characterise the established abutting suburb of Lalor.

Aside from providing for a small piazza / mixed use area on the Mosaic Living site, road reservations and a series of open spaces; the balance of the land will be committed to residential use. No provision has been made for social or community facilities other than public reserves, two senior ovals, and a piazza, given that an appropriate range of these services, including schools and health services, are already established in the immediate locality. The allocation of 100.77 hectares of land among the above uses is illustrated in the land budgets provided in Table 1. These tables include an overall land budget for the C71 DPA, which is derived from the site-specific land budgets for Mosaic Living and Carlingford.

In summary, 84.56 hectares or 83.91% of the site will be available for gross residential purposes, including road reservations. A total of 8.98 hectares (9.6%) of the site will be set aside for open spaces, pedestrian links and recreation reserves.



Figure 13: Land Use Framework Plan



Table 1: Land Budgets

Preliminary Land Budget Amendment C71 Development Plan - Mosaic Living and Cedar Woods

1	Gross Area	100.77 Ha	(Mosaic 57.08 Ha / Cedar Woods 43.69 Ha)
2	Encumbered Land	7.23 Ha	7.2 %
2.1	Drainage Reserve A	1.60	
2.2	Drainage Reserve B	1.14	
2.3	Drainage Reserve C - overland flow	0.17	
2.4	Open Space B - Drainage Reserve	0.02	
2.5	Open Space C - Telstra Tower	0.02	
2.6	Open Space E - Gas Main Easement	0.03	
2.7	Stoney Knoll West	0.39	
2.8	Central Stoney Knoll	1.37	
2.9	Drainage Reserve D - Kingsway Park	1.29	
2.10	Drainage Reserve E - Western Park	0.98	
2.11	Pipetrack Park	0.21	
3	Gross Developable Area	93.54 Ha	
4	Open Space (as per Concept Plan)	8.98 Ha	9.6 %
4.1	Open Space A	0.09	
4.2	Open Space B	0.11	
4.3	Open Space C	0.16	
4.4	Open Space D	0.12	
4.5	Open Space E	0.05	
4.6	Recreation Reserve	6.24	
4.7	Deveny Reserve	0.17	
4.8	Stoney Knoll West	0.26	
4.9	Linear Park	0.38	
4.10	Central Stoney Knoll	0.94	
4.11	Central Park	0.25	
4.12	Pipetrack Park	0.22	
5	Gross Residential Area	84.56 Ha	
Includes Road Reserve			
6	Road Reserve Area	24.45 Ha	28.9 %
7	Residential Allotment Area	60.10 Ha	
8	Lot Yield	1380 Lots	
	No.	Ave Size (m)	Area (ha)
8.1	Standard Lots	709	565 40.10
8.2	Medium Density lots	265	310 8.26
8.3	Optional Medium Density Lots	48	320 1.54
8.4	Integrated Housing (includes 25% Roads)	40	- 1.09
8.5	Mixed Use Zone / Piazza	61	- 1.51
8.6	Integrated Residential Age in Place Estate	-	- 4.335

Notes

- A** Areas and yields are approximate only.
- B** The site has been assessed to determine the value of grasslands or EVC's present.
- C** Size and location of retarding basins/wetlands are indicative only and subject to detailed study.
- D** The land budget is based on an ideal mathematical yield and does not take into account inefficiencies in lots due to irregular boundaries, variations in lot mix, or subtleties or constraints of lot design etc.
- E** Areas are in hectares unless otherwise stated.

Preliminary Land Budget Amendment C71 Development Plan - Cedar Woods

1	Cedar Woods Gross Area	55.43 Ha	
2	Triangle Site Outside C71 Site Area	11.74 Ha	(includes 359m of 12m wide Parksade Drive)
3	Cedar Woods - C71 Gross Area	43.69 Ha	
4	Encumbered Land	4.25 Ha	9.7 %
4.1	Stoney Knoll West	0.39	
4.2	Central Stoney Knoll	1.37	
4.3	Drainage Reserve D - Kingsway Park	1.29	
4.4	Drainage Reserve E - Western Park	0.98	
4.5	Pipetrack Park	0.21	
5	Gross Developable Area	39.44 Ha	
6	Open Space	2.21 Ha	5.6 %
6.1	Deveny Reserve	0.17	
6.2	Stoney Knoll West	0.26	
6.3	Linear Park	0.38	
6.4	Central Stoney Knoll	0.94	
6.5	Central Park	0.25	
6.6	Pipetrack Park	0.22	
7	Gross Residential Area	37.24 Ha	
Includes Road Reserve			
8	Road Reserve Area	11.22 Ha	30.1 %
9	Residential Allotment Area	26.02 Ha	
10	Lot Yield	623 Lots	
	No.	Ave Size (m)	Area (ha)
10.1	Standard Lots	360	558 21.75
10.2	Medium Density lots	85	320 2.73
10.3	Optional Medium Density Lots	48	320 1.54

Notes

- A** Areas and yields are approximate only.
- B** The site has been assessed to determine the value of grasslands or EVC's present.
- C** Size and location of retarding basins/wetlands are indicative only and subject to detailed study.
- D** The land budget is based on an ideal mathematical yield and does not take into account inefficiencies in lots due to irregular boundaries, variations in lot mix, or subtleties or constraints of lot design etc.
- E** Areas are in hectares unless otherwise stated.

Preliminary Land Budget Amendment C71 Development Plan - Mosaic Living

1	Mosaic Living Gross Area	57.08 Ha	
2	Encumbered Land	2.98 Ha	5.2 %
2.1	Drainage Reserve A	1.60	
2.2	Drainage Reserve B	1.14	
2.3	Drainage Reserve C - overland flow	0.17	
2.4	Open Space B - Drainage Reserve	0.02	
2.5	Open Space C - Telstra Tower	0.02	
2.6	Open Space E - Gas Main Easement	0.03	
3	Gross Developable Area	54.10 Ha	
4	Open Space	6.78 Ha	12.5 %
4.1	Open Space A	0.09	
4.2	Open Space B	0.11	
4.3	Open Space C	0.16	
4.4	Open Space D	0.12	
4.5	Open Space E	0.05	
4.6	Recreation Reserve	6.24	
5	Gross Residential Area	47.32 Ha	
Includes Road Reserve			
6	Road Reserve Area	13.24 Ha	28.0 %
7	Residential Allotment Area	34.08 Ha	
8	Lot Yield	867 Lots	
	No.	Ave Size (m)	Area (ha)
8.1	Standard Lots	319	575 18.35
8.2	Medium Density lots	180	310 5.53
8.3	Integrated Housing (includes 25% Roads)	40	- 1.09
8.4	Mixed Use Zone / Piazza	61	- 1.51
8.5	Integrated Residential Age in Place Estate	-	- 4.335

Notes

- A** Areas and yields are approximate only.
- B** The site has been assessed to determine the value of grasslands or EVC's present.
- C** Size and location of retarding basins/wetlands are indicative only and subject to detailed study.
- D** The land budget is based on an ideal mathematical yield and does not take into account inefficiencies in lots due to irregular boundaries, variations in lot mix, or subtleties or constraints of lot design etc.
- E** Areas are in hectares unless otherwise stated.

9.2 Housing outcomes and population yield targets

The land budget foreshadows a total yield of 1380 residential dwellings. As detailed in Table 2, a range of diverse housing products is proposed including:

- Apartment style living in conjunction with small retail services.
- Integrated Residential Age in Place Estate including Retirement Living Villa Units and Apartments together with a Residential Age Care Facility
- Town houses and cottages, in terrace forms;
- Duplex housing; and
- Conventional and detached housing on a range of lots varying between an average size of 450m² and 700m².

Table 2 details the quantity and distribution of housing types, anticipated occupancy rates and forecast populations for each type of housing. The occupancy rate for the retirement component and the smallest lots has been reduced to differentiate their particular occupancy circumstances from that anticipated for more conventional housing.

In summary, it is anticipated that the DPA will support a residential population of approximately 3,300 persons. The scope and range of accommodation will suit a complex and diverse population including:

- Aged singles and couples;
- Traditional and extended families;
- Single person households;
- Young professional couples; and
- First and more mature home buyers.

It is anticipated that the new housing opportunities introduced by this proposal will encourage some mobility and transition of households within the Lalor area, particularly households, which seek a different housing product to suit their lifestyle or stage in the lifecycle, but want to remain close to family, friends and established networks and familiar surroundings.

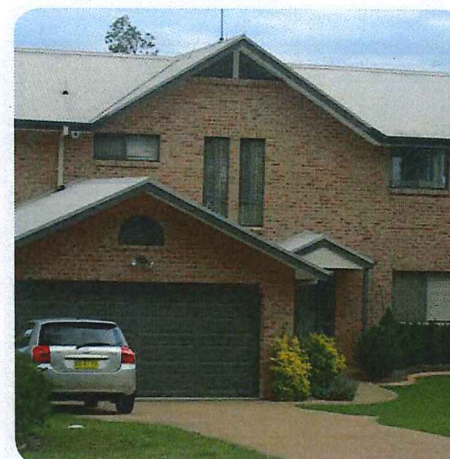


Table 2: Housing outcomes and population yield targets

House Type	Lot Sizes	Mosaic Living	Carlingford	Total Dwellings	Occupancy Rates	Population
Standard Density	450 - 700m ²	319 Lots	390 Lots	709 Lots	2.9	2056
Medium Density	300 - 450m ²	180 Lots	85 Lots	265 Lots	2.2	583
Optional M. Density	300 - 450m ²	0 Lots	48 Lots	48 Lots	2.2	106
Integrated Housing	N/A	40 Units	0 Units	40 Units	2.2	88
Mixed Use/Piazza	N/A	61 Units	0 Units	61 Units	2.2	134
Dwelling Total		600 Dwellings	523 Dwellings	1123 Dwellings		2967
Integrated Residential Age in Place Estate						
Residential Age Care Facility		120 Beds			1	120
Retirement Living Apartments (ILA's)		45 - 55 Units		45 - 55 Units	1.1	50 - 61
Retirement Living Villa Units (ILU's)		75 - 85 Units		75 - 85 Units	1.7	128 - 145
Integrated Residential Age in Place Estate Total		120 Beds 120-140 Units		120 Beds 120-140 Units		120 (178 - 206)
Total Population						3265 - 3293

Note

1. Occupancy Rate Assumptions

- Standard Residential Rates 2.9
- Medium Density Occupancy Rates 2.2
- Optional Medium Density Rates 2.2
- Integrated Housing Rates 2.2
- Mixed Use/Piazza Rates 2.2
- Residential Age Care Facility Occupancy Rates 1
- Retirement Living Apartments Occupancy Rates 1.1
- Retirement Living Villa Units Occupancy Rates 1.7

Source - Australian Bureau of Statistics, 2006 Census QuickStats : Lalor (State Suburb) October 2007

2. Integrated Housing

The number of residential units is based on a variety of dwelling types and has been calculated on an average unit area of approximately 200m².

This number may change as a consequence of marketing feasibility.
Note that it is not intended to subdivide the integrated housing sites.

3. Mixed Use Zone

The number of residential dwellings is based on a variety of apartment style dwellings and has been calculated on an average floor area of 250m².
This number may change as a consequence of market feasibility and architectural design.
Refer to Section 9.4.2 Site Density and Building Height (page 36).

4. Integrated Residential Age in Place Estate.

The number of Retirement Units is based on a variety of 1 - 3 Bed Retirement Living Apartments and 2 - 3 Bed Retirement Living Villa Units with the final yield subject to separate planning approval process.

9.3 Movement Network

A detailed Traffic Management Plan (prepared by the Traffic Group) is provided in the Technical Documentation. The key features of that Plan and the Development Plan as it affects the movement network are outlined below and summarised in Figure 14.

9.3.1 Main road network

The proposed road hierarchy is illustrated in Figures 15 and 16. The Development Plan provides for three major connections into the existing road network at:-

- Kingsway Drive;
- Gillwell Road / Barry Road; and
- A new connection of Childs Road / Deveny Road through to Edgars Road

This network reflects the principal road connections identified in the Outline Development Plan. Cross sections and other details of these roads are detailed in Figure 17.

A 45 metre wide road reservation has been provided for the extension of Childs Road / Deveny Road from Edgars Road to the north east corner of the site. This is an undertaking by Cedar Woods as part of its development of the Carlingford estate. It is understood that the Markets will not have access to this road and therefore the road will only need to provide for a single carriageway in either direction.

Section 9.11 of this report contains the proposed Staging Plan for the site. As a matter of principle, development will access and egress the site via local existing connections until they have reached their carrying capacity, and access to this northern route will be required. The Traffic Group have deemed this point to be achieved prior to the release of the 397th lot within the Mosaic Living site and/or prior to the release of the 238th lot within the Cedar Woods site (refer Traffic Management Plan in the Technical Documentation).

9.3.2 Local road network

Details of the local network are shown in Figures 15 and 16 and illustrated in cross sections shown in Figure 17. The Development Plan provides for integration with established areas through connections at:

- Mossman Crescent;
- Pinetree Crescent; and
- Elizabeth Drive

The structure and layout of the local network is characterised and influenced by the following considerations:-

- A modified grid that distorts to respect the irregular shape of the site particularly in the land held by Cedar Woods.
- A predominantly north-south and east-west orientation to protect the solar orientation benefits to lots.
- Treatment of the majority of intersections as T junctions or cross roads, with reliance upon roundabouts as detailed on the Development Plan. Due to the distortion of the grid, select intersections demand a different custom designed treatment. These treatments are illustrated in Figure 14.
- With the exception of land adjacent to the pipetrack, the movement network avoids reliance upon courts.
- The overall network provides for a high level of permeability and connectivity throughout the development and optimises the potential to connect with the established areas to the east and west as well as the open spaces within the development.

9.3.3 Pedestrian, cycle and public transport network

The proposal provides for a shared pedestrian and cycle network as illustrated in Figure 18. In accordance with Council requirements, the cycle path is to integrate into the road pavement where vehicle movements exceed 3000vpd.

The network also provides three points of pedestrian connectivity to the existing shared path running adjacent to the sites western boundary with the freeway.

Figure 19 shows that the Development Plan provides for the potential extension of the 557 bus route through the proposed development site, connecting the site to the existing public transport network. This plan shows that the majority of proposed dwellings will fall within the required 400 metre walking distance catchment. Moreover, it shows that access to public transport will be further enhanced for existing residents in this area as a direct result of the extended network.



LEGEND

- NOTE: THE INTERSECTION TREATMENT BETWEEN DEVENY AND GILWELL ROADS IS TO BE RESOLVED WITH APPROVAL BY THE RESPONSIBLE AUTHORITY AND DEPARTMENT OF PRIMARY INDUSTRIES (DPI)**



Amendment C71 to the Whittlesea Planning Scheme Development Plan for an Integrated Community

Figure 15: Road Hierarchy Plan

LEGEND

- COLLECTOR ROAD
- ACCESS STREET - PRIMARY
- ACCESS STREET - SECONDARY



Source: Traffix Group

Figure 16: Thoroughfare Plan

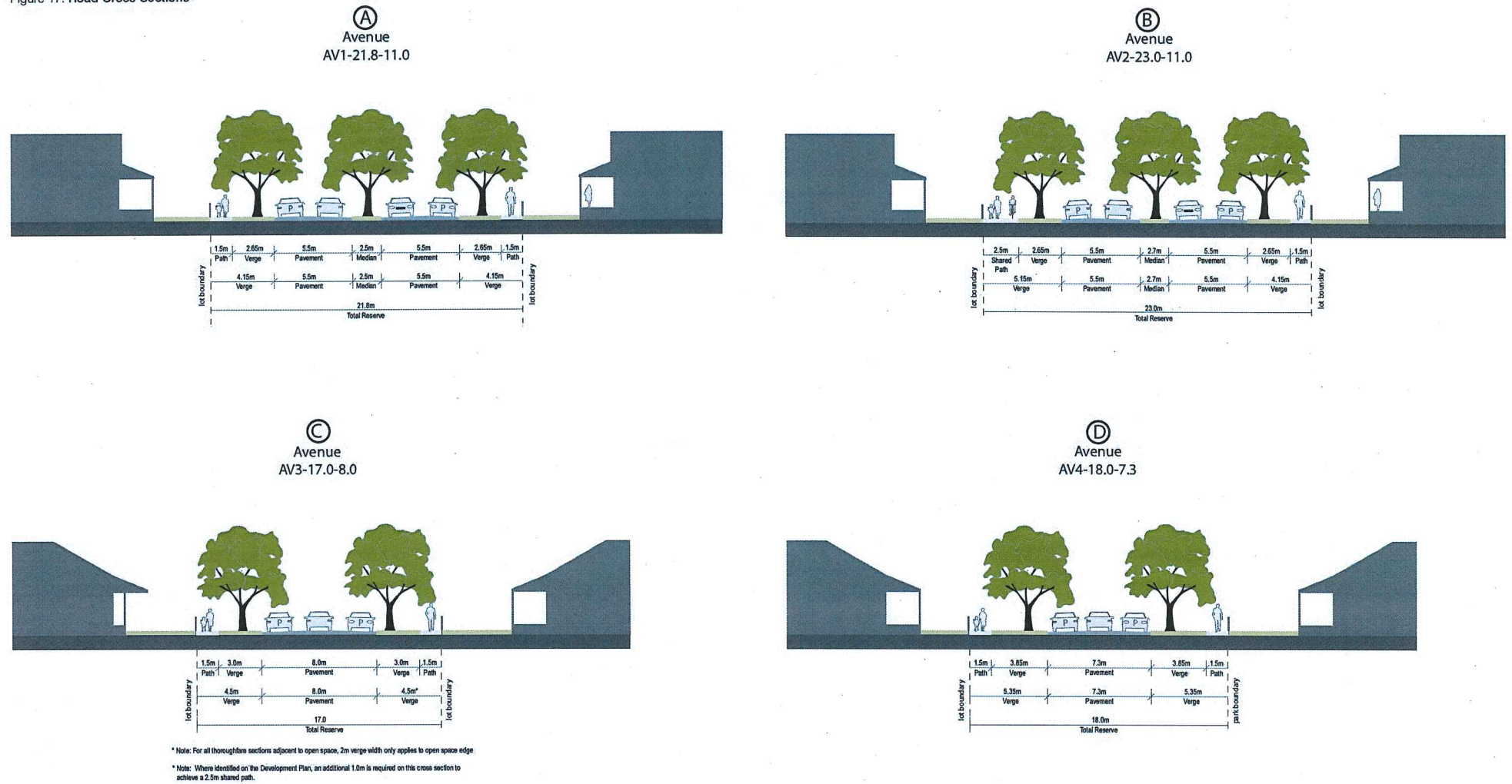
THOROUGHFARE PLAN LEGEND		
No	THOROUGHFARE TYPE	CODE
A	AVENUE 1	AV1 - 21.8 - 11.0
B	AVENUE 2	AV2 - 23.0 - 11.0
C	AVENUE 3	AV3 - 17.0 - 8.0
D	AVENUE 4	AV4 - 18.0 - 7.3
E	AVENUE 5	AV5 - V - 11.0
F	STREET 1 - MAIN	ST1 - 21.0 - 11.0
G	STREET 2 - LOCAL	ST2 - 17.0 - 7.3
H	STREET 3 - LOCAL	ST3 - 16.0 - 7.3
I	DRIVE 1 - PARKSIDE	DR1 - 12.0 - 5.5
J	DRIVE 2 - PARKSIDE	DR2 - 13.8 - 7.3
K	DRIVE 3 - PARKSIDE	DR3 - 13.9 - 9.6
L	DRIVE 4 - PARKSIDE	DR4 - 17.4 - 11.0
M	DRIVE 5 - PARKSIDE	DR5 - 18.4 - 9.6
N	BOULEVARD - DIAGONAL	BL1 - 27.0 - 11.0
O	BOULEVARD - GAS MAIN	BL2 - 27.0 - 11.0
P	STREET 4 - LOCAL	ST4 - 17.0 - 7.3
Q	COMMERCIAL STREET 1	CS1 - 18.85 - 9.4
R	PEDESTRIAN LINK 1	PL1 - 12.0
S	PEDESTRIAN LINK 2	PL2 - 16.0

Refer to Figure 17 for cross sections of above thoroughfare types



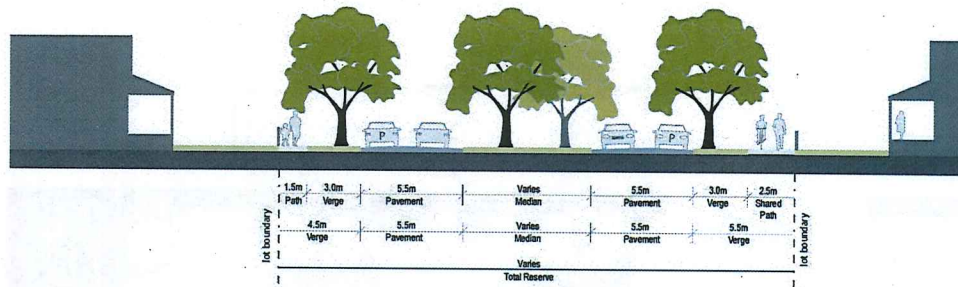
Source: Roberts Day

Figure 17: Road Cross Sections



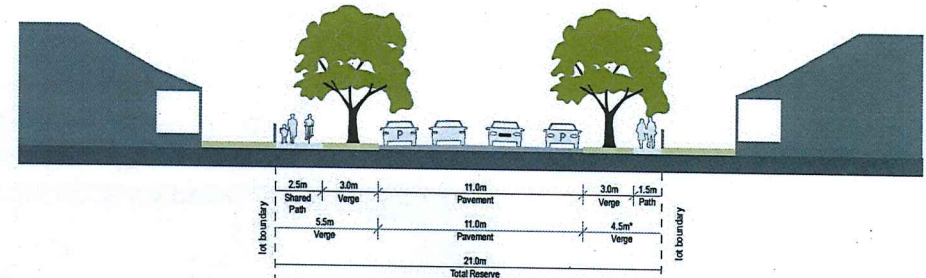
*Note: Nature Strip dimensions are from the edge of the footpath to the face of the kerb.

Ⓔ
Avenue
AV5-V-11.0



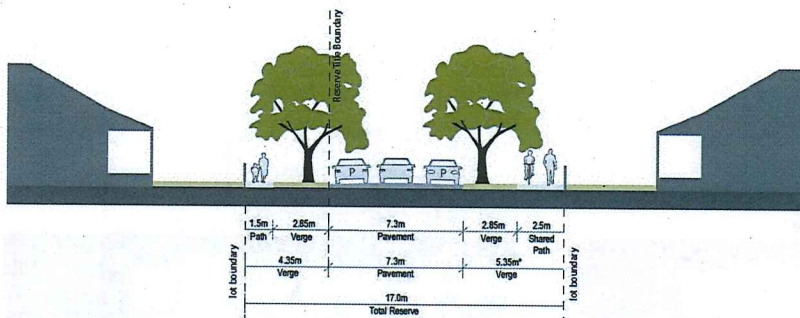
* Note: Typical cross section E is subject to further detailed design at the planning permit stage.

Ⓕ
Main Street
ST1-21.0-11.0



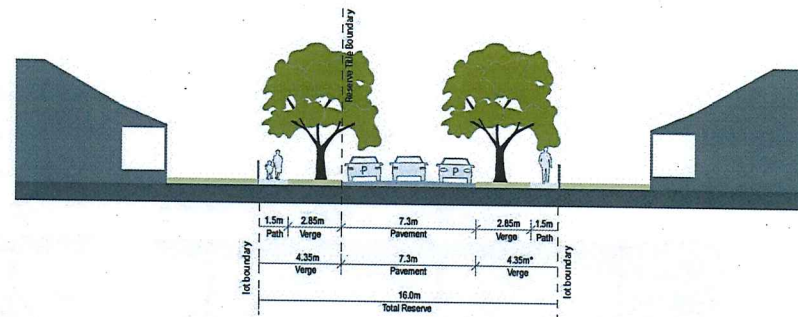
* Note: For all thoroughfare sections adjacent to open space, 2m verge width only applies to open space edge

Ⓖ
Street
ST2-17.0-7.3

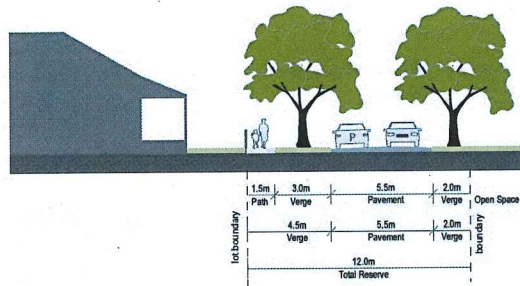


* Note: Widen road by 4 metres to cater for large branch sewer on eastern side.

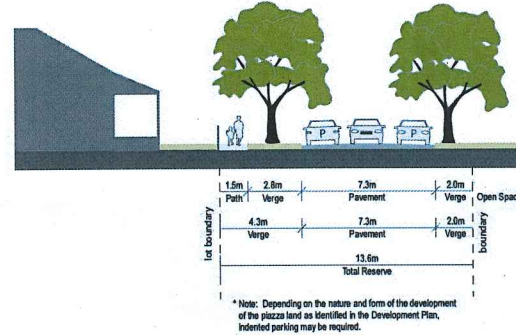
Ⓕ
Street
ST3-16.0-7.3



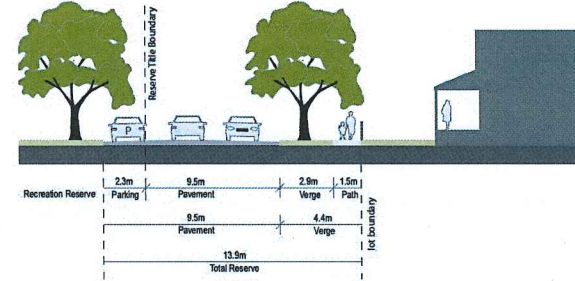
①
Parkside Drive
DR1-12.0 - 5.5



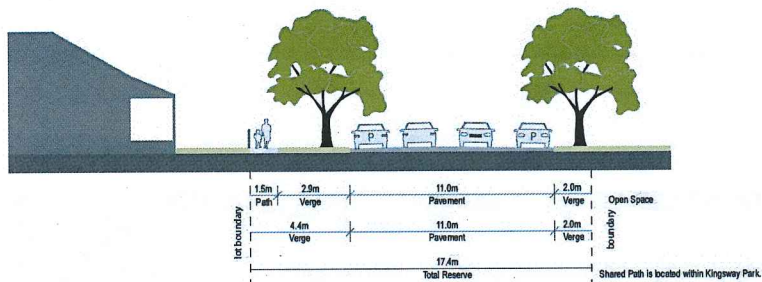
②
Parkside Drive
DR2-13.6 - 7.3



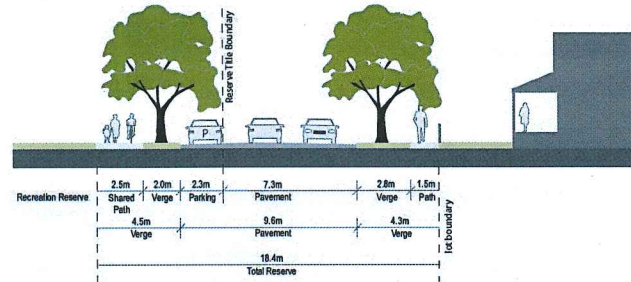
③
Parkside Drive
DR3-13.9 - 9.6



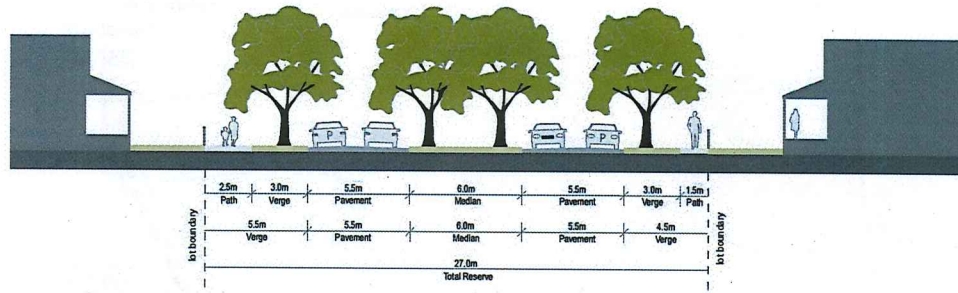
④
Parkside Drive
DR4-17.4 - 11.0



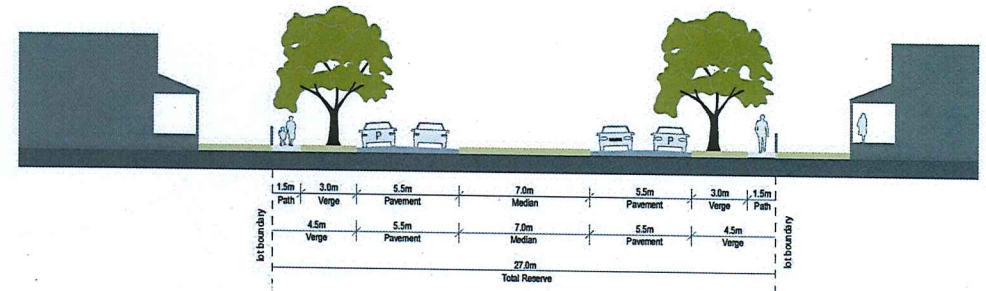
⑤
Parkside Drive
DR5-18.4 - 9.6



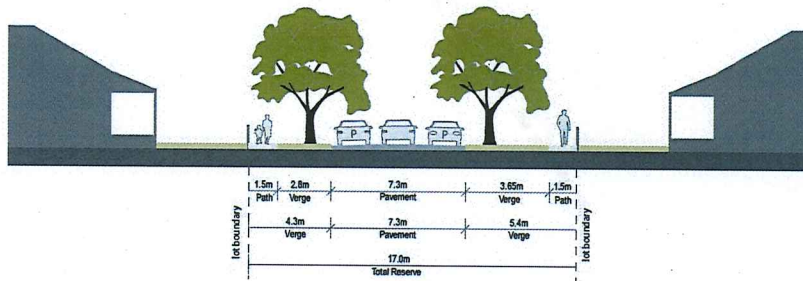
(N)
Diagonal Boulevard Road
BL1- 27.0-11.0



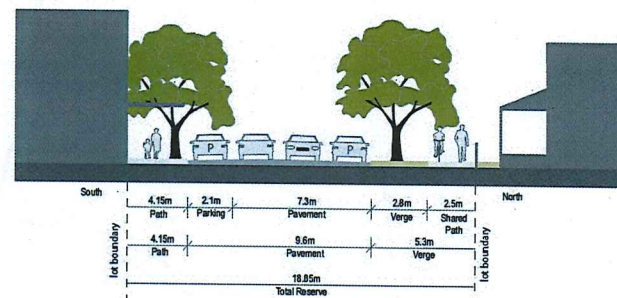
(O)
Boulevard
(With Gas Main)
BL2- 27.0 - 11.0



(P)
Street
ST4-17.0-7.3

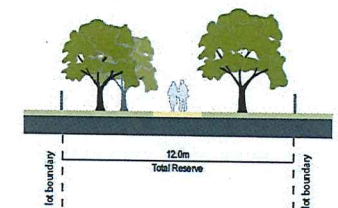


(Q)
Commercial Street
CS1-18.85-9.4



*Note: Where indicated shared path reverts to 1.5m footpath

(R)
Pedestrian Link
PL-12.0



(S)
Pedestrian Link
PL-16.0

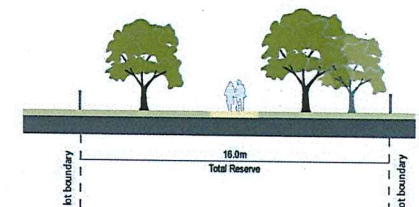


Figure 18: Pedestrian and Cycle Network Plan

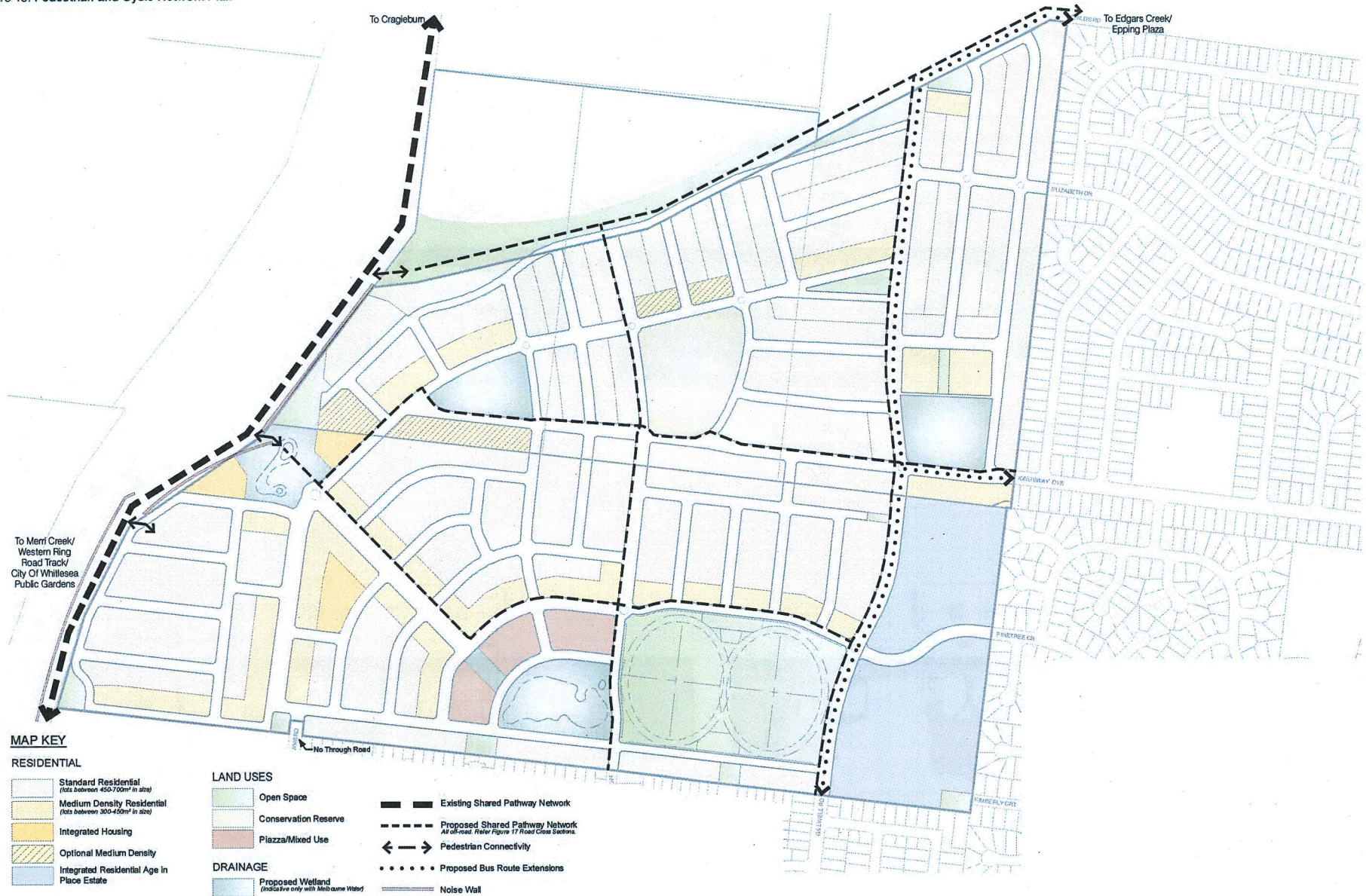
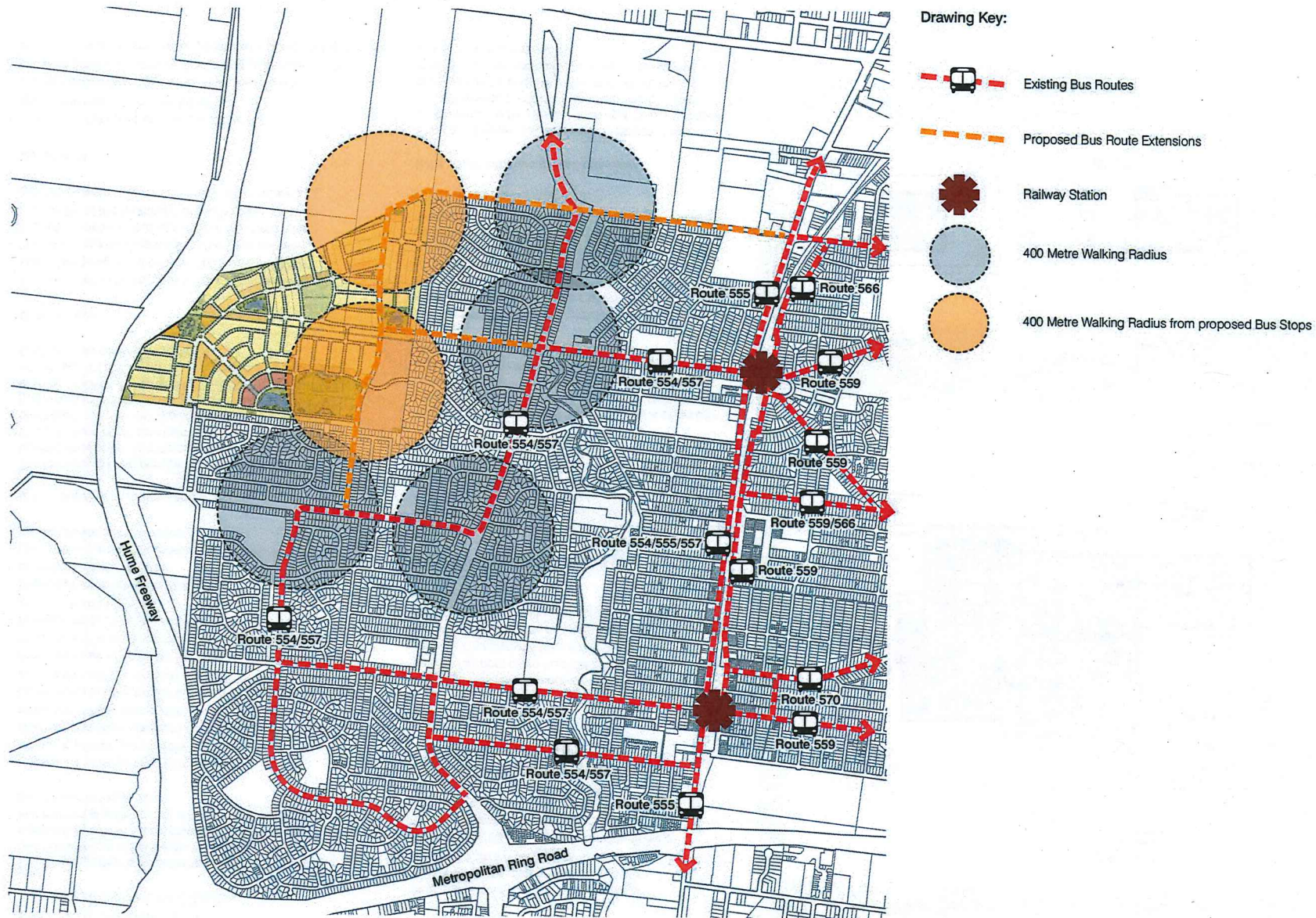


Figure 19: Public Transport Network Plan



9.4 Lot planning and building envelopes

The following generic lot planning principles will generally be applied to lots within the development to promote sustainability and site responsive design. It is noted, however, that they are guidelines only, and may vary as necessary. They are detailed in Figure 20:

- Houses are to be planned to maximise privacy to private open spaces.
- Orientation to allow maximum solar penetration to living areas and private open spaces will be considered.
- Upper floors to be generally at the front to provide a presence in the street and to minimise overshadowing to the rear.
- Front doors are to be visible from the street to give address to house and to provide passive surveillance for security.
- Garages are to be set back further than the main house elevation.
- Driveways are to accommodate visitor parking where practicable.
- Living, dining and family rooms to be arranged around private outdoor space.

9.4.1 Building envelopes and setbacks

The following guiding principles will apply in relation to building envelopes. Specific envelopes will be developed for each stage of the development (where appropriate) and designed to comply with Standard C8 of Clause 56.04-2 (Lot area and building envelopes objective). The building envelopes will be implemented via an appropriate restriction on the relevant plan of subdivision and/or Siting and Design Guidelines as detailed in Section 9.4.3.

Ground Level

- All houses are to be set back a minimum of 3m from the street with garages set back further, typically at 5m.
- The rear of any dwelling would be set back between 1 and 6m unless an interface allotment as detailed in Section 9.6 of this report and one side of the house is typically between 0 and 2m from the lot boundaries.

Upper level

- The front of the upper level would also to be set back a minimum of 3m from the street.
- The rear and garage side at the upper level need to consider good solar amenity to adjoining properties, prevent overshadowing and ensure compliance with privacy setbacks.

Corner Sites

- House on corner sites have a minimum 3m setback from the primary frontage, and 2m setbacks from the secondary frontage.
- Solid fences provided to the secondary frontage for private open space requirements are to be a maximum of 40% of the length of the frontage. These fences are typically 1.8m high.
- Upper storey setbacks are as per typical house plan illustrated in Figure 20b.

Terraced houses

- Where houses are terraced, the front is set back a minimum of 3m from the street, and all garages are accessed from a rear lane. In corner situations, the end house of the terrace has an increased lot size to allow a 2-3m setback to the side (typically).

9.4.2 Site density and building height

A diversity in house sizes and types are proposed across the DPA, in line with ResCode and Council objectives. This also helps to create a variety of site densities. The overall average gross density planned for the estate (including roads) is approximately 16.31 dwellings per hectare (1 dwelling per 613m²).

The height of development across the whole of the DPA will not typically exceed 2 storeys (or 9m), except in areas of higher density (ie. the Piazza) where building height may reach three storeys (or 12m) above natural ground level, subject to planning permit approval.

The height of development on the residential age in place estate will be limited to single storey villa units to the southern and eastern portions of the site that interface with established residential areas. Opportunities for increased height up to a maximum of 2 storeys will be considered subject to planning approval for the residential aged care facility and appropriately located apartment style retirement units.

9.4.3 Built form design and character

Siting and Design Guidelines will be prepared and implemented by the relevant developer for both estates. This will provide continuity in the form and quality of development for both the public and private realms, ensuring that the standard of development across the DPA is of the highest quality.

Figure 20a: Lot Planning Principles

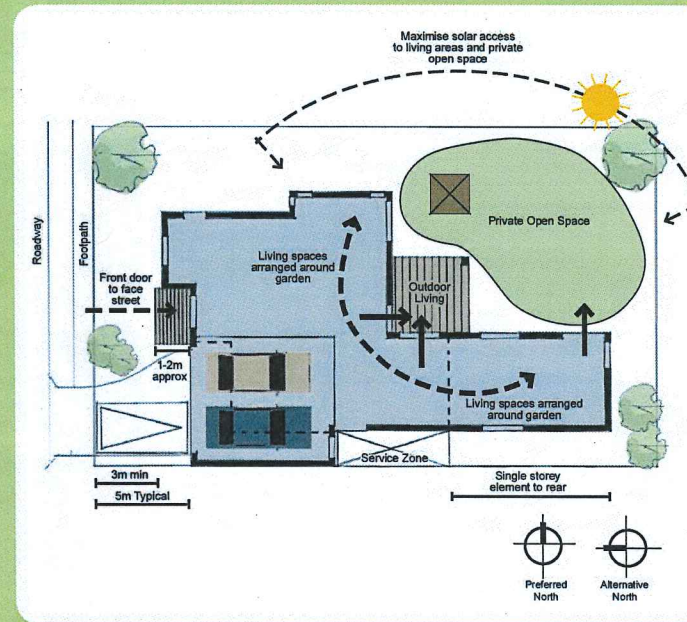


Figure 20b: Upper Level Building Envelope

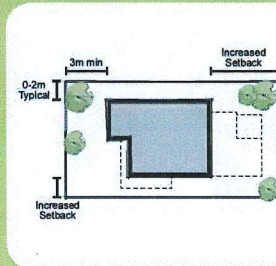


Figure 20c: Ground Level Building Envelope

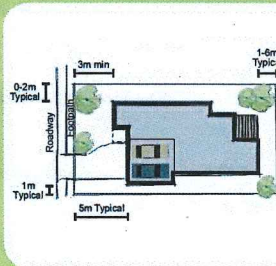
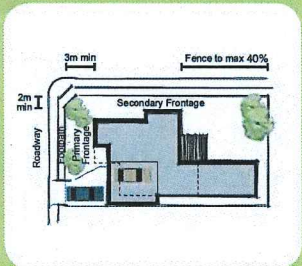


Figure 20d: Corner Lot



9.5 Landscaping and open space

The Development Plan provides for an Open Space Master Plan and associated concept plans for each public open space reserve, as well as a Street Tree Master Plan. (refer Figures 22, 23, 24 and 25). Table 4 details the proposed function and characteristics of each reserve.

9.5.1 Open Space Master Plan

As detailed in Figure 22 and the associated schedule and concept plans, the Open Space Master Plan provides for a wide diversity of open space areas, serving a multitude of functions. In total, the ABAH Group will contribute 6.78 hectares of land for open space purposes, whilst Cedar Woods will contribute 2.21 hectares, as agreed to with Council.

Designated open spaces range from major, formal and active ovals of approximately 6.24ha in size (as agreed to with Council), a large habitat corridor and "buffer" north of the DPA (approximately 30m in width), through to smaller neighbourhood reserves scattered throughout the DPA.

The reserves serve a variety of requirements including for recreational needs, drainage functions, environmental protection purposes, and land use buffers to the highway in the west and industrial land to the north.

9.5.2 Street Tree Master Plan

The proposed Street Tree Master Plan provides for an integrated and themed landscape setting for the proposal. It draws from the character of existing residential areas in close proximity to the site to integrate with the immediate neighbourhood areas. The plan is dominated by native species including Bottlebrush, Coast Banksia and Dwarf Snow Gum. The chosen range of species has been specifically selected from Council's preferred list of street trees.

9.5.3 Flora and fauna

Vegetation protection and enhancement and net gain

This section should be read in conjunction with the proposed Vegetation Retention and Removal Plan (Figure 21) and associated Schedule (Table 3).

ABAH Group intends to remove all vegetation in the southern portion of the DPA apart from the sole River Red Gum on the eastern boundary of the site, and a Yellow Gum and Yellow Box in the south-east corner, each of which may be incorporated into the Integrated Residential Age in Place Estate design. Due to the absence of threatened flora species, the lack of remnant native vegetation and the minimal number of indigenous trees in this area; no net gain measures are required to be fulfilled (Brett Lane & Associates, August 2007).

Cedar Woods intends to remove all trees from the site, apart from two River Red Gum specimens which will be retained within the proposed Deveny Reserve and Central Park. Given all the River Red Gums are planted trees, no planning approval or net gain offsets are required. For those trees that are to be retained on-site, 'tree protection strategies' have been prepared to ensure that these trees will be protected from damage during development (refer arboricultural reports in the Technical Documentation).

A combined total of 6.43 hectares of remnant native vegetation is located on the site. As shown in the Development Plan, whilst Cedar Woods proposes to retain a total of almost 2.99 hectares of the higher quality areas of plains grasslands and stony knoll shrubland, a total of approximately 3.44 hectares will be removed. The total net gain target required for the removal of this vegetation is 2.7 habitat hectares, and the gain to be achieved on-site by retaining and managing remnant vegetation is 1.10 habitat hectares, leaving an off-site net gain requirement of 1.60 habitat hectares. Accordingly, Cedar Woods have prepared a Native Vegetation Management Plan to implement these offsets which can be conditional on subsequent planning permits.

With regards to the Matted Flax-lily, 16 of the 20 specimens detected on site, are to be translocated to proposed conservation reserves in the north of the site. This action has been approved under the EPBC Act, as already noted.



Figure 21: Tree Retention and Removal Plan

The map displays two primary land parcels: Cedar Woods Land and Mosaic Living Land. Cedar Woods Land is located in the upper portion of the map and contains several large green and orange retention zones. Mosaic Living Land is situated in the lower portion and includes a large green retention area. Numerous red dots are scattered across the map, indicating trees scheduled for removal. Green dots, labeled C5, C7, and M3, M4, indicate trees to be retained. The map also shows surrounding streets such as Elizabeth Dr, Kingsbury Dr, and M21. A legend at the bottom left specifies 'No through road'.

VEGETATION

M21	Existing trees to be retained
	Reference number of tree to be retained
	Prefix indicates arborist report tree was assessed as part of: C - Carlingford Arborist Report; Tree Logic; Feb 2008 M - Mosaic Living Arborist Report; Homewood Consulting; Dec 2003
	Number provides reference to number within associated arborist report

- NOTE**

1. Trees have been assessed through two separate Arboricultural Reports - one for the Cedar Woods Land, Carlingford and another for the Mosaic Living Land. Both of these have been used in the preparation of the Vegetation Retention and Removal Plan and subsequent schedule.
2. The Matted Flax Lilies are to be translocated to the conservation reserves, consistent with approvals obtained from the Federal Department of Environment and Heritage, pursuant to the *Environment Protection and Biodiversity Conservation Act 1999*.

Table 3: Tree Retention and Removal Schedule

Trees for Retention
Carlingford

Botanical Name	Common Name	Type	Number of trees retained	Tree significance
<i>Eucalyptus camaldulensis</i>	River Red Gum	Indigenous	2	Moderate

Trees for Removal
Carlingford

Botanical Name	Common Name	Type	Number of trees removed	Tree significance
<i>Cupressus macrocarpa</i>	Monterey Cypress	Exotic	2	None - Low
<i>Eucalyptus camaldulensis</i>	River Red Gum	Indigenous	3	Low - High
<i>Eucalyptus cladocalyx</i>	Sugar Gum	Native	1	None
G1 Includes the following: <i>Eucalyptus camaldulensis</i> <i>Eucalyptus polyanthemos</i> <i>Melaleuca armillaris</i> <i>Eucalyptus kloniana</i> <i>Acacia melanoxylon</i> <i>Eucalyptus cladocalyx</i> <i>Hakea salicifolia</i> <i>Eucalyptus melliodora</i> <i>Acacia decumens</i> <i>Eucalyptus viminalis</i>	River Red Gum Red Box Bracelet Honey Myrtle Gippsland Mallee Blackwood Sugar Gum Willow-Leaved Hakea Yellow Box Early Black Wattle Manna Gum	Victorian Native	77	Low - Moderate
G2 Includes the following: <i>Eucalyptus camaldulensis</i> <i>Eucalyptus polyanthemos</i> <i>Melaleuca armillaris</i> <i>Eucalyptus leucoxylon</i> <i>Acacia melanoxylon</i> <i>Eucalyptus cladocalyx</i> <i>Hakea salicifolia</i>	River Red Gum Red Box Bracelet Honey Myrtle Yellow Gum Blackwood Sugar Gum Willow-Leaved Hakea	Victorian Native	66	Low - Moderate
G4 Includes the following: <i>Cupressus macrocarpa</i> <i>Pinus radiata</i>	Monterey Cypress Monterey Pine	Exotic	11	Low

Trees assessed outside of C71 Subject Site
Carlingford

Botanical Name	Common Name	Type	Number of trees	Tree significance
<i>Eucalyptus camaldulensis</i>	River Red Gum	Indigenous	3	Low - Moderate
G3 Includes the following: <i>Eucalyptus botryoides</i> <i>Eucalyptus camaldulensis</i> <i>Acacia melanoxylon</i> <i>Eucalyptus cladocalyx</i> <i>Eucalyptus polyanthemos</i> <i>Melaleuca armillaris</i> <i>Eucalyptus nicholii</i> <i>Hakea salicifolia</i> <i>Acacia baileyana</i> <i>Eucalyptus leucoxylon</i> <i>Acacia measmii</i> <i>Acacia floribunda</i> <i>Eucalyptus gomphocephala</i>	Mahogany Gum River Red Gum Blackwood Sugar Gum Red Box Bracelet Honey Myrtle Narrow-Leaved Peppermint Willow-Leaved Hakea Cootamundra Wattle Yellow Gum Late Black Wattle Gossamer Wattle Tuart	Victorian Native	182	Low - Moderate

Trees for Retention
Mosaic Living

Botanical Name	Common Name	Type	Number of trees retained	Tree significance
<i>Eucalyptus camaldulensis</i>	River Red Gum	Indigenous	1	Low
<i>Eucalyptus leucoxylon</i>	Yellow Gum	Native	1	Very Low
<i>Eucalyptus melliodora</i>	Yellow Box	Indigenous	1	Very Low

Trees for Removal
Mosaic Living

Botanical Name	Common Name	Type	Number of trees removed	Tree significance
<i>Acacia baileyana</i>	Cootamundra Wattle	Native	2	Very Low
<i>Acacia dealbata</i>	Silver Wattle	Indigenous	34	Low - Very Low
<i>Acacia howittii</i>	Sticky Wattle	Native	1	Very Low
<i>Acacia implexa</i>	Lightwood	Indigenous	6	Very Low
<i>Acacia longifolia</i>	Sallow Wattle	Native	15	Very Low
<i>Acacia melanoxylon</i>	Blackwood	Indigenous	51	Low - Very Low
<i>Acacia praevisima</i>	Ovens Wattle	Indigenous	11	Very Low
<i>Acacia pycnantha</i>	Golden Wattle	Native	10	Very Low
<i>Acacia retinoides</i>	Witida	Native	40	Very Low
<i>Allocasuarina littoralis</i>	Black She-Oak	Native	2	Very Low
<i>Allocasuarina verticillata</i>	Drooping She-Oak	Native	4	Very Low
<i>Chamaecyparis lawsoniana</i>	Lawson Cypress	Exotic	9	Very Low
<i>Chamaecyparis leylandii</i>	Leyland Cypress	Exotic	1	Very Low
<i>Corymbia citriodora</i>	Lemon Scented Gum	Native	4	Low - Very Low
<i>Crataegus monogyna</i>	Hawthorn	Exotic	1	Very Low
<i>Eucalyptus botryoides</i>	Mahogany Gum	Native	3	Very Low
<i>Eucalyptus celastroides</i>	Snap and Rattle	Native	62	Very Low
<i>Eucalyptus cladocalyx</i>	Sugar Gum	Native	1	Very Low
<i>Eucalyptus cladocalyx</i> 'Nana'	Dwarf Sugar Gum	Native	1	Very Low
<i>Eucalyptus confertiflora</i>	Broad Leaved Carbeen	Native	3	Very Low
<i>Eucalyptus leucoxylon</i>	Yellow Gum	Indigenous	3	Very Low
<i>Eucalyptus polyanthemos</i>	Red Box	Native	1	Very Low
<i>Eucalyptus rubida</i>	Candle Bark	Indigenous	21	Low - Very Low
<i>Fraxinus oxycarpa</i>	Desert Ash	Exotic	1	Very Low
<i>Gleditsia triacanthos</i>	Honey Locust	Exotic	2	Very Low
<i>Lepostemon confertus</i>	Brush Box	Native	10	Very Low
<i>Melaleuca armillaris</i>	Bracelet Honey Myrtle	Native	18	Very Low
<i>Prunus cerasifera</i>	Common Plum	Exotic	2	Low - Very Low
<i>Pinus radiata</i>	Monterey Pine	Exotic	14	Very Low
<i>Robinia pseudacacia</i>	Locust	Exotic	1	Very Low
Stump	Stump	Stump	1	Very Low
<i>Zelkova serrata</i>	Zelkova	Exotic	2	Very Low

Figure 22: Open Space Master Plan



Table 4: Open Space Master Plan Schedule (Part 1)

Name	Role	Size (Ha) Encumbered	Size (Ha) Unencumbered	Features	Description of Character
Recreation Reserve - Refer to Figure 23a	Active recreation park		6.24	- Two senior football ovals - Two soccer pitches - 1 senior cricket oval - A sports pavilion (total floor area of 565m² and external verandah/canopy of 250m²) - 106 off-street car parking spaces and 99 on-street spaces surrounding the reserve - Park furniture - Tree planting	A district recreation reserve with large open expanses of maintained exotic grass for active sports opportunities. A sports pavilion and associated car parking areas will further reinforce the cultural character of this reserve. Structure tree planting around the perimeter of the reserve will define the sports fields. A shared path network traverses the northern and eastern edges of the reserve to provide pedestrian connections with the surrounding residential and commercial precincts. A 15 metre buffer is indicated around the two senior football ovals. This provides adequate space for a boundary fence 5 metres from the oval boundary line, and an additional buffer of a minimum of 10 metres to the Recreation Reserve boundary. It is noted that the two ovals will be separated by a distance of 15metres between boundary lines (ie the buffers overlap).
Open Space Reserve A - Refer to Figure 23b	Local park & open space link to Hartwell Green (an existing park in the residential area to the south of the site).		0.09	- Landscape values - Tree planting - Park furniture - Path connection	A small local neighbourhood park with informal planting of native trees and shrubs to provide shade and landscape amenity. Seating is proposed along a path that will provide a connection to the existing Hartwell Green, and this will offer opportunities for informal meetings, rests, etc.
Open Space Reserve B - Refer to Figure 23c	Local park & storm water drain easement	0.02	0.11	- Landscape values - Tree planting - Park furniture	A connection to a main storm water drain is provided through this small local neighbourhood park. Tree planting will have to consider this easement, so a more open character will be provided here. However, opportunities exist to provide park furniture that will cater for residents and employees in the nearby piazza / mixed-use zone.
Pedestrian Link (Mosaic) - Refer to Figure 23d	Pedestrian Link		0.04	- Landscape values - Pedestrian connectivity	A linear open space link with a shared path, park seating and feature planting.
Open Space Reserve C - Refer to Figure 23e	Local park & Telecommunications easement	0.02	0.16	- Landscape values - Tree planting - Park furniture	A telecommunications tower exists on site, and this reserve is provided to include the easement for this. Informal tree planting will reduce the visual impact of the tower for park users, provide a visual link to the existing landscape buffer along the northern boundary of the City of Whittlesea Public Gardens, and offer opportunities as a local neighbourhood meeting place.
Open Space Reserve D - Refer to Figure 23f	Local park & open space link between Kimberley Street and Cambala Avenue.		0.12	- Landscape values - Tree planting - Park furniture - Path connection	An open space link already exists, and the intention is to reinforce the local neighbourhood character of this reserve with informal tree and shrub planting, and seats to provide opportunities for meeting and rest.
Open Space Reserve E - Refer to Figure 23g	Local park.	0.03	0.05	- Landscape values - Tree planting - Park seat	This small local park, established as a result of existing site parameters, will be planted out with native trees to provide a visual link to the adjoining Public Gardens and to provide opportunities for informal activities.

Table 4: Open Space Master Plan Schedule (Part 2)

Name	Role	Size (Ha) Encumbered	Size (Ha) Unencumbered	Features	Description of Character
Drainage Reserve A - Refer to Figure 23h	Storm water retardation and water quality	1.60		– Wetland with aquatic planting – Tree planting – Habitat values – Interpretation facilities (paths, signs) – Park furniture	Containing a retarding basin and wetland to provide for storm water requirements, this reserve will essentially have a natural character, though opportunities exist to provide an urban edge to the piazza / mixed use zone boundary. Aquatic planting and informal native planting will establish an informal quality to this open space reserve. Due to its proximity to a high-density precinct, opportunities exist to provide interpretation facilities to explain urban storm water engineering, and this may influence its ultimate appearance and landscape treatment.
Drainage Reserve B - See Figure 25 (page 54) for details and Concept Plan	Storm water retardation and water quality. Habitat values	1.14		– Wetland with aquatic planting – Tree planting – Habitat values – Interpretation facilities (paths, signs) – Park furniture	This drainage reserve serves several functions, foremost being a storm water retarding basin and a wetland habitat for the Growling Grass Frog. As such, it will have a natural character with aquatic planting and native plantings around the perimeter. Due to its location on the edge of the Craigieburn Bypass, there will be some integration with the landscape that has been implemented there, and also with the proposed Pipetrack Park to the immediate north.
Drainage Reserve C (Piazza / Mixed use zone) - Refer to Figure 23i	Overland storm water flow	0.17		– Paved throughway – Streetscape elements	Situated in the Piazza / Mixed Use Zone, this open space area provides for overland storm water flow. Its character will be 'urban' to ensure integration with the surrounding neighbourhood, and it will have a paved surface to provide for multiple objectives in this precinct, including pedestrian circulation, outdoor commercial activities, and community events.
Drainage Reserve D (Kingsway Park) - Refer to Figure 23j	Storm water retardation and water quality	1.29		– Wetland – Landscape values	A formal wetland character, with formal street trees along the edges.
Drainage Reserve E (Western Park) - Refer to Figure 23k	Storm water retardation and water quality	0.98		– Wetland – Landscape values	An formal wetland character with formal street trees along the edges
Linear Park / Habitat Link - Refer to Figure 23l	Active recreation Conservation		0.38	– Pedestrian and cycle path linking to regional cycle network – Conservation of frog habitat.	Formal street trees along the residential and employment edges, with informal planting in the linear link reserve. A shared pedestrian and cycle path winds through the centre of the reserve.
Deveny Reserve - Refer to Figure 23m	Local Park		0.17	– Retention of significant trees – Landscape values	Formal street trees are planted along the edge of the reserve, and the existing tree is retained as a feature.
Central Park - Refer to Figure 23n	Local Park		0.25	– Existing Red Gum – Pergola – Seating walls	A central neighbourhood park along the main north south boulevard with a centrally located existing Red Gum. A shelter and seating walls provides for passive recreation whilst the open grass area offers opportunities for activities and play.

Table 4: Open Space Master Plan Schedule (Part 3)

Name	Role	Size (Ha) Encumbered	Size (Ha) Unencumbered	Features	Description of Character
Stoney Knoll West - Refer to Figure 23o	Conservation	0.39	0.26	- Native Reserve retaining Stoney Knolls in existing condition and form	Existing condition retained within the reserve, and a formal street tree pattern is implemented along the edges.
Central Stoney Knoll - Refer to Figure 23p	Conservation	1.37	0.94	- Native Reserve retaining Stoney Knolls in existing condition and form.	Existing condition retained within the reserve, and a formal street tree pattern is implemented along the edges.
Pipe Track Park - Refer to Figure 23q	Local Park	0.21	0.22	- Landscape values	An informal character providing transition to eastern boundary
Kingsway Park Walkway - Refer to Figure 23r	Pedestrian Link	-	0.11	- Landscape values - Pedestrian connectivity	A formal walkway providing both visual and physical connection to Kingsway Park. Tree planting along the edge aims to define the space and strengthen links.

Figure 23a: Recreation Reserve

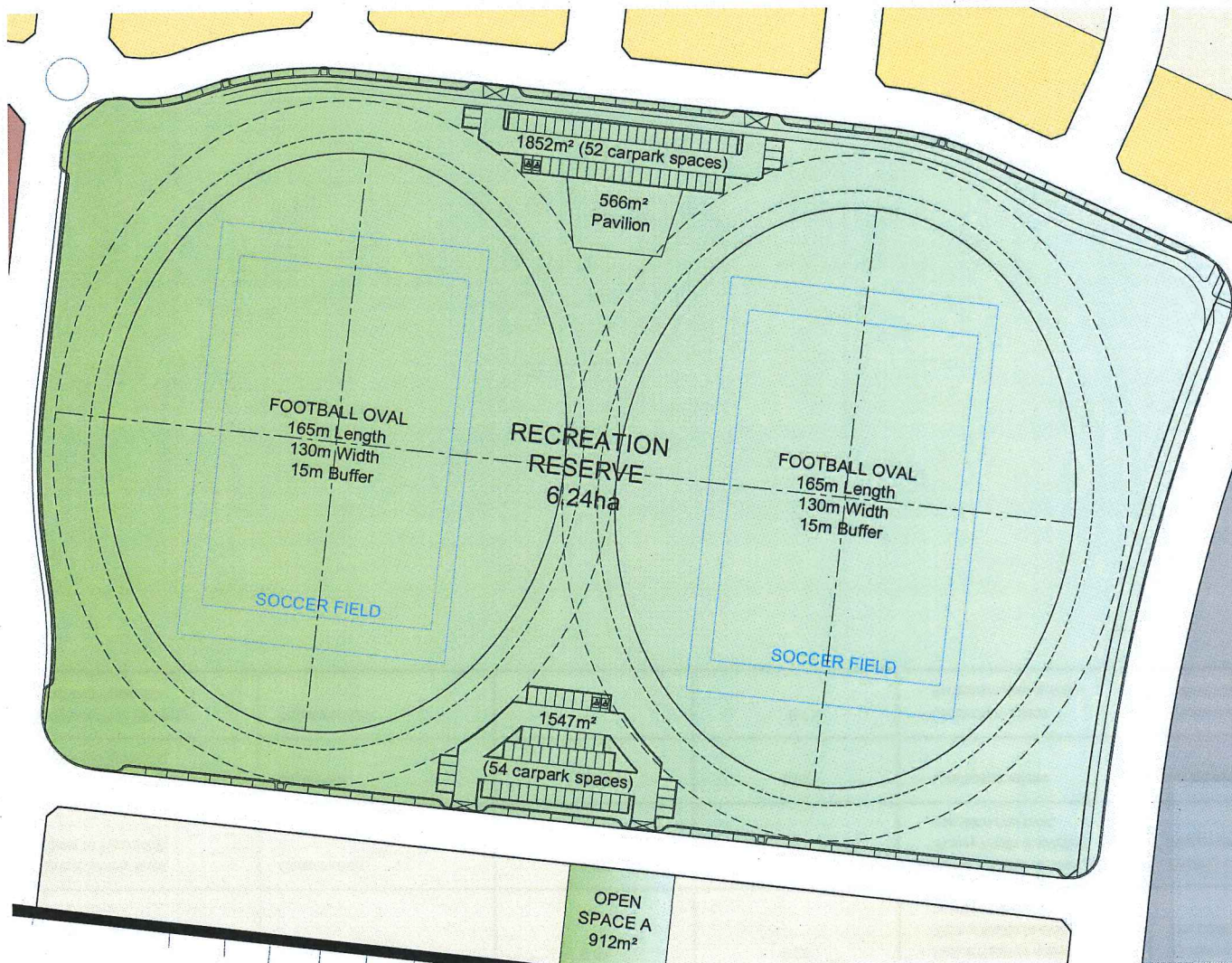


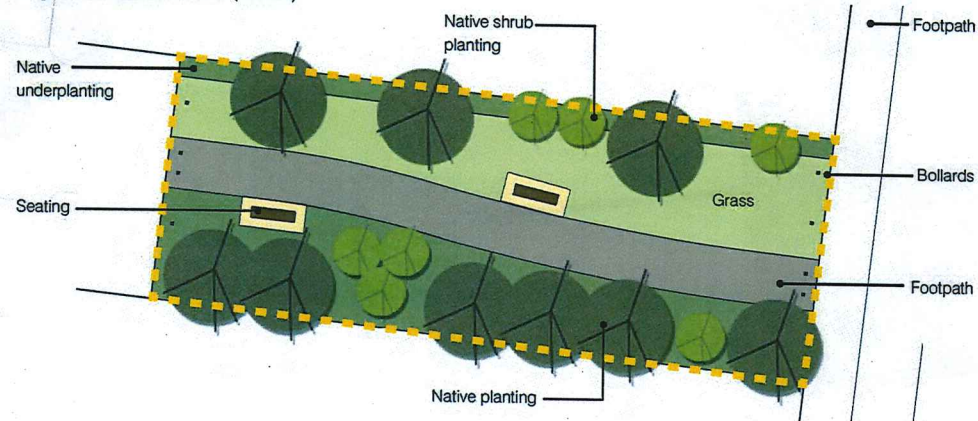
Figure 23b: Open Space Reserve A



Figure 23c: Open Space Reserve B



Figure 23d: Pedestrian Link (Mosaic)



MAP KEY

- Open Space
- Wetland Pond
- Wetland Vegetation
- Reserve Boundary (Mosaic Development)
- Proposed Indigenous Vegetation

Figure 23e: Open Space Reserve C



Figure 23f: Open Space Reserve D

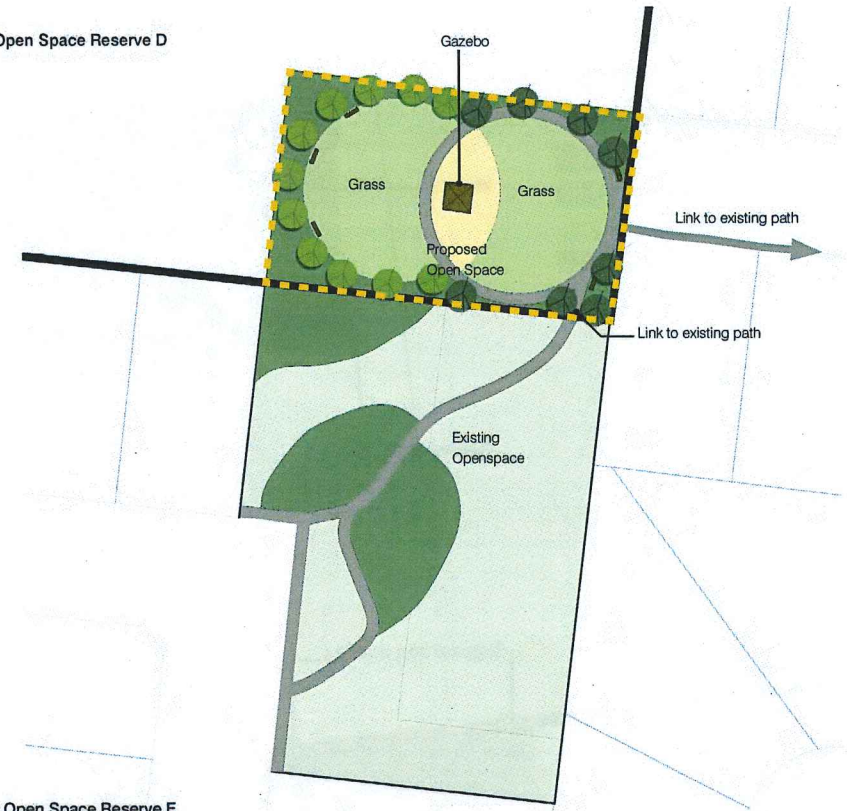


Figure 23g: Open Space Reserve E

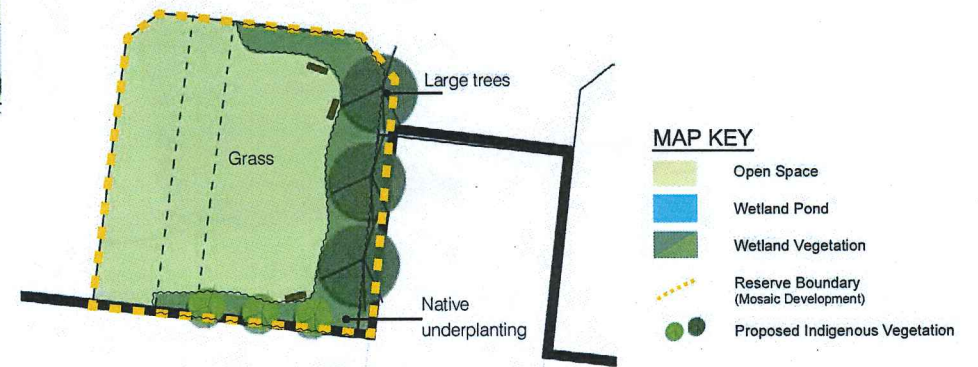


Figure 23h: Drainage Reserve A Concept Plan



MAP KEY

- Open Space
- Wetland Pond
- Wetland Vegetation
- Reserve Boundary (Mosaic Development)
- Proposed Indigenous Vegetation
- Proposed Feature Planting/Street Trees
- Paving
- Feature Paving
- Feature Paving Reminiscent of a dry creek bed.

Figure 23i: Drainage Reserve C Concept Plan

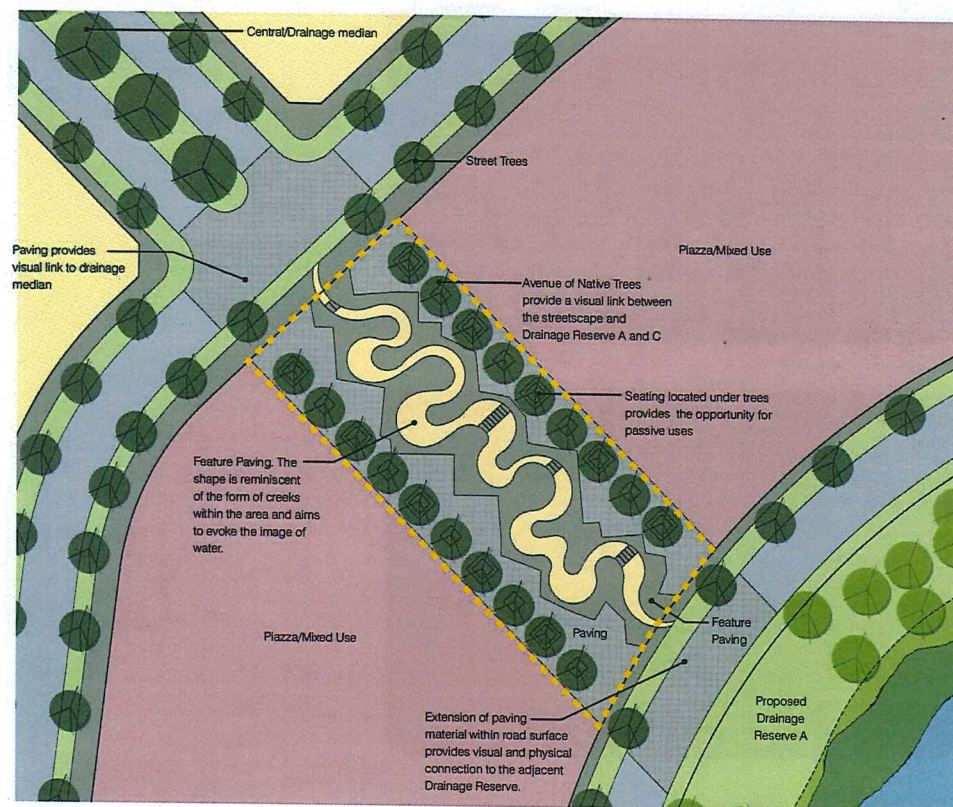


Figure 23j: Kingsway Park - Drainage Reserve D

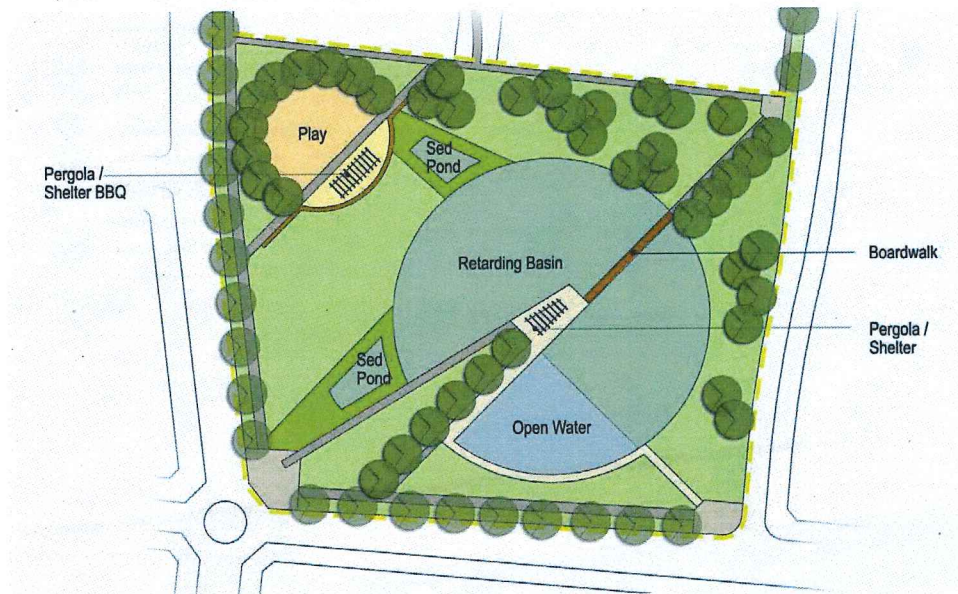


Figure 23k: Western Park - Drainage Reserve E



Figure 23l: Linear Park / Habital Link
Figure 23m: Deveny Reserve



Figure 23n: Central Park

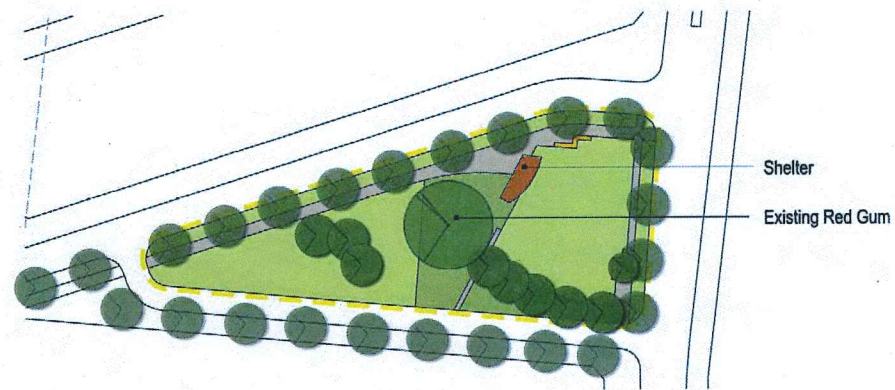


Figure 23p: Central Stony Knoll



Figure 23o: Stony Knoll West

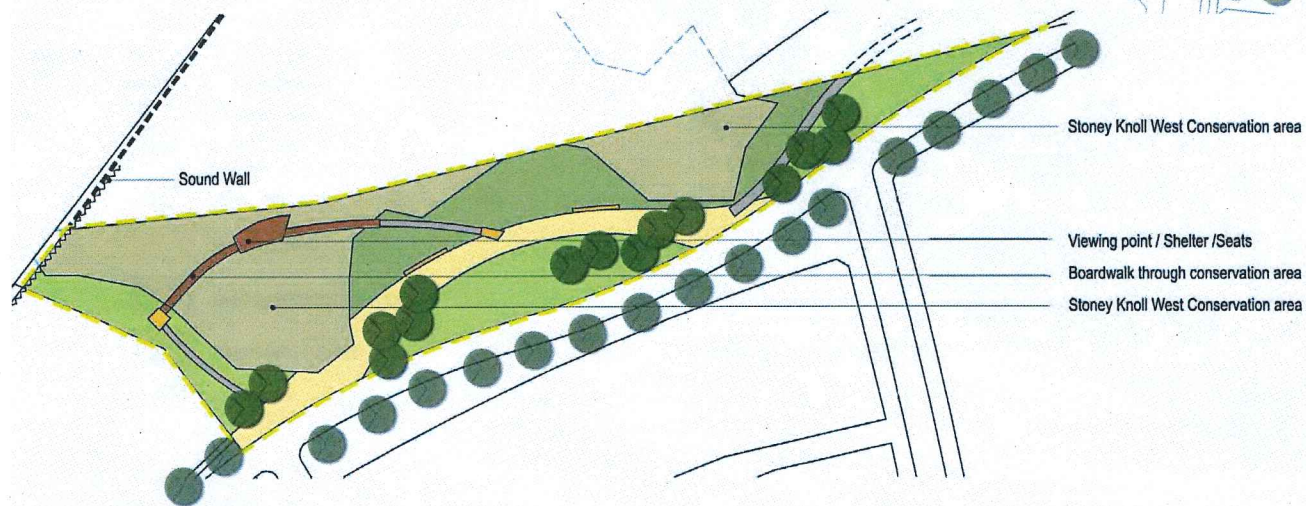


Figure 23q: Pipe Track Park

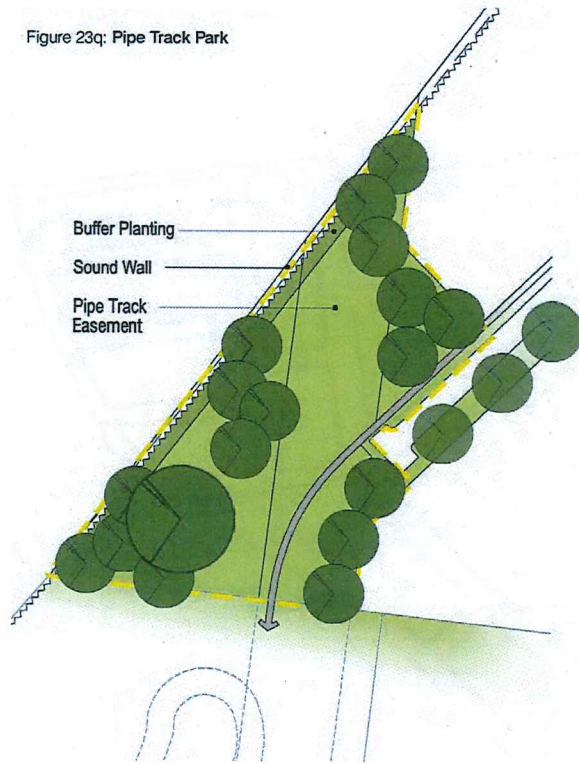


Figure 23r: Kingsway Park Walkway

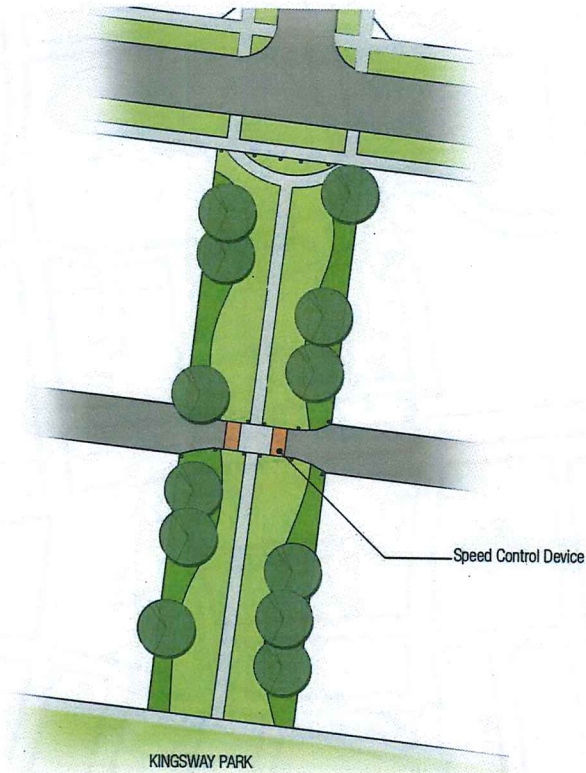


Figure 24: Street Tree Master Plan



Source: MDG Landscape Architects

Protecting the Growling Grass Frog

In accordance with Commonwealth Government requests, and broader objectives to protect threatened species, the proposed Development Plan promotes the conservation of the nationally threatened 'Growling Grass Frog' (*Litoria raniformis*).

An 'enhanced Growling Grass Frog habitat reserve' has been incorporated into the Plan to protect and enhance the remnant habitat of the frog located in the north-western part of the 'Mosaic Living' development area (refer Figure 24). It also includes a series of additional measures to help promote the re-establishment of a viable frog population in the region. These measures are described more fully in the report prepared by Coomes Consulting Group in July 2005 (refer Technical Documentation), and include the following principles:

- Development in the vicinity of the utilised wetland has been designed to maximise the retention of the water body where the frog was observed.
- Space has been provided at the north-western boundary of the 'Mosaic Living' development site to link the wetland to areas to the north-west on the Cedar Woods land, where there are known occurrences of the species and recently constructed potential habitat.
- Careful design of the open space and drainage components of the development in the north-west of the 'Mosaic Living' site to ensure integration of habitat expansion and enhancement works with similar works by VicRoads associated with the adjacent Hume Freeway (Craigieburn Bypass).
- Analysis, including modelling, of the drainage flows generated upstream, as well as through the establishment of new urban areas in the Mosaic Living development, and adjustment of the design of open space and drainage infrastructure to accommodate these.
- Detailed design of the wetland in the north-western open space area of 'Mosaic Living' to ensure that it holds water

for a sufficient period and at a range of depths to support a mix of fringing emergent aquatic vegetation and open water areas, suited to the requirements of the Growling Grass Frog.

- Terrestrial areas of the proposed north-western open space areas of 'Mosaic Living' will be vegetated with low but dense indigenous plantings to provide a disturbance prevention screen between areas accessed by the public for passive recreation and habitat that may come to be used by a significant number of Growling Grass Frogs.

Research shows that the inclusion of urban water features, re-vegetated in a manner consistent with the habitat requirements of the Growling Grass Frog, is now a common practice in key parts of Melbourne containing remaining populations of this threatened frog species. The design and proposed expansion, re-vegetation and management of the remnant habitat in the north-western part of the site has been guided by similar experience elsewhere in Melbourne, where the frog has re-colonised and now successfully breeds in urban water features.

The above measures are based on the recommendations of the two detailed assessments previously prepared by Brett Lane & Associates (December 2003 and May 2004), which include an assessment on the implications and management of the frog population (refer Technical Documentation).



Figure 25: Proposed Enhanced Frog Habitat Reserve (Drainage Reserve B)



9.6 Treatment of interfaces

As is described in the Site Analysis, the site will have an interface with a range of different land use and development conditions. These are addressed in turn on the following pages, including proposed design response treatments for each.

Figure 26: Interface treatments



9.6.1 Hume Highway (Craigieburn bypass) – Western boundary

Existing conditions

The Hume Highway defines the western boundary. The six lane freeway road pavement is marginally elevated above the subject site and separated from the property boundary by a substantial landscaped verge that varies in width from approximately 29m to 120m. The verge contains a regional cycle and footpath and grassed and vegetated areas as well as water courses and a wetland developed by VicRoads.

The southern end of the reservation includes an acoustic wall, constructed from steel that has been conceived as a distinctive architectural statement along the alignment of the freeway, south of the subject site.

Design response

The design response (refer Figure 27) provides for both open space and residential use adjacent to the boundary. Save for a small park at the south west corner of the site serving as an extension to the Whittlesea Public Gardens and protecting the site of the telephone relay tower, the southern portion of the site provides for conventional residents lot to have an outlook to the highway over a local road, and a varied yet substantial landscaped "buffer" strip with dense canopy vegetation.

The design for the freeway reservation incorporates the current alignment of the bike path and provides for an acoustic wall and supplementary landscaping to ensure an attractive and acoustically acceptable living environment.

Drainage Reserve B is an extension of the main drainage course extending under the freeway and bisecting through the Mosaic Living land to the central park on the southern boundary. The wetland area has been determined to provide a protected environment for the Growling Grass Frog. Additional open space is provided along the alignment of the pipetrack.

The acoustic report prepared by Marshall Day Acoustics (refer Technical Documentation) details the requirements and performance expectations of the acoustic treatment. The recommendations are based on the assumption that the development will commence on the site in 2008. The report also relies upon traffic volumes estimated for 2018.

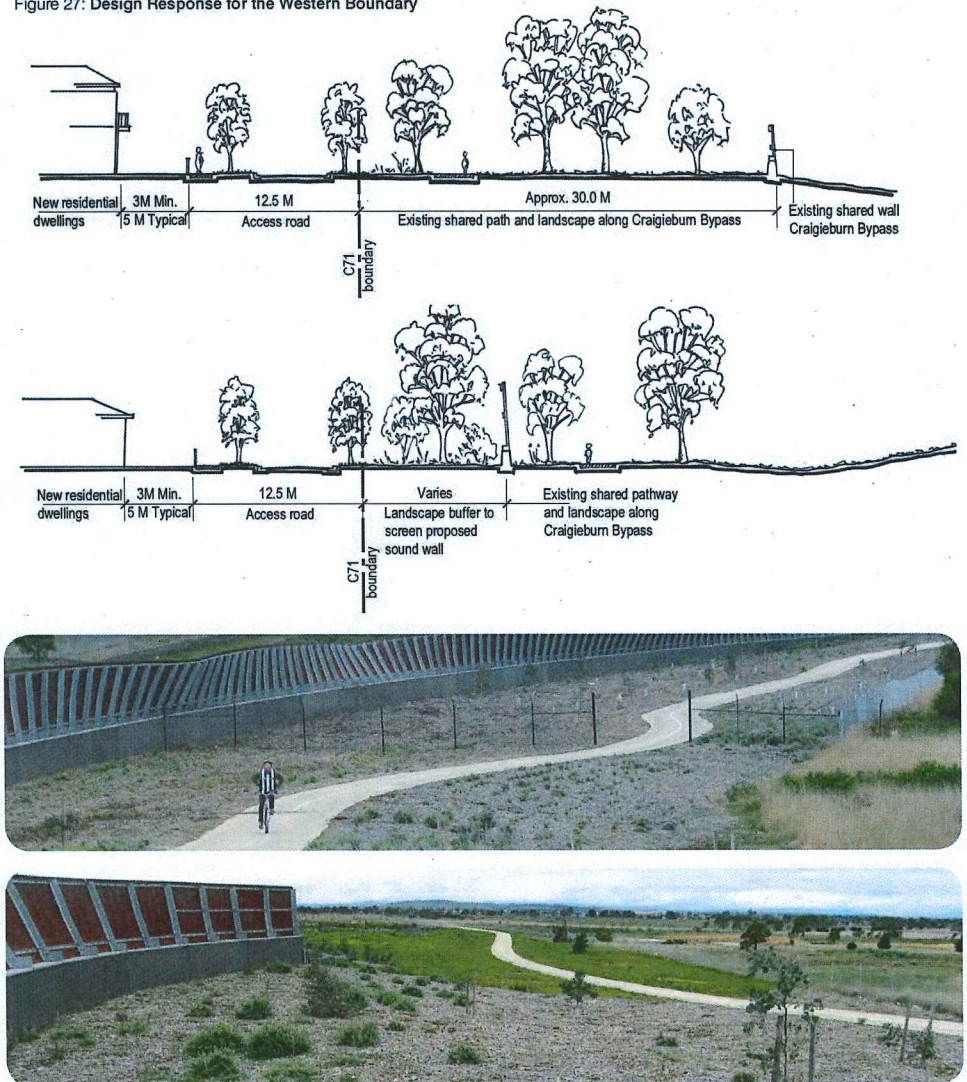
This report finds that residential development on the site may occur to the east of the noise contour L10 18hr 63dBA without a barrier being constructed. If development proceeds to the west of the L10 18hr 63dBA noise contour, then noise amelioration treatment in the form of a noise barrier on the western site boundary with the incorporation of appropriate sound insulation into affected dwellings (such as

glazing, wall constructions, roof/ceiling constructions and door treatments) must be included. The anticipated form and location of the required noise barrier is detailed in the report.

The report notes, however, that development will take a number of years to proceed across the site from the east to west and the above recommendations are only based on predicted traffic volumes. Given there may be some variation between predicted and actual volumes, the report recommends that before any residential development to the west of the L10 18hr noise contour line begins, noise levels should be reassessed and data from actual traffic counts be obtained. It may indeed be possible to reduce the height of the noise barrier or the extent of sound insulation required depending on the outcome of such further assessment. As such, and has been agreed with Council, matters relevant to the detailed design of the acoustic wall will be deferred to the relevant planning permit stage of the development.

It is nonetheless noted that the architectural treatment of the acoustic wall - including its materials and colours - is intended to integrate with, and respect the existing acoustic wall south of the site. It will also comply with VicRoads' requirements. As such, the wall will be constructed of suitable masonry materials and coloured in appropriate complimentary shades, as opposed to timber fencing and mounding. The fence will also be designed such that it will preserve and integrate with the existing landscape, particularly the frog crossing and wildlife underpass.

Figure 27: Design Response for the Western Boundary



9.6.2 The southern boundary

Existing conditions

The southern boundary is distinguished by an abuttal with the northern boundary of the Whittlesea Public Gardens and the rear, northern boundary of numerous dwellings with frontage to Benaroon Drive, Parkview Court, Woodlands Place and Cambala Avenue.

The housing stock to this boundary is a mixture of single and two storey homes, with some located close to the boundary. In a few select cases owners have built an upper level balcony on the northern façade, with an outlook over what would have been the Lalor Golf Course. These properties present issues of privacy which must be addressed by future development within the DPA.

Design response

The proposal provides for a local road access along the boundary with Whittlesea Public Gardens and medium density housing facing onto the gardens to take advantage of the landscaped outlook and access to the recreation space.

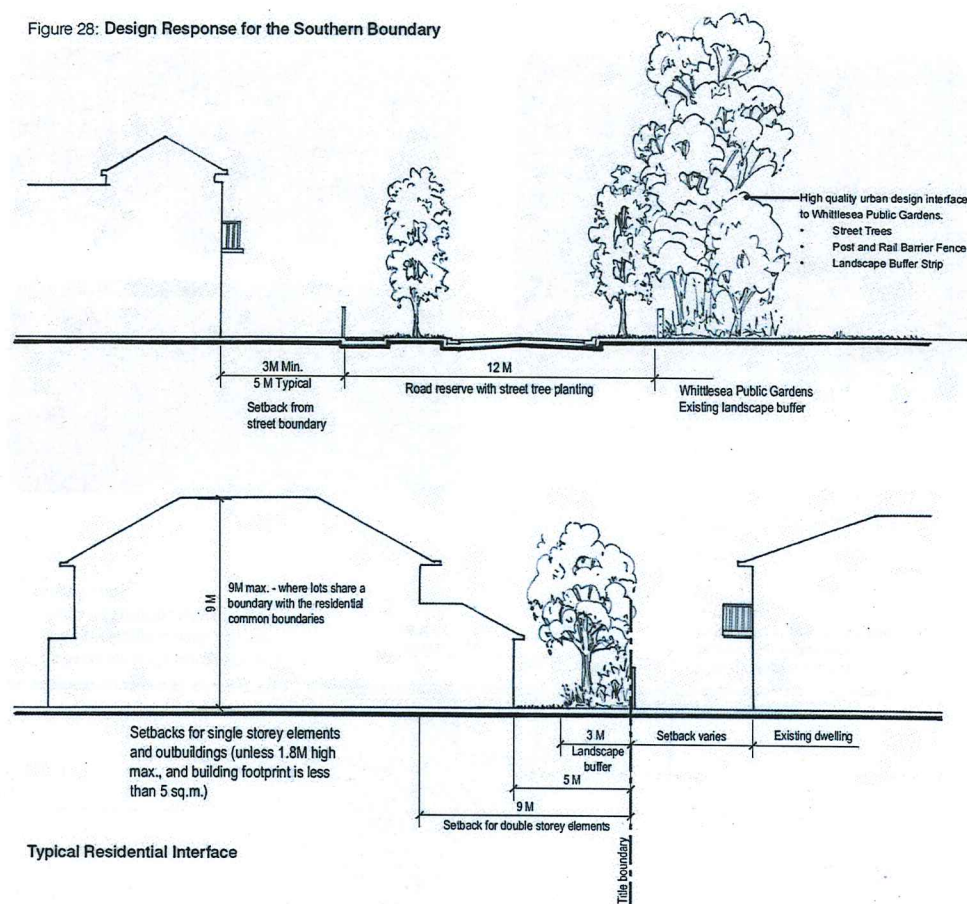
The northern boundary of the park has been planted with a continuous band of native plantings. It will be necessary for Council to create one or a couple of entrance ways into the park from the north, through the boundary planting and connect the new residential area to the north with the internal pathway network of the park.

Along the balance of the southern boundary it is proposed to have new conventional residential allotments abutting existing residential allotments. To protect amenity it is proposed that dwellings be built typically 5m (but not less than 3m) from the common boundary, and that a continuous landscaped buffer and screening treatment be established (refer Figure 28). This mechanism will address both privacy and also protect land for any necessary easements.

The only exception to this provision will be the eastern and southern portions of the integrated residential age in place estate which are anticipated to provide single storey development, although because the estate will be the subject of separate planning approval, the final design detail has not been settled for this part of the site.

Areas of drainage constraint are to be protected as either open spaces or road reservations. With the exception of the unconstructed road reservation to the east of Whittlesea Gardens, all of the road connections south of the boundary will link to new roads on the subject site.

Figure 28: Design Response for the Southern Boundary



Typical Residential Interface



9.6.3 Eastern Boundary

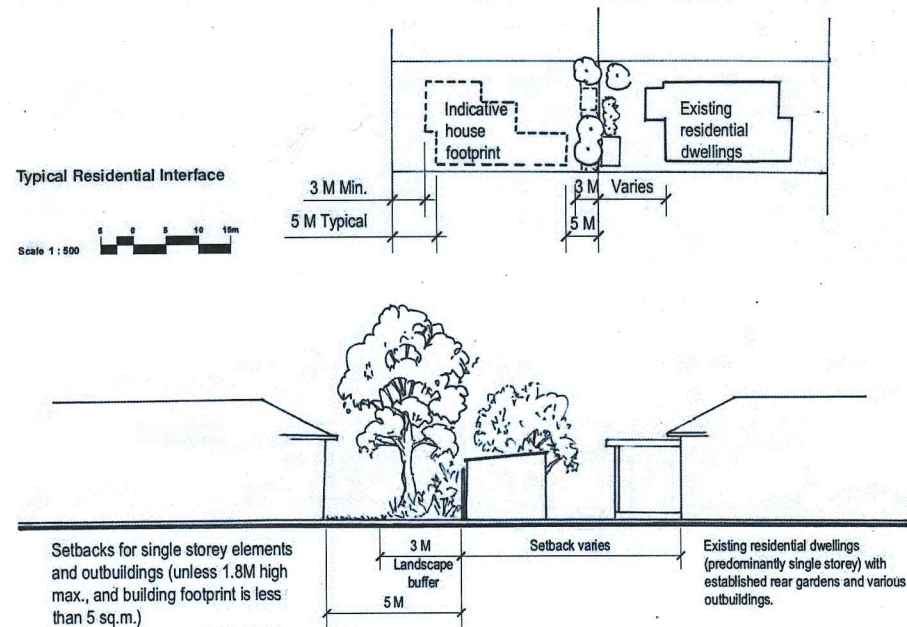
Existing conditions

The full extent of the eastern boundary abuts established residential development. Most of the housing stock adjacent to this boundary is single storey and setback from the common boundary with the subject site, with the intervening space used for private open space.

Design response

Figure 29 illustrates the proposed design response and interface treatment which would be similar to that discussed for the southern boundary. The same comment also applies to the integrated residential age in place estate.

Figure 29: Design Response for the Eastern Boundary



9.6.4 Northern boundary

Existing conditions

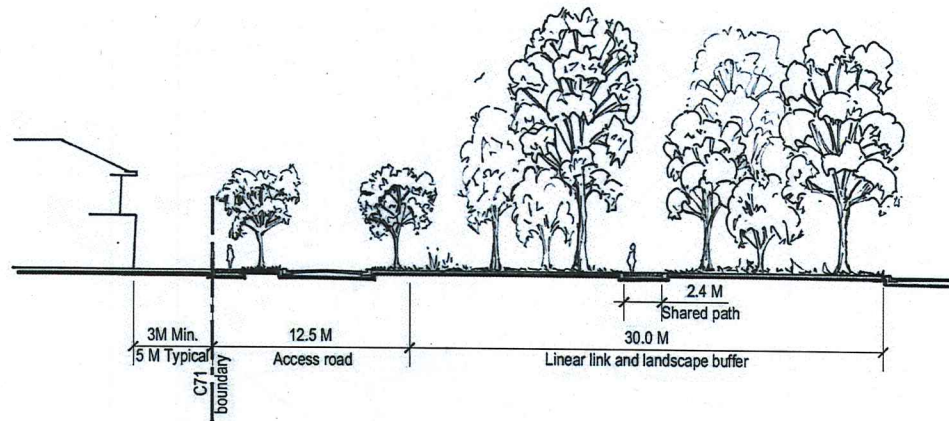
The northern boundary is currently open pasture. In the future, the area to the north will be used for employment purposes unless residential use is permitted for this "triangle site."

To the north east of the site, a 45m reservation will separate the established residential area from the future Melbourne Markets site. This reservation will reduce to a 30m open space / habitat corridor and bike path as illustrated in the Development Plan and associated landscape concept plan for the corridor.

Design response

Figure 30 details the proposed design response to this interface in a manner that is consistent with the above requirement. It is noted that this interface treatment may need to be amended to include any relevant recommendations arising from the Priority Development Panel (PDP) for the Melbourne Wholesale Markets Site.

Figure 30: Design Response for the Northern Boundary



9.7 Protecting the high pressure gas pipeline

As previously noted, a high pressure gas pipeline, protected by two disjointed easements is located in the western part of the site, as illustrated in Figure 31.

In order to resolve this anomaly and protect the pipeline from future development, Gasnet have provided "in principle" support to reduce the pipeline easement width with the Carlingford site to match the width of the easement within the Mosaic Living site.

As such, the whole of the easement is to be contained within a local north-south running road within Mosaic Living, and a designated public open space area - the "pipe track park" within Carlingford as shown in Figure 32.

Figure 31: High Pressure Gas Pipeline - Existing Conditions

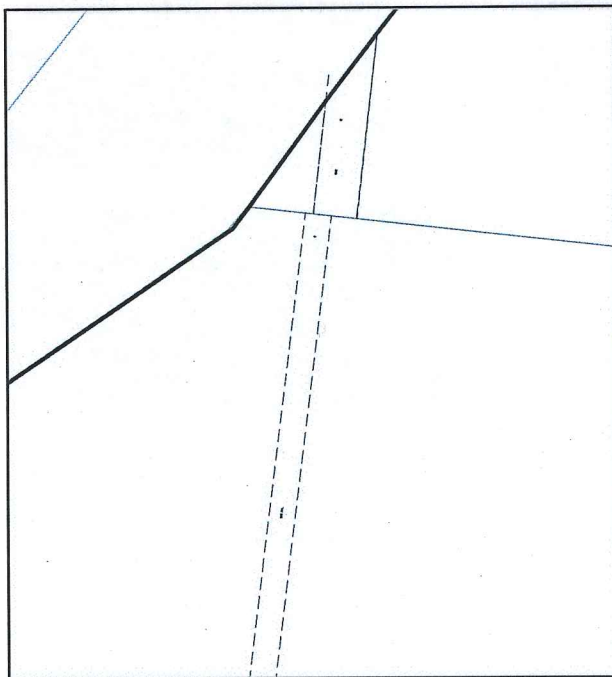
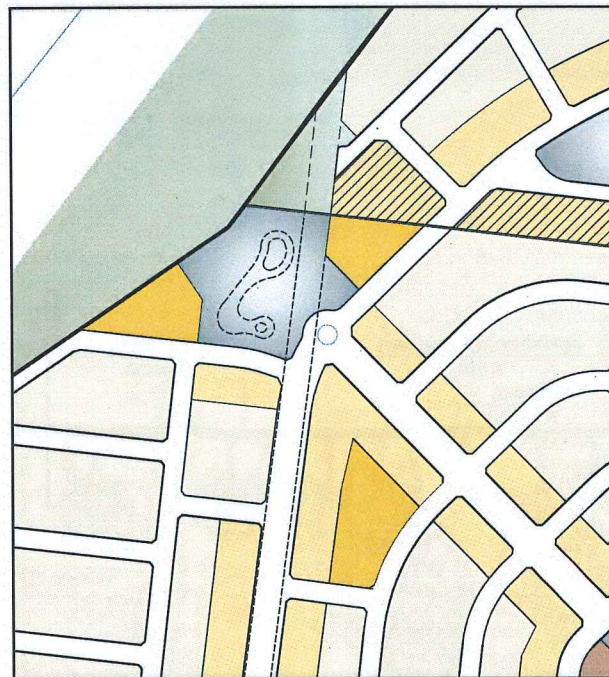


Figure 32: High Pressure Gas Pipeline - Proposed Resolution



MAP KEY

RESIDENTIAL

- Standard Residential
(lots between 450-700m² in size)
- Medium Density Residential
(lots between 300-450m² in size)
- Integrated Housing
- Optional Medium Density
- Retirement Village

- Gas Pipeline Easement

LAND USES

- Open Space
- Conservation Reserve
- Plazza/Mixed Use

DRAINAGE

- Proposed Wetland
(indicative only with Melbourne Water)

9.8.2 Potable water supply and reused/recycled water

For development below the 120m contour, water supply is available via the extension of mains in Childs Road, Mossman Crescent and Kingsway Drive.

Development above the 120m contour can initially be supplied from a main in Elizabeth Drive. Beyond 100 lots, supply is to be extended from a 225mm main in Childs Road, east of Edgars Road. The extent of external works may be dependent on the timing of the extension of water supply to the proposed Markets site.

The above provisions accord with the intent of Standard C22 of Clause 56.07-1 (Drinking water supply) and Standard C23 of Clause 56.07-2 (Reused and recycled water).

9.9 Stormwater management plan

In addition to an SMP, and in accordance with Standard C25 of Clause 56.07-4 (Urban water runoff management), the proponent has prepared a Stormwater Management Plan for the site (refer Technical Documentation). It includes applications of principles of water sensitive urban design (WSUD) and best practice to control measures for the protection of water quality and natural systems, as well as measures for the integration of stormwater treatment into the landscape.

The subject land is located within the catchments of the Central Creek Main Drain and its tributary the Benaroon Drive Main Drain. These drains are the responsibility of Melbourne Water. The DPA is not located within an existing drainage scheme.

The proposed drainage for the DPA can be categorised into two components:

- a) Stormwater Quantity
 - The major drainage system (including the special building overlay); and
 - The minor drainage system
- b) Stormwater Quality

9.9.1 Stormwater Quantity

The proposed internal drainage system to be adopted is a conventional drainage system to Council requirements. That is, the subdivisional drainage will be constructed to standards agreed with the City of Whittlesea in accordance with the minor / major drainage system philosophy.

The minor drainage system will consist essentially of an underground piped network and will be designed to accommodate a 1 in 5 year average recurrence interval event (ARI). All drainage assets with a catchment area less than 60 hectares will be the responsibility of Council.

From a stormwater quantity viewpoint, the flow management strategy for the DPA has been structured to:

- Provide a flowpath which safely and adequately conveys the 100 year ARI design flows through the site. These overland flow paths include both internal and external catchment inflows.

- Remove the Urban Floodway Zone and flood inundation overlay across the site; and
- Control peak flows that discharge from the site so that peak stormwater runoff rates are restricted back to pre-developed (ie existing) 1 in 100 year ARI rates. In other words that there is a net no charge impact on the downstream system.

In order to develop a functional strategy to meet these objectives, hydrologic analysis and modelling has been undertaken. Upstream of the DPA, the external catchments have been considered as "undeveloped". The proposed drainage strategy for the DPA is illustrated in Figure 34 and is summarised as follows:

- Two retardation storages within the Carlingford development with the volumes of 7,520m³ and 15,600m³ respectively;
- A retardation storage volume of 16,000m³ in the Mosaic Living site to reduce the peak 1 in 100 year ARI event back to allowable discharge of 19.7 cumecs;
- Extension of the Central Creek Main Drain pipeline (2400mm Diameter) from the southern boundary to the north west corner of the site;
- Extension of the Benaroon Drive Main Drain pipeline (1800mm diameter) from the southern boundary to the north east corner of the C71 site;
- An overland flow path to be provided along the alignment of the Central Creek Main Drain valley via a road reservation. The combination of the underground drain and overland flow path will accommodate a 364ha external rural flow. The gap flow of around 2 cumecs would easily be accommodated within the road reserve and would "expunge" the need for the Urban Floodway Zone and Land Subject to Inundation Overlay that exists on the current planning scheme;
- Conveyance of the Carlingford development via an underground pipe and overland flow path will travel through the reserve area between the proposed sports fields; and
- An overland flow path or valley floor would be provided via a road reservation in the north east corner of the site to control the Benaroon Drive catchment during a 1 in 100 year ARI event. The overland flow path and underground drain will accommodate a 39ha external rural flow (ie the market site).

9.9.2 Stormwater Quality

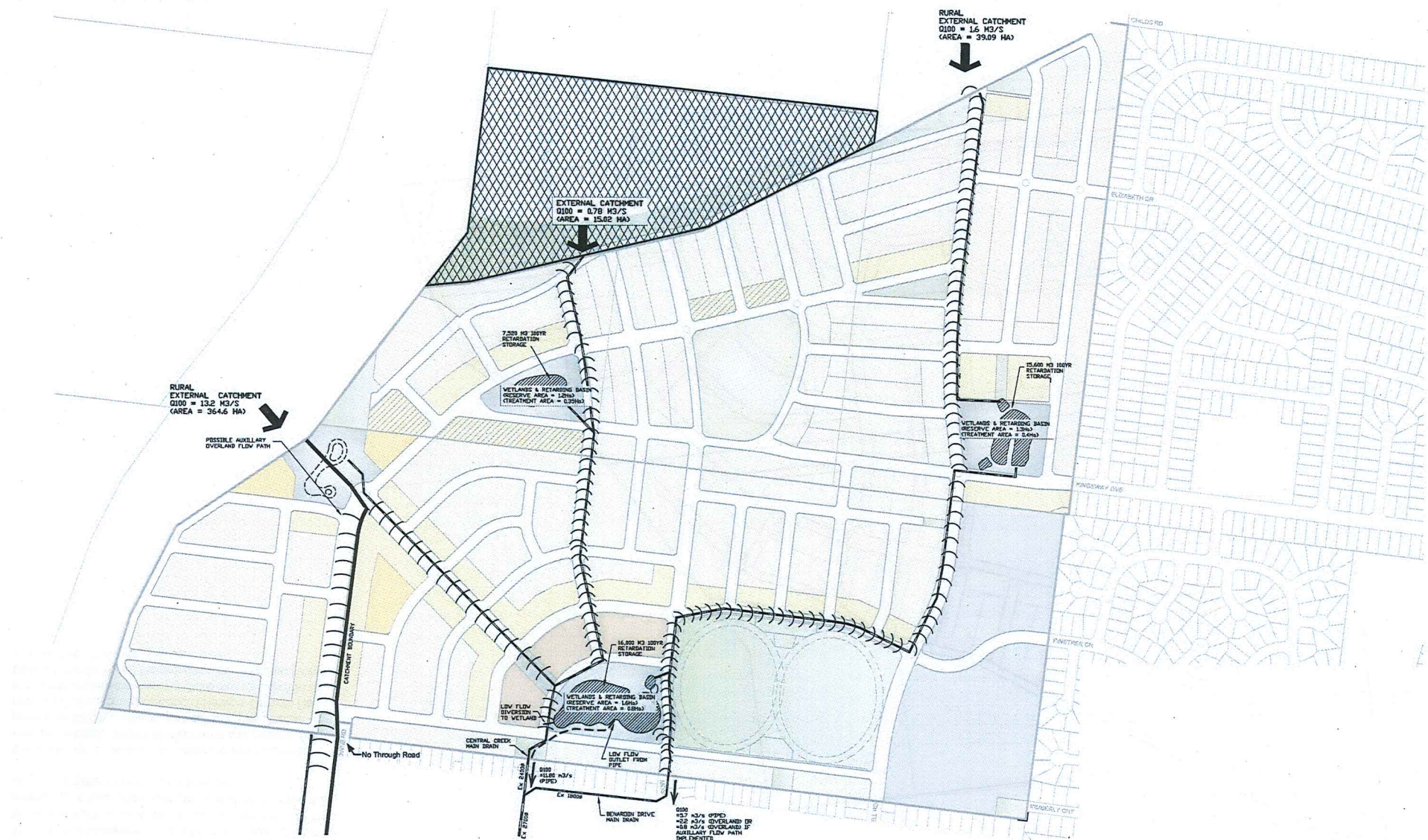
Stormwater discharging from the site will minimise impact on downstream receiving waters. The water quality objectives will be based on the "Best Practice Stormwater Management Guidelines for Urban Stormwater". To achieve this goal requires a treatment train approach.

Whilst it is noted that a number of different "Best Practice" techniques exists as a "tool box" of water sensitive urban design opportunities, the Development Plan is based upon the utilisation of gross pollutant traps, sediment traps and wetlands to meet the requirements. This applies to the DPA, and it is expected that upstream catchments will provide treatment for their own developed catchments.

The proposed retarding basins will be used as a multi-functional asset through the incorporation of a wetland component. In summary, three stormwater treatment wetlands are proposed within the DPA as follows:

- A 0.8ha wetland within the Mosaic Living property;
- A 0.35ha wetland within the western catchment of the Carlingford estate; and
- A 0.40ha wetland within the eastern catchment of the Carlingford development

Landscape concept plans for each of these wetlands have previously been detailed in Section 9.5 of this report.



9.10 Telecommunications conduits plan

The Telecommunications Conduit Policy at Clause 22.13 of the Scheme seeks to ensure that new developments provide for conduits for optical fibre cabling to facilitate future installation of advanced telecommunication services.

Such conduits are required to support economic growth, improve residents' access to information and services whilst protecting the City's amenity. The policy requires that all new subdivisions provide a Conduit Network Concept Plan in accordance with the Planning Guidelines for Conduits for Optical Fibre Services. The proponent has prepared such a plan which is shown in Figure 35.

Figure 35: Telecommunications Conduit Plan



9.11 Staging of development

As previously noted, the subject site will be developed by two separate parties. The combined proposed indicative staging plan for the whole area is shown in Figure 36. Generally speaking, development will progress across the site from east to west, in accordance with the identified site constraints (eg. sewer capacity and noise attenuation requirements for the Bypass etc.) allowing for any areas requiring further detailed planning and design (such as additional ecological assessment) to be resolved at a later stage, releasing the remaining areas for development.

Figure 36: Proposed Indicative Staging Plan



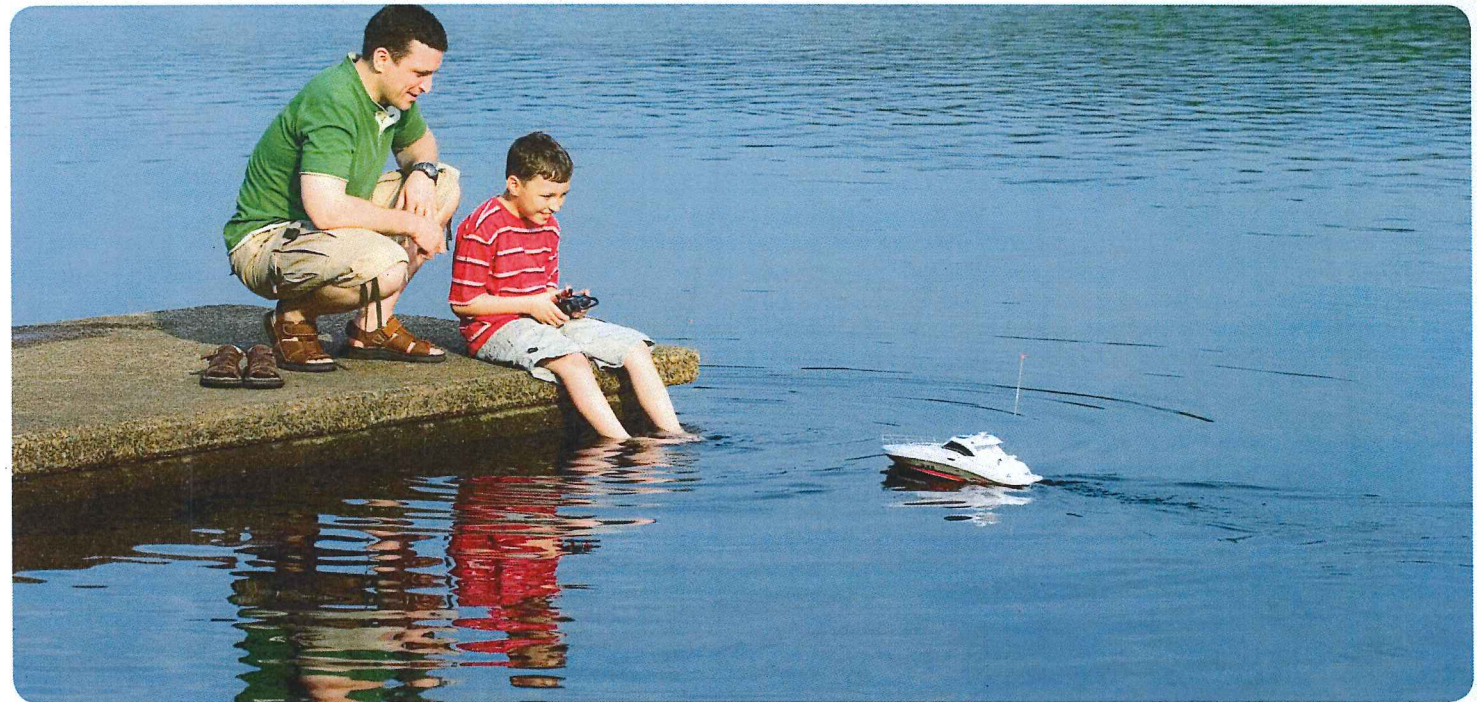
10.0 Conclusion

This report introduces and describes ABAH Group and Cedar Woods proposed Development Plan for an integrated residential community on the land affected by Amendment C71 to the Whittlesea Planning Scheme.

The Development Plan is required pursuant to Schedule 20 of the Development Plan Overlay at Clause 43.04 of the Whittlesea Planning Scheme.

This report clearly demonstrates that the proposed Development Plan responds appropriately to the requirements of Schedule 20 to the DPO. In particular, it provides a sensitive and carefully contrived design outcome that responds well to the site's opportunities and constraints.

Overall, the proposed Development Plan provides for the proper and orderly planning of the site and its surrounds.



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ADDENDUM TO THE LALOR DEVELOPMENT PLAN

Development Plan Overlay -
Schedule 20 (DPO20)

50S Gillwell Road, Lalor
(Lot RR on PS646643C)

Prepared for
BAPTCARE
16 February 2023

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

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INTRODUCTION

Urbis act on behalf of Baptcare in relation to 50S Gillwell Road, Lalor (more specifically Lot RR on Plan of Subdivision 646643C) ("the subject site"), and its specific land use designation within the Carlingford & Mosaic Living Development Plan.

Specifically, this amended Development Plan seeks to facilitate a "Medium Density Residential" development on part this land, being two designated parcels in the north-west and southern parts of the land, which would replace the existing designation for "Integrated Residential Age in Place Estate", due to existing market demands.

This report is written as an Addendum to the existing approved Development Plan, specific to this parcel, to facilitate a revised land use designation. Once approved, it should be read together with the existing Development Plan.

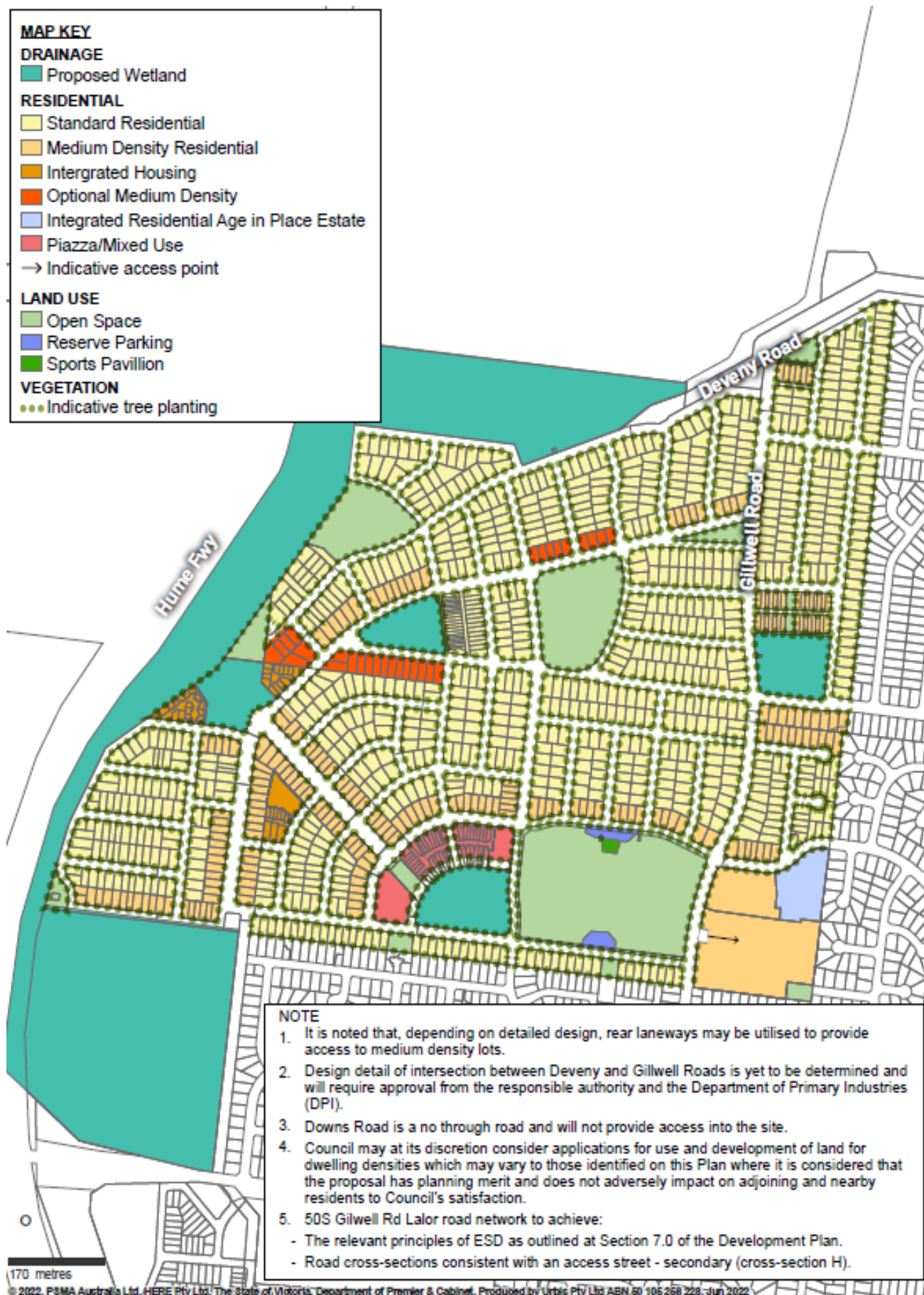


Figure 1: Proposed Addendum to Lalor Development Plan & Replacement of Figure 11 (Source: Urbis)

1. BACKGROUND

1.1. ORIGINAL IMPLEMENTATION OF THE CARLINGFORD & MOSAIC LIVING DEVELOPMENT PLAN

The Carlingford and Mosaic Living Development plan was approved by Council on 4 July 2008 and amended on 15 September 2015 in accordance with Schedule 20 to the Development Plan Overlay.

The Development Plan covered the whole of the Development Plan Area, comprising of 101 hectares, including the subject site.

The Development Plan noted the future development of the subject site to include an Integrated Residential Age in Place Estate, which coincided with the owner's original intentions for developing the subject site at the time.



Figure 2: Existing Approved Development Plan at Figure 11 (Source: Lalor Development Plan)

1.2. PERMIT 715018 (50S GILLWELL ROAD, LALOR)

On 7 October 2015, Planning Permit 715018 was issued for the subject site for the use and development of a retirement village and aged care facility. The approved use and development included the whole of the subject site, incorporating:

- 120 Bed Residential Aged Care Facility in the north-east corner of the allotment;
- 53 Independent Living Apartments and Community Centre in the north-west corner of the allotment; and
- 82 Independent Living Units in the southern portion of the allotment (the subject site).

The permit was partially acted upon as it relates to the 120 Bed Residential Aged Care Facility, but the other components were not acted upon.

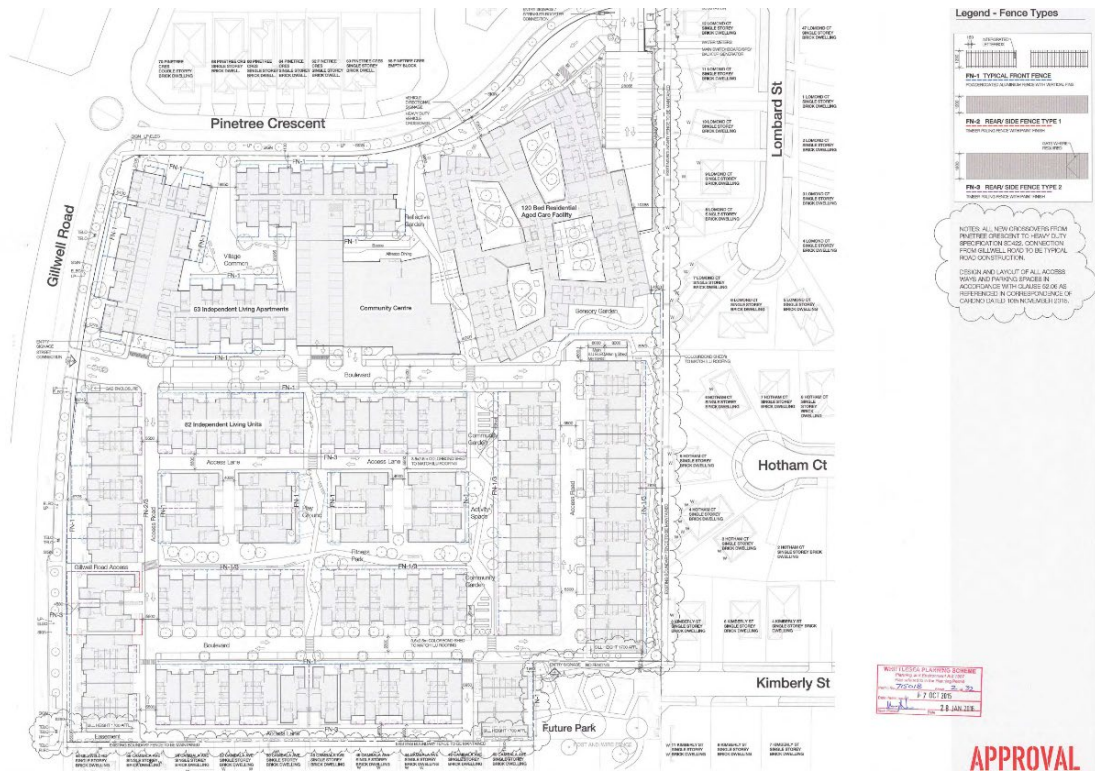


Figure 3: Endorsed Plan forming part of Planning Permit 715018 (Source: Baptistcare)

1.3. CLAUSE 52.20 APPROVAL (50S GILLWELL ROAD, LALOR)

An amended proposal was contemplated for the north-west corner of the site, which formed the basis for an exemption from a planning permit, pursuant to Clause 52.20-3 (Victoria's Big Housing Build) of the Whittlesea Planning Scheme, this exemption was re-confirmed by DELWP on behalf of the Minister for Planning, in correspondence dated 26 April 2022.

The amended proposal for this portion of the allotment now proposes to construct 45 dwellings, which are being funded under Victoria's Big Housing Build Program and being carried out by or on behalf of the Director of Housing.

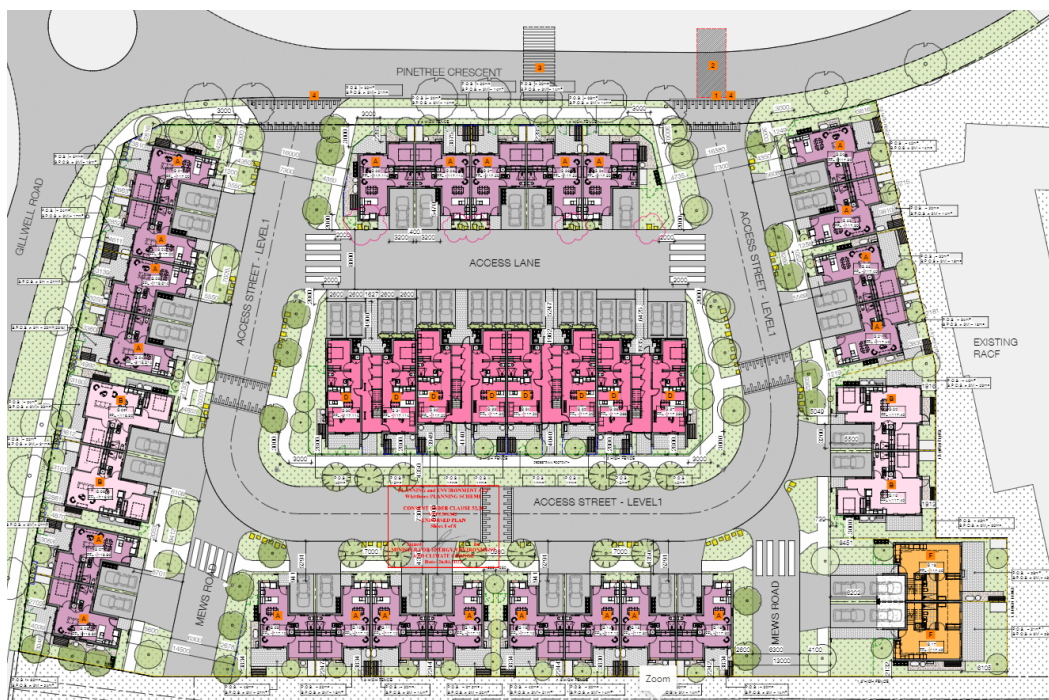


Figure 4: Endorsed Plan for Housing on North-West corner of Land (Source: Baptistcare)

1.4. PERMIT PLN-37648 (50S GILLWELL ROAD, LALOR)

Planning Permit PLN-37648 was issued on 16 May 2022 for a three-lot subdivision. This subdivision creates separate lots for the existing residential aged care facility, the proposed social housing development and the land subject to this Development Plan application although the Certification of the Plan of Subdivision has not occurred at the time of writing.

1.5. RATIONALE FOR ADDENDUM

Since the approval of the Development Plan in 2008 and further amendment in 2015, the market demand for retirement living and the extent of services and facilities required to facilitate a successful retirement village has altered. This shift in the market and social housing approval has meant that the site is no longer suitable for the use and development of a retirement village.

This portion of the land is now proposed to be for residential development.

We find it appropriate therefore to change the land use designation in the Development Plan to accommodate “medium density residential” for both the southern, undeveloped portion of the allotment (Lot RR, Plan of Subdivision 646643C)), and the north-west portion (also Lot RR, Plan of Subdivision 646643C) which is the subject of the recent Big Housing Build approval, as outlined in Section 1.3 of this Report.

2. PLANNING CONTEXT

This section of the report provides a brief outline of the planning context, including the applicable planning controls and planning policy framework, relevant to the subject site.

It is recognised that the planning scheme has been amended since the original adoption of the Development Plan, and this summary provides an overview of the planning context at the time of this current submission.

2.1. PLANNING CONTROLS

The land located at 50S Gillwell Road, Lalor is covered by the **General Residential Zone – Schedule 1 (GRZ1)** and is affected by the **Development Plan Overlay – Schedule 20 (DPO20)**. An overview of both applicant planning controls has been detailed below.

2.1.1. General Residential Zone - Schedule 1

The purpose of the General Residential Zone is to:

- Implement the Municipal Planning Strategy and the Planning Policy Framework.
- Encourage development that respects the neighbourhood character of the area.
- Encourage a diversity of housing types and housing growth particularly in locations offering good access to services and transport.
- Allow educational, recreational, religious, community and a limited range of other non-residential uses to serve local community needs in appropriate locations.

Schedule 1 to the General Residential Zone applies to the Whittlesea General Residential Areas, which does not provide any variations.

2.1.2. Development Plan Overlay - Schedule 20

The purpose of the Development Plan Overlay is to:

- Implement the Municipal Planning Strategy and the Planning Policy Framework.
- Identify areas which require the form and conditions of future use and development to be shown on a development plan before a permit can be granted to use or develop the land.
- Exempt an application from notice and review if a development plan has been prepared to the satisfaction of the responsible authority.

Schedule 20 to the Development Plan Overlay relates to the Lalor Development Plan and provides a number of requirements to be met prior to the issue of a permit, along with information to accompany a Development Plan.

2.2. PLANNING POLICY FRAMEWORK

The Planning Policy Framework (PPF) sets out state-wide policy that guides the development of the local policy framework, land use and development decisions and helps inform the planning scheme amendment process. The PPF seeks to ensure that sufficient zoned land is provided for housing, employment, recreation, and open space, commercial, community facilities and infrastructure to meet future demand in a sustainable manner. In particular, it seeks to promote high quality & high-density development in appropriate locations of the City, which create attractive and affordable housing options for the State's residents.

The sections of the PPF which are considered relevant to this addendum to the Lalor Development Plan include:

- Objectives at **Clause 11.02-1S (Supply of Urban Land)** of the PPF seek to ensure a sufficient supply of land is available for residential, commercial, retail, industrial, recreational, institutional and other community uses.

Relevant strategies include:

- Ensure the ongoing provision of land and supporting infrastructure to support sustainable urban development.
- Ensure that sufficient land is available to meet forecast demand.
- Objectives at **Clause 11.03-2S (Growth Areas)** of the PPF seek to located urban growth close to transport corridors and services and provide efficient and effective infrastructure to create sustainability benefits while protecting primary production, major sources of raw materials and valued environmental areas.

Relevant strategies include:

- Concentrate urban expansion into growth areas that are served by high-capacity public transport.
- Implement the strategic directions in the Growth Area Framework Plans.
- Encourage average overall residential densities in the growth areas of a minimum of 15 dwellings per net developable hectare, and over time, seek an overall increase in residential densities to more than 20 dwellings per net developable hectare.
- Deliver timely and adequate provision of public transport and local and regional infrastructure and services, in line with a preferred sequence of land release.
- Provide for significant amounts of local employment opportunities and in some areas, provide large scale industrial or other more regional employment generators.
- Create a network of mixed-use activity centres that are high quality, well designed and create a sense of place.
- Provide a diversity of housing type and distribution.
- Retain unique characteristics of established areas impacted by growth.
- Protect and manage natural resources and areas of heritage, cultural and environmental significance.
- Create well planned, easy to maintain and safe streets and neighbourhoods that reduce opportunities for crime, improve perceptions of safety and increase levels of community participation.
- Maximise beneficial relationships between land uses by discouraging the co-location of incompatible land uses.
- Protect the non-urban breaks between South Morang, Mernda/Doreen and Whittlesea Township and between Wollert and Donnybrook/Woodstock with a focus on the Quarry and Whittlesea Hills and linking key watercourses.
- Objectives at **Clause 16.01-1S (Housing Supply)** of the PPF seek to facilitate well-located, integrated and diverse housing that meets community needs.

Relevant strategies include:

- Ensure that an appropriate quantity, quality and type of housing is provided, including aged care facilities and other housing suitable for older people, supported accommodation for people with disability, rooming houses, student accommodation and social housing.
- Increase the proportion of housing in designated locations in established urban areas (including under-utilised urban land) and reduce the share of new dwellings in greenfield, fringe and dispersed development areas.
- Encourage higher density housing development on sites that are well located in relation to jobs, services and public transport.
- Identify opportunities for increased residential densities to help consolidate urban areas.
- Facilitate diverse housing that offers choice and meets changing household needs by widening housing diversity through a mix of housing types.
- Encourage the development of well-designed housing that:

- Provides a high level of internal and external amenity.
- Incorporates universal design and adaptable internal dwelling design.
- Support opportunities for a range of income groups to choose housing in well-serviced locations.
- Plan for growth areas to provide for a mix of housing types through a variety of lot sizes, including higher housing densities in and around activity centres.
- Objectives at Clause **16.01-2S (Housing Affordability)** of the PPF seek to deliver more affordable housing closer to jobs, transport and services.

Relevant strategies include:

- Improve housing affordability by:
 - Ensuring land supply continues to be sufficient to meet demand.
 - Increasing choice in housing type, tenure and cost to meet the needs of households as they move through life cycle changes and to support diverse communities.
 - Promoting good housing and urban design to minimise negative environmental impacts and keep costs down for residents and the wider community.
 - Encouraging a significant proportion of new development to be affordable for households on very low to moderate incomes.
- Increase the supply of well-located affordable housing by:
 - Facilitating a mix of private, affordable and social housing in suburbs, activity centres and urban renewal precincts.
 - Ensuring the redevelopment and renewal of public housing stock better meets community needs.
- Facilitate the provision of a balanced mix of market and affordable housing in development, especially larger residential development/mixed use development or on strategic redevelopment sites.
- Encourage and facilitate affordable housing in locations with good access to public transport and/or services.
- Facilitate a balanced mix of private, affordable and social housing within new developments.
- Design the social and affordable housing components within new developments so that they integrate with the remainder of the development.
- Support affordable private rental housing for low and moderate income households including a proportion to be owned and managed by a registered housing association, housing provider or similar not-for-profit organisation.
- Support innovative materials and affordable construction techniques, that could result in more affordable housing products.

3. SITE CONTEXT

This section of the report provides a brief outline of the site context, including its relation to the Lalor Development Plan area.

It is recognised that the surrounding Development Plan area has significantly changed since the adoption of the original Development Plan, and it is recognised that the area has been developed and the area has changed.

3.1. SUBJECT SITE

The overall site comprises of part of the land located at 50S Gillwell Road, Lalor. The overall allotment is irregular in shape, with an overall area of 4.3ha.

The legal description of the land is Lot RR on Plan of Subdivision 646643C. A review of the title indicates that there are no registered restrictive covenants or Section 173 Agreements affecting the subject site.



Figure 5: Depiction of the Subject Site (Source: Nearmap)

3.2. DEVELOPMENT PLAN AREA

The Lalor Development Plan area, also known as the Carlingford and Mosaic Living Development Plan area, comprised of a total overall landholding of 101 hectares.

The Development Plan area is located south-west of the Epping Principal Activity Centre and surrounding residential areas which comprise the Epping North Growth Corridor.

An area located directly to the north of the Development Plan area has also been designated and development for commercial and industrial purposes.

3.3. DEVELOPMENT PLAN VISION AND PRINCIPLES

The approved Development Plan provides a key emphasis on ESD principles, including a number of adopted principles relating to site planning, biodiversity and ecosystem management, landscaping, sustainable forms of transport, building design and construction methods, energy efficiency, waste minimisation, water conservation, and water sensitive urban design (WSUD) and stormwater management.

Other key principles and outcomes contemplated by the approved Development Plan include:

- A street network and lot diversity which not only integrates seamlessly but which enhances the character of the existing urban fabric.
- A variety of lot configurations including conventional allotments, medium density allotments and integrated housing sites to encourage housing diversity with a variety of people, at varied lifecycle stages and with different incomes to become part of the inclusive community.
- The northerly extension of Gillwell Road to connect to the proposed extension of Childs Road (Deveny Road) at the northern end of the land at the westerly extension of Kingsway Drive.
- A simple network of streets and associated pedestrian/cycle paths typically orientated north-south to maximise solar access or fanned to open view sheds to major open spaces. This includes a bicycle/pedestrian path along the northern boundary of the site that connects with the existing path provided alongside the Craigieburn Bypass to the south and that proposed along Edgars Creek as part of the CSEA Development Plan to the north.
- An interconnected network of fine grain thoroughfares designed for pedestrians and cyclists, to encourage walking and cycling within the local area and between surrounding attractors.
- The provision of a total of 9.18 hectares of public open space for the purposes of drainage, conservation, passive recreation and active recreation. This includes the provision of generous areas of public open space to ensure the retention of natural features identified as having environmental importance such as remnant grasslands. This includes a linear open space area along the outer northern and western boundaries of the land to provide for the movement of native flora and fauna.
- A designated enhanced Growling Grass Frog habitat reserve is also provided in the north-western portion of the Mosaic Living site to promote the protection and conservation of this nationally threatened species.
- The provision of 6.24 hectares of land for active recreation purposes, including two football ovals. The two full sized football ovals include the potential for two soccer pitches, room for a pavilion and car park has also been provided.
- A central piazza area at the core of the development to form a physical and social focal point overlooking wetlands and open space. The pizza will form a mix of uses including a café, restaurant, convenience store, as well as multi-level apartments. Medium density allotments have been located in close proximity to support the function of this central precincts.
- Connectivity to a range of regional retail & health services in the nearby Epping Major Activity Centre.
- Wetlands, retarding basins and other appropriate engineering measures to ensure appropriate management of stormwater.
- A staging plan that sees the site evolve from east to west, commensurate with market demand and the ability to manage short term sewer capacity constraints.

3.4. DEVELOPMENT PLAN REQUIREMENTS

Section 5.0 at Schedule 20 to the Development Plan Overlay, provides a series of requirements for any Development Plan, which is submitted for approval by the Responsible Authority. Any Development Plan must be generally in accordance with the indicative outline development plan, and incorporate these principle elements, being:



Figure 6: Outline Development Plan in the DPO20 (Source: Planning Scheme)

- The northerly extension of Gillwell Road to connect to the proposed extension of Childs Road at the northern end of the land and the westerly extension of Kingsway Drive.
- Areas identified as having environmental importance in the report of Practical Ecology dated April 2001, must be set aside in open space reserves.
- The provision of land for active recreation that is to contain two senior football ovals, a pavilion, car parking and associated buffer areas around the ovals to the satisfaction of the responsible authority.
- The provision of a bicycle/pedestrian path along the northern boundary of the site that connects with the existing path provided alongside the Craigieburn Bypass to the south and that proposed along Edgars Creek as part of the Cooper Street Employment Area Development Plan to the north;
- A linear open space area along the northern and western boundaries of the land; and
- The location and layout of proposed flow control facility, wetlands or retarding basins.

A development plan must, as appropriate, and to the satisfaction of the responsible authority:

- Be informed by a detailed site analysis which identifies or includes:
 - Craigieburn Bypass freeway reservation;
 - Natural features
 - Cultural context

- The strategic planning context of the land and adjoining land.
- Identify the proposed uses of the land including any areas of non-residential use.
- Show the location and layout of:
 - Any proposed flow control facility, to the satisfaction of Yarra Valley Water.
 - Any proposed wetland and retarding basin.
 - Any proposed transition and interface design treatments, as appropriate, between the land and the:
 - Craigieburn Bypass freeway reservation;
 - Whittlesea Gardens;
 - Childs Road extension;
 - Cooper Street Employment Area;
 - Existing residential areas.
 - High pressure gas transmission lines.
 - Any proposed noise attenuation structures adjacent to the Craigieburn Bypass.
 - The proposed road network, which should show:
 - a high degree of connectivity and internal permeability
 - typical road cross-sections
 - a method of integration with the existing and proposed surrounding road network
 - bus routes for public transport access on collector roads
 - a bicycle and pedestrian network
 - any features necessary to give effect to the traffic management plan.
 - Individual and stands of indigenous trees, particularly River Red Gums to be retained and integrated into the development consistent with the recommendations of the arboricultural survey.
- Identify the proposed staging of development.

3.5. SURROUNDING AREA

The Development Plan Area is bound by the Hume Freeway (west), established residential areas to the south and east and the Melbourne Wholesdale Market to the north.

The subject site located approximately 1.6km from the Lalor Town Centre.

The Development Plan Area is also well serviced by nearby public transport infrastructure, and the established bicycle network.

4. PROPOSED ADDENDUM TO THE DEVELOPMENT PLAN

The proposed addendum to the Carlingford & Mosaic Living Development Plan pertains specifically to the rear (southern) portion of land, and north-west corner of the parcel located at 50S Gillwell Road, Lalor.

The addendum seeks to facilitate the re-designation of this parcel, within the approved Development Plan to “medium density residential”.

The below assessment outlines the revised requirements and outcomes for this parcel, otherwise to be read in conjunction with the existing Development Plan.

4.1. PROPOSED DEVELOPMENT PLAN (ADDENDUM)

This addendum of the approved Development Plan seeks to update the current approved Development Plan, referenced at Figure 11 with the updated Development Plan provided below.

The Development Plan Addendum can also be found at **Appendix A**.

Critically, the changes to the Development Plan are limited to the redesignation of the subject site from “Integrated Residential Age in Place Estate” to “Medium Density Residential”.

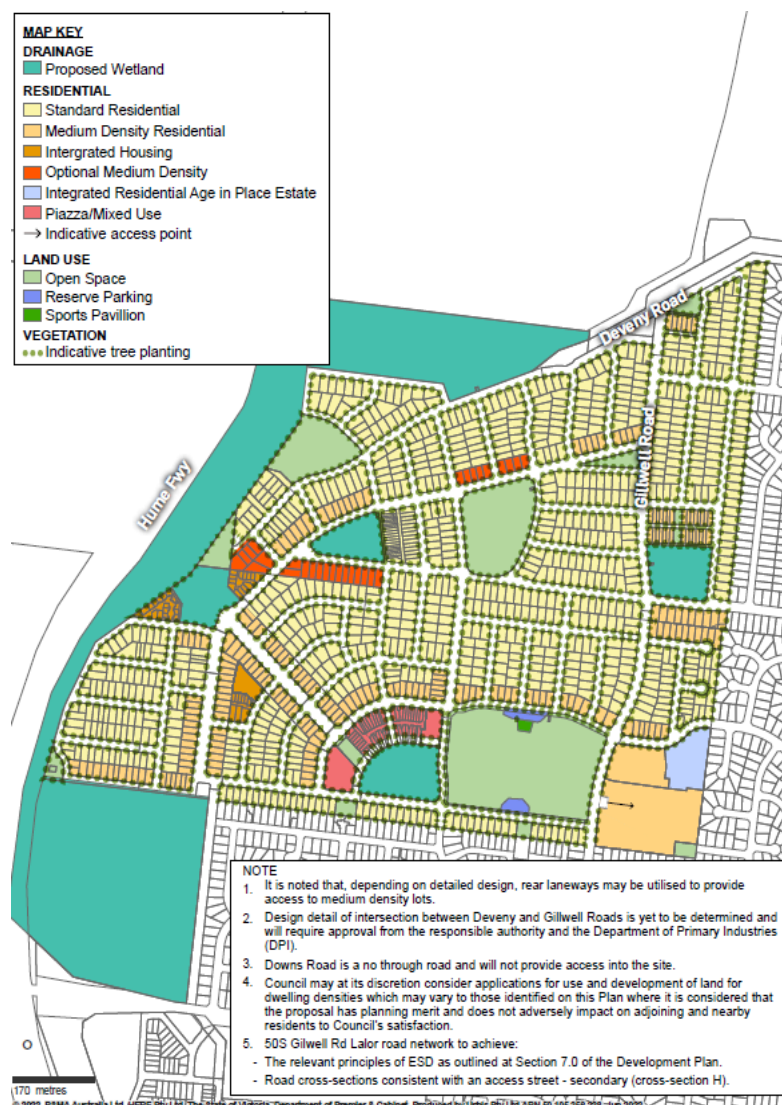


Figure 7: Proposed Addendum to the Development Plan and Replacement of Figure 11 (Source: Urbis)

No other changes are deemed required to other Neighbourhood Plans, which are included at Figure 12 of the approved Development Plan.

4.2. LAND BUDGET

No changes are deemed required to Land Budgets (Section 9.1), given the elapsed time since the original Development Plan was implemented.

4.3. HOUSING OUTCOMES AND POPULATION YIELD TARGETS

In accordance with the approved Development Plan, housing outcomes and population yield targets are expected to be adjusted as a result of the proposed addendum. Adjustments to Table 2 in the approved Development Plan have been reflected below.

House Type	Lot Sizes	Mosaic Living	Carlingford	Subject Site	Total Dwellings	Occupancy Rate	Population
Standard Density	450-700sqm	319 Lots	390 Lots	0 lots	709 Lots	2.9	2056
Medium Density	300-450sqm	180 Lots	85 Lots	130 Lots	395 Lots	2.2	869
Optional M. Density	300-450sqm	0 Lots	48 Lots	0 Lots	48 Lots	2.2	106
Integrated Housing	N/A	40 Units	0 Units	0 Units	40 Units	2.2	88
Mixed Use/Piazza	N/A	61 Units	0 Units	0 Units	61 Units	2.2	134
Dwelling Total		600 Dwellings	523 Dwellings	130 Dwellings	1208 Dwellings		3253
Integrated Residential Age in Place Estate							
Residential Aged Care Facility		120 Beds				1	120
Retirement Living Apartments		0 Units		0 Units		1.1	0
Retirement Living Villa Units		0 Units		0 Units		1.7	0
Integrated Residential Age in Place Estate Total		120 Beds		0 Units			120
Total Population							3373

Table 1: Adjustments to Table 2 in the Development Plan (Source: Development Plan)

In summary, the proposed addendum would re-allocate the Retirement Living Apartment and Retirement Living Villa Units targets, to the Medium Density Housing Type target, increasing the total medium density lot supply target from 265 to 395. Notwithstanding, this uplift to medium density dwelling types (for approximately 45 dwellings to the north-west corner, and for a range of up to 85 to the south) is commensurate with the reduction in retirement living dwelling types (which provided for a range of 45-55 and 75-85, respectively), and therefore the adjustment to overall number of dwellings is negligible.

Overall, the proposed addendum would result in a net population increase target from 3265-3293 to 3373 and reflects the higher occupancy rate per dwelling than a typical retirement living apartment or unit.

4.4. MOVEMENT NETWORK

In accordance with the approved Development Plan, the road network and pedestrian cycle and public transport networks have been outlined in Section 9.3 of the Development Plan and incorporated into Figures 14 (Traffic Management Plan), 15 (Road Hierarchy Plan), 16 (Thoroughfare Plan), 17 (Road Cross Sections), 18 (Pedestrian and Cycle Network Plan) and Figure 19 (Public Transport Network Plan).

Access to the subject site is proposed via the currently approved connection to Gillwell Road along the northern boundary of the parcel, which will serve as the sole vehicle connection to the site.

An indicative access point has been shown on the Proposed Addendum, running in an east-west direction from the western boundary, providing access from Gillwell Road. See Figure 8 and Figure 9 of this report for the indicative access and connectivity points and traffic management (which ought to be read as an addendum to Figures 14, 15, 16 and 18 of the approved Development Plan).

This indicative street has been designated as a Local Access Street Type H in the thoroughfare legend as seen at Figure 16 of the Approved Development Plan and as a Secondary Access Street – Figure 15 of the approved Development Plan. The intersection from the access street to Gillwell Road is also indicatively shown as a 'Give Way Control' intersection.

The local access street is also a designated pedestrian pathway. An indicative pedestrian pathway to the reserve in the south-east corner has been shown, this will be confirmed as part of the development of the site and detailed design under a future Town Planning Permit application.

Section 9.3.3 of the approved Development Plan ensures that majority of dwellings are within the required 400 metre walking distance catchment for access to public transport. The indicative local access street will provide a critical connection point for pedestrians to access available public transport along Gillwell Road. Exact walking distances and internal access points are to be confirmed at the time of development, as part of detailed design.

A Transport Impact Assessment has been prepared by One Mile Grid and is included at **Appendix B**. The assessment concludes that the changes to the Development Plan being sought through this addendum will have a negligible impact on the operation and capacity of the approved road network for the Development Plan Area and will not require any changes to the approved elements (and figures) provided in the approved Development Plan.

The proposed Addendum to Figure 14, Figure 15, Figure 16, and Figure 18 can be found at **Appendix A**.

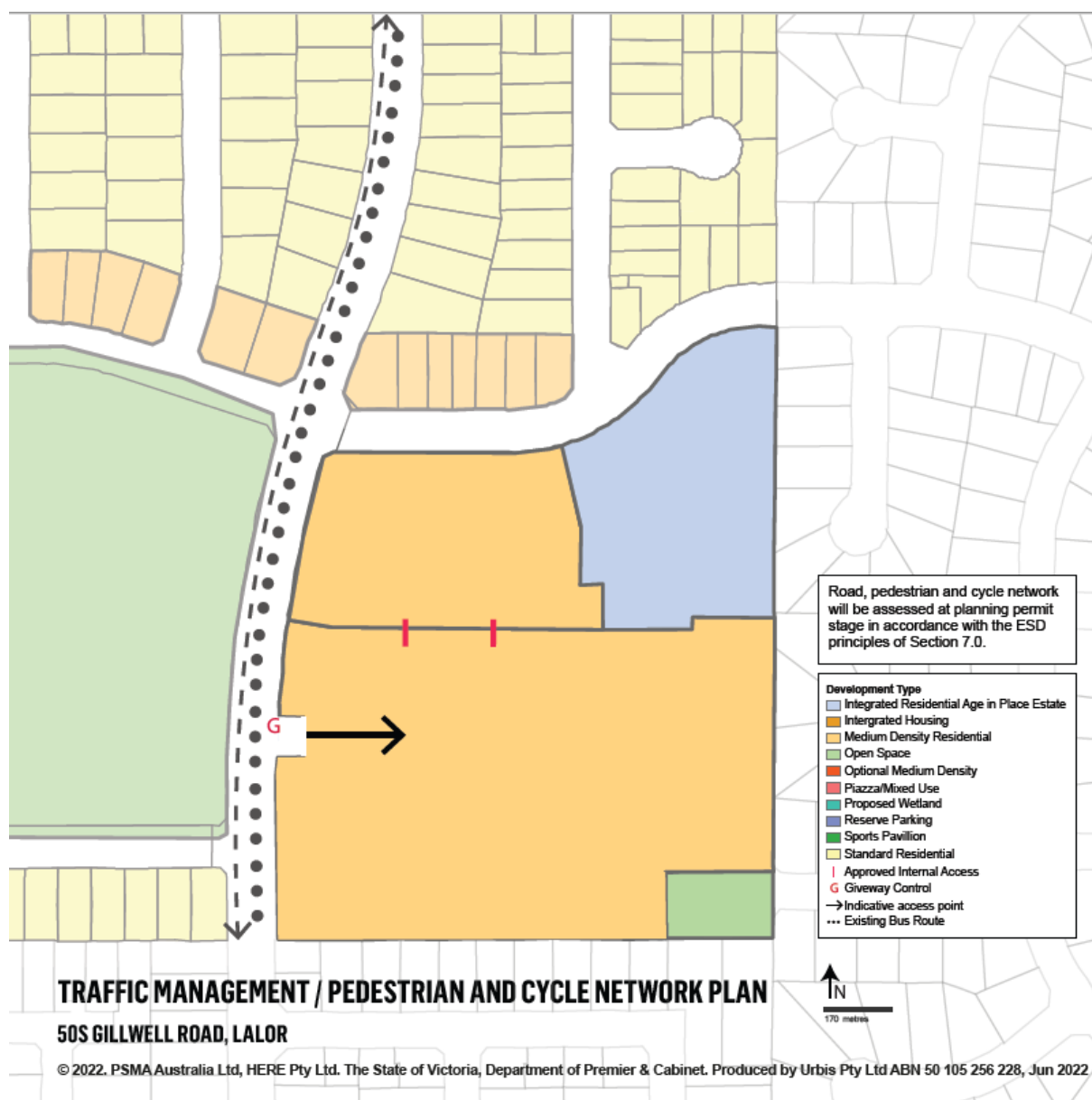


Figure 8: Proposed Addendum to the Development Plan Figure 14 and Figure 18 (Indicative) (Source: Urbis)

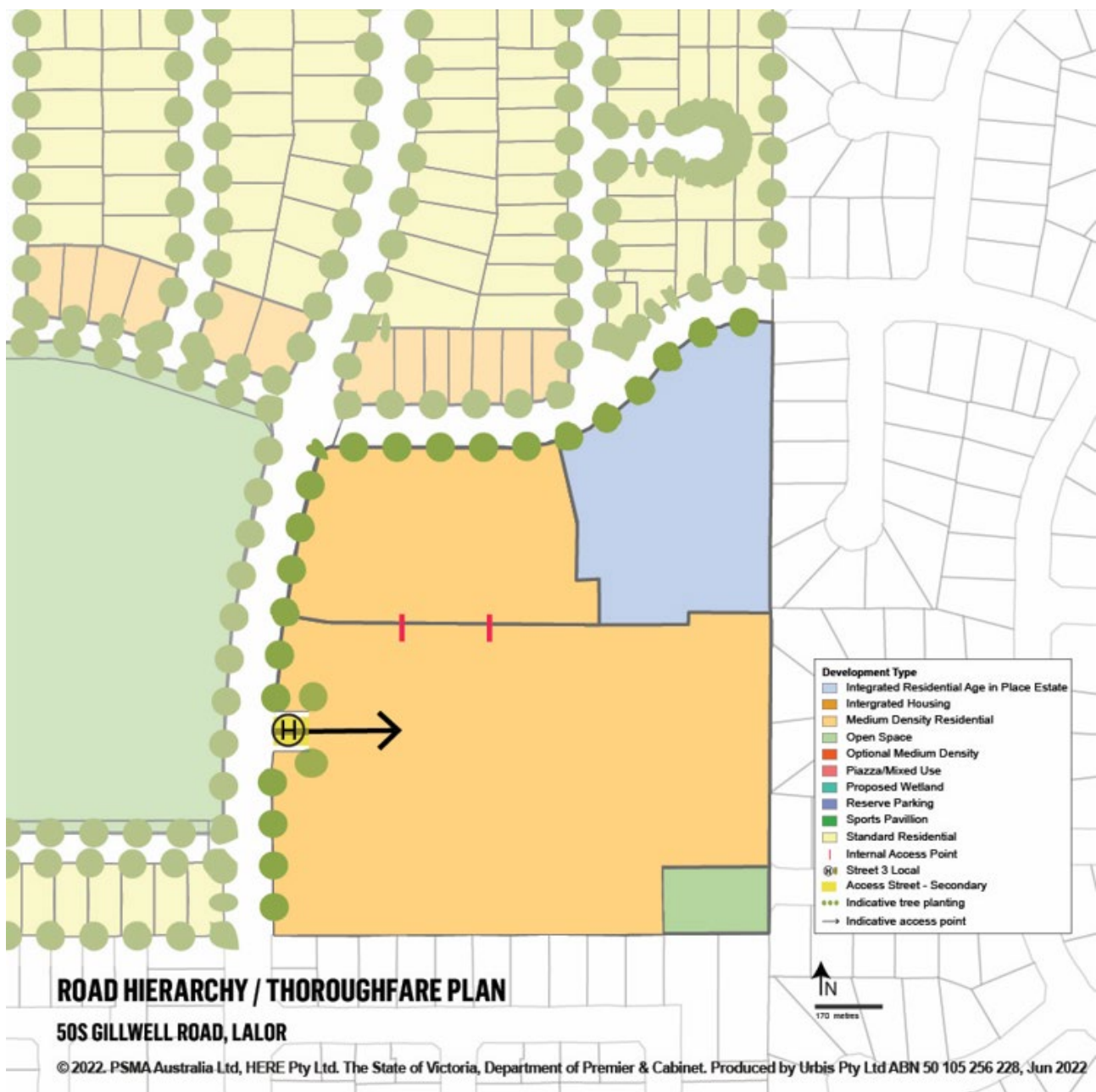


Figure 9: Proposed Addendum to the Development Plan Figure 15 and figure 16 (Indicative) (Source: Urbis)

4.5. LOT PLANNING AND BUILDING ENVELOPES

Section 9.4 of the approved Development Plan includes a range of design and built form considerations for new housing within the Development Plan Area. No changes are being sought to these principles, including Figures 20a, 20b, 20c and 20d.

4.6. LANDSCAPING AND OPEN SPACE

Section 9.5 of the approved Development Plan provides the Open Space Master Plan and Street Tree Master Plan, along with noting vegetation protection throughout the Development Plan Area.

No changes are being sought to the Open Space Master Plan (Figure 22-23 and Table 4) or the Street Tree Master Plan (Figure 24). As shown on the Addendum at Figure 1, the indicative local access street which runs through the site in an east-west direction has been indicatively shown to have street tree planting. Any proposed street tree planting will be in accordance with the Street Tree Master Plan and to the satisfaction of

the Responsible Authority at the time of development/detailed design through a future Town Planning Permit application.

It is also noted that there are no proposed changes to the proposed removal of trees on the subject site, in accordance with the Tree Retention and Removal Plan at Figure 21.

Any further landscaping will be managed at the time of development as part of a planning permit application. At this stage, any future landscaping (as part of a future development) can be to Council's satisfaction. There is no change to the Open Space designation in the south-eastern corner of the Development Plan area, which has already been separately subdivided from the subject land subject to this Addendum.

4.7. TREATMENT OF INTERFACES

Section 9.6 of the approved Development Plan provides an analysis of the various interfaces of the Development Plan Area with other nearby land uses.

There are no changes being sought as part of this addendum to these interfaces.

Notwithstanding, for clarity we include an excerpt from the existing approval, specifically Figure 29, which indicates the future intent for interface treatments along the Eastern Boundary as per Section 9.6.3.

Figure 29: Design Response for the Eastern Boundary

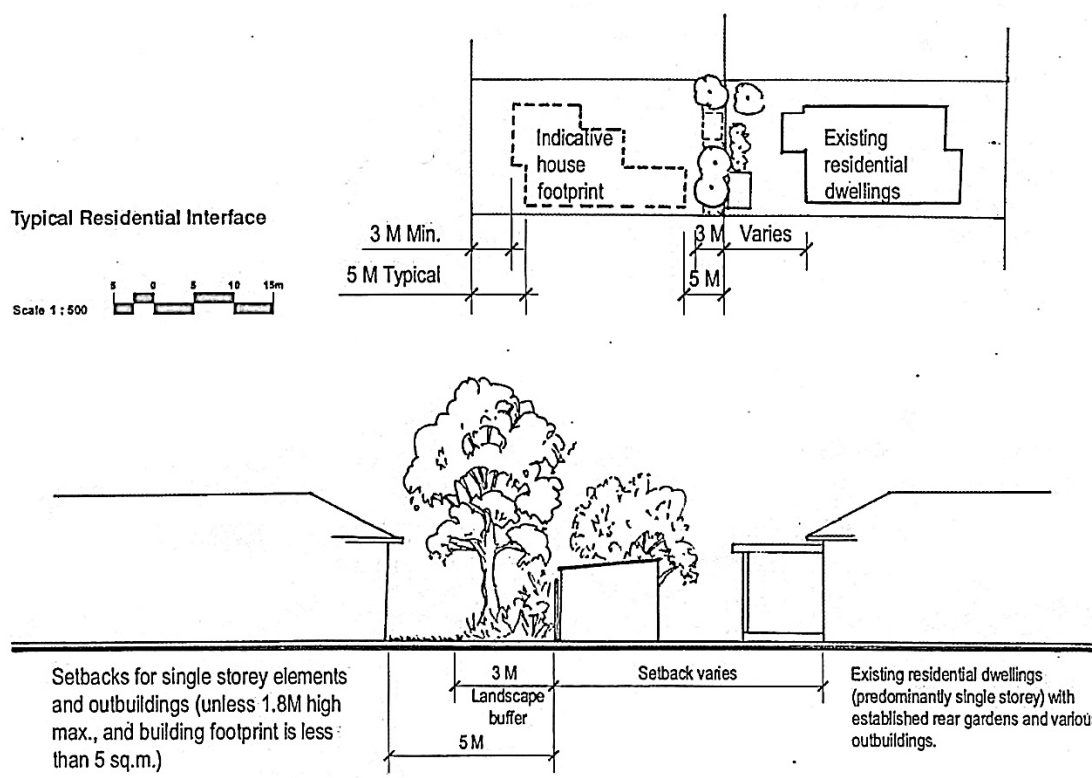


Figure 10: Replicated Figure 29 from approved Development Plan demonstrating interface treatment intent along eastern boundary

This Addendum affirms the expected interface treatments subject to lot planning principles as part of a future town planning application. Protecting the High-Pressure Gas Pipeline

Section 9.7 of the approved Development Plan provides considerations for protecting a high-pressure gas pipeline within the Development Plan Area.

This consideration has no impact on the subject site or the proposed addendum to the Development Plan.

4.8. INTEGRATED WATER MANAGEMENT

Section 9.8 of the approved Development Plan provides an integrated water management strategy, including considerations for sewer, water supply and water re-use.

No changes to these considerations are being sought by the proposed addendum to the Development Plan.

4.9. STORMWATER MANAGEMENT PLAN

Section 9.9 of the approved Development Plan provides the SMP for the Development Plan Area, including the proposed drainage system.

A Stormwater Management Plan (SMP) for the subject site has been prepared by FMG Engineering and is included at **Appendix C**.

The SMP notes that the proposed changes to the Development Plan are anticipated to have negligible stormwater impacts and will not result in any material changes in impermeable area or general stormwater management for the site.

Further detailed stormwater analysis and design will be undertaken at the future town planning application stage, as part of the detailed design, to the satisfaction of the Responsible Authority, in accordance with the requirements of the Whittlesea Planning Scheme and WSUD principles as outlined in the existing Development Plan.

The future development of this parcel will need to have regard to the existing private drainage infrastructure within the site, to be further resolved at the planning permit application stage.

4.10. TELECOMMUNICATIONS CONDUITS PLAN

There are no changes proposed to the Telecommunications Conduit Plan and Figure 35. Appropriate servicing of the site will be addressed as part of a planning permit application.

4.11. STAGING OF DEVELOPMENT

Section 9.11 of the approved Development Plan provides an indicative overview of the staging of development for the Development Plan Area.

On the basis that all stages have progressed and the Development Plan area remains largely developed, there is not considered a need to amend Figure 36 and the Proposed Indicative Staging Plan.

5. CONCLUSION

The proposed addendum to the Lalor Development Plan is considered to strategically align with the principles and outcomes which continue to be envisaged for the Development Plan Area, while also satisfying the statutory requirements as outlined in Schedule 20 the Development Plan Overlay.

The proposed changes being sought through this addendum will also support the increase of housing support in a location strategically identified for infill housing growth, and in an area which is well serviced by adjacent areas of public open space and the availability of services and community infrastructure. The dwelling typology change does not represent a real increase in dwelling numbers, and only a minor increase to projected occupancy rates, reflective of current market demand.

It is considered the indicative access, pedestrian connectivity and tree planting is generally in accordance with the approved Development Plan. Further detailed design such as stormwater and drainage, specific lot yield, internal access and landscaping are matters to be addressed as part of a development and/or subdivision (planning permit) application for the site.

Overall, the proposed addendum is considered to have a positive impact on the outcomes being delivered by the Lalor Development Plan and will provide a net community benefit.

DISCLAIMER

This report is dated 16 February 2023 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd (**Urbis**) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Baptcare (**Instructing Party**) for the purpose of Addendum to Development Plan (**Purpose**) and not for any other purpose or use. To the extent permitted by applicable law, Urbis expressly disclaims all liability, whether direct or indirect, to the Instructing Party which relies or purports to rely on this report for any purpose other than the Purpose, and to any other person which relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

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This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the reasonable belief that they are correct and not misleading, subject to the limitations above.

APPENDIX A

PROPOSED ADDENDUM TO DEVELOPMENT PLAN (REPLACEMENT TO FIGURE 11 AND TRAFFIC/PEDESTRIAN MOVEMENT DIAGRAMS (ADDENDUMS TO FIGURES 14, 15, 16 AND 18))

MAP KEY

DRAINAGE

Proposed Wetland

RESIDENTIAL

Standard Residential

Medium Density Residential

Integrated Housing

Optional Medium Density

Integrated Residential Age in Place Estate

Piazza/Mixed Use

→ Indicative access point

LAND USE

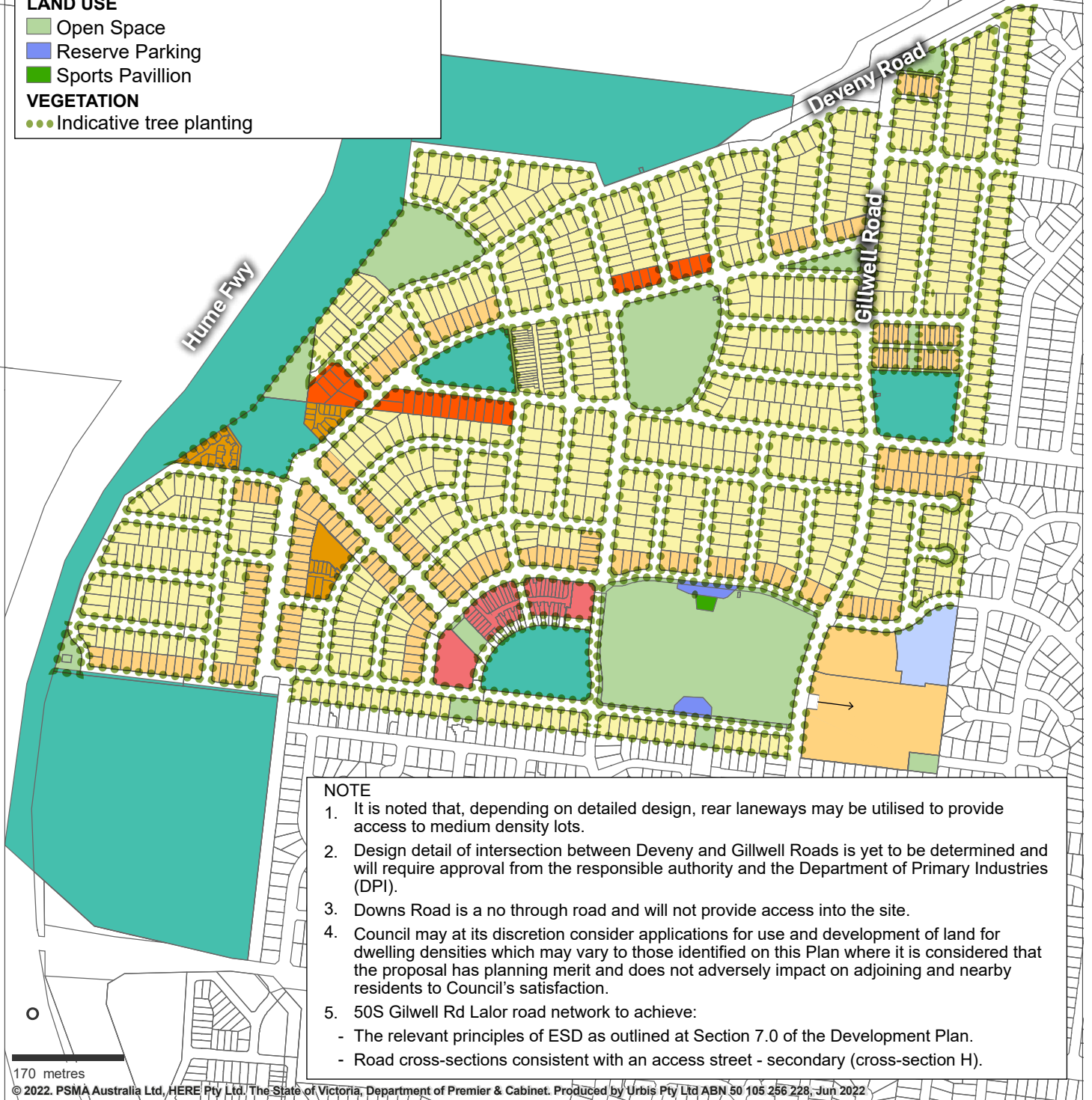
Open Space

Reserve Parking

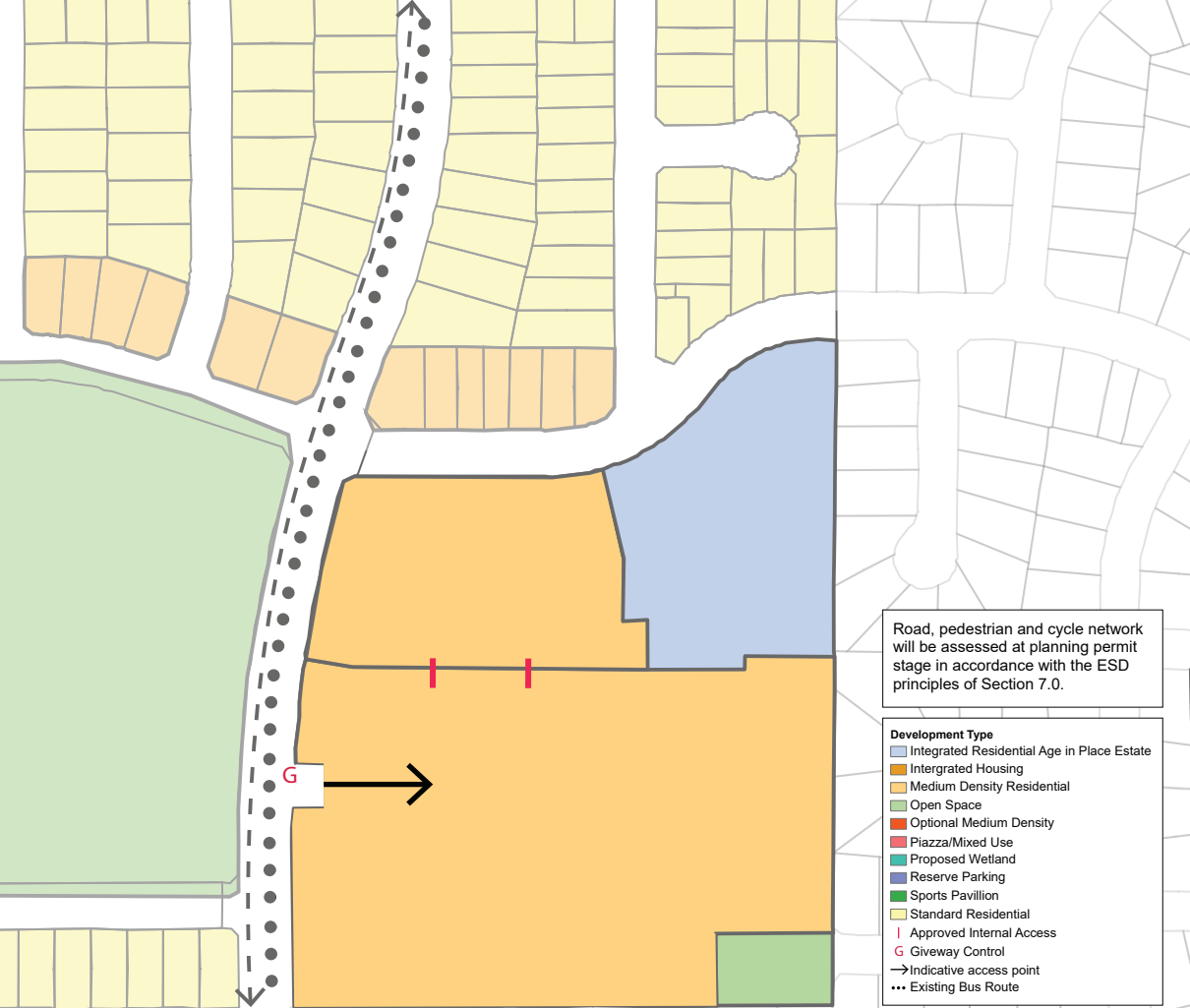
Sports Pavillion

VEGETATION

Indicative tree planting



50S GILLWELL ROAD, LALOR





ROAD HIERARCHY / THOROUGHFARE PLAN

50S GILLWELL ROAD, LALOR

APPENDIX B

TRANSPORT IMPACT ASSESSMENT

Pinetree Crescent, Lalor

Transport Impact Assessment – Amended Development Plan



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7 July 2022

onemilegrid

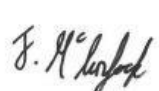
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1 INTRODUCTION

onemilegrid has been requested by Baptcare to undertake a Transport Impact Assessment of the proposal for the change of the use of the parcel of land at Pinetree Crescent, Lalor, from 'integrated residential age in place estate' to a standard residential use within the development plan

As part of this assessment the subject site has been inspected with due consideration of the development proposal, traffic data has been sourced and relevant background reports have been reviewed.

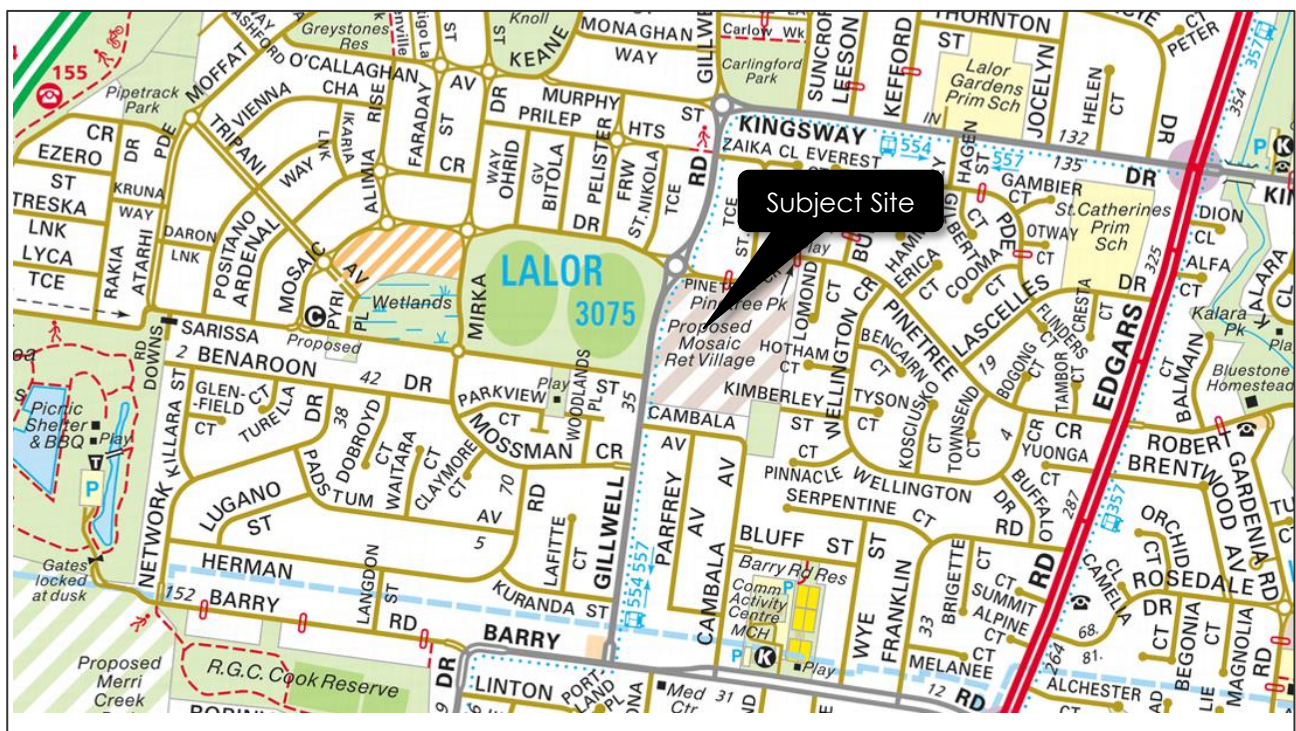
2 EXISTING CONDITIONS

2.1 Site Location

The subject site forms part of an overall area owned by Baptcare, which includes an existing residential aged care facility towards the north-eastern corner, Baptcare retained land towards the north-western corner, and the subject site within the southern portion of the site.

The subject site is located on the eastern side of Gillwell Road, approximately 70m south of the intersection between Pinetree Crescent and Gillwell Road, as shown in Figure 1.

Figure 1 Site Location

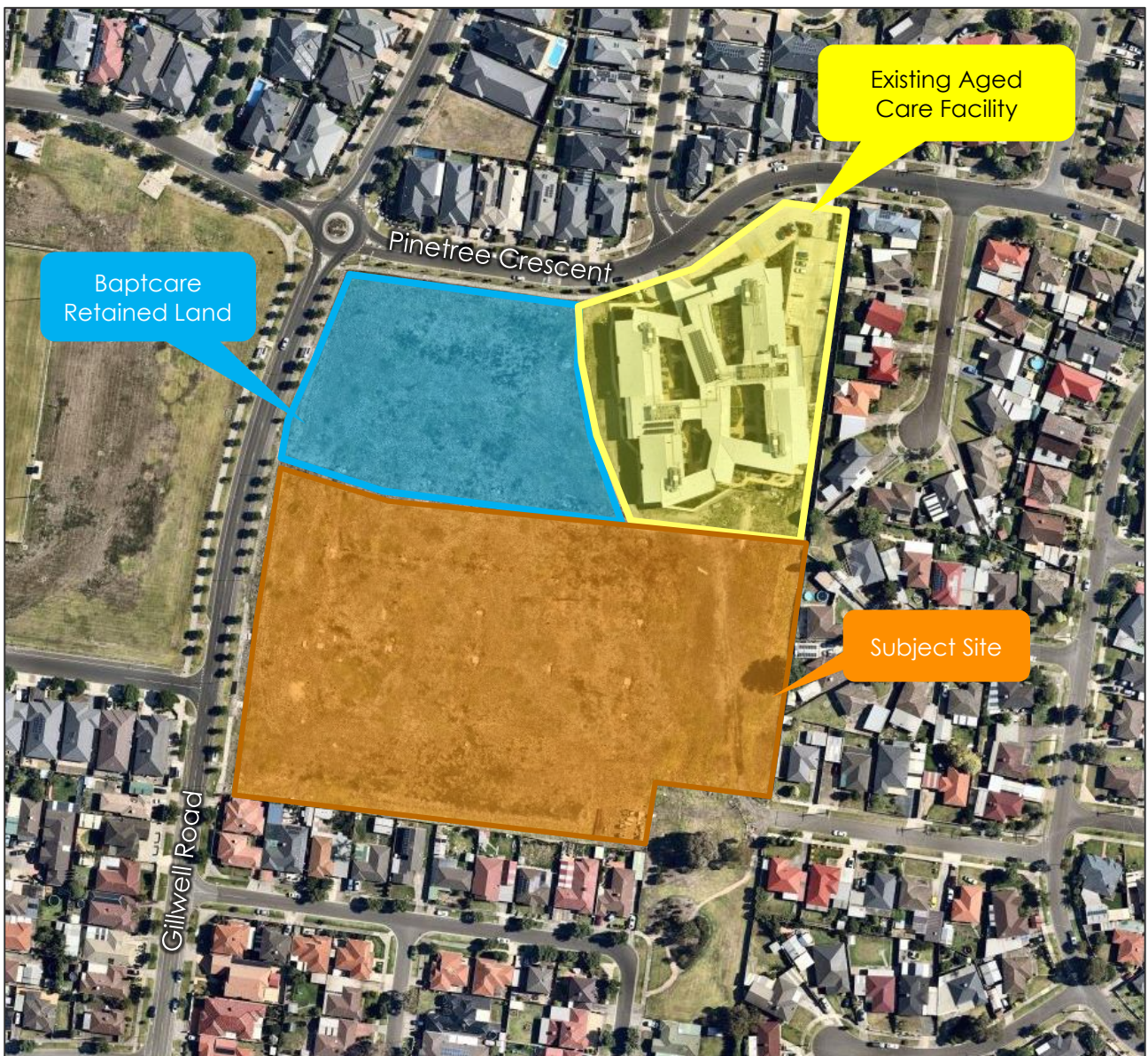


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The subject site is currently vacant, with no vehicle access provided.

An aerial view of the subject site is provided in Figure 2.

Figure 2 Site Context (24 January 2021)



Copyright Nearmap

Land use in the immediate vicinity of the site is largely residential in nature, and is located directly opposite from Gillwell Park.

2.2 Planning Zones and Overlays

It is shown in Figure 3 that the site is located within a General Residential Zone (GRZ1). In addition, the site is subject to the Development Plan Overlay – Schedule 20 (DPO20).

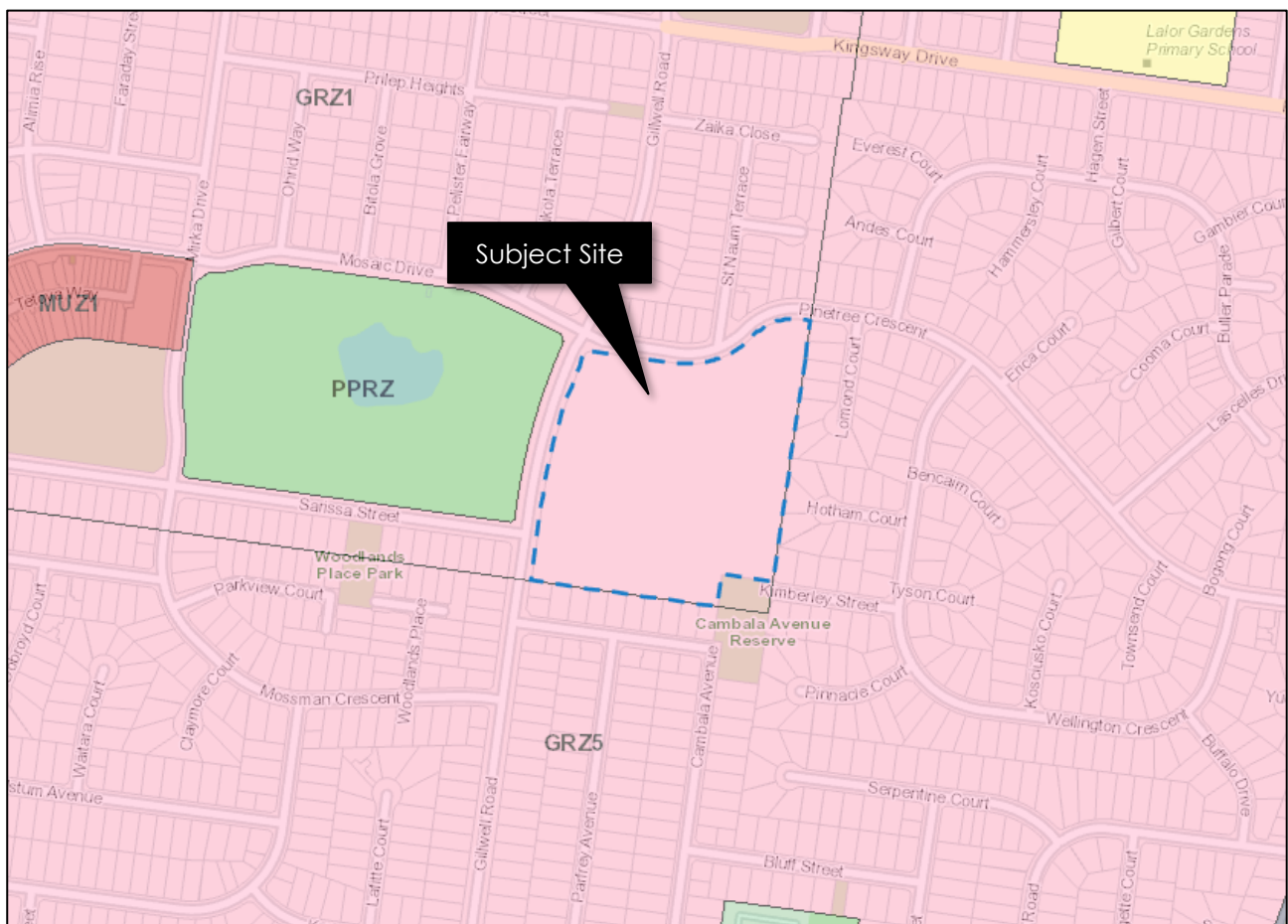
Schedule 20 to the DPO specifies that the development plan must show the following, amongst other things:

"The proposed road network, which should show:

- *A high degree of connectivity and internal permeability*
- *Typical road cross-sections*
- *A method of integration with the existing and proposed surrounding road network*
- *Bus routes for public transport access on collector roads*
- *A bicycle and pedestrian network*
- *Any features necessary to give effect to the traffic management plan."*

It is noted that the proposed development is exempt from the above, given that the application is subject to the Clause 52.20 approval process. Notwithstanding, the proposed development has sought to align with the outcomes listed as part of the Development Plan Overlay.

Figure 3 Planning Scheme Zones



2.3 Road Network

2.3.1 Pinetree Crescent

Pinetree Crescent is a local road generally aligned east-west, running from Edgars Road in the east and continuing as Mosaic Drive in the west.

Pinetree Crescent provides a pavement width of 7.3 metres, accommodating two-way traffic flow and kerbside parking. Unrestricted kerbside parking is permitted on both sides of the road.

The default 50km/h speed limit applies to Pinetree Crescent in the vicinity of the site.

The cross-section of Pinetree Crescent at the frontage of the site is shown below.

Figure 4 Pinetree Crescent, looking west adjacent to the site



Figure 5 Pinetree Crescent, looking east adjacent to the site



2.3.2 Gillwell Road

Gillwell Road is a local road generally aligned north-south, running between Edgars Road in the north and Barry Road in the south. Gillwell Road provides a single traffic lane and a shared kerbside parking/bike lane in each direction adjacent to the site. Kerbside parking is generally unrestricted in the vicinity of the site.

The default 50km/h speed limit applies to Gillwell Road in the vicinity of the site.

The cross-section of Gillwell Road at the frontage of the site is shown in Figure 6.

Figure 6 Gillwell Road, looking south adjacent to the subject site



Figure 7 Gillwell Road, looking north adjacent to the subject site



2.4 Traffic Volumes

2.4.1 Intersection Volumes

Traffic volume surveys were undertaken by Trans Traffic Survey on behalf of **onemilegrid** at the intersection of Gillwell Road and Pinetree Crescent, on Wednesday 25th May 2022, between 6:30am and 9:30am, and between 2:30pm and 6:30pm.

The peak hour results of the surveys are shown in Figure 8.

Figure 8 Existing Traffic Volumes – Gillwell Road / Pinetree Crescent



To assess the operation of the intersection the traffic volumes have been input into SIDRA Intersection, a traffic modelling software package.

The SIDRA Intersection software package has been developed to provide information on the capacity of an intersection with regard to a number of parameters. Those parameters considered relevant are, Degree of Saturation (DoS), 95th Percentile Queue, and Average Delay as described below.

Table 1 SIDRA Intersection Parameters

Parameter	Description	
Degree of Saturation (DoS)	The DoS represents the ratio of the traffic volume making a particular movement compared to the maximum capacity for that particular movement. The value of the DoS has a corresponding rating depending on the ratio as shown below.	
	Degree of Saturation	Rating
	Up to 0.60	Excellent
	0.61 – 0.70	Very Good
	0.71 – 0.80	Good
	0.81 – 0.90	Fair
	0.91 – 1.00	Poor
	Above 1.00	Very Poor
It is noted that whilst the range of 0.91 – 1.00 is rated as 'poor', it is acceptable for critical movements at an intersection to be operating within this range during high peak periods, reflecting actual conditions in a significant number of suburban signalised intersections.		
Average Delay (seconds)	Average delay is the time delay that can be expected for all vehicles undertaking a particular movement in seconds.	
95th Percentile (95%ile) Queue	95%ile queue represents the maximum queue length in metres that can be expected in 95% of observed queue lengths in the peak hour	

The results of the analysis are provided in Table 2.

Table 2 Gillwell Road / Pinetree Crescent – Existing Conditions

Approach	DoS	Avg. Delay (sec)	Queue (m)
AM Peak			
Gillwell Road South	0.131	5.4	5.0
Pinetree Crescent East	0.062	6.1	2.2
Gillwell Road North	0.120	5.8	4.6
Pinetree Crescent West	0.108	7.0	4.0
PM Peak			
Gillwell Road South	0.165	5.4	6.5
Pinetree Crescent East	0.070	6.7	2.5
Gillwell Road North	0.152	5.8	6.0
Pinetree Crescent West	0.082	6.9	3.0

It is shown the roundabout between Gillwell Road and Pinetree Crescent currently operates under 'Excellent' conditions on each approach, during the morning and evening peak hour periods. Minimal queues and delays are experienced by motorists.

2.4.2 Local Road Capacity

In addition to the above, traffic volume, speed and classification surveys were undertaken by Trans Traffic Survey on behalf of **onemilegrid** on Pinetree Crescent and Gillwell Road adjacent to the site, for a one-week period from Wednesday 25th May 2022 to Wednesday 1st June 2022.

The results of the surveys are summarised below.

Table 3 Traffic Volume and Speed Surveys – Pinetree Crescent

Time Period	Direction	Traffic Volume (vpd)	Average Speed (km/h)	85 th Percentile Speed (km/h)
Weekday Average	Eastbound	406	34.7	39.5
	Westbound	373	32.5	36.7
	Both Directions	779	33.8	38.1
7 Day Average	Eastbound	379	34.7	39.8
	Westbound	348	32.7	36.8
	Both Directions	727	33.7	38.3

Table 4 Traffic Volume and Speed Surveys – Gillwell Road

Time Period	Direction	Traffic Volume (vpd)	Average Speed (km/h)	85 th Percentile Speed (km/h)
Weekday Average	Northbound	1,814	49.3	56.7
	Southbound	1,935	50.2	56.8
	Both Directions	3,749	49.7	56.7
7 Day Average	Northbound	1,790	49.5	56.9
	Southbound	1,930	50.2	57.0
	Both Directions	3,720	49.9	56.9

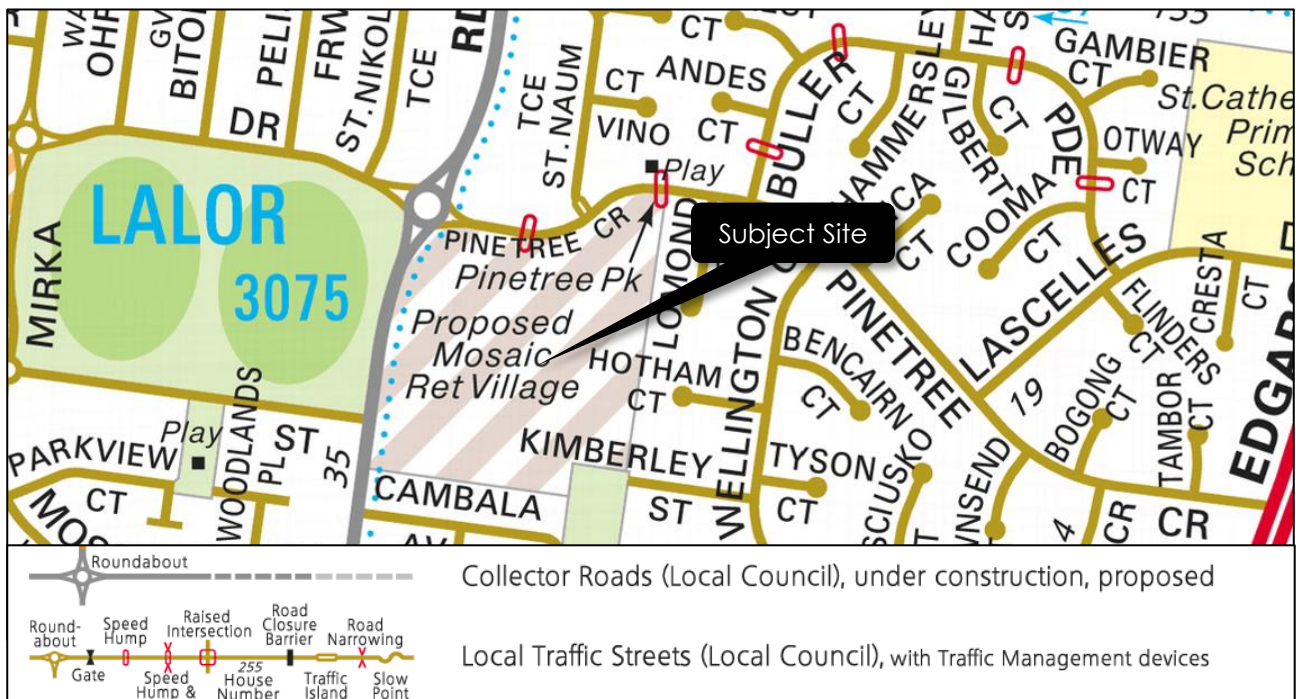
2.5 Road Classifications

2.5.1 Melway Classification

The Melway maps provide general classifications of roads, as shown below in Figure 9.

Based on the Melway maps, Pinetree Crescent is classified as a local access street which has an indicative capacity of 1,000 – 2,000 vehicles per day. Gillwell Road is identified as a collector road, which has an indicative capacity of between 3,000 – 7,000 vehicles per day.

Figure 9 Melway Road Classification



The Lalor Development Plan approved by the City of Whittlesea on 4th July 2008 and amended September 2015 identified the subject site as an integrated Residential Age in Place Estate as shown Figure 10.

Figure 10 Development Plan



Of particular relevance to traffic the Lalor Development Plan provides a Road Hierarchy Map, which identifies Pinetree Crescent as an Access Street – Primary and Gillwell Road as a Collector Road. The Road Hierarchy Map from the Lalor Development Plan is shown below in Figure 11.

Figure 11 Lalor Development Plan – Road Hierarchy Map



The Lalor Development Plan also includes a Thoroughfare Plan, which is shown below in Figure 12.

The Thoroughfare Plan denotes Gillwell Road as No. 'F', and Pinetree Crescent as No. 'D'. The cross-sections for notation 'F' and notation 'D' are shown below in Figure 13 and Figure 14.

Figure 12 Lalor Development Plan – Thoroughfare Plan

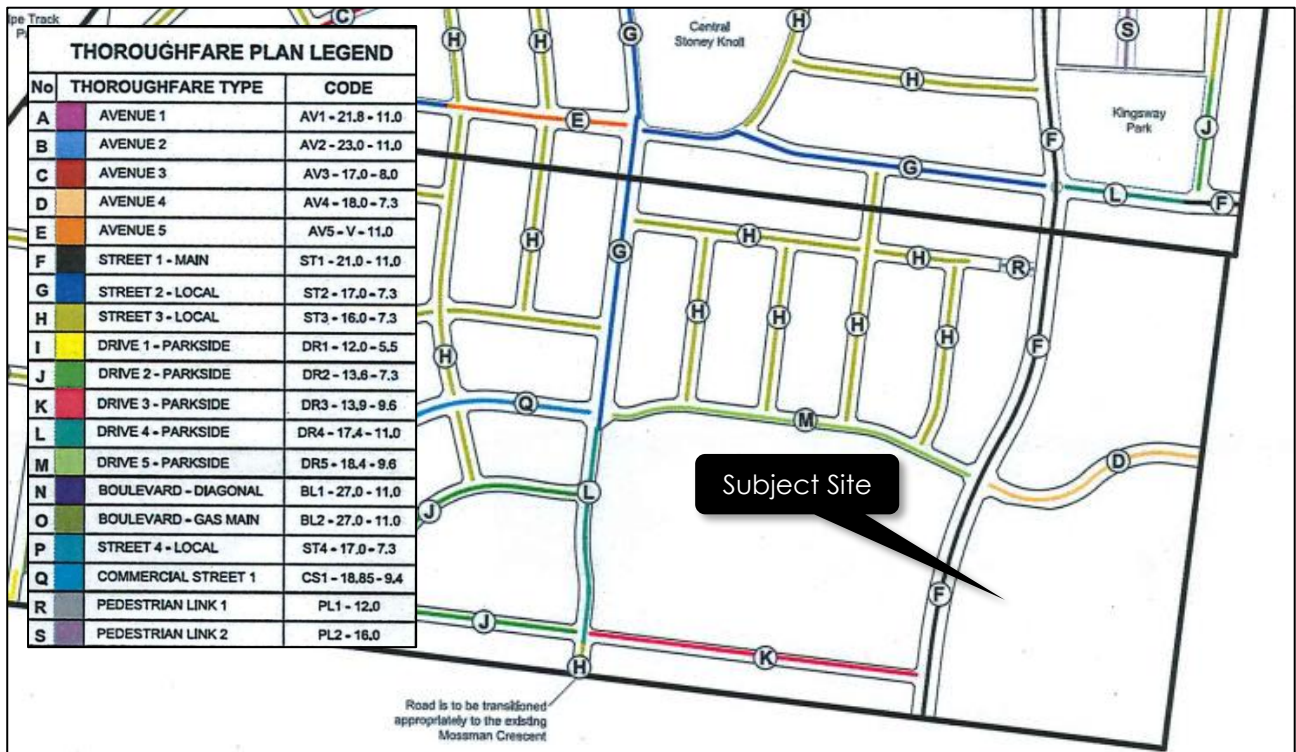


Figure 13 Gillwell Road – Road Cross Section

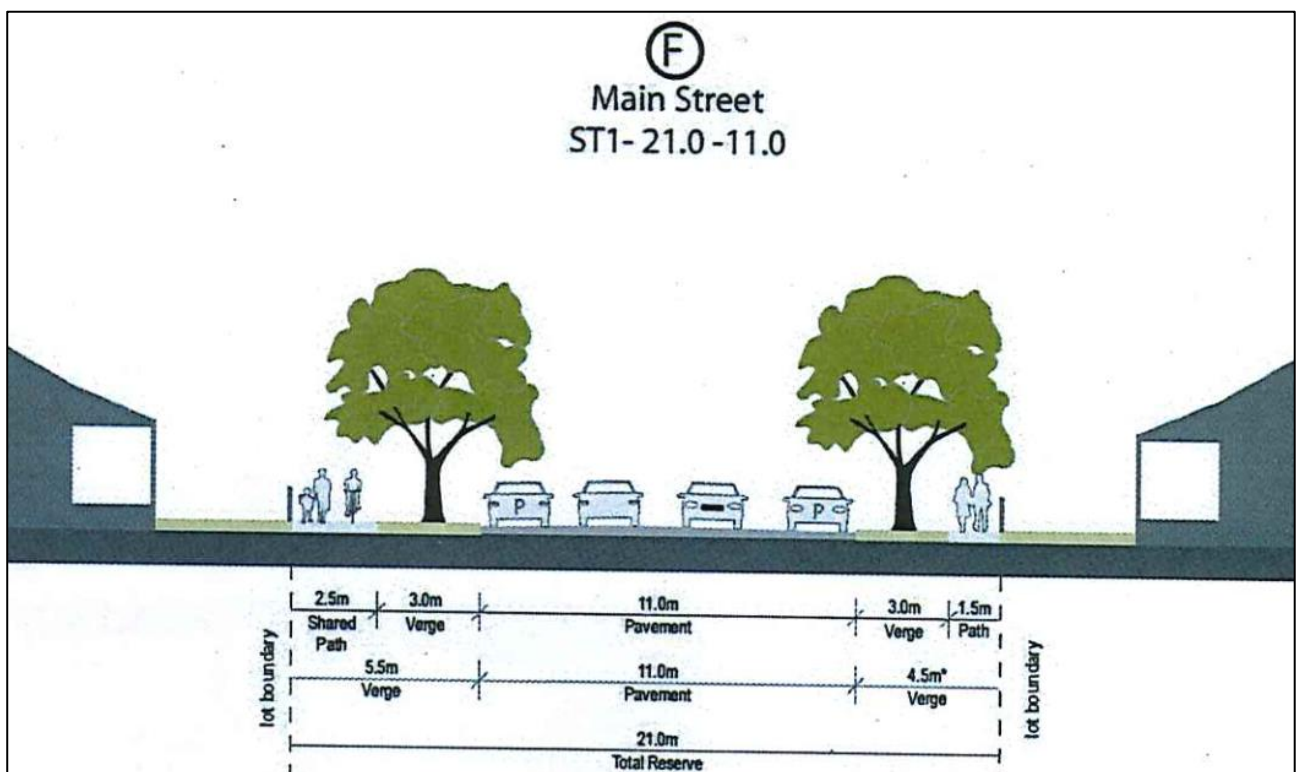
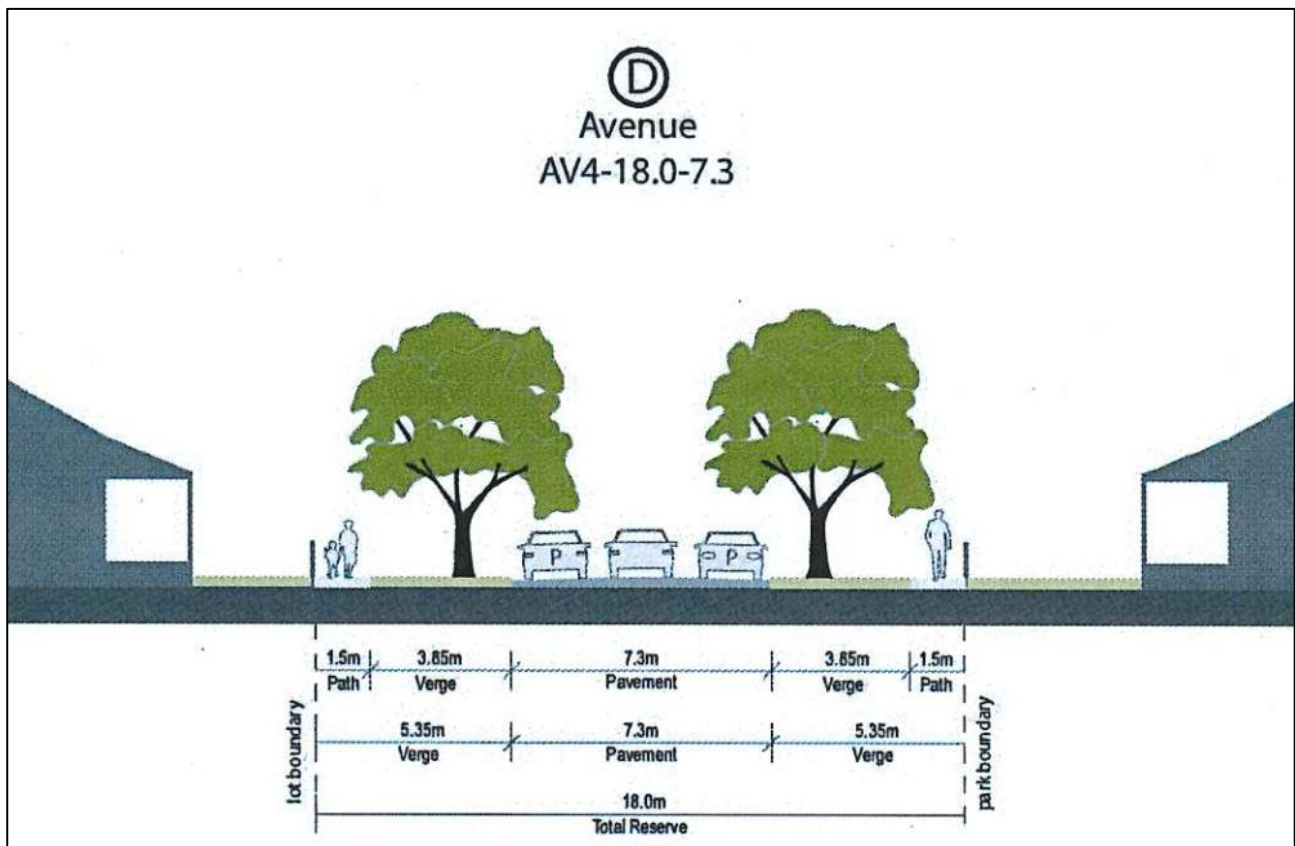


Figure 14 Pinetree Crescent – Road Cross Section



2.5.3 Road Classification Summary

Based on the information provided above from Melway and the approved Lalor Development Plan, it is concluded that Pinetree Crescent is an Access Street Level 1, and Gillwell Road is a Connector Street. A summary of the classifications and indicative capacities is shown in Table 5.

Table 5 Road Hierarchy

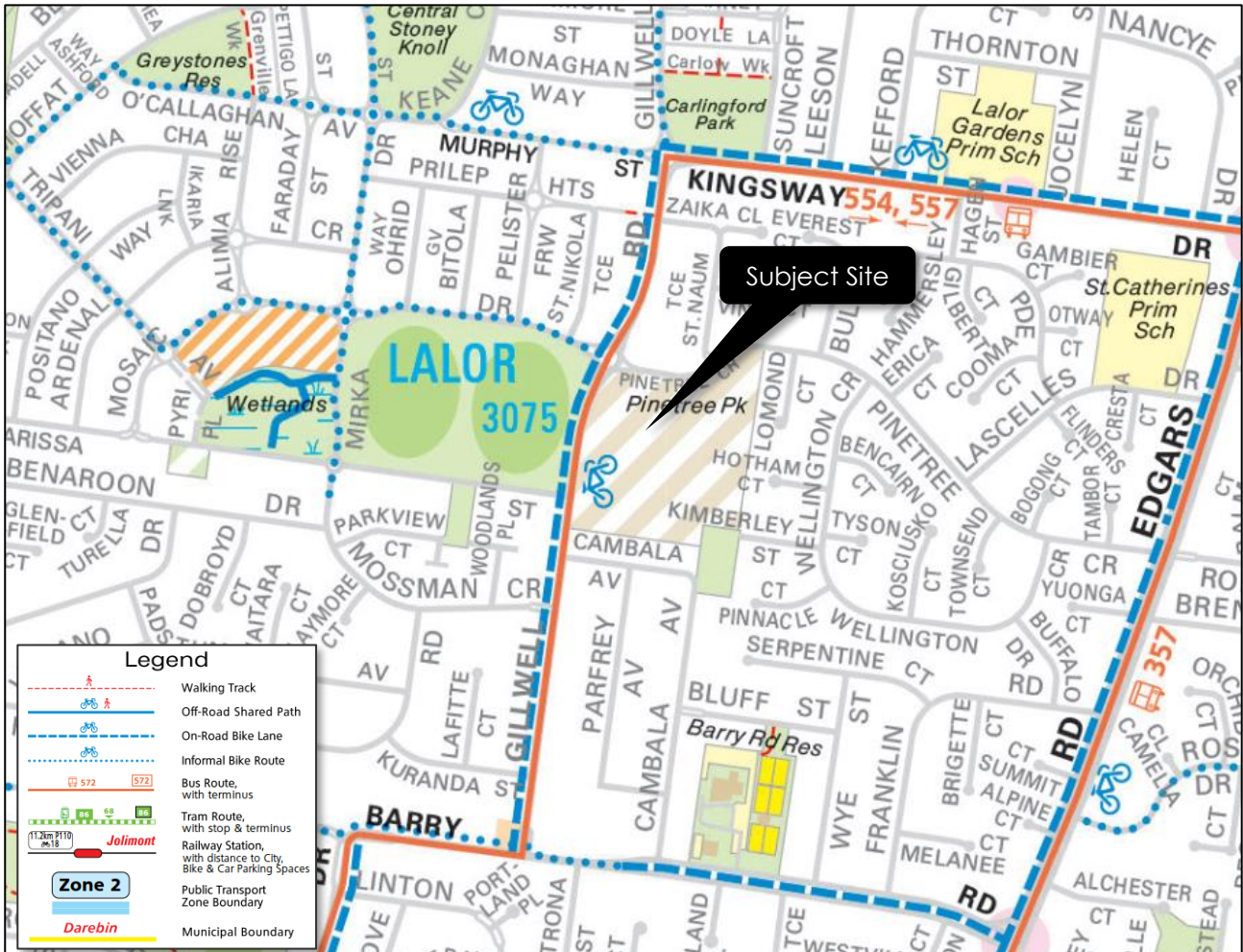
Road	Responsibility	Classification	Capacity
Pinetree Crescent	Council	Access Street	1,000 – 2,000 vpd
Gillwell Road	Council	Connector Street	3,000 – 7,000 vpd

2.6 Sustainable Transport

2.6.1 General

An extract of the TravelSmart Map for the City of Whittlesea is shown in Figure 15, highlighting the public transport, bicycle and pedestrian facilities in the area.

Figure 15 TravelSmart Map



2.6.2 Public Transport

The public transport provision in the vicinity of the site is shown in Figure 16 and detailed in Table 6.

Figure 16 Public Transport Provision

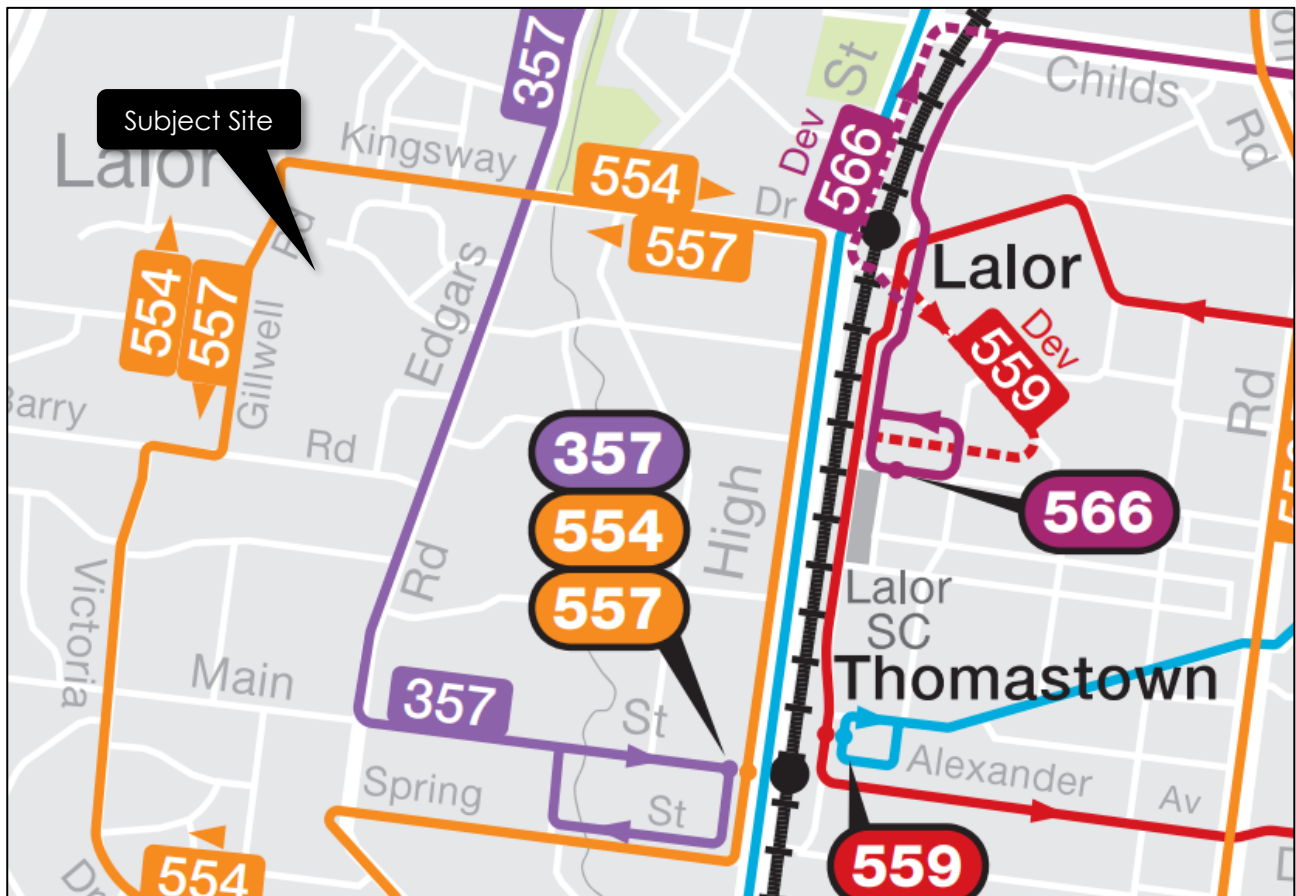


Table 6 Public Transport Provision

Mode	Route No	Route Description	Nearest Stop/Station
Train		Mernda Line	Lalor Railway Station
Bus	554	Thomastown via West Lalor (clockwise loop)	Gillwell Road
Bus	557	Thomastown via West Lalor (anti clockwise loop)	Gillwell Road

Public transport in the immediate vicinity of the subject site is limited to bus services. With the Route 554 and Route 557 located on Gillwell Road, along the sites western boundary.

Additionally, the site is within approximately 2.3km walking distance from Lalor Railway Station and connecting through to the Melbourne CBD.

2.6.3 Previous Application

An application for development of the site was submitted by Connect PM in 2015 for the purposes of a residential aged care facility, independent living units (ILU) and independent living apartments (ILA).

The application included the following development yield.

Table 7 Previous Application – Development Yield

<i>Component</i>		<i>Number</i>
Aged Care		120 beds
ILU	Two-bedroom	74
	Three-bedroom	8
	Sub-total	82
ILA	One-bedroom	11
	Two-bedroom	35
	Three-bedroom	7
	Sub-total	53

It is noted that the aged care component has since been developed, and is known as Baptistcare Wattle Grove Community, which is located towards the north-eastern corner of the site.

The remaining 82 independent living units and 53 independent living apartments proposed access via a single connection to Gillwell Road along the sites western boundary. The ILU's were proposed to be located to the south of the internal east-west road, while the ILA's were shown to the north.

A Transport Impact Assessment was prepared by Cardno in 2015 and was submitted with the previous application. The report included an assessment of traffic generation, which found that the independent living units and apartments would generate 27 vehicle movements during the morning and evening peak periods, comprising 16 movements from the ILU's and 11 movements from the ILA's.

The layout of the site is shown below in Figure 17.

Figure 17 Previous Application – Proposed Layout



3 DEVELOPMENT PLAN PROPOSAL

It is planned to develop the portion of the subject site previously approved for the development of 82 independent living units for the purposes of a residential development, comprising a similar number of dwellings as the previously approved use.

Vehicle access to the site is proposed via the currently approved connection to Gillwell Road, which will serve as the sole vehicle connection to the site.

4 RESIDENTIAL SUBDIVISION DESIGN ASSESSMENT

4.1 General

The proposed development should consider the requirements outlined in Clause 56 of the Whittlesea Planning Scheme (Residential Subdivision). These requirements are reproduced below.

4.2 Whittlesea Planning Scheme – Clause 56

Clause 56.06 identifies Access and Mobility Management requirements for residential subdivisions such as that proposed at the site. The following Clauses are applicable.

4.2.1 Clause 56.06-2, Walking and Cycling Network Objectives

Standard C15

The walking and cycling network should be designed to:

- *Implement any relevant regional and local walking and cycling strategy, plan or policy for the area set out in this scheme.*
- *Link to any existing pedestrian and cycling networks.*
- *Provide safe walkable distances to activity centres, community facilities, public transport stops and public open spaces.*
- *Provide an interconnected and continuous network of safe, efficient and convenient footpaths, shared paths, cycle paths and cycle lanes based primarily on the network of arterial roads, neighbourhood streets and regional public open spaces.*
- *Provide direct cycling routes for regional journeys to major activity centres, community facilities, public transport and other regional activities and for regional recreational cycling.*
- *Ensure safe street and road crossings including the provision of traffic controls where required.*
- *Provide an appropriate level of priority for pedestrians and cyclists.*
- *Have natural surveillance along streets and from abutting dwellings and be designed for personal safety and security particularly at night.*
- *Be accessible to people with disabilities.*

4.2.2 Clause 56.06-3, Public Transport Network Objectives

Standard C16

The public transport network should be designed to:

- Implement any relevant public transport strategy, plan or policy for the area set out in this scheme.
- Connect new public transport routes to existing and proposed routes to the satisfaction of the relevant public transport authority.
- Provide for public transport links between activity centres and other locations that attract people using the Principal Public Transport Network in Metropolitan Melbourne and the regional public transport network outside Metropolitan Melbourne.
- Locate regional bus routes principally on arterial roads and locate local bus services principally on connector streets to provide:
 - ✦ Safe and direct movement between activity centres without complicated turning manoeuvres.
 - ✦ Direct travel between neighbourhoods and neighbourhood activity centres.
 - ✦ A short and safe walk to a public transport stop from most dwellings.

4.2.3 Clause 56.06-4, Neighbourhood Street Network Objective

Standard C17

The neighbourhood street network must:

- Take account of the existing mobility network of arterial roads, neighbourhood streets, cycle paths, cycle paths, footpaths and public transport routes.
- Provide clear physical distinctions between arterial roads and neighbourhood street types.
- Comply with the Roads Corporation's arterial road access management policies.
- Provide an appropriate speed environment and movement priority for the safe and easy movement of pedestrians and cyclists and for accessing public transport.
- Provide safe and efficient access to activity centres for commercial and freight vehicles.
- Provide safe and efficient access to all lots for service and emergency vehicles.
- Provide safe movement for all vehicles.
- Incorporate any necessary traffic control measures and traffic management infrastructure.

The neighbourhood street network should be designed to:

- Implement any relevant transport strategy, plan or policy for the area set out in this scheme.
- Include arterial roads at intervals of approximately 1.6 kilometres that have adequate reservation widths to accommodate long term movement demand.
- Include connector streets approximately halfway between arterial roads and provide adequate reservation widths to accommodate long term movement demand.
- Ensure connector streets align between neighbourhoods for direct and efficient movement of pedestrians, cyclists, public transport and other motor vehicles.
- Provide an interconnected and continuous network of streets within and between neighbourhoods for use by pedestrians, cyclists, public transport and other vehicles.
- Provide an appropriate level of local traffic dispersal.
- Indicate the appropriate street type.
- Provide a speed environment that is appropriate to the street type.
- Provide a street environment that appropriately manages movement demand (volume, type and mix of pedestrians, cyclists, public transport and other motor vehicles).
- Encourage appropriate and safe pedestrian, cyclist and driver behaviour.
- Provide safe sharing of access lanes and access places by pedestrians, cyclists and vehicles.
- Minimise the provision of culs-de-sac.
- Provide for service and emergency vehicles to safely turn at the end of a dead-end street.

- Facilitate solar orientation of lots.
- Facilitate the provision of the walking and cycling network, integrated water management systems, utilities and planting of trees.
- Contribute to the area's character and identity.
- Take account of any identified significant features.

4.2.4 Clause 56.06-5, Walking and Cycling Detail Network Objectives

Standard C18

Footpaths, shared paths, cycle paths and cycle lanes should be designed to:

- *Be part of a comprehensive design of the road or street reservation.*
- *Be continuous and connect.*
- *Provide for public transport stops, street crossings for pedestrians and cyclists and kerb crossovers for access to lots.*
- *Accommodate projected user volumes and mix.*
- *Meet the requirements of Table C1.*
- *Provide pavement edge, kerb, channel and crossover details that support safe travel for pedestrians, footpath bound vehicles and cyclists, perform required drainage functions and are structurally sound.*
- *Provide appropriate signage.*
- *Be constructed to allow access to lots without damage to the footpath or shared path surfaces.*
- *Be constructed with a durable, non-skid surface.*
- *Be of a quality and durability to ensure:*
 - ✦ *Safe passage for pedestrians, cyclists, footpath bound vehicles and vehicles.*
 - ✦ *Discharge of urban run-off.*
 - ✦ *Preservation of all-weather access.*
 - ✦ *Maintenance of a reasonable, comfortable riding quality.*
 - ✦ *A minimum 20 year life span.*
- *Be accessible to people with disabilities and include tactile ground surface indicators, audible signals and kerb ramps required for the movement of people with disabilities.*

4.2.5 Clause 56.06-6, Public Transport Network Detail Objectives

Standard C19

Bus priority measures must be provided along arterial roads forming part of the existing or proposed Principal Public Transport Network in Metropolitan Melbourne and the regional public transport network outside Metropolitan Melbourne to the requirements of the relevant roads authority.

Road alignment and geometry along bus routes should provide for the efficient, unimpeded movement of buses and the safety and comfort of passengers.

The design of public transport stops should not impede the movement of pedestrians.

Bus and tram stops should have:

- *Surveillance from streets and adjacent lots.*
- *Safe street crossing conditions for pedestrians and cyclists.*
- *Safe pedestrian crossings on arterial roads and at schools including the provision of traffic controls as required by the roads authority.*
- *Continuous hard pavement from the footpath to the kerb.*
- *Sufficient lighting and paved, sheltered waiting areas for forecast user volume at neighbourhood centres, schools and other locations with expected high patronage.*
- *Appropriate signage.*

4.2.6 Clause 56.06-7, Neighbourhood Street Network Detail Objective

Standard C20

The design of streets and roads should:

- *Meet the requirements of Table C1. Where the widths of access lanes, access places, and access streets do not comply with the requirements of Table C1, the requirements of the relevant fire authority and roads authority must be met.*
- *Provide street blocks that are generally between 120 metres and 240 metres in length and generally between 60 metres to 120 metres in width to facilitate pedestrian movement and control traffic speed.*
- *Have verges of sufficient width to accommodate footpaths, shared paths, cycle paths, integrated water management, street tree planting, lighting and utility needs.*
- *Have street geometry appropriate to the street type and function, the physical land characteristics and achieve a safe environment for all users.*
- *Provide a low-speed environment while allowing all road users to proceed without unreasonable inconvenience or delay.*
- *Provide a safe environment for all street users applying speed control measures where appropriate.*
- *Ensure intersection layouts clearly indicate the travel path and priority of movement for pedestrians, cyclists and vehicles.*
- *Provide a minimum 5 metre by 5 metre corner splay at junctions with arterial roads and a minimum 3 metre by 3 metre corner splay at other junctions unless site conditions justify a variation to achieve safe sight lines across corners.*
- *Ensure streets are of sufficient strength to:*
 - ✦ *Enable the carriage of vehicles.*
 - ✦ *Avoid damage by construction vehicles and equipment.*
- *Ensure street pavements are of sufficient quality and durability for the:*
 - ✦ *Safe passage of pedestrians, cyclists and vehicles.*
 - ✦ *Discharge of urban run-off.*
 - ✦ *Preservation of all-weather access and maintenance of a reasonable, comfortable riding quality.*
- *Ensure carriageways of planned arterial roads are designed to the requirements of the relevant road authority.*
- *Ensure carriageways of neighbourhood streets are designed for a minimum 20 year life span.*
- *Provide pavement edges, kerbs, channel and crossover details designed to:*
 - ✦ *Perform the required integrated water management functions.*
 - ✦ *Delineate the edge of the carriageway for all street users.*
 - ✦ *Provide efficient and comfortable access to abutting lots at appropriate locations.*
 - ✦ *Contribute to streetscape design.*
- *Provide for the safe and efficient collection of waste and recycling materials from lots.*
- *Be accessible to people with disabilities.*
- *Meet the requirements of Table C1. Where the widths of access lanes, access places, and access streets do not comply with the requirements of Table C1, the requirements of the relevant fire authority and roads authority must be met. Where the widths of connector streets do not comply with the requirements of Table C1, the requirements of the relevant public transport authority must be met.*

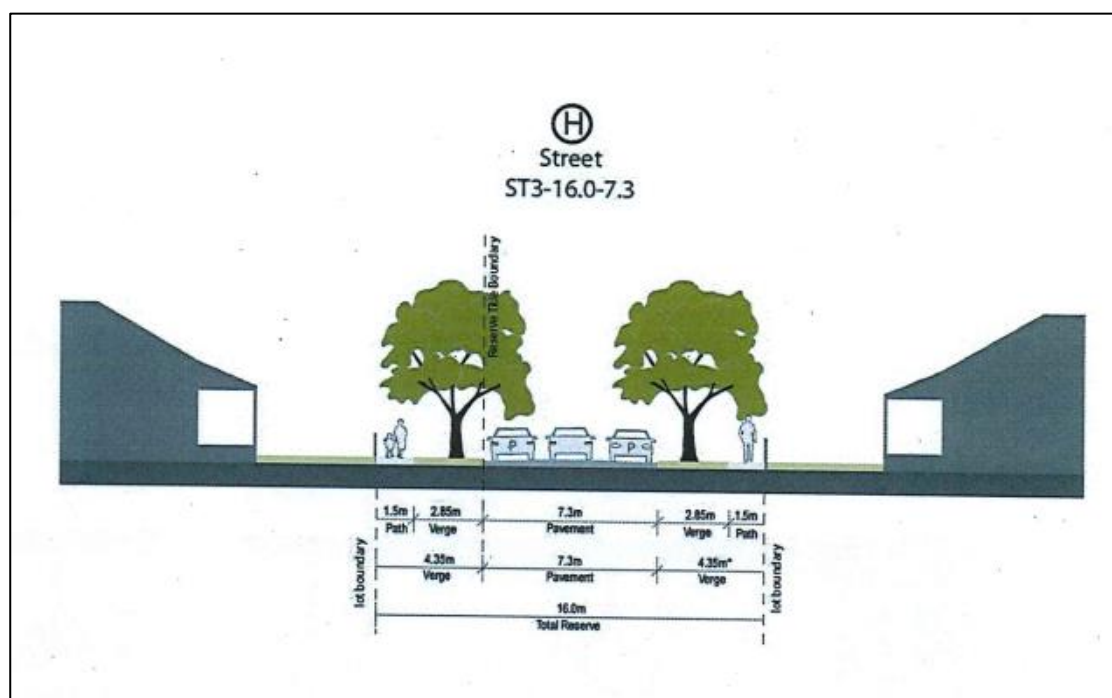
A street detail plan should be prepared that shows, as appropriate:

- *The street hierarchy and typical cross-sections for all street types.*
- *Location of carriageway pavement, parking, bus stops, kerbs, crossovers, footpaths, tactile surface indicators, cycle paths and speed control and traffic management devices.*
- *Water sensitive urban design features.*
- *Location and species of proposed street trees and other vegetation.*
- *Location of existing vegetation to be retained and proposed treatment to ensure its health.*
- *Any relevant details for the design and location of street furniture, lighting, seats, bus stops, telephone boxes and mailboxes.*

Table C1 Design of roads and neighbourhood streets

Element	Access Lane	Access Place	Access Street – Level 1	Access Street – Level 2	Connector Street – Level 1	Connector Street – Level 2
Traffic Volume	300 vpd	300-1000 vpd	1000-2000 vpd	2000-3000 vpd	3000 vpd	3000-7000 vpd
Target Speed	10 km/h	15 km/h	30 km/h	40 km/h	50 km/h (40 km/h at schools, 20km/h at crossing points)	60 km/h or 50 km/h (40 km/h at schools)
Carriageway Width	5.5m	5.5m	5.5m	7 – 7.5m	3.5m per lane (4.0m at intersections)	3.5m per lane (4.0m at intersections)
Parking Within Street	None	1 verge space per 2 lots, or one-side on carriageway	1 verge space per 2 lots	Both sides	Dedicated lane 2.3m where required	Dedicated lane 2.3m where required
Verge Width	Not required	7.5m (3.5m / 2.5m min)	4.0 / 4.0m	4.5 / 4.5m	4.5 / 4.5m	6.0 / 6.0m
Footpath Provision	Shared Zone	1.5m (Not required if < 5 dwellings)	2 x 1.5m (2.0m at schools, shop, activity centre)	2 x 1.5m (2.0m at schools, shop, activity centre)	2 x 1.5m (2.0m at schools, shop, activity centre)	2 x 1.5m (2.0m at schools, shop, activity centre)
Cycle Path Provision	None	None	Shared Zone	Shared Zone	0.7 - 1.7m	0.7 - 1.7m or shared path

The above dimensions are generally in accordance with the development plan road cross-sections with any roads within the subdivision to be in accordance with the 'H' local street cross-section as follows.

Figure 18 Cross-section H – Development Plan

4.2.7 Clause 56.06-8, Lot Access Objective

Standard C21

Vehicle access to lots abutting arterial roads should be provided from service roads, side or rear access lanes, access places or access streets where appropriate and in accordance with the access management requirements of the relevant roads authority.

Vehicle access to lots of 300 square metres or less in area and lots with a frontage of 7.5 metres or less should be provided via rear or side access lanes, places or streets.

The design and construction of a crossover should meet the requirements of the relevant road authority.

5 BICYCLE PARKING

Clause 52.34 of the Whittlesea Planning Scheme does not specify bicycle parking provision requirements for dwellings or townhouse style developments, generally assuming that bicycles can be stored in the garage required for each dwelling.

Garage dimensions for each dwelling should therefore be provided in accordance with the Planning Scheme minimum dimensions, to ensure sufficient space is provided for bicycle parking.

6 CAR PARKING

The car parking requirements for the subject site are identified in Clause 52.06 of the Whittlesea Planning Scheme, which specifies the following requirements for residential uses, as summarised in Table 8.

Table 8 Clause 52.06 – Car Parking Requirements

Use	Rate	Car Parking Measure
Dwelling	1	to each one or two-bedroom dwelling, plus
	2	to each three or more-bedroom dwelling (with studies or studios that are separate rooms counted as bedrooms), plus
	1	For visitors to every 5 dwellings for developments of 5 or more dwellings

Based on the above requirements, each 2-bedroom dwelling will need to provide one parking space and each 3 or more bedroom dwelling 2 parking spaces.

For the purposes of this assessment, it is estimated that up to a maximum of approximately 82 dwellings will be developed on the site, thereby generating a visitor car parking requirement of 16 spaces.

7 TRAFFIC

7.1 Traffic Generation

It is generally accepted that single dwellings on a lot in outer suburban areas may generate traffic at up to 10 vehicles per day, whilst in areas with good public transport, and for higher density dwellings, lower traffic generation rates are often recorded.

With consideration to the proximity of the site to public transport and amenities, it is anticipated that the proposed development may generate up to 7 vehicle trips per day per dwelling.

By applying the above traffic generation rates to the estimated maximum of up to 82 lots, the development is expected to generate up to approximately 574 vehicle trips per day, and approximately 58 vehicle trips per hour during both the AM and PM peak.

Traffic volumes generated by residential uses are typically tidal, with the majority of movements generated during the AM peak hour occurring in the outbound direction and the majority of movements during the PM peak hour occurring in the inbound direction.

For the purposes of this assessment, the following directional splits will be adopted:

- AM peak hour: 70% outbound, 30% inbound; and
- PM peak hour: 40% outbound, 60% inbound.

Peak hour traffic volumes anticipated to be generated by the proposed development are outlined in Table 9.

Table 9 Anticipated Peak Hour Traffic Generation

Period	Outbound Volume	Inbound Volume	Two-Way Volume
AM Peak Hour	41 movements	17 movements	58 movements
PM Peak Hour	23 movements	35 movements	58 movements

7.2 Traffic Distribution

The site is proposed to provide sole vehicle access via Gillwell Road.

With consideration to the above, noting the site's location in relation to the arterial road network, public transport facilities, schools, recreation and retail and employment precincts, the directional distribution shown in Table 10 has been adopted.

Table 10 Adopted Directional Traffic Distribution

Road	Destination	Percentage
Gillwell Road	North	50%
Gillwell Road	South	50%

Based on the above, the future intersection volumes at the Hallam Road/Centre Road intersection can be calculated by combining the existing volumes with the expected traffic volume growth, and superimposing the traffic anticipated to be generated by the proposed development.

Figure 19 Resultant Future Traffic Volumes



7.3.1 Intersection Capacity Assessment

To assess the operation of the intersection the traffic volumes have been input into SIDRA Intersection, a traffic modelling software package.

The results of the analysis are provided in Table 11.

Table 11 Gillwell Road / Pinetree Crescent – Existing / Future Conditions

Approach	DoS		Avg. Delay (sec)		Queue (m)	
	Existing	Future	Existing	Future	Existing	Future
AM Peak						
Gillwell Road South	0.131	0.147	5.4	5.4	5.0	5.7
Pinetree Crescent East	0.062	0.063	6.1	6.2	2.2	2.2
Gillwell Road North	0.120	0.128	5.8	5.7	4.6	4.9
Pinetree Crescent West	0.108	0.110	7.0	7.1	4.0	4.1
PM Peak						
Gillwell Road South	0.165	0.175	5.4	5.4	6.5	7.0
Pinetree Crescent East	0.070	0.071	6.7	6.8	2.5	2.6
Gillwell Road North	0.152	0.166	5.8	5.7	6.0	6.7
Pinetree Crescent West	0.082	0.083	6.9	7.0	3.0	3.0

As shown above the intersection continues to operate under excellent conditions during both the morning and afternoon peak hours with negligible additional queues and delays experienced by motorists. In view of the foregoing, the planned development is considered to have a negligible impact on the operation of the Gillwell Road / Pinetree Crescent roundabout.

7.4 Local Road Capacity

As noted in Section 2.5, Pinetree Crescent is classified as a Level 1 Access Street with an indicative capacity of up to 2,000 vehicles per day. Gillwell Road was determined to be classified as a Connector Street with an indicative capacity of between 3,000 – 7,000 vehicles per day.

As per the traffic analysis presented above, the planned development is expected to generate up to 574 vehicle trips per day, all of which directly generated to Gillwell Road due to the currently approved access location.

A comparison of the existing and future road capacities is shown below in Table 12.

Table 12 Local Road Capacity Assessment

Road	Capacity	Existing Traffic	Future Traffic
Pinetree Crescent	1,000 – 2,000 vpd	727 vpd	727 vpd
Gillwell Road	3,000 – 7,000 vpd	3,720 vpd	4,294 vpd

Based on the above, the traffic generated by the planned development does not trigger the local road network to exceed the indicative environmental capacities and is therefore expected to have a minimal impact on the operation of the surrounding road network.

8 CONCLUSIONS

It is planned to amend the development plan from 'integrated residential age in place to a standard residential use within the development plan. Based on the anticipated development yield of approximately 82 dwellings, it is concluded that:

- Based on a lot yield of approximately 82 dwellings, the planned development will have a negligible impact on the operation of the Gillwell Road / Pinetree Crescent roundabout, with insignificant added queues or delays to existing motorists; and
- The traffic generated by the planned development does not trigger the local road network to exceed the indicative environmental capacities and is expected to have a minimal impact on the operation of the surrounding road network and is therefore considered acceptable.

APPENDIX C

STORMWATER MANAGEMENT PLAN



ENGINEERING

Stormwater Management Plan

**50s Gilwell Road, Lalor
Superlot Subdivision**

JOB NUMBER:	S54643 - 277075
CLIENT:	Baptcare
SITE:	50S Gilwell Road, LALOR, VIC 3075
DATE:	29 June 2022
REVISION:	0

**Engineering
your success.**

ADELAIDE
MELBOURNE
SYDNEY

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3. AREAS (sq.m.) & RUN-OFF COEFFICIENTS

Total Site area : 4648

4. EXISTING SITE DETAILS

Aes1 : 4648 Ces1 : 0.35
Aes2 : 0 Ces2 : 0.30
Aes3 : 0 Ces3 : 0.15
Aes4 : 0 Ces4 : 0.12
Weighted C - site Cew : 0.35

5. PROPOSED SITE DETAILS

Aps1 : 2364 Cps1 : 1.00
Aps2 : 2284 Cps2 : 0.30
Aps3 : 0 Cps3 : 0.15
Aps4 : 0 Cps4 : 0.12
Weighted C - site Cpw : 0.66
Uncontrolled portion(s) UPfrac : 0.00

6. CATCHMENT TIMES (minutes)

Time of concentration : 10.00
Travel time from discharge point
to catchment outlet : 5.00

7. OSD DESIGN

Flow Control Device : Orifice
Storage type : Tank
Rainfall zone : MELBOURNE
ARI for OUTFLOW (years) : 5
ARI for STORAGE (years) : 10
Qptot (L/s) : 28.48
Qu (L/s) : 0.00
Qp (L/s) : 0.00
Calculated PSD (L/s) : 33.30
Nominated PSD (L/s) : ----
Adopted PSD (L/s) : 33.30

8. STORAGE DETAILS

Volume (cub.m.) : 32.78
Time to fill storage (mins) : 18.8
Time to empty storage (mins) : 53.4
Critical storm duration (mins) : 26.3

9. STORM DURATIONS & RAINFALL INTENSITIES

PSD Duration : 10.0 min. Intensity : 63.0 mm/hr
MAX. STORAGE Duration : 26.3 min. Intensity : 46.2 mm/hr

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1 Introduction

FMG Engineering have been engaged by Baptcare to prepare a stormwater management plan (SWMP) for the subject site at 50s Gillwell Road, Lalor.

This SWMP outlines the conceptual stormwater requirements for proposed development on the subject site and has been prepared to accompany an addendum to The Lalor Development plan.

This plan should ensure that the stormwater and drainage discharge from the development site meets current best practice performance objectives for stormwater, demonstrates the application of Water Sensitive Urban Design (WSUD) and complies with the intent of City of Whittlesea requirements.

1.1 Purpose

The purpose of this SWMP is to evaluate the quantity and quality of stormwater associated with the proposed development plan to demonstrate to Whittlesea City Council that an appropriate stormwater management strategy has been adopted.

The SWMP specifically addresses the following items for both the construction and operational phases of the development:

- Stormwater runoff volumes and detention (Stormwater Quantity); and
- Stormwater quality treatment measures (Stormwater Quality);

The following will be achieved with the correct application of this SWMP report:

- Appropriate standards to be maintained on all aspects of stormwater within the site,
- Pollution control to be maintained,
- Examination of the surrounding area and properties to ensure they will not be adversely affected nor unduly disrupted by stormwater, and
- Establishment of a unified, clear and concise stormwater management strategy.

1.2 Existing Site Conditions

1.2.1 Property Details

Address:	50s Gilwell Road, Lalor, VIC 3075
Lot and Plan Number:	Part of Lot RR PS646643
Site Area:	2.6ha

As shown in Figure 1, the site has street frontage to Gillwell Road. The northern boundary will be shared with an existing Baptcare Residential Aged Care Facility, and other Baptcare retained land.



Figure 1 – Site Location Plan (indicative boundaries)

1.3 Development Summary

The subject site at 50s Gillwell Road, Lalor was originally designated as “Integrated Residential Age in Place Estate” and is now sought to be re-designated as “Medium Density Residential”.

A detailed summary of the proposed land use changes is outlined within the overarching townplanning report prepared by URBIS, however there is anticipated to be negligible change to the overall number of dwellings proposed on site.

Given the site area is not changing, and number of dwelling is unlikely to differ greatly, FMG does not believe the change in land zoning will result in a material change in impermeable area or general stormwater management strategy for the site.

1.4 Flooding

Reference to the VicPlan Planning Overlay mapping indicates that the development site is not subject to any Special Building Overlays (SBO) or Land Subject to Inundation (LSIO), Flood Overlay (FO). This indicates that the site should not be prone to storm water overflow (originating external to the site) during a 1 in 100 year storm. Appropriate measures should still be put in place to ensure the development does not flood in storm events. Figure 3 shows the planning – land management overlays relative to the proposed site

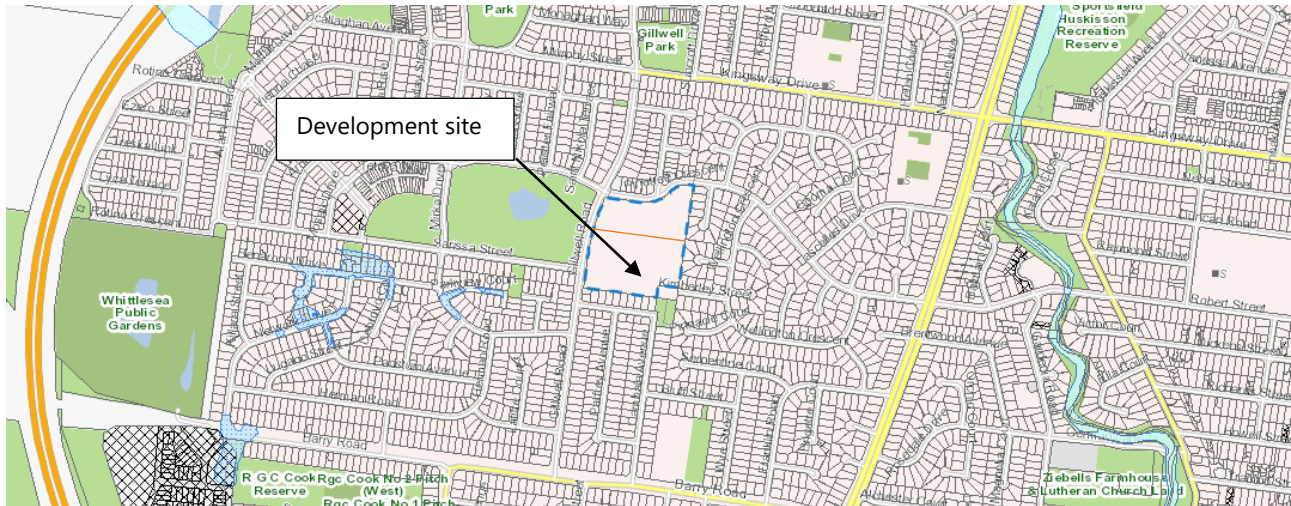


Figure 3 – Land Management overlays

1.5 Overland Flow Path

There is gentle fall across the site from east to west. Overland flow from will be possible to Gillwell road, with a Q100 underground drain providing a safe route for Major storm flows.

2 Stormwater Management

Council feedback from adjacent developments confirmed Council's preference for downstream stormwater treatment to occur at precinct / municipal level and not via proprietary products within the road reserve of this development.

In general, The stormwater management for the development will be based on water sensitive urban design (WSUD) principles and will be consistent with Urban Stormwater Best Practice Environmental Management Guidelines (CSIRO 2006). The following key items will be considered:

- Adequate drainage to ensure a free draining development.
- Pavement, road and drainage levels designed to ensure surrounding properties are not adversely affected.
- The discharge volumes of the development are stored to pre-development levels.
- The pollutant discharge from the site is minimised to meet Best Practice. 1

3 On-site Detention System

The whole site has been considered as a single catchment discharging to the existing stormwater drainage alignment immediately to the west of the development site boundary.

3.1 Detention System

To minimise the impacts from the development on the downstream stormwater system, detention systems are required to partially restrict flows from lots. This may not be required at the discretion of Council, given feedback from adjacent developments suggested Council's preference for the development to be free-flowing to the downstream council stormwater drainage system.

Stormwater results should be calculated using OSD4W and in liaison with Council to confirm required site detention requirements once a site layout has been confirmed. Other locations within the development plan have been required to detain 10% AEP storm flows back to the 0.2EY AEP permissible site discharge.

Under both "Integrated Residential Age in Place Estate" and "Medium Density Residential" there is limited public space to provide all detention and water quality requirements on site, and this SMP anticipates some detention storage and water quality shortfalls will be accommodated in downstream precinct stormwater infrastructure (basins, wetlands etc.)

4 Stormwater Drainage Strategy and LPD nomination

The stormwater drainage strategy is comprised of the following key elements:

- Majority of the site to fall towards existing route to the south west towards Gillwell Road (major storm event → overland flow)
- Underground stormwater drainage shall convey 100 year flow (major storm event) to the existing Council stormwater drain, or surcharge within the road reserve to back of kerb if high tailwater levels are present
- Dwelling levels should be situated to ensure minimum 150mm freeboard from proposed ponding levels within the development. at approximately 300mm above existing surface levels
- Primary stormwater drainage catchment to council stormwater assets within Gillwell Road.
- Road reserve catchment to be free draining to downstream council stormwater drainage system.
- Detention requirements to be confirmed by council;
 - If detention is required, 10% AEP back to 0.2EY storm event storage required
- Conventional pit and pipe road stormwater drainage for to cater for 1:10 year storm events (minor storm event).

5 Limitations

This document was prepared by FMG Engineering (FMG) for the sole use of Baptcare ("The Client"), the only intended beneficiaries of our work. Any advice, opinions or recommendations contained in this document should be read and relied upon only in the context of the document as a whole and are considered current to the date of this document. Any other party should satisfy themselves that the scope of work conducted and reported herein meets their specific needs. FMG cannot be held liable for third party reliance on this document, as FMG is not aware of the specific needs of the third party.

This document was prepared for the purpose described herein. FMG's professional opinions are based upon its professional judgment, experience and training. It is possible that testing and analysis might produce different results and/or different opinions. FMG has limited its assessment to the scope agreed upon with its client. FMG believes that its opinions are reasonably supported and that those opinions have been developed according to the professional standard of care for the civil engineering consulting profession in this area at this time. That standard of care may change and new methods and practices may develop in the future, which might produce different results. FMG's professional opinions contained in this document are subject to modification if additional information is obtained through further investigation, observations, or testing and analysis during any future assessment or remedial activities

Appendix A

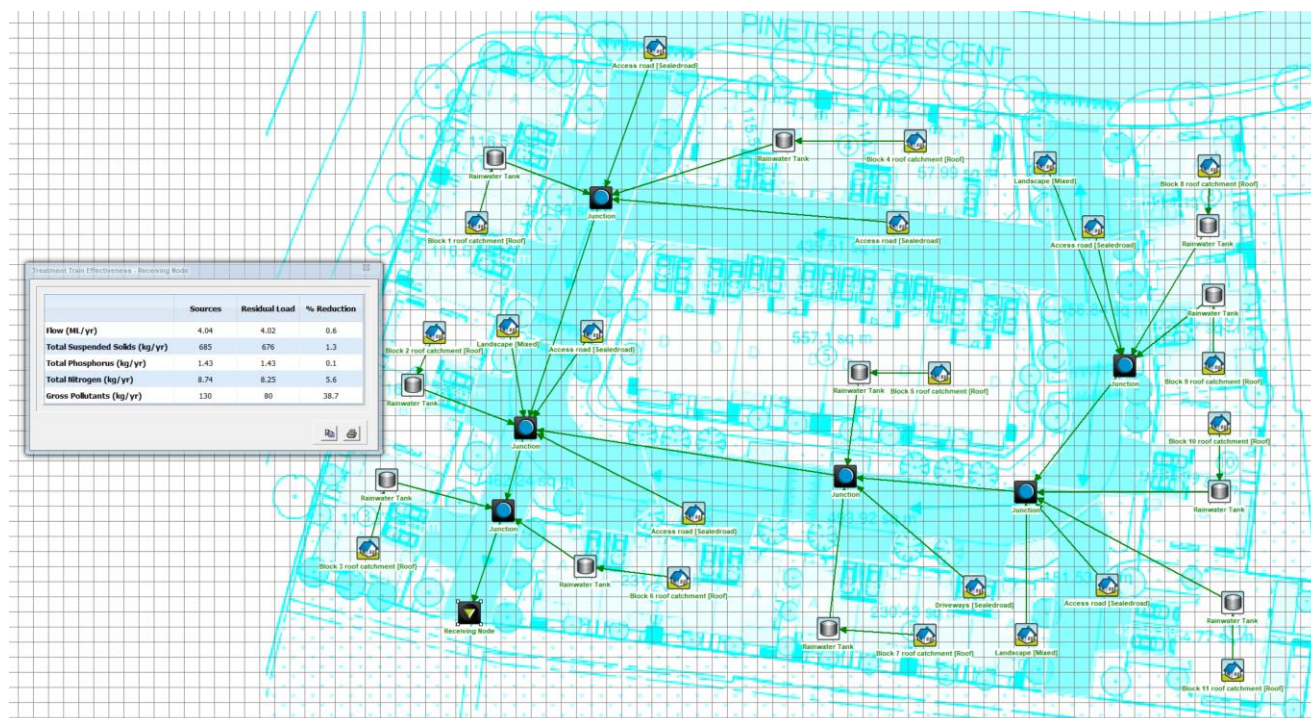
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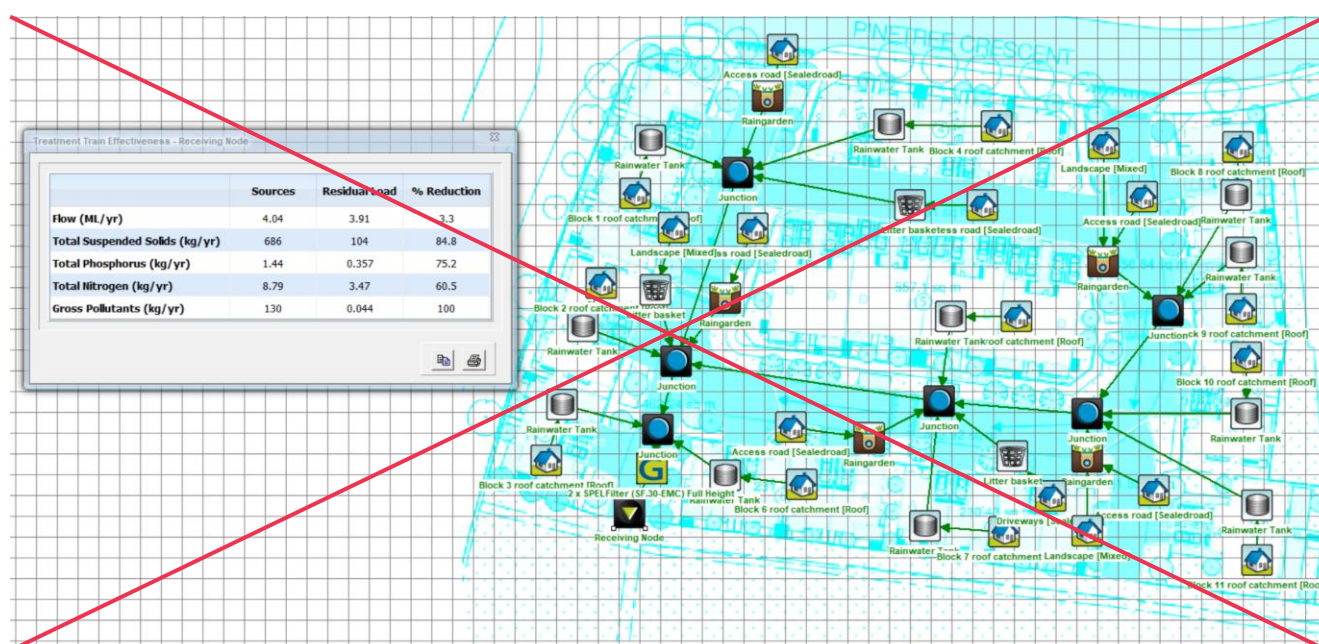
Appendix B

MUSIC Model Results / OSD4W Detention Storage Calculation

MUSIC model adopted after council feedback. Stormwater pollutants to be treated downstream as part of precinct / municipal level



MUSIC model from revision 2 featuring stormwater treatment in road reserve and proprietary products



OSD4W Detention Storage Calculation (roof areas)

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Appendix C

Stormwater drainage schematic to demonstrate design intent and LPD nomination

Appendix D

Q100 Gap Flow reporting



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