

# **Wilton Park Rd West Wilton Sustainability Report**

Prepared for Altis Property Partners



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Wilton Park Rd West Wilton Sustainability Report

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# EXECUTIVE SUMMARY

Altis Property Partners have prepared a Proposal to support the rezoning of the Wilton Rd West Wilton employment lands precincts. This land is located within the Wilton Growth Area's land release area. Civille has been engaged by the Proponent to prepare a sustainability report including urban heat assessment to support a Master Plan for the precinct. This precinct is expected to be developed into employment lands, with infrastructure including landscaping, roads and stormwater.

The Western Sydney District Plan (Greater Sydney Commission 2018b) Planning Priority (W20) identifies "Adapting to the impacts of urban and natural hazards and climate change" as a key planning objective

Green, blue and grey infrastructure can all play a role in mitigating the impacts of development and urban heat within the site. The following measures are recommended:

- Set energy and water efficiency benchmarks for non-residential buildings.
- Provide infrastructure to support local use of public transport, active transport, and electric vehicles.
- Adopt a target for the precinct to retain water in the landscape.
- Adopt canopy cover and green cover targets for the precinct.
- Encourage the use of 'cool paving' materials, with high thermal emittance, and/or permeability.
- Consider orientation of site features to catch prevailing breezes and maximise shade in summer.
- Design the masterplan to encourage canopy cover and increased tree planting.
- Prioritise canopy cover where it will shade paved areas and building walls, particularly northern and western walls. Where canopy cover is impractical, shade structures can also be effective.
- Encourage irrigation or passive irrigation of trees and other vegetation.
- Encourage the use of WSUD features that retain water in the landscape.
- Set benchmarks for shade cover in key places

such as parks, town centres, and transport nodes.

- Provide outdoor 'cool zones' including targeted measures such as additional shade and evaporative cooling.
- Prioritise all the above where people are most likely to be present and active outdoors, particularly vulnerable people.
- Encourage alternative water supplies including reuse of rainwater for non-residential development.

The report provides guidance on each of these measures, with specific commitments subject to further analysis as planning for the precinct continues. The report concludes:

- Green, blue, and grey infrastructure all play a role in contributing to sustainability
- There are opportunities in the precinct's planning and design to achieve a range of sustainability measures including to reduce the heat island effect





# 1 INTRODUCTION

## 1.1 THE WILTON RD PROJECT

Greater Sydney's population is projected to grow to approximately 6.1 million by 2041 – over a million more people than currently live in the region.

The NSW Government has identified Growth Areas as major development areas that will assist in accommodating this growth. The Wilton Growth Area (WGA) is one such growth area and is an extension of the urban form of south-west Sydney. Wilton 2040 – A Plan for the Wilton Growth Area provides a strategic framework and structure plan for Wilton. The goal is to deliver approximately 15,000 new dwellings.

Wilton 2040 sets the

- Higher-order transport network
- Centres hierarchy
- Wilton precincts
- Residential, employment and conservation land use areas
- Cultural sites and connections

The land is currently zoned RU2 for Rural Landscape and is proposed to be future employment lands as part of Wollondilly and State Government planning documents.

A submission has been prepared by Altis Property Partners Pty Limited to rezone 108 hectares of land (the site) within the WGA.

The zonings are shown on the Wilton 2040 structure plan and the site is located within the structure plan.

A masterplan has been prepared for the site, and development is to be generally consistent with the masterplan. It illustrates the overall land use components including (but not limited to):

- Employment lands
- Open space
- Drainage network/basins
- Conservation lands
- Nepean River corridors
- Road and transport network

The site is aligned with strategic land use planning, State and local government policies and infrastructure delivery.

## 1.2 THIS REPORT

Civille has been engaged by Altis to prepare a sustainability report to support the Wilton Park Rd Planning Proposal.

The site boundaries are Wilton Park Road to the north, the Nepean River to the south and Hume Highway to the east. Refer to Figure 1 and Table 1 for key attributes of the site and its location in the Wilton Growth Area.



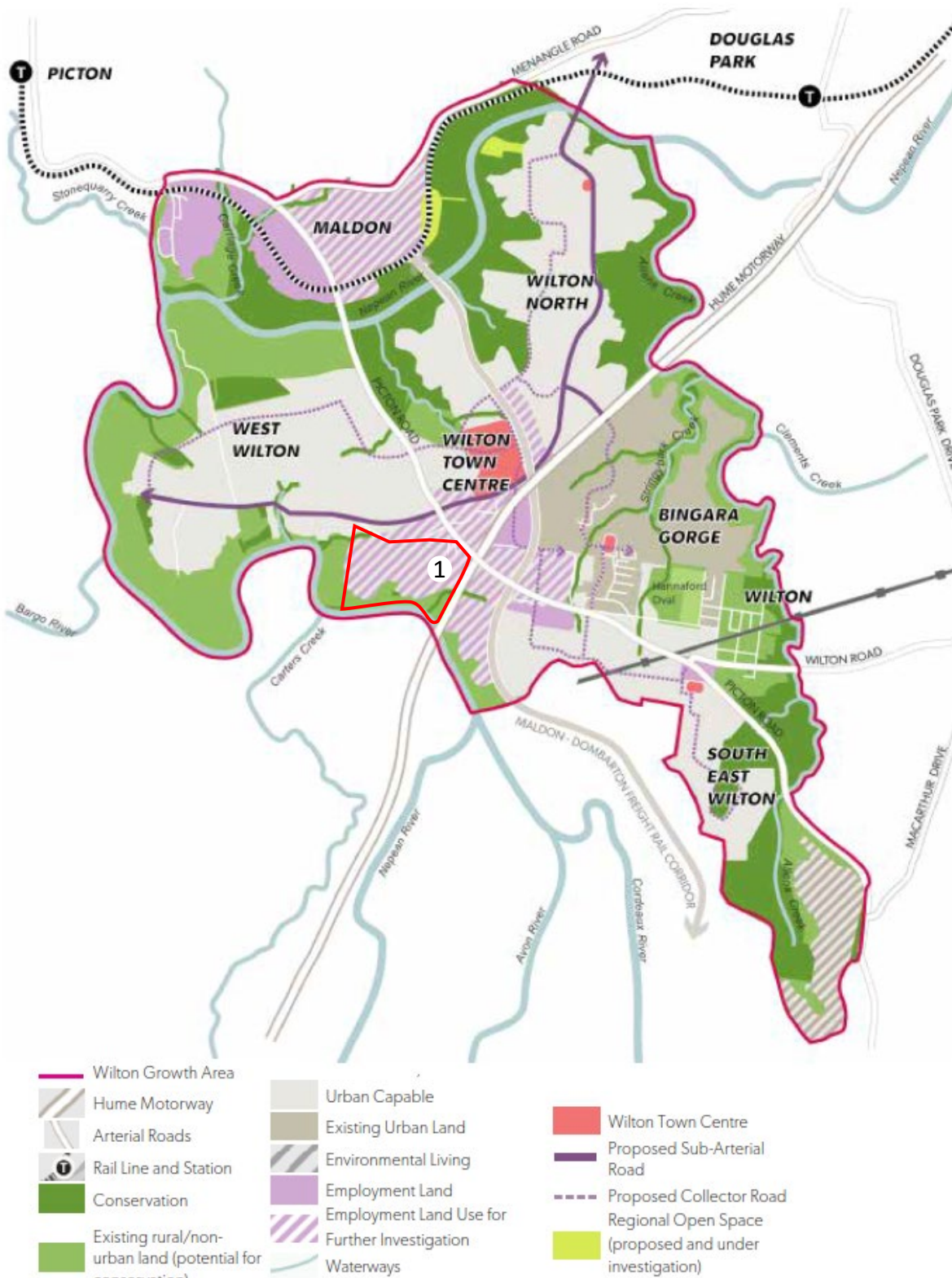


Figure 1: General site location (#1) in Wilton Structure Plan and indicative site boundary (red line)



Table 1: Wilton Park Rd precinct – summary of key attributes

Location		Key Attributes	
Wilton Park Rd		Area	<ul style="list-style-type: none"><li>- Total: 108 ha</li><li>- Conservation land – Approximately 40ha</li></ul>
		LGA	Wollondilly LGA
		Urban Capable Lands	Approximately 44 Hectares
		Employment lands GFA	21.5 ha

This report summarises the sustainability framework to be considered at the site and proposes a framework, objectives, and potential measures to address sustainability in the future development.

The objectives of the report are:

- To describe the physical context of the development area, in terms of its weather, climate and ecology including exposure to heat (Section 2).
- To identify opportunities to address sustainability and urban heat in the precinct planning and development process (Section 3).
- To describe potential measures that could be incorporated into the development, during the next stages of planning and design including urban heat (Section 4).

This report considers both how the proposed development can be designed to incorporate sustainability measures

and minimise its contribution to the urban heat island effect.

This report proposes potential planning objectives and design measures that could be integrated into later stages in the development process.

The report concludes:

- There are opportunities in the precinct’s planning and design to achieve various sustainability measures including to reduce the heat island effect and reduce the impacts of urban heat at a human scale.
- Green, blue, and grey infrastructure all play a role.
- Appropriate targets for retaining water in the landscape and a cool roof standard should be considered as part of further planning.

## 2 SITE ASSESSMENT AND PHYSICAL CONDITIONS

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*The following provides an overview of the site and its key features and provides an overview of the climatic conditions at the site.*

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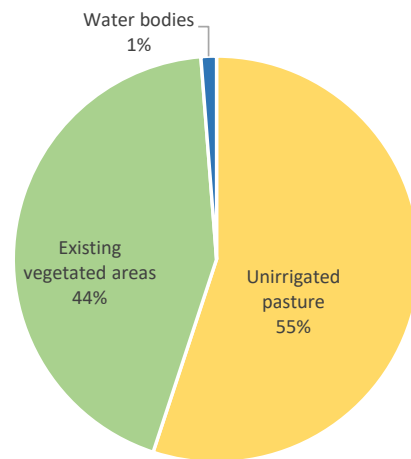
### 2.1 EXISTING SITE

The existing site slopes generally north to south towards the Nepean River which is in a steeply incised gorge on the southern boundary of the property. The landscape character consists

- of a typical rolling rural landscape in the north
- a development with rows of planted trees oriented north to south along property boundaries
- scattered trees in the landscape with extensive clearing of vegetation
- a number of small farm dams located along the existing waterways
- good vegetation canopy cover along the existing waterways on the site
- unirrigated pasture lands

The existing break down of landuses is shown in Figure 2. The site currently consists of approximately 50 hectares (more than 50%) of unirrigated pasture land, with aerial images showing during dry periods clearly showing the existing landscape does not receive substantive irrigation, despite the presence of farm dams. The site also consists of approximately 44% vegetated lands and approximately 1% of the existing surface area is farm dams.

The typical landscape character is shown in Figure 3, Figure 4 and Figure 5.



*Figure 2 Existing site showing typical condition during dry periods*

### 2.2 SITE ECOLOGY

The majority of the vegetation on the site is located in the southern portion of the site adjacent to steeply incised local waterways and along the ridgeline to the Nepean River south of the site. Figure 6 shows the

- Existing vegetation consists of Shale Sandstone Transition Forest (SSTF)
- Strategic Conservation Areas (SCA) within the Cumberland Plan Conservation Plan (CPCP)
- Koala habitat





*Figure 3 Existing site (site boundary shown in red)*



*Figure 4 Existing site photos showing typical landscape along northern boundary of the site*





*Figure 5 Existing site showing typical condition during dry periods*



*Figure 6 Existing site vegetation and ecology*



## 2.3 SITE WATERWAYS

The existing site contains a number of first order waterways and a small section of second order waterway in the north west of the site. The Strahler Stream Order of the various waterways on the site is shown in Figure 7.

The south eastern and centrally located first order streams on the site are well vegetated and consists of steep gully. The vegetation roughly outlines the extents of the steep gullies associated with the waterways.

The development sits above the Nepean River and has elevated views across the steep gorge into the Nepean River with views across the vegetation in the gorge.

The characters of the waterways on site are shown in Figure 8.

The development site has three main catchments and associated discharge locations

- Central (approximately 45% of the site)
- South eastern (approximately 30% of the site)
- Western (approximately 25% of the site)

The central and south eastern catchment drain directly to the Nepean River. The Western catchment drains to the neighbouring property to the west including to existing farm dams on the adjacent property.

The site has identified high value waterways and riparian vegetation as outlined in the Wilton DCP and shown in Figure 10.



Figure 7: Waterways on site (data from DPI Hydrolines online mapping)



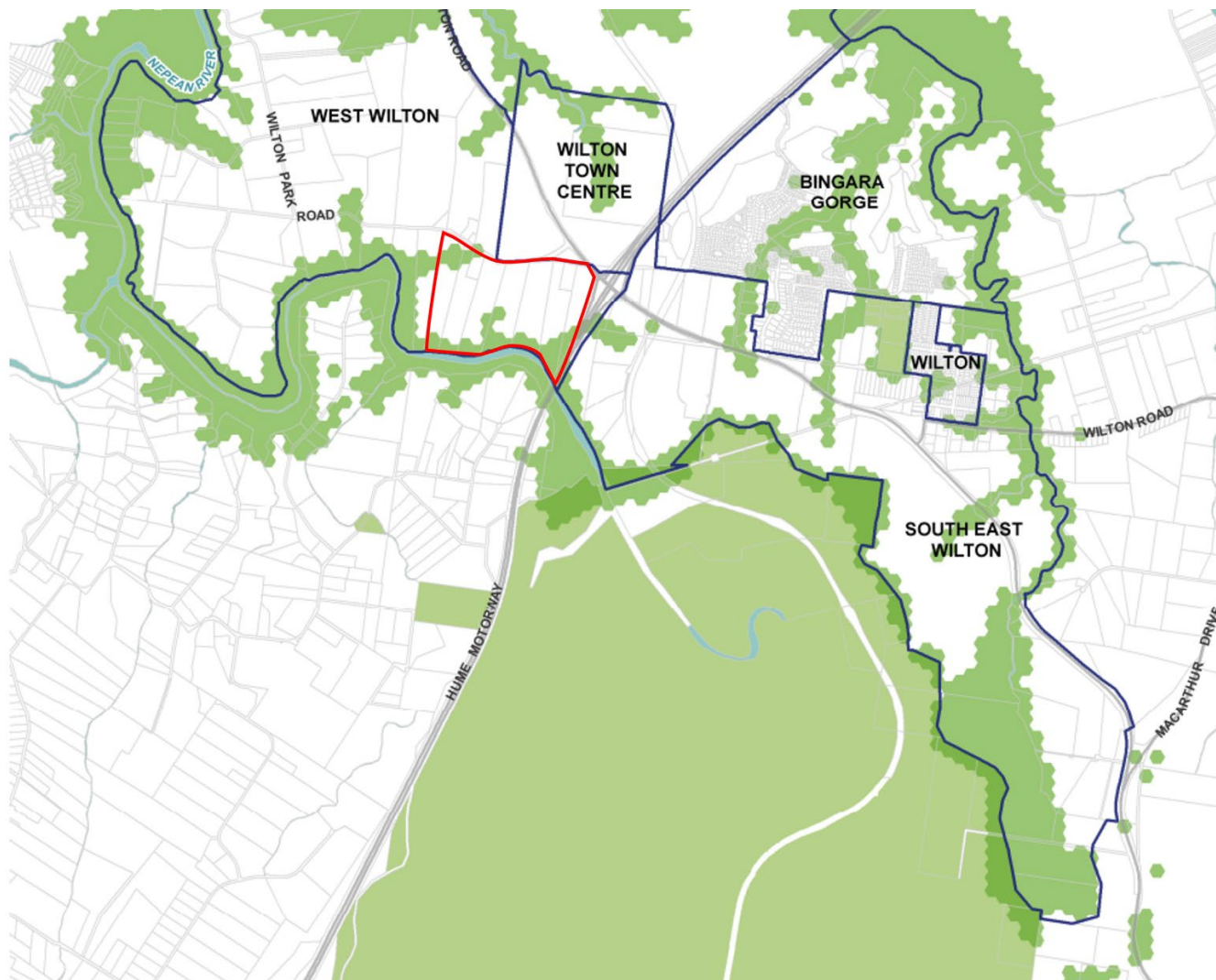


*Figure 8 Existing site photos showing central first order stream and its steep gully (left) and views across Nepean River (right)*



*Figure 9 Existing topography and catchments on site with contours showing steep waterway gullies*





#### LEGEND

- Precinct Boundary
- High Value Waterway and Riparian Vegetation Area
- Open Space
- T Train Station
- Railway
- Road
- Watercourse
- Cadastre



Figure 10 High value waterways as per Wilton DCP 2021, site shown indicatively in red

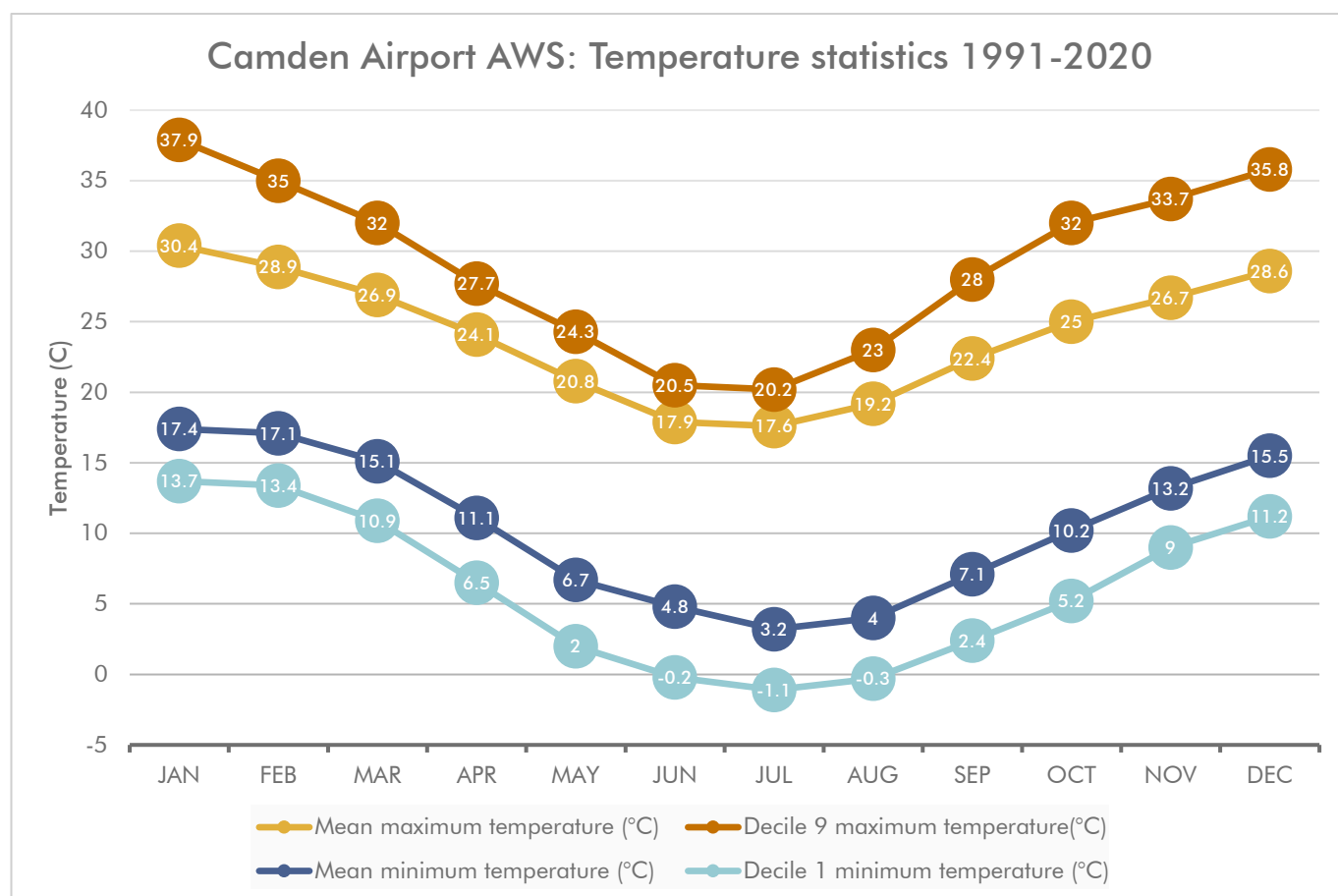


Figure 11: Camden Airport AWS temperature statistics, 1991-2020 (based on data from Australian Bureau of Meteorology)

## 2.4 AIR TEMPERATURES AND HOT DAYS

Data from the Camden Airport AWS weather station has been used for as a reference for West Wilton, as this weather station is the closest weather station and is reasonably close to the site (approximately 20 km from the site) with similar climatic conditions. Camden Airport AWS has a long time series of data available, including temperature, rainfall, humidity, and wind data.

West Wilton is exposed to both heat and cold. The warmest months are December to February (Figure 11).

The former NSW Office of Environment and Heritage (2014) and the Greater Sydney Commission (2018a) have both defined “hot days” as those where the

temperature reaches above 35°C, and the Greater Sydney Commission (2018a) has recommended the number of hot days as a performance measure for addressing urban heat.

While average conditions in the area in summer are comfortable, Figure 11 shows that Decile 9 maximum temperatures (i.e., one day in every ten) in December to February exceed 35°C.

Based on recent data (1991-2020), as shown in Figure 12, the area experiences an average of 17.1 hot (>35°C) days per year, including 2.9 days where the temperature peaks over 40°C. The number of hot days is expected to increase as the climate changes over the coming decades. Figure 13 shows the projected increase in the number of hot days across Sydney by 2060-79 (NSW OEH 2014). At the West Wilton site, the projected increase is 5-10 days.



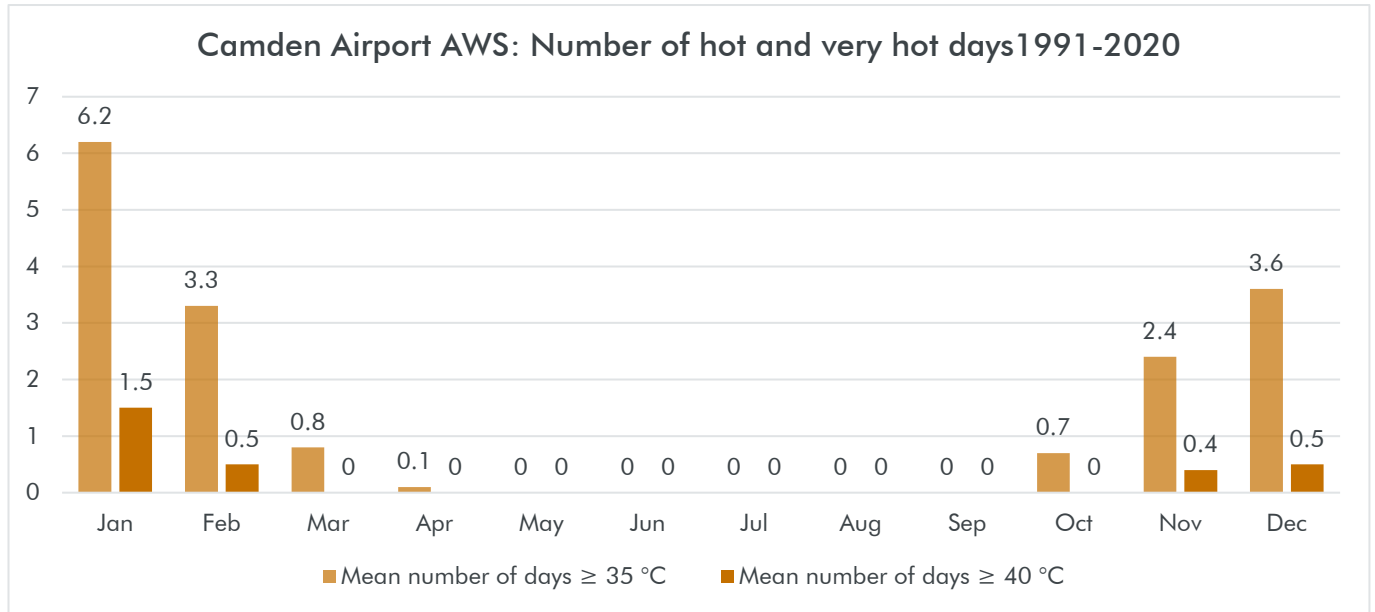


Figure 12: Camden Airport AWS number of hot days, 1991-2020 (based on data from Australian Bureau of Meteorology)

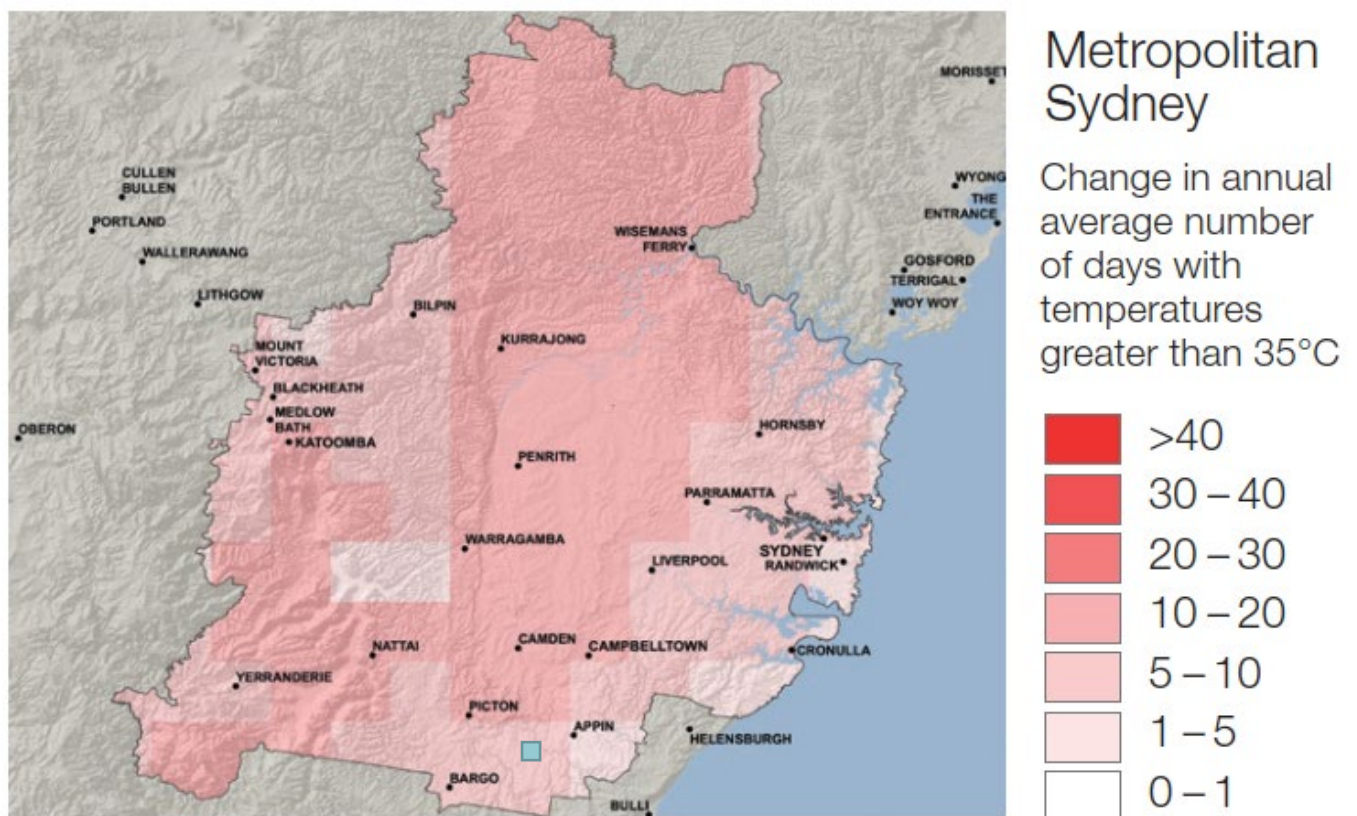


Figure 13: Future (2060–2079) projected changes in the number of days per year with maximum temperatures above  $35^{\circ}\text{C}$  (NSW OEH 2014) with site shown approximately in blue

## 2.5 HUMIDITY AND AIR MOVEMENT

Humidity data for Douglas Park (approximately km from the site) is plotted in Figure 14. This shows that conditions tend to be dry in winter and humid in summer, with humidity sometimes becoming uncomfortable in summer. As humidity increases, evaporative cooling strategies become less effective, but they are still recommended as part of the suite of cooling strategies for the site, as in Western Sydney, very hot days and heatwaves tend to be

relatively dry, and evapotranspiration will be effective at these times.

Breezes are an effective cooling measure in humid conditions. Figure 15 shows that in summer, prevailing breezes tend to be easterly. At the site, exposure to easterly breezes will help with summer cooling, and this should be considered in the orientation and layout of the development.

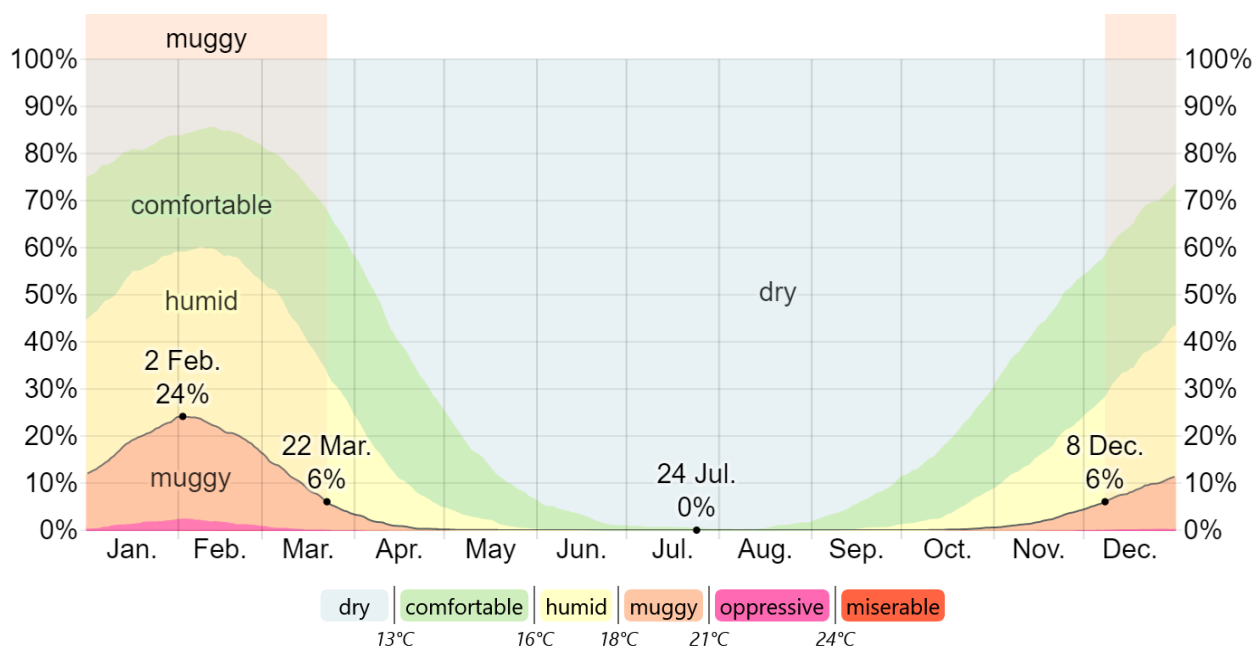


Figure 14: The percentage of time spent at various humidity comfort levels, categorized by dew point. (Source: [Weatherspark](#))

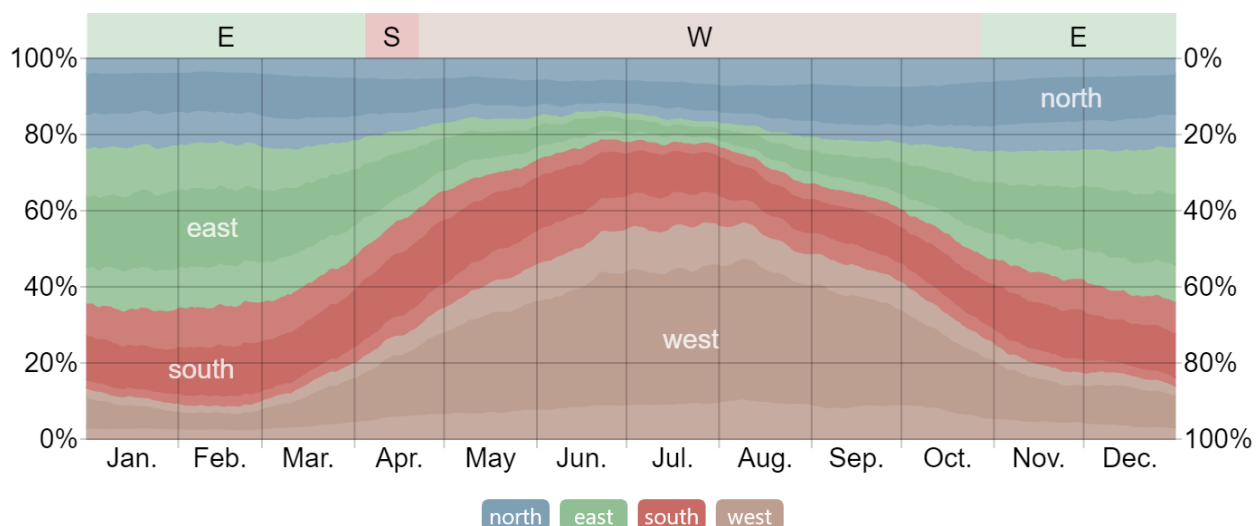


Figure 15: The percentage of hours in which the mean wind direction is from each of the four cardinal wind directions, excluding hours in which the mean wind speed is less than 1.6 km/h. (Source: [Weatherspark](#))

### 3 SUSTAINABILITY OPPORTUNITIES

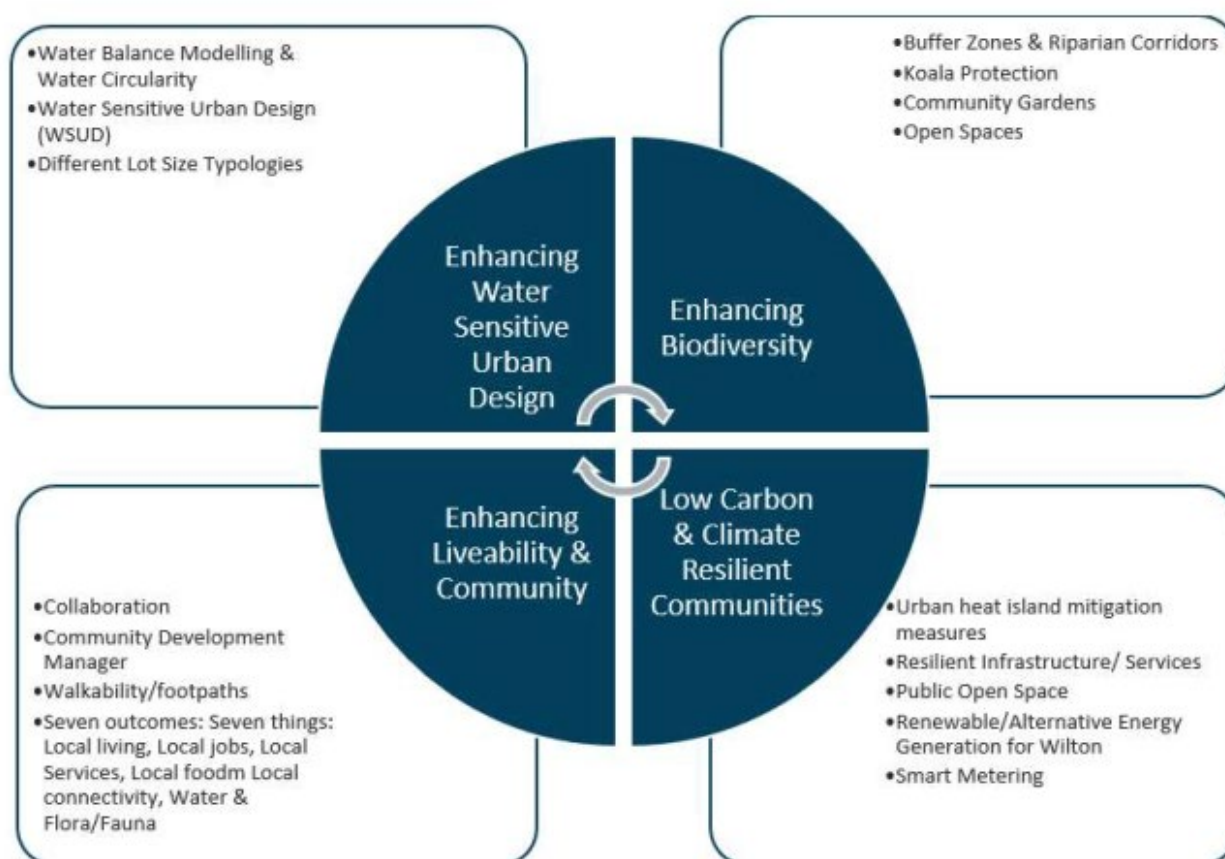
*The Wilton DCP outlines priority sustainability areas and principles for new development.*

Part 8 of the Wilton DCP outlines the priority sustainability areas including

- Enhancing WSUD
- Enhancing biodiversity
- Enhancing liveability and community
- Low carbon and climate resilient communities

The priority areas and the components of each of these areas are shown in Figure 16.

The principles of sustainable development are to be incorporated into the design construction and operation of the development.



*Figure 16: Priority sustainability action areas for WGA, Wilton DCP 2021*

The Wilton DCP (Department of Planning, 2021) also outlines a number of key principles which address sustainable development including

- Water management
  - Manage the flow of stormwater from urban part of the precinct to replicate as closely as possible to predevelopment flows
  - Promote integrated water cycle management approach
  - Incorporate key principles of water sensitive urban design (WSUD) to protect waterway health
  - Integrating water into the landscape
  - Protect high value waterways and riparian vegetation including aquatic fauna, water regime and water quality
  - 2nd order waterways and higher are to maintained in natural states
- Flora and fauna
  - Avoid and minimise impacts on native flora and fauna
  - Retain and enhance significant flora and fauna
  - Retain and enhance koala habitat
  - Provide perimeter roads between the development and native vegetation
  - Bulk earthworks minimises impact on native vegetation
  - Signage to be provided on management and use and conservation value of wildlife corridors and koala habitat
  - Vegetation is to be consistent with preferred tree species list
  - Mitigate indirect and ongoing impacts to threatened species and their habitat including providing setbacks required for threatened species such as grey headed flying fox and microbats, squirrel gliders and raptor nests
- Street trees
  - Give effect to the Western City District Plan 40% tree canopy target
  - Where practical retain existing trees
  - Integrate street trees with water management strategy to ensure that street trees thrive
  - Provision of deep soil zones for trees
- Provide shade in summer and light in winter
- Air quality
  - Preserve air quality and ensure appropriate levels of air quality for the health and amenity of residents
  - Practice and technology is required to manage odour emitting development
  - a barrier such as continuous dense landscaping (bunds and vegetation) or appropriate green infrastructure is to be provided to assist in air pollutants, noise and odour dispersion from nearby sources of air pollution noise, and/or odour.
- Waste management
  - Provide for separation of reusable, recyclable, compostable and problem wastes
  - Provide accessible, safe, hygienic and aesthetic waste storage on each property and minimise negative impacts on occupants and neighbours.
  - Provide a waste management plan to be submitted for new development including all waste that is to be generated and measures of management of the waste generated
  - minimise waste during construction
- Access and movement
  - Provide street typologies consistent with the DCP including provision of footpaths and paths
  - Encourage use of public transport with integrated rail, bus pedestrian and cycle routes
  - Electric vehicle charging points and poles
- Minimise energy consumption and greenhouse gases
  - Maximise solar access to lots
  - Maximise north facing roof for solar hot water and solar panels
  - Maximise cross flow ventilation and passive cooling
  - Vegetation to northern and western facades for cooling
  - LED lighting for public open space areas



## 4 POTENTIAL MEASURES WILTON PARK RD

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*Green, blue and grey infrastructure can all play a role in site specific applications of sustainability at Wilton Park Road and these are outlined in this section*

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### 4.1 ENHANCING BIODIVERSITY AND PROTECTION OF HIGH VALUE WATERWAYS

A key opportunity for the site is to protect and enhance biodiversity and high value waterways on the southern portion of the site. As shown in the master plan for the site in Figure 17 through focusing development in the northern portion of the site allows for

- the protection of high value waterways
- the protection of high value riparian areas
- a significant buffer to the Nepean River
- protection of significant conservation areas
- protection of koala habitat



The proposed masterplan provides retains the existing vegetation and expands the revegetated area to approximately

- half of the development footprint is provided as conservation lands
- revegetated of currently unirrigated pasture lands to forested lands with an increase in the amount of native vegetated areas on site
- provides for revegetation and enhancement of riparian vegetation and buffer zones to high value waterways

Employment lands in northern Sydney provide a good template for the ability to provide conservation vegetation areas and to adopt a landscape character of a bushland suburb within employment lands. Precedents from Hornsby Shire LGA are shown below showing established native trees and good canopy cover to streets and car parks through the use of native trees.



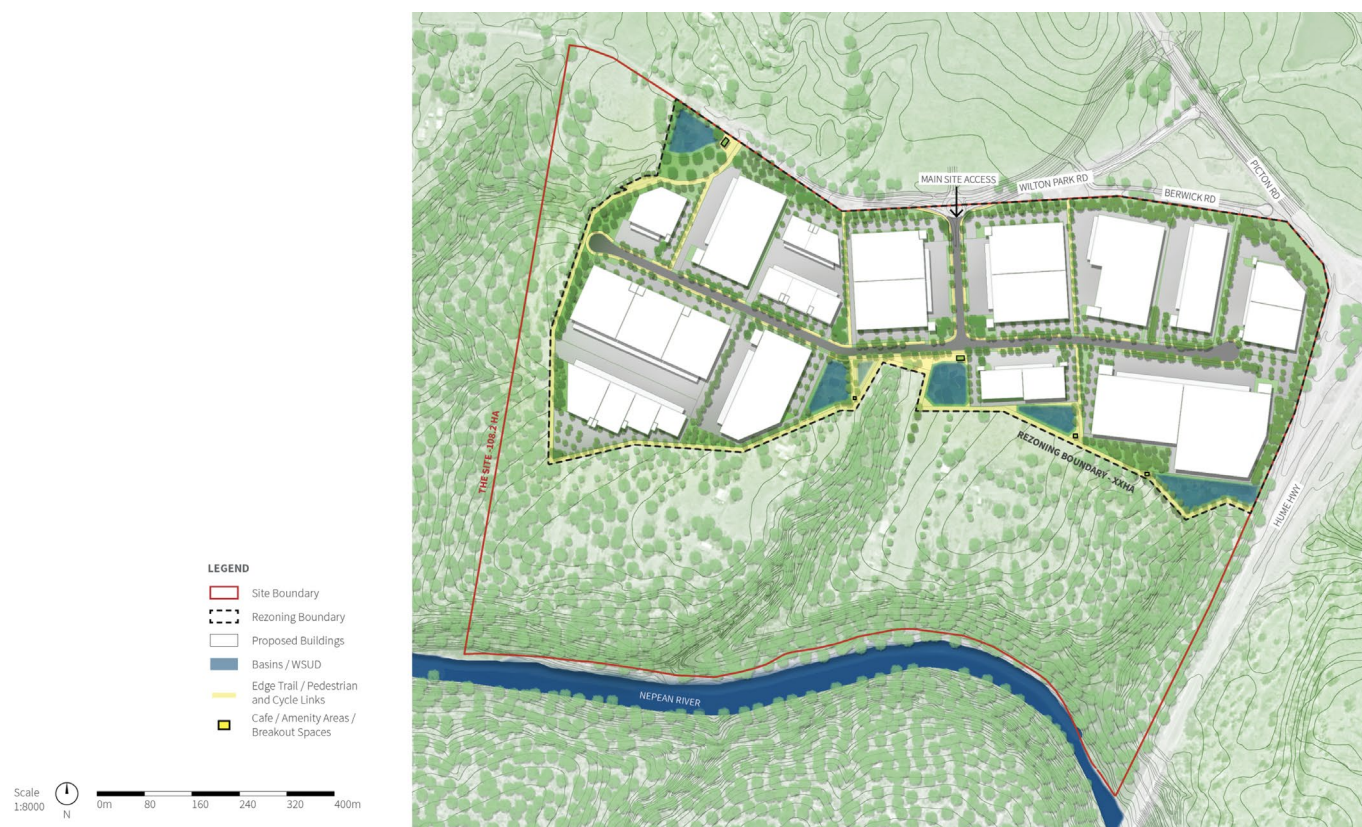


Figure 17: Site master plan

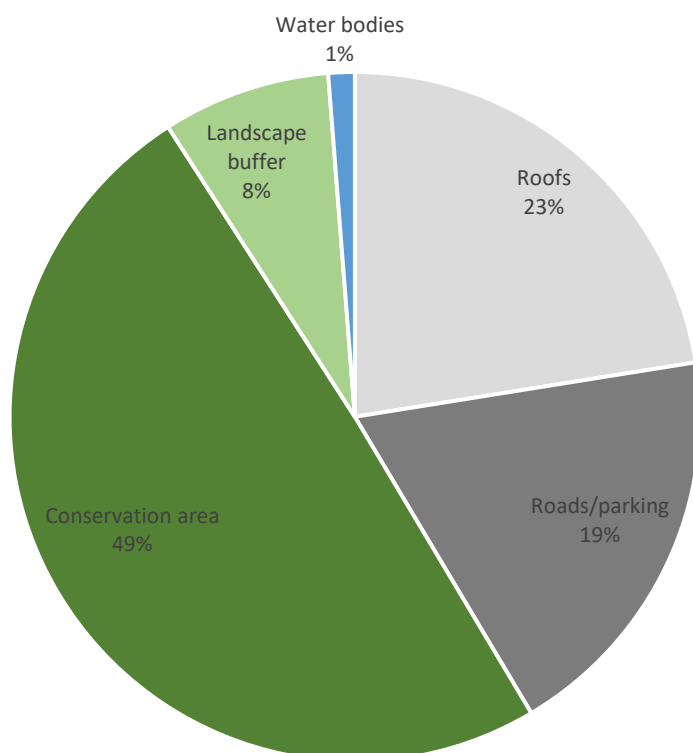


Figure 18: Indicative breakdown of land uses based on initial site masterplan

## 4.2 GREEN INFRASTRUCTURE

Green infrastructure, particularly canopy cover, can play an important role in reducing the impacts of heat. Several plans include specific canopy cover targets.

The Western Sydney District Plan (Greater Sydney Commission 2018b) includes an action (#73) focused on tree canopy, to help support urban heat mitigation: “Expand urban tree canopy in the public realm.” The District Plan also mentions that the NSW Government has set a target to increase tree canopy cover across Greater Sydney to 40 per cent.

Wollondilly’s Local Strategic Planning Statement (Wollondilly Shire Council 2020) also prioritises tree canopy and mentions a canopy cover target of 40%.

The Wilton 2040 and the Wilton DCP also positions tree canopy as playing a key role in urban development in Wilton and identifies a 40% tree canopy cover. The Wilton DCP (NSW Government 2021) includes a requirement “Development is to demonstrate alignment with the Neighbourhood Plan strategy to deliver 40% tree canopy.”

Therefore, tree canopy cover for the Wilton Park Rd site will contribute to the NSW Government’s canopy cover target of 40% for the Western City district and Wollondilly Shire LGA by retaining trees in conservation areas and through tree planting across the site.

There are significant opportunities to transform the site from its existing cleared condition to a site with significant canopy coverage and vegetation communities. Land conservation and urban greening areas will make a significant contribution. There are good opportunities for tree planting within the public domain including within landscape buffers, car parking areas and streetscapes. Canopy cover within the landscape buffer and streetscapes is important to provide the benefits of the green infrastructure and urban heat at a microclimate level, providing shade and creating cool outdoor spaces where people are present and active in the urban environment as well as arboreal habitat within the development area.

Trees should be selected for parks and streetscapes that maximise canopy cover. This should include a mix of tree species including:

- Some fast-growing species that will help establish reasonable canopy cover relatively quickly.
- Some species that grow to a large size (e.g. >10m height and >8m canopy spread), which are likely to make a greater contribution to long-term canopy cover.
- Where possible, select species with reasonably dense canopy cover.

- Where possible, select species likely to thrive in future climatic conditions.

A mix of native and exotic species is likely to be most appropriate to meet this range of objectives.

A total green cover target should also be considered in addition to the canopy target. This would recognise the role of all vegetation in reducing the UHI effect.

Planning for tree canopy cover will be subject to requirements for bushfire protection set out in the NSW Rural Fire Services ‘Planning for Bushfire Protection’ (NSW Rural Fire Service, 2019, pp. 34-37). Bushfire protection requirements need to be considered in canopy cover in some parts of the site.

Increasing tree canopy cover would better address heat impacts at the human scale and allows for more specific benchmarks for canopy cover and total green cover in specific parts of the development including streets, parks, and on private land (such as 15% canopy cover for the development area). This approach has been adopted in the Wilton DCP (NSW Government 2021a), but only includes specific requirements for trees on residential lots. A similar consideration should be provided for tree canopy on employment lands, particularly for car parking and site set back areas within the lot.

Planning principles and design guidelines should also prioritise canopy cover where it will be most effective at keeping people cool, including:

- Where it will shade paved areas and building walls, particularly north and west-facing walls
- Where it will shade places that people are more likely to be present and active outdoors

## 4.3 BLUE INFRASTRUCTURE

Existing planning documents also indicate an expectation that water should play a role in mitigating urban heat, particularly the concept of ‘retaining water in the landscape’.

The Western Sydney District Plan (Greater Sydney Commission 2018b) says: “Retaining more water in the landscape and integrating waterways in the design of new communities will help create a greener and cool city”.

The water management section in the Wilton DCP specifically refers to “Integrating water into the landscape to enhance ecological, visual, social, economic and cultural values.”

The idea of retaining more water in the landscape relates to multiple objectives, including reducing stormwater runoff and protecting natural waterways.

Stormwater treatment systems (e.g. wetlands/bioretention basins) will be required to meet water sensitive urban

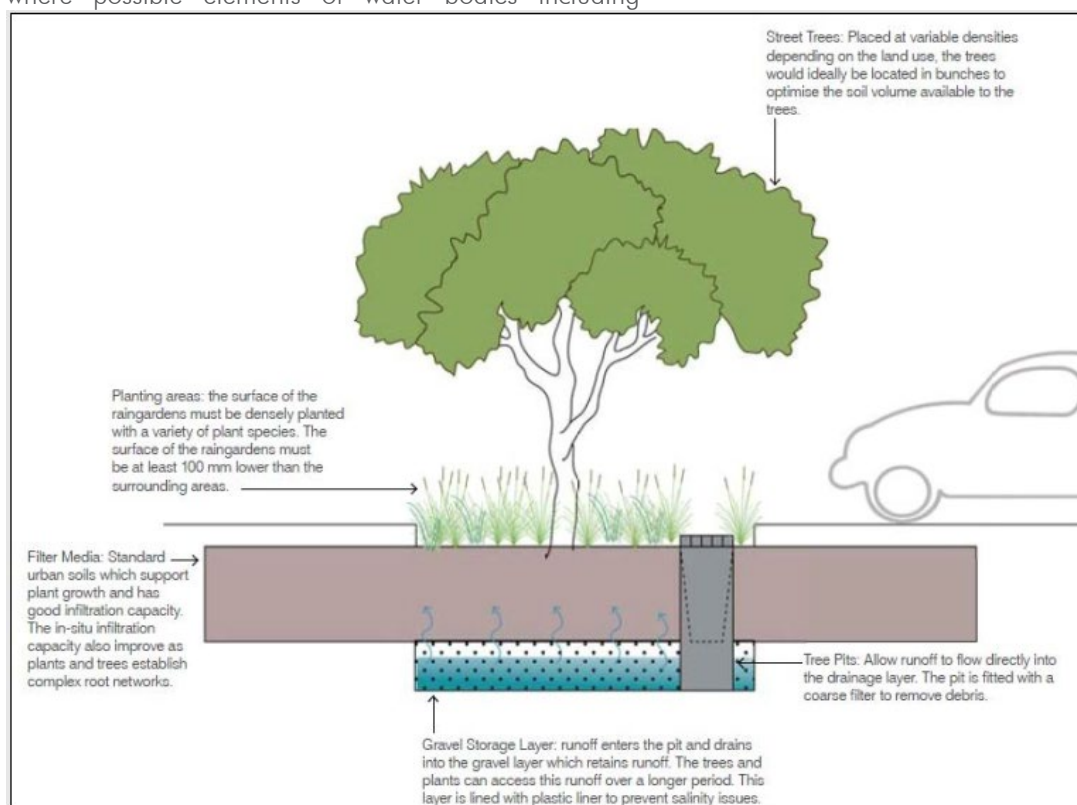


design (WSUD) objectives for the development as outlined in the Wilton DCP. As shown in the site Master Plan in Figure 17 indicative areas for WSUD assets have been identified.

The WSUD assets provide an opportunity to contribute to the sustainability objectives at the site including habitat, waterway protection and urban heat mitigation. Natural treatment systems should be adopted as part of the WSUD strategy for Wilton Park Rd, using vegetated stormwater treatment systems. These should be integrated with the retention of water for passive irrigation, infiltration, and evapotranspiration. The treatment systems should include where possible elements of water bodies including

treatment wetlands as part of the treatment systems. Where bioretention systems are used these should include saturated zones within the bioretention zone in preference to fully drained systems to retain water and provide additional cooling and better overall stormwater performance.

Wherever possible the street trees and trees used for car parking areas on the lots should consider the potential to incorporate passive irrigation into the design of street trees and other vegetation. For example, the draft Aerotropolis Phase 2 DCP proposes passively irrigated street trees as shown in Figure 19 below.



**Figure 19: Passively irrigated street tree proposed in the Aerotropolis Phase 2 DCP (NSW Government 2021b)**

A WSUD strategy should be developed which consider the site-wide potential to retain water and reduce runoff for the site.

As part of the WSUD strategy flow objectives to achieve the Wilton DCP environmental flow target of 1:1 need to be a key part of the WSUD strategy. This should be translated into a site-wide runoff reduction target and consider how passive irrigation over a certain area should be considered to formalise a commitment to retain water in the landscape.

In car parking areas, and street scapes, irrigated landscapes and retention of water in the land landscape will also help reduce temperatures through the benefits of evapotranspiration.

## 4.4 GREY INFRASTRUCTURE

### COOL ROOFS

Cool roofs are a simple, low- or no-cost measure easily integrated into new urban development.

To reduce urban heat island effects, roofing materials for the site should be selected for their thermal performance. Cool roofs can be specified in terms of their Solar Reflectance Index (SRI) or solar absorptance (SA). While light-coloured roofs (including lighter tones of green, brown, blue, and grey) would be likely to rate well by either measure, darker-toned colours with special surface coatings can also meet cool roof standards.



While the use of natural colours with special surface coatings could assist with visual integration of the urban form with the surrounding landscape, light coloured or white roofing should not be excluded from consideration altogether, as it offers a cost-effective option to achieve high SRI/low SA. This could be particularly important for low density residential areas where home buyers are sensitive to building costs. For example, consider light-coloured roofing for areas that will not be in direct proximity to surrounding natural landscapes in the Structure Plan.

It is noted that green walls are not likely to be appropriate at the precinct due to their high construction and maintenance costs. Where cost is not prohibitive and such options are more feasible, such as for retail oriented components of the development or more integrated development green walls should be encouraged.

## COOL OR PERMEABLE PAVING

Conventional paving materials can significantly contribute to reducing runoff and reducing urban heat because they absorb, store and release water and also heat back to the built environment. Cool pavements reflect solar radiation, conduct and store less heat.

Asphalt makes up the majority of road and car parking pavement throughout the development. A lighter coloured asphalt would reduce heat absorption and reduce the UHI.

A range of different products and materials can be used to enhance the thermal performance of ordinary paving materials:

- Paving with light-coloured aggregates, pigments and binders.
- Paving with light-coloured coatings (e.g. cementitious coating, elastomeric coating).
- Materials with a high emissivity rating, meaning they will be less prone to embodying heat.

Permeable paving (including porous asphalt, porous concrete, block pavements, reinforced grass pavements) can also reduce heat via evapotranspiration, providing it is installed on a subgrade with the capacity for infiltration or temporary storage of water below the pavement. There may be opportunities in selected areas to include permeable paving.

Note, if using lighter coloured materials for paving, take care to avoid unwanted glare. In areas where glare could be an issue, avoid high albedo, white or very light surfaces.

## SHADE STRUCTURES

Shade structures should also be considered over large areas of asphalt such as car parks and other areas of large hard stand and places where people or vehicles gather, to improve comfort and safety in hot conditions and to reduce the heat gain of these surfaces.

# 4.5 SUMMARY OF SUSTAINABILITY AND RESILIENCE INITIATIVES

*Table 2: Sustainability and resilience initiatives*

Sustainability opportunity	Sustainability achieved	priority	Areas	Opportunities in Wilton Park Rd planning and development process
<b>Blue infrastructure</b>	Enhancing community Enhancing WSUD Enhancing biodiversity Low carbon and climate resilient communities	Liveability	and	<ul style="list-style-type: none"> <li>• Consider rainwater tanks as part of an integrated water cycle management strategy to reduce the runoff from roofs and to use for irrigation</li> <li>• Incorporate key principles of water sensitive urban design (WSUD) to protect waterway health</li> <li>• Integrating water into the landscape</li> <li>• Consider passive irrigation of street trees</li> <li>• Adopt natural water treatment systems to manage stormwater runoff</li> <li>• Adopt wetland treatment systems (or a portion of treatment systems as wetlands) wherever possible to retain water in the landscape</li> <li>• Where bioretention treatment systems are used wherever possible use saturated zones in the bioretention system to retain water in the landscape</li> <li>• Wherever possible use treatment systems connected to passive irrigation systems (e.g subsoil leaky trenches and wicking beds)</li> </ul>

Sustainability opportunity	Sustainability priority Areas achieved	Opportunities in Wilton Park Rd planning and development process
<b>Waterway protection</b>	Enhancing WSUD Enhancing biodiversity	<ul style="list-style-type: none"> <li>• High value waterways and riparian vegetation including aquatic fauna, water regime and water quality is retained and enhanced</li> <li>• 2nd order waterways and higher are maintained in natural states</li> <li>• Develop a strategy to meet the Wilton DCP requirements to manage the flow of stormwater from urban part of the precinct to replicate as closely as possible to predevelopment flows and the environmental flow targets in the DCP</li> </ul>
<b>Sustainable water supply</b>	Enhancing WSUD Enhancing biodiversity	<ul style="list-style-type: none"> <li>• Promote integrated water cycle management approach</li> <li>• Set a target for alternative water supplies for non-residential development</li> <li>• Consider a target for rainwater harvesting to reduce runoff from the site using high quality water from large roof areas</li> <li>• Consider use of 'leaky' rainwater tanks to reduce frequent flows from the precinct</li> </ul>
<b>Retain and enhance conservation areas</b>	Enhancing biodiversity	<ul style="list-style-type: none"> <li>• Protect and enhance conservation areas including koala habitat</li> <li>• Provide a perimeter road to the conservation lands</li> <li>• Provide access and movement opportunities along the boundary of the development and the conservation lands</li> <li>• Provide signage for the community about the conservation lands and their value</li> <li>• Adopt appropriate access which is sensitive to the conservation lands</li> <li>• Provide fencing integrated into the landscape to discourage inappropriate practices (including dumping and off-road vehicle use)</li> <li>• Develop a bulk earthworks strategy which minimises impact on native vegetation</li> <li>• Adopt vegetation be consistent with preferred tree species list in the Wilton DCP</li> <li>• Mitigate indirect and ongoing impacts to threatened species and their habitat including providing setbacks required for threatened species such as grey headed flying fox and microbats, squirrel gliders and raptor nests</li> </ul>
<b>Cool cities</b>	Enhancing Liveability and community Enhancing WSUD Enhancing biodiversity Low carbon and climate resilient communities	<ul style="list-style-type: none"> <li>• Adopt a green cover targets for the precinct</li> <li>• Develop a strategy for the precinct to retain water in the landscape</li> <li>• Set a cool roof benchmark</li> <li>• Encourage the use of 'cool paving' materials, with high thermal emittance, and/or permeability</li> </ul>
<b>Cool outdoor spaces</b>	Enhancing Liveability and community Low carbon and climate resilient communities	<ul style="list-style-type: none"> <li>• Consider orientation of site features to catch prevailing breezes and maximise shade in summer</li> <li>• Set benchmarks for canopy cover and green cover in streets, car parks, and landscape buffers</li> <li>• Prioritise canopy cover where it will shade paved areas and building walls, particularly northern and western walls.</li> <li>• Where canopy cover is impractical, shade structures should be considered particularly to car parking areas</li> <li>• Encourage irrigation or passive irrigation of trees and other vegetation.</li> <li>• Encourage the use of WSUD features that retain water in the</li> </ul>

Sustainability opportunity	Sustainability achieved	priority	Areas	Opportunities in Wilton Park Rd planning and development process
				<p>landscape.</p> <ul style="list-style-type: none"> <li>Consider at least one centrally accessible outdoor ‘cool zones’ within the precinct including targeted measures such as additional shade and evaporative cooling.</li> <li>Prioritise all the above where people are most likely to be present and active outdoors</li> </ul>
<b>Low carbon cities</b>	Enhancing community	Liveability	and	<ul style="list-style-type: none"> <li>Set energy efficiency benchmarks for all non-residential buildings</li> <li>Provide infrastructure to support local use of public transport, active transport, and electric vehicles</li> </ul>
<b>Cool buildings</b>	Enhancing community	Liveability	and	<ul style="list-style-type: none"> <li>Where canopy cover is impractical, shade structures should be considered particularly to car parking areas</li> <li>Set a cool roof benchmark</li> <li>Encourage the use of ‘cool paving’ materials, with high thermal emittance, and/or permeability</li> </ul>
<b>Street trees</b>	Enhancing community	Liveability	and	<ul style="list-style-type: none"> <li>Where practical retain existing trees</li> <li>Ensure suitable permeable areas for street tree passive watering</li> <li>Provide suitable deep soil zones for trees</li> <li>Provide shade in summer and light in winter</li> </ul>
<b>Air quality</b>	Enhancing community	Liveability	and	<ul style="list-style-type: none"> <li>Ensure appropriate levels of air quality for the health and amenity of workers and residents</li> <li>Adopt practices and technology is required to manage odour emitting development</li> <li>Consider continuous dense landscaping (bunds and vegetation) or similar appropriate green infrastructure to assist in air pollutants, noise and odour dispersion from nearby sources of air pollution noise, and/or odour.</li> </ul>
<b>Access and movement</b>	Enhancing community	Liveability	and	<ul style="list-style-type: none"> <li>Provide street typologies consistent with the DCP including provision of footpaths and paths</li> <li>Encourage use of public transport with integrated rail, bus pedestrian and cycle routes</li> <li>Electric vehicle charging points and poles</li> </ul>
<b>Minimise energy consumption and greenhouse gases</b>	Low carbon and climate resilient communities			<ul style="list-style-type: none"> <li>Maximise solar access to lots</li> <li>Maximise north facing roof for solar hot water and solar panels</li> <li>Maximise cross flow ventilation and passive cooling</li> <li>Vegetation to northern and western facades for cooling</li> <li>LED lighting for public open space areas</li> </ul>
<b>Waste management</b>	Enhancing community	Liveability	and	<ul style="list-style-type: none"> <li>Provide for separation of reusable, recyclable, compostable and problem wastes</li> <li>Provide accessible, safe, hygienic and aesthetic waste storage on each property and minimise negative impacts on occupants and neighbours.</li> <li>Provide a waste management plan to be submitted for new development including all waste that is to be generated and measures of management of the waste generated</li> <li>minimise waste during construction</li> </ul>

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