



Western Sydney Aerotropolis Development Control Plan 2021

Phase 2 Draft

October 2021



WESTERN SYDNEY AEROTROPOLIS DEVELOPMENT CONTROL PLAN

Draft for exhibition (October 2021)

Contents

Part 1 – Background	6
1 Introduction and Administration	7
1.1 Name of this Development Control Plan	7
1.2 Aims of this DCP	7
1.3 Adoption and Commencement	7
1.4 Where the DCP Applies	8
1.5 Using this DCP	10
1.6 Relationship to Other Documents and Instruments	10
Part 2 – General Provisions	12
2 Recognise Country	13
2.1 Starting with Country	13
3 Heritage	18
3.1 Aboriginal Cultural Heritage	18
3.2 Non-Aboriginal Heritage	20
4 Stormwater, Water Sensitive Urban Design and Integrated Water Management	24
4.1 Waterway Health and Riparian Corridors	24
4.2 Existing Artificial Waterbodies	25
4.3 Stormwater Management and Water Sensitive Urban Design	27
4.4 Management and Maintenance of Stormwater Infrastructure	35
5 Native Vegetation and Biodiversity	37
5.1 Deep Soil and Tree Canopy	37
5.2 Protection of Biodiversity	37
5.3 Protection of Trees and Vegetation	42
5.4 Preferred Plant Species	45
5.5 Street Tree Planting Requirements	47
6 Access and Movement Framework	50
6.1 Street Network Functions and Design	50
6.2 Active Transport Network	52
7 Travel Demand Management and Parking	56
7.1 Travel Demand Management	56
7.2 Bicycle and Car Parking Rates	56
7.3 Parking Design/Access and End of Trip Facilities	61
7.4 Servicing and Loading Design	67
8 Building Siting and Design	70
8.1 Building Setbacks and Interfaces	70
8.2 Universal Design and Access	72
8.3 Design for Safe Places	72
8.4 View Sharing	75
8.5 Signage and Wayfinding	76
9 Flooding and Environmental Resilience and Adaptability	80
9.1 Flood Risk Management	80
9.2 Mitigating the Urban Heat Island Effect	84
9.3 Bushfire Hazard Management	86

9.4	Salinity	86
9.5	Acid Sulfate Soils.....	89
9.6	Erosion and Sediment Control	90
9.7	Contaminated Land	92
9.8	Odour.....	94
9.9	Air Quality	94
10	Airport Safeguarding	95
10.1	Protection of Operational Airspace.....	95
10.2	Noise	96
10.3	Wildlife Hazards.....	98
10.4	Communications, Navigation and Surveillance Systems	100
11	Sustainability and Circular Economy.....	101
11.1	Energy	101
11.2	Reducing Waste and Supporting the Circular Economy through Design and Construction	102
11.3	Waste Management and Recovery	103
12	Services and Utilities	106
12.1	Services and Utilities Design.....	106
12.2	Telecommunication Facilities	108
12.3	Precinct Integrated Water Management	109
13	Smart Places.....	111
13.1	Smart Places Design.....	111
Part 3 – Additional Provisions for Large Sites.....		113
14	Benchmarks for Larger Sites, Subdivision or Master Planning.....	114
14.1	Targets for Site Coverage, Perviousness and Quantum of Public Domain by Typology	114
14.2	Street Patterns.....	115
14.3	Public Art	115
14.4	Social Infrastructure.....	117
Part 4 – Additional Provisions for Certain Land Uses		119
15	Certain Land Uses.....	120
15.1	Mixed Use Development, Residential and Commercial Development.....	120
15.2	Industrial, Agribusiness, Specialised Retail/Bulk Goods Uses	131
15.3	Night-time Economy Uses.....	134
15.4	Outdoor Dining	135
15.5	Childcare Centres.....	136
15.6	Education Facilities.....	136
15.7	Places of Public Worship.....	137
15.8	Animal Boarding or Training Establishments	138
15.9	Roadside Stalls.....	139
15.10	Sex Services and Restricted Premises	140
15.11	Boarding Houses	141
15.12	Tourist and Visitor Accommodation.....	142
15.13	Cemeteries	Error! Bookmark not defined.
15.14	New and Upgraded Waste or Resource Management Facilities	143

LIST OF FIGURES

Figure 1 DCP Initial Precincts Maps (Subject to Boundary Confirmation).....	9
Figure 2 Aboriginal Heritage Sensitivity with Buffer, Items and Corridors	17
Figure 3 Heritage Items within Initial Aerotropolis Precincts (Listed and Unlisted/Potential)	23
Figure 4 Retained Artificial Waterbodies – Samples from Existing Farm Dams in the Wianamatta-South Creek Catchment	27
Figure 5 Green Roofs – Samples	33
Figure 6 Vegetated or Grassed Swales	33
Figure 7 Downpipe Diverters.....	34
Figure 8 Map Biodiversity Certifications (Existing and Proposed) Overlaid on Precinct Boundaries...	39
Figure 9 Examples of Plants and Trees Native to the Area.....	47
Figure 10 The Movement and Place Framework.....	50
Figure 11 Interface to Main Streets within Centres.....	74
Figure 12 Interface to Main Streets Containing Commercial Activity	74
Figure 13 Types of Signage	79
Figure 14 Cooling Buildings	86
Figure 15 Western Parkland City Vision – Government Commitment Areas Map	100
Figure 16 Example of a Shared Utility Trench	108
Figure 17 Building Elements Interfacing with Public Domain	Error! Bookmark not defined.

LIST OF TABLES

Table 1 Maximum Block Sizes	54
Table 2 Minimum On-Site Bicycle Parking Rates	57
Table 3 Car Parking Rates for the Aerotropolis	58
Table 4 Interfaces with Roads	71
Table 5 Signage Placement Design and Dimensions.....	79
Table 6 Residential Acoustic Treatments Required to Ensure Compliance with Indoor Design Sound Levels in AS2021:2015	96
Table 7 Urban Typologies with Acceptable Solutions for Site Cover (Subject to Further Review) and Perviousness.....	114
Table 8 Examples of Urban Typologies	Error! Bookmark not defined.

Part 1 – Background

This section establishes the intent, application, and structure of the DCP, and relationship with other controls and policies.

1 Introduction and Administration

1.1 Name of this Development Control Plan

This Development Control Plan (DCP) is the *Draft Western Sydney Aerotropolis Development Control Plan 2021*. It has been prepared in accordance with Part 3, Division 3.6 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (Regulation).

1.2 Aims of this DCP

This DCP provides controls to supplement the *Western Sydney Aerotropolis Plan* (WSAP), the *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020* (Aerotropolis SEPP), the *Western Sydney Aerotropolis Precinct Plan* (Aerotropolis Precinct Plan) and inform the preparation and assessment of master plans and development applications (DAs). The DCP will achieve connectivity, liveability, productivity, and sustainability by:

- a. Giving effect to the Greater Sydney Region Plan and Western City District Plan;
- b. Recognising and reinforcing the distinctive characteristics of the Western Parkland City;
- c. Adopting the principles set in the Government Architect NSW's *Better Placed* design policy and *Greener Places* design framework;
- d. Encouraging development and building upon the objectives and principles under the WSAP and the Aerotropolis SEPP;
- e. Supporting the implementation of the Precinct Plan;
- f. Protecting and enhancing green and blue infrastructure;
- g. Safeguarding the airport operations of Western Sydney International (Nancy-Bird Walton) Airport (Airport);
- h. Supporting high levels of local accessibility, quality place and amenity outcomes to drive business relocation and economic growth;
- i. Encouraging design that maintains and enhances the character and heritage significance of Aboriginal and European heritage items and heritage conservation areas;
- j. Encouraging ecologically sustainable development and reducing the impacts of development on the environment; and
- k. Delivering development in accordance with the principles of Water Sensitive Urban Design (WSUD).

1.3 Adoption and Commencement

1.3.1 Commencement of the DCP

This DCP was adopted by the Planning Secretary on [insert date when adopted] and came into force on [insert date of commencement].

1.3.2 Savings and Transitional Provisions or Arrangements

This DCP only applies to DAs lodged on or after the date the DCP is made by the Secretary.

1.3.3 Review of the DCP

Penrith and Liverpool City Councils are required to jointly keep this DCP under regular and periodic review. Additionally, the Planning Secretary can amend the DCP in accordance with the *Environmental Planning and Assessment Regulation 2000*.

The review is to be completed through the establishment of a Working Group with representatives from Penrith and Liverpool City Councils, relevant State Government agencies, the Commonwealth Department of Infrastructure, Transport, Regional Development and Communications and Western Sydney Airport in attendance.

The review of the DCP is to be undertaken at least once in a five-year period to:

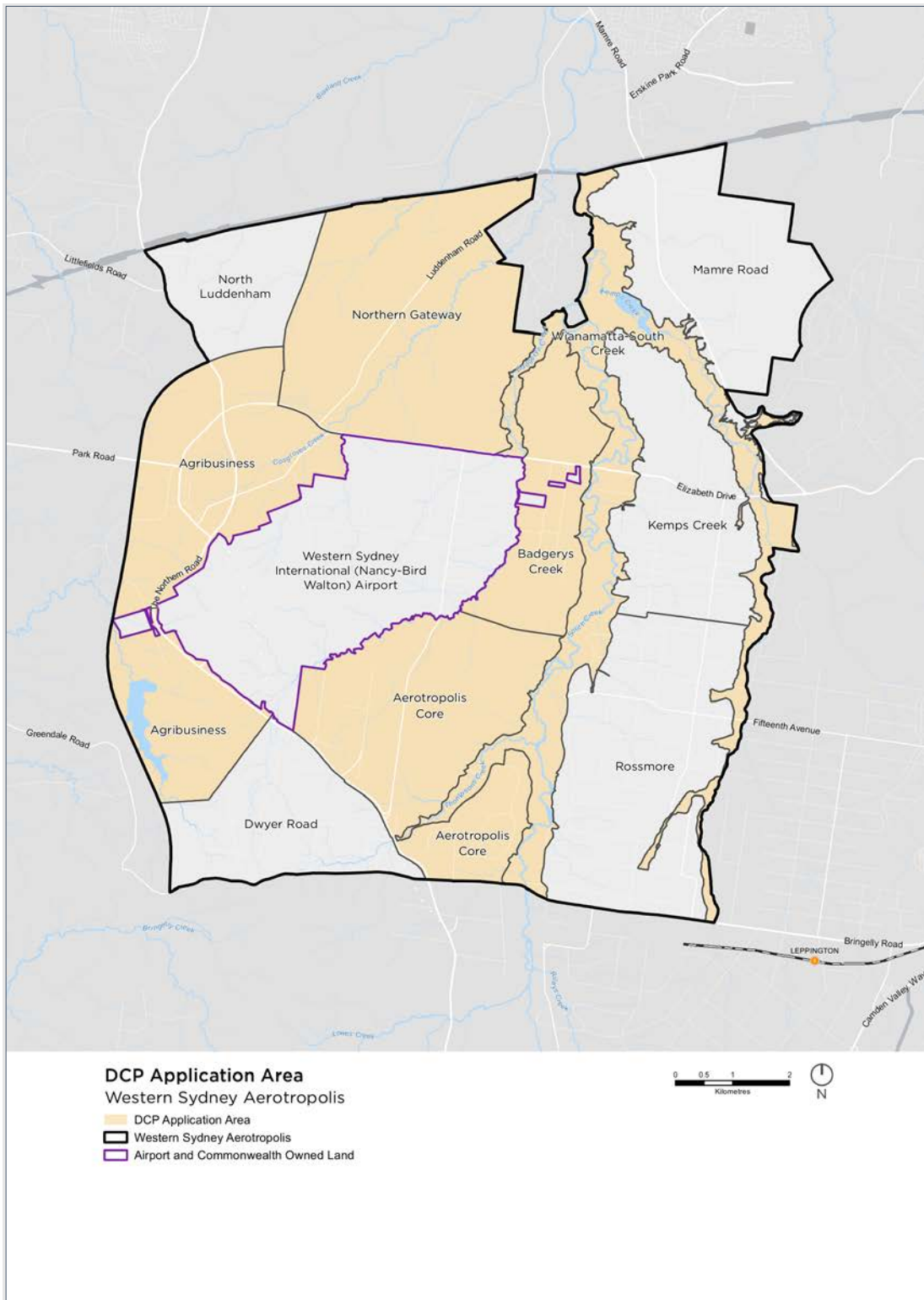
- a. Assess the continued relevance and responsiveness of the DCP's provisions, as well as the achievement of the objectives of the DCP;
- b. Identify the need for changes to the provisions to better achieve the objectives of the DCP and respond to changes in circumstances;
- c. Ensure ongoing alignment with the Aerotropolis SEPP and Precinct Plan; and
- d. Ensure the availability of adequate development capacity under the DCP's provisions.

1.4 Where the DCP Applies

1.4.1 Land Application

This DCP applies to land identified in Figure 1 (i.e. initial precincts as identified in the Aerotropolis SEPP, Precinct Plan and WSAP). The DCP does not apply to the Airport site.

Figure 1 DCP Initial Precincts Maps (Subject to Boundary Confirmation)



This DCP will also apply to any subsequent precinct within the Aerotropolis that has a future Precinct Plan adopted over the area.

Note: This DCP does not apply to Commonwealth owned land or the Mamre Road Precinct. For the latter, refer to the Mamre Road DCP.

1.5 Using this DCP

This DCP provides guidelines to all master plans and DAs across the Aerotropolis.

In planning and designing for any master plan or development, assessment should be made against the Aerotropolis SEPP, the Precinct Plan as well as this DCP.

Where development requires approval from any other Act, for example the *Heritage Act 1977*, this DCP does not stipulate or explain the approval or the process to gain the approval under that legislation.

This DCP includes a list of reference documents in the appendix. All standards, acts and documents are relevant as at the date of publication of this DCP. They may be subject to amendments, replacement, or revocation. Where any document has been revised, the most current version is to be referenced when considering provisions in the DCP.

1.5.1 Structure of the DCP

This DCP is structured in the following manner:

DCP section	Contents
Part 1	Background to the DCP.
Part 2	General provisions, including: <ol style="list-style-type: none"> a. Objectives, performance outcomes applicable to all types of development; and b. Specific guidance for certain land uses.
Part 3	Additional provisions for large sites. (Specific size requirements are within this section).
Part 4	Additional provisions for certain land uses.
Appendices	Supporting information, including definitions and links to reference documents.

1.5.2 Performance-Based Approach

This DCP uses a flexible performance-based approach, by providing objectives, performance outcomes and benchmark solutions. Any variations to DCP benchmark solutions must ensure consistency with the intent of the objectives and performance outcomes. Where alternative solutions are proposed, the proponent must provide a written statement which justifies how the development is meeting the intent of both the objectives and performance outcomes as listed in this DCP.

1.6 Relationship to Other Documents and Instruments

The *Western Sydney Aerotropolis Development Control Plan – Phase 1* (Phase 1 DCP) was published on 13 September 2020 and came into effect on 1 October 2020. The Phase 1 DCP identified the precinct planning principles, objectives, and performance outcomes to allow precinct planning to progress. The Phase 1 DCP is superseded by this DCP.

The *Liverpool Local Environmental Plan* and *Liverpool Development Control Plan* (for land in the Liverpool Local Government Area) and the *Penrith Local Environmental Plan* and *Penrith Development Control Plan* (for land in the Penrith Local Government Area) do not apply to land once a land use zone has been applied and the Precinct Plan over the land is in force in accordance with the Aerotropolis SEPP.

Further guidance on street design and engineering standards can be found in the *Western Sydney Street Design Guidelines* and *Western Sydney Engineering Design Manual*.

For strategic context, this DCP and subsequent amendments should be read in conjunction with:

- a. The Western Sydney Aerotropolis Plan (WSAP);
- b. State Environmental Planning Policy (Western Sydney Aerotropolis) 2020 (Aerotropolis SEPP);
- c. The *Western Sydney Aerotropolis Precinct Plan* (Aerotropolis Precinct Plan);
- d. Ministerial Directions 3.5 and 7.8;
- e. *Recognise Country: Draft Guidelines for Development in the Aerotropolis*; and
- f. *Draft Aviation Safeguarding Guidelines – Western Sydney Aerotropolis and Surrounding Areas*.

Part 2 – General Provisions

This section provides general controls for all development on land to which the DCP applies.

Master plans should be consistent with this section of the DCP.

*Some controls only apply to development of a certain scale, and these are highlighted in **turquoise** below. Some controls apply to certain locations, and these controls are shown in **purple**.*

2 Recognise Country

2.1 Starting with Country

Country is central to the identity and wellbeing of Aboriginal people and communities. Country, for First Peoples, relates not only to the cultural group and land to which they belong, it is also their place of origin in cultural, spiritual, and literal terms. The local people with ancestral connection to this Country (Dharug, Dharawal, Gundungara) hold valuable knowledge about caring for the Country.

Starting with Country is mutually beneficial and will provide long term sustainable and enriching outcomes. The planning, design and delivery of places and buildings within the Aerotropolis should reflect and be informed by Aboriginal knowledge and expertise about the local area – both its history and its continuing present-day characteristics and potential. Starting and connecting with Country in planning, design and delivery will fundamentally enhance the identity and placemaking outcomes of developments within the Aerotropolis. The performance outcomes and benchmark solutions provided in Section 2.1.2 are to be read in conjunction with the *Recognise Country: Draft Guidelines for Development in the Aerotropolis*.

The requirements outlined in this section are not to replace the legislative requirements and processes for Aboriginal heritage assessment outlined in Section 3.1 (Aboriginal Cultural Heritage), rather they are intended to complement them. This will support development to further embed, enhance and celebrate cultural values and practices within the built form of the Aerotropolis and provide ongoing benefits for Aboriginal people.

2.1.1 Objectives

All development must be consistent with the following objectives:

- O1. Development is designed to be culturally safe, minimising colonial dominance and considering Aboriginal peoples perspectives when making planning and design decisions.
- O2. Ensure diverse opportunities for connection to Country are considered and implemented during the development planning and design processes through meaningful engagement with Aboriginal groups.
- O3. Create opportunities for capacity building and economic development for Aboriginal people and organisations across planning, design, construction and operation.
- O4. Development is designed to proactively allow for opportunities to connect to Country and for Aboriginal people to continue to care for Country.
- O5. Recognise and reflect Aboriginal connection to Country by protecting and enhancing significant natural features in and around the Aerotropolis.
- O6. Protect and enhance the history and culture of the Aboriginal custodians of the land within the development of buildings and public spaces which facilitate cultural practices and connection to Country.
- O7. Celebrate Aboriginal culture and language through opportunities to name locations and streets in local traditional language or implement dual naming.

2.1.2 Performance Outcomes and Benchmark Solutions

Where engagement with Aboriginal stakeholders is required, proponents must engage with a minimum of two Aboriginal stakeholder groups (i.e. Traditional Custodians, knowledge holders, relevant LALCs and the local Aboriginal community). An engagement outcomes report is to be provided with the Master Plan, SSD/SSI or DA submission.

2.1.2	Performance Outcome	Benchmark Solution
A. Connecting to culture and Country through the cultural landscape		
<i>Application of requirements outlined in Section A. Connecting to culture and Country through cultural landscape applies for all Master Plan, State Significant Development (SSD), State</i>		

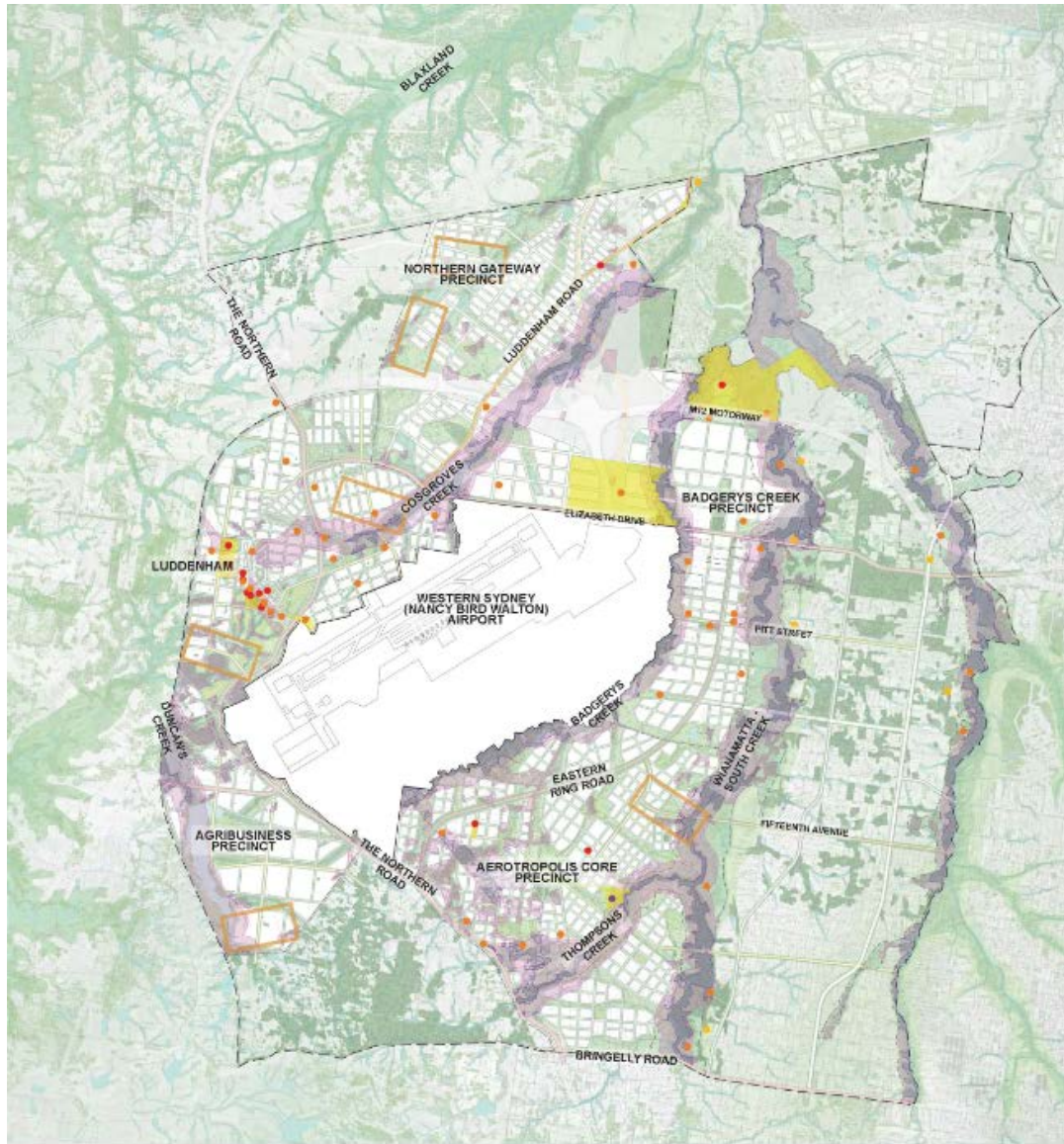
2.1.2	Performance Outcome	Benchmark Solution
<i>Significant Infrastructure (SSI) and development proposals with a site of 20 hectares or more in size or a capital investment value of more than \$20 million.</i>		
PO1	Cultural values and heritage form a key structuring element. Development is to retain access to and connect significant Aboriginal heritage and areas of cultural value within conservation corridors and other identified areas of significant Aboriginal heritage to support connection to culture and Country.	<ol style="list-style-type: none"> 1. New development is to undertake Cultural values research in conjunction with Aboriginal heritage requirements (see Section 3.1.2 of this DCP and Section 1.2 of the Precinct Plan) to determine significant sites, views, traditional movement corridors, stories, and areas of cultural value. Cultural values research should be undertaken by a qualified heritage consultant with experience in Aboriginal heritage and cultural values research. Cultural values should inform the spatial layout of the site as part of a landscape-led approach (see Objective 4 on page 9, WSAP). 2. Ground truth and provide evidence of cultural values and heritage significance, particularly within moderate to high areas of Aboriginal heritage sensitivity and potential conservation corridors (see Figure 2), through on-site review with Traditional Custodians (or their nominated representatives) and with Aboriginal stakeholder groups as per the note following this table. 3. Cultural values research should identify any areas of Aboriginal cultural value within or adjoining the area of the proposed development. The development proposal should outline how these have informed planning and design of the proposed development and what mitigation measures are proposed to reduce any impacts to the areas of Aboriginal cultural value.
PO2	Country and its landscape form a key structuring element. Development is to retain and connect landscapes, topography and native vegetation within conservation corridors and other identified areas of significant Aboriginal heritage and value to support connection to culture and Country.	<ol style="list-style-type: none"> 1. Where possible development respects and responds to the natural landscape including topography and native vegetation such as the Cumberland Plains (see Section 5 and the <i>Draft Cumberland Plain Conservation Plan</i>) by providing clear and legible links between ridgetops and creek lines and retaining native vegetation clusters and corridors through the siting of buildings e.g. campus-style development. Priority should be given to retaining or restoring corridor linkages in the landscape within the site for biodiversity and cultural value. 2. Cultural values research should identify any significant cultural landscape elements, as they relate to cultural values, within or adjoining the area of the proposed development. The development proposal should outline how these have informed planning and design of the proposed development and what mitigation measures are proposed to reduce any impacts to significant cultural landscape elements.
PO3	Country and its waterways form a key structuring element. Development is to acknowledge the Western Sydney Aerotropolis area is 'wet Country' by retaining, rehabilitating and	<ol style="list-style-type: none"> 1. Development respects and responds to the natural systems including significant tributaries and waterways in the Wianamatta-South Creek catchment such as Thompsons Creek, Moore Gully, Badgerys, Kemps, Cosgroves and Duncans Creeks, by avoiding significant impacts to ecological condition and the function of ecosystems, as well as protect and restore native and riparian vegetation (see Section 4). 2. Water management infrastructure and processes are responsive to Country and prioritise natural solutions that

2.1.2	Performance Outcome	Benchmark Solution
	connecting significant tributaries and waterways within conservation corridors and other identified areas of significant Aboriginal heritage.	enhance the overall waterway systems condition, function and connections (see Sections 4.3 and 4.4). 3. Cultural values research should identify any significant waterways or bodies and areas of surrounding riparian vegetation, as they relate to cultural values, within or adjoining the area of the proposed development. This should include how these have informed planning and design of the proposed development and what mitigation measures are proposed to reduce any impacts to significant waterways or bodies and areas of surrounding riparian vegetation.
PO4	Parks and public open space provide areas for outdoor cultural practice, learning and play to support connection to culture and Country.	1. When designing the public realm and open spaces within moderate to high areas of Aboriginal heritage sensitivity and/or potential conservation corridors (see Figure 2), the proponent is to engage with Aboriginal stakeholder groups as per the note at the top of this table to provide spaces for outdoor cultural practice as well as spaces for learning and cultural play.
PO5	Development is guided and informed by Aboriginal people and their cultural knowledge and practice of caring for Country.	1. Where relevant, development is designed to enable Aboriginal people to continue to care for Country through the integration of traditional knowledge into environmental assessments and management plans (e.g. floodplain management and bushfire hazard management). 2. The proponent is to engage with Aboriginal stakeholder groups as per the note following this table to understand and incorporate cultural practice requirements, as well as their aspirations for associated enterprise and economic development. 3. Master Plan, SSD/SSI or DA submissions must provide a statement on how cultural knowledge has been integrated into environmental assessment and management, as well as opportunities for ongoing land management and enterprise and economic development.
B. Connecting to culture and Country through the Built Form		
<i>Application of requirements outlined in B. Connecting to culture and Country through the Built Form applies for all developments.</i>		
PO1	Aboriginal culture is celebrated and embedded within building design.	1. Where a DA progresses through the design excellence process, applications are to be consistent with the <i>Better Placed, Connecting with Country Draft Framework</i> by the <i>Government Architect NSW</i> , as well as and <i>Recognise Country: Draft Guidelines for Development in the Aerotropolis</i> . 2. Where a development proposal does not progress through the design excellence process but is located within, or intersects, areas of moderate to high Aboriginal heritage sensitivity and/or potential conservation corridors (see Figure 2), the proposal design is required to align with Section 2.3.1 (Culturally Responsive Design) of the <i>Recognise Country: Draft Guidelines for Development in the Aerotropolis</i> . 3. All other development proposals may choose to include Culturally Responsive Design as part of the DA.

2.1.2	Performance Outcome	Benchmark Solution
PO2	Development enables appropriate provision of Cultural infrastructure including dedicated spaces for cultural practice, places for sharing culture and specialised infrastructure to meet the needs of the local Aboriginal community.	<ol style="list-style-type: none"> 1. Master Plans and sites of 20 hectares or more, within metropolitan, specialised and local centres (see Centres Hierarchy map in the Precinct Plan), should identify appropriate sites (location and size) for the provision of cultural infrastructure based on identified need (see Social and Cultural Framework in the Aerotropolis Precinct Plan). This includes specialised stand-alone infrastructure such as education, health and community facilities and services, as well as integrated spaces for gathering (see Section 14.4, 15.5 and 15.6). 2. When planning for and designing cultural infrastructure the proponent is to undertake engagement with service providers, and with Aboriginal stakeholder groups as per the note following this table.
PO3	Cultural narratives are embedded in public art.	<ol style="list-style-type: none"> 1. Where a Public Art Strategy is required (see Section 14.3), public art is to be responsive to culture and Country, particularly within identified areas of significant Aboriginal heritage and value. 2. Where a development proposal has identified the opportunity to deliver public art that is responsive to culture and Country (see Section 14.3), an Aboriginal person with a connection to Western Sydney is to be engaged to: <ol style="list-style-type: none"> a. Provide input into the preparation of the public art brief, and b. Contribute to the design of the public art. 3. Preference is given to Aboriginal individuals or companies to make and install the public art.
C. Language and naming		
<i>Application of requirements outlined in C. Language and naming applies for all developments.</i>		
PO1	Place names incorporate local Aboriginal language to enhance and strengthen the cultural connection to place.	<ol style="list-style-type: none"> 1. Where an existing geographical feature or public place already has a non-Aboriginal name, dual naming with the Aboriginal name, should be assigned where appropriate. More information can be found within the NSW Geographical Names Board's <i>Dual Naming – Supporting Cultural Recognition</i> factsheet. 2. New development including suburbs, public spaces, places, roads or administrative areas should give preference to the use of local Aboriginal language for naming purposes. 3. For Aboriginal naming and dual naming, the proponent shall consult with the NSW Geographical Names Board, local language subject matter experts and with Aboriginal stakeholder groups as per the note following this table.
PO2	Wayfinding signage incorporates Aboriginal language, knowledge and art to enhance and strengthen the cultural connection to place.	<ol style="list-style-type: none"> 1. Wayfinding signage in the public domain is to include the Aboriginal name of a place where adopted. Wayfinding signage is to consider the inclusion of the pronunciation and history behind the Aboriginal name in the wayfinding strategy, where appropriate and agreed to by relevant Aboriginal stakeholders. Such examples of place naming in the Aerotropolis include naming metro stations, streets, public places, and public buildings.

2.1.2	Performance Outcome	Benchmark Solution
		2. The proponent is to engage with Aboriginal stakeholder groups as per the note following this table. Note: Signages depending on the result of Aboriginal engagement may need to display multiple spelling and pronunciation of an Aboriginal name/word.

Figure 2 Heritage - Aboriginal heritage sensitivity and potential conservation corridors [map](#)



- Heritage
Western Sydney Aerotropolis - initial precincts
- Aboriginal cultural sensitivity - high
 - Aboriginal cultural sensitivity - moderate
 - SEPP heritage item
 - State Heritage Register item
 - Potential conservation corridors where significant Aboriginal heritage sites should be connected to its associated nearby creek / watercourse with open space
 - Local heritage item
 - Local unlisted heritage item



Source: Draft Western Sydney Aerotropolis Precinct Plan updated on 21 September 2021

3 Heritage

3.1 Aboriginal Cultural Heritage

Aboriginal heritage, which may comprise physical or nonphysical elements, should be considered in any site analysis and development. The site analysis should identify land potentially containing an item of Aboriginal archaeology or that is within an area of cultural significance to Aboriginal peoples as well as the more obvious items, such as landforms, scarred trees, grinding grooves and potential archaeological deposits, and establish their significance. If any of the above features apply, then the relevant Aboriginal community must be consulted.

3.1.1 Objectives

- O1. Ensure adequate protection and appropriate management of archaeological resources.
- O2. Ensure long-term heritage conservation outcomes are retained or interpreted to reflect the history of the Aerotropolis area.
- O3. Preserve the scenic and cultural heritage connections and values of waterways, riparian lands and ridgelines.

3.1.2 Performance Outcomes and Benchmark Solutions

3.1.2	Performance Outcome	Benchmark Solution
PO1	Development does not result in the significant damage, demolition or removal of Aboriginal heritage objects or places of cultural value.	<ol style="list-style-type: none"> 1. DAs and Master Plans must identify any areas of Aboriginal cultural heritage and value (see Section 2.1.2 A. PO1) within or adjoining the area of the proposed development, including any areas within the development site that are to be retained and protected (and identify the management protocols for these). 2. Development is to be avoided on land containing high Aboriginal heritage sensitivity. For development, including subdivision, on land identified as having a moderate or high level of Aboriginal heritage sensitivity (see Figure 2 above), an archaeological investigation is to be provided with the DA.
PO2	New development adjacent to or within the vicinity of an item or place of Aboriginal heritage significance or cultural value should have no impact on that item, or place. If impacts are expected, this needs to be minimised and appropriately mitigated. Development is to consider visual and physical connections between items and places.	<ol style="list-style-type: none"> 1. New development is appropriately sited to ensure the curtilage or setting of the Aboriginal item or place of cultural value (see Section 2.1.2 A. PO1) is retained. The development must consider surrounding landscaping, topography, views, connection with other Aboriginal sites, etc (see Section 2.1.2 A. PO2). Possible uses for sites with identified Aboriginal heritage include passive open space, environmental conservation, and riparian corridors. 2. Where possible, retain and respect potential heritage conservation corridors, identified in the Precinct Plan, that represent a range of land forms and environments, as well as curtilage, view lines and amenity, in consultation with Traditional Custodians, knowledge holders, relevant LALCs and other relevant Aboriginal stakeholders.
PO3	Heritage items and landscape shall provide	<ol style="list-style-type: none"> 1. Development on sites containing heritage is to provide opportunities for people to engage with heritage and culture. This may include heritage or cultural values

3.1.2	Performance Outcome	Benchmark Solution
	for long-term conservation outcomes.	interpretation, artwork, signage, public access, etc. Any interpretation or signage is to be delivered in consultation with relevant Aboriginal stakeholders, considering the sensitivity of Aboriginal cultural heritage, knowledge and values (Section 2.1.2 C. PO2). 2. DAs for sites containing Aboriginal cultural heritage and cultural values are to be accompanied by a conservation strategy ensuring long-term conservation and restoration (where relevant) outcomes.
PO4	Aboriginal archaeological sites are conserved, and significant archaeological remains are protected.	1. Any land with the potential to contain archaeological remains is to be subject to detailed investigations and assessment to determine the level of archaeological intervention required. Intervention may include the following: <ol style="list-style-type: none"> a. Unexpected finds procedure; b. Monitoring during works; or c. Formal salvage excavation.

Notes:

Any works, development or other activity that will impact a known site of Aboriginal cultural heritage significance may require approval under the *National Parks and Wildlife Act 1974 (NSW)*, in addition to any approval requirements of the consent authority under the relevant Precinct Plan.

Applicants should consult with Heritage NSW to determine requirements for assessment and approval where developments or other works are to be carried out on or near Aboriginal heritage sites identified on the Aboriginal cultural heritage sites figure, in the relevant Precinct Schedule.

The consent authority or Heritage NSW may require additional investigations to be undertaken as part of a DA to confirm the presence of Aboriginal cultural heritage on the land. Where works uncover items that may be Aboriginal cultural heritage, the proponent is to consult with Heritage NSW and the consent authority to determine an appropriate course of action.

3.2 Non-Aboriginal heritage

European settlement began in the area in the early 1800s with the first land grant given to James Badgery in 1809. The next settlers established large rural estates and set up local agricultural and pastoral economies. Some large estates were subdivided from the 1850s and this attracted small-scale farmers and led to the formation of village centres, including Luddenham and Bringelly. While land continued to be subdivided and developed, the rural character and agricultural uses have remained, together with some early buildings and structures.

Within an undeveloped area, the likelihood for historic archaeology may seem low, however evidence of original homesteads, agricultural structures and other land occupation may still remain. These relics need to be sustainably managed and, where possible, retained on site to conserve their significance.

3.2.1 Objectives

- O1. Retain and conserve heritage items and places of cultural significance.
- O2. Ensure development in the vicinity of heritage items complements, is designed and sited to protect the heritage significance of the item and its setting.
- O3. Ensure adequate protection and appropriate management of archaeological resources.
- O4. Ensure as much archaeology of Local, State, and potential National heritage significance is retained in situ and interpreted within the new developments.
- O5. Ensure heritage remains relevant through long-term heritage conservation outcomes to reflect the history of the Aerotropolis area.

3.2.2 Performance Outcomes and Benchmark Solutions

3.2.2	Performance Outcome	Benchmark Solution
PO1	Local heritage is conserved with support from a Conservation Management Plan.	<ol style="list-style-type: none"> 1. Existing heritage items and their significant elements are conserved and well managed. 2. Development on land with heritage significance or development containing heritage items is based on the understanding and conservation of the heritage significance of the item, being sympathetic and respectful to the value of heritage places.
PO2	Heritage items are used for purposes appropriate to their heritage significance, including adaptive reuse.	<ol style="list-style-type: none"> 1. The heritage significance and use of the building is interpreted on site. Interpretation of the use may include the use of historic artefacts, the in-situ retention of machinery and signage or artistic interpretation.
PO3	Inappropriate or unsympathetic alterations and additions of heritage items are removed, and significant missing details and building elements are reinstated.	<ol style="list-style-type: none"> 1. Alterations and additions do not dominate or detract from the original building in terms of scale, materials, siting, landscaping and views. 2. Any unsympathetic or inappropriate previous alterations or additions are removed.
PO4	Sufficient curtilage around an item is maintained to minimise the impact of new development and respect the relationship	<ol style="list-style-type: none"> 1. Proposals for subdivision appropriately define the setting or 'curtilage' for any heritage item through support of a Heritage Impact Assessment. 2. In determining the curtilage of a heritage building, the following criteria should be used: <ol style="list-style-type: none"> a. The original form and function of the heritage building should inform the curtilage. For example, it

3.2.2	Performance Outcome	Benchmark Solution
	between the item and its surrounds.	<p>may be appropriate that a larger curtilage be maintained around a former rural homestead than that of a suburban building;</p> <ul style="list-style-type: none"> b. Outbuildings: A heritage building, and its associated outbuildings are retained on the same allotment; and c. Gardens, trees, fencing, gates, and archaeological sites: Features considered valuable in interpreting the history and in maintaining the setting of a building are identified and, where possible, retained within the curtilage. <p>3. New development is of a scale and form that does not detract from the historical significance, appearance and setting of the heritage item. In this way, the following elements have been specifically considered:</p> <ul style="list-style-type: none"> a. Views and vistas to the heritage item from roads and other prominent areas are retained as key elements in the landscape; b. If the development site can be viewed from a heritage item(s), any new development is designed and sited so it is not obtrusive when it is viewed in relation to the heritage item(s); and c. Curtilages are retained around all listed items sufficient to ensure views to them and their relationship with adjacent settings are maintained.
PO5	The impact of new development adjacent to or within the vicinity of a heritage item is minimised.	<ul style="list-style-type: none"> 1. Development in the vicinity of a heritage item minimises the impact on the setting of the item by: <ul style="list-style-type: none"> a. Providing an adequate area around the building to allow interpretation of the heritage item; b. Retaining original or significant landscaping (including plantings with direct links or association with the heritage item); c. Protecting (where possible) and allowing the interpretation of archaeological features; and d. Retaining and respecting significant views to and from the heritage item. 2. Design of new buildings in the vicinity of heritage items should be of a contemporary design in recessive colours and materials that do not overwhelm any adjacent heritage items. 3. Open spaces should be planned around heritage items to ensure it maintains its prominent siting and encourages opportunities for active and passive interaction with the place. 4. Highly activated urban areas in the vicinity of a heritage item must be carefully and respectfully sited, designed and landscaped to ensure protection of the heritage values of the heritage item.
PO6	Protection, retention, and adaption of places with potential to have heritage significance but are not identified as heritage items or places is considered.	<ul style="list-style-type: none"> 1. The retention and protection of places with heritage potential (see 'unlisted items' in Figure below) is encouraged. Note: Where it is proposed to develop or demolish a building, relic or structure not listed in the Aerotropolis SEPP that is identified as a potential/unlisted item in Figure 3 below or older than fifty years, the consent authority may require the submission of a Heritage Impact Statement to determine the heritage significance and values and minimise

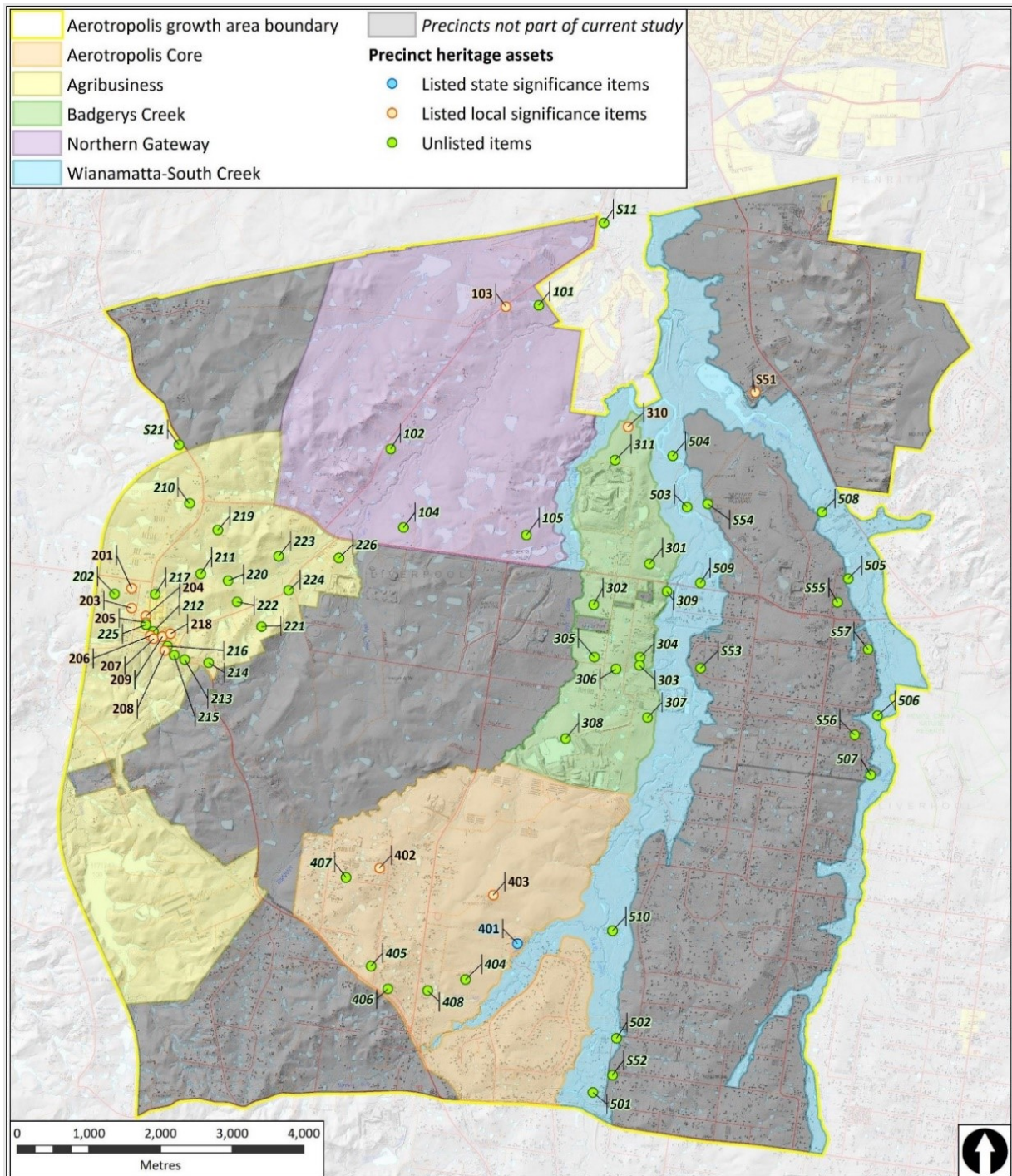
3.2.2	Performance Outcome	Benchmark Solution
		or mitigate the impact of the development upon the significance of the building, relic or structure.
PO7	The subdivision of land on which a heritage building is located does not isolate the building from its setting or context, or adversely affect its amenity or privacy.	<ol style="list-style-type: none"> 1. Any new development is positioned to ensure the visual prominence, context and significance of the existing heritage item and its setting are maintained. 2. Any new development reflects the predominant front setbacks in the streetscape. 3. Front and rear setbacks are adequate to ensure the retention of the existing landscape character of the heritage item or conservation area and important landscape features. 4. Any significant historical pattern of subdivision and lot sizes is to be retained, if appropriate. 5. Subdivision or site amalgamation involving heritage items or contributory buildings do not compromise the setting or curtilage of buildings on or adjoining the site.
PO8	Archaeological sites are conserved, and significant archaeological remains are protected and interpreted.	<ol style="list-style-type: none"> 1. Any works that may impact a known, or potential, archaeological site must have an archaeological assessment undertaken to determine the significance and correct management requirements. 2. Any land with the potential to contain archaeological remains is to be subject to detailed investigations and assessment to determine the level of archaeological intervention required. Intervention may include the following: <ol style="list-style-type: none"> a. Unexpected finds procedure; b. Monitoring during works; or c. Formal salvage excavation.

Note:

This DCP is also consistent with the Australia International Council on Monuments and Sites (ICOMOS) Charter for Conservation of Places of Cultural Significance (The Burra Charter) 2013 which is widely accepted as an industry standard for heritage conservation in Australia. The provisions in this section of the DCP are based on the underlying principles that:

- O2. Change should be based on an understanding of heritage significance; and
- O3. The level of change should respect the heritage significance of the item or area.

Figure 3 Heritage Items within Initial Aerotropolis Precincts (Listed and Unlisted/Potential)



Source: Extent Heritage – Draft Aboriginal and Non-Aboriginal Cultural Heritage Assessment

4 Stormwater, Water Sensitive Urban Design and Integrated Water Management

4.1 Waterway Health and Riparian Corridors

Freshwater waterways are important features of Western Sydney and riparian areas are the interface between land-based and waterway ecosystems. Riparian corridors provide a variety of functions within urban landscapes. The Natural Resources Access Regulator defines a riparian corridor as “a transition zone between the land, also known as the terrestrial environment, and the river or watercourse or aquatic environment”. They play a major role in bank stabilisation, reducing erosion scour and sedimentation problems within rivers and creeks. Vegetated areas along the creek lines function as ‘buffer zones’ to surrounding land and help filter nutrients, pollutants and sediments before they reach the creek itself and degrade the quality of water flowing throughout the Aerotropolis. In the Cumberland landscape these riparian areas may represent the main vegetation community patches left in the landscape, so they are vital for connectivity.

Several flow components are critical for the protection or restoration of riparian corridors, river health, associated ecology, and biodiversity. These include daily flows, baseflows, magnitude and frequency of high (90th percentile) and low (10th percentile) spells, magnitude, frequency of freshes (between 75-90th percentiles) and periods where the flow ceases. The Aerotropolis Precinct Plan specifies numerical performance criteria that has been developed by the NSW Government (DPIE, 2021) for each of these flow components.

4.1.1 Objectives

- O1. Waterways and riparian corridors are protected and restored through a risk-based approach that mitigates development impacts as documented in the NSW Government’s Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions.
- O2. Protect and restore native and riparian vegetation to improve the connectivity, ecological condition, and function of ecosystems.
- O3. Ensure that development does not adversely affect aquatic fauna.
- O4. Manage indirect and ongoing impacts of development on waterways to ensure water quality and flow objectives established in the Precinct Plan are achieved and maintained.
- O5. Enhance sustainability and liveability by embedding Aboriginal cultural knowledge into water management and infrastructure solutions and improving and managing access to waterways for recreation, tourism, and cultural activities.
- O6. Effectively manage indirect and ongoing impacts of development adjacent to waterways to ensure vegetation in the riparian area, aquatic fauna, water quality and quantity is protected and maintained.
- O7. Reinststate more natural conditions in highly modified waterways and riparian land while not increasing flood risk.

4.1.2 Performance Outcomes and Benchmark Solutions

4.1.2	Performance Outcome	Benchmark Solution
PO1	Development retains and restores native vegetation and riparian corridors.	<ol style="list-style-type: none"> 1. DAs maintain and protect waterways in accordance with the following guidelines: <ol style="list-style-type: none"> a. All watercourses within High Ecological Value (HEV - as per the Aerotropolis Precinct Plan) areas are to be retained and rehabilitated with appropriate Vegetation Riparian Zone (VRZ – waterways to be retained as per the <i>Water Management Act 2000</i>) requirements;

4.1.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> b. Strahler Order 1 watercourses outside HEV areas in a catchment less than 15 ha can be removed/piped/realigned; c. Strahler Order 1 and 2 watercourses outside HEV areas with a catchment larger than 15 hectares must be reinstated as a naturalised creek/drainage line with and appropriate VRZ (they can be realigned/moved); d. Strahler Order 3 and 4 watercourses must be retained and rehabilitated with an appropriate VRZ to return the waterway to a natural state (for benchmarks for the natural state of riparian corridors and waterways are available, refer to external documents referenced in Appendix E of this DCP); and e. Potential flood impacts must be considered for restored creeks. <p>2. Retain areas of the Proteaceae shrubs for the Eastern Pygmy Possum <i>Cercartetus nanus</i> along or adjacent to riparian areas to improve and maintain habitat connectivity.</p>
PO2	Protect key aquatic habitat where it occurs.	<ul style="list-style-type: none"> 1. Where aquatic habitat occurs, proposed development responds to current policies (refer to external documents referenced in Appendix E of this DCP) for aquatic friendly instream structures and bridges. 2. Aquatic fauna is rehabilitated. 3. Existing habitat, such as fallen debris, is retained.
PO3	Development provides increased connectedness to high quality passive open space and the blue-green grid.	<ul style="list-style-type: none"> 1. Waterway crossings such as bridges are to be provided to retain ecological connectivity and water quality. 2. Road crossings across a waterway of Strahler Order 2 or higher are to be designed to minimise impacts to vegetated riparian areas and species movements in accordance with NSW Department of Primary Industries' requirements to maintain fish passage.

4.2 Existing Artificial Waterbodies

Artificial waterbodies, such as farm dams, are an important landscape feature of the Western Parkland City. While existing dams were constructed to provide water for stock and irrigation, they can also provide significant aesthetic benefits and ecological habitat as well as playing a role in water retention and water quality functions to protect waterway health.

A key part of the landscape-led design approach for the Western Parkland City is to, where appropriate, repurpose farm dams as water in the landscape features. As most farm dams have not been designed for such purposes within an urban environment, many will need to be redesigned to address issues such as water quality, safety, algal blooms and weed growth.

Artificial waterbodies considered suitable and desirable for retention are mapped in the Precinct Plan. Dams must be retained as part of development proposals.

4.2.1 Objectives

- O1. Facilitate the appropriate preservation of existing artificial waterbodies mapped in the Precinct Plan as part of the unique character of the landscape.
- O2. Protect aquatic ecology in the process of removal of farm dams and other artificial waterbodies.

4.2.2 Performance Outcomes and Benchmark Solutions

4.2.2	Performance Outcome	Benchmark Solution
PO1	<p>Artificial waterbodies mapped for retention in the Precinct Plan are retained through the development process.</p> <p>Note: A water licence from the Natural Resources Access Regulator (NRAR) may be required for artificial water bodies.</p>	<ol style="list-style-type: none"> 1. Artificial waterbodies mapped in the Precinct Plan are incorporated as a key landscape feature in development proposals. 2. Developments that contain artificial water bodies to be retained must ensure the artificial water bodies meet the following criteria: <ol style="list-style-type: none"> a. Do not exacerbate flood risk; b. Are located on a Strahler order 1, 2 or 3 watercourse; c. Are located within open space areas, and d. Have a catchment area of 1-3% of upstream area. 3. Artificial waterbodies identified for potential retention are to be guided by the Aboriginal cultural heritage provisions of this DCP.
PO2	<p>Retained artificial waterbodies are rehabilitated to achieve good quality water within the new environment.</p>	<ol style="list-style-type: none"> 1. Artificial waterbodies retained in the landscape are to be guided by the report <i>Western Parkland City: Farm Dams as Water in the Landscape Guide – Final Report</i>. 2. Retained artificial waterbodies are to address: <ol style="list-style-type: none"> a. Water quality in accordance NSW Government water quality and flow objectives; b. Flushing/residence time; c. Stratification; d. Algal blooms; e. Weed growth f. Exotic pests; and g. adaptive management. 3. Retained artificial waterbodies are to be integrated into recreational areas (Figure 4) by: <ol style="list-style-type: none"> a. Providing access to 1 edge of the dam; b. Allowing continuous riparian vegetation opposite the accessible edge of the dam; and c. Measures to ensure water levels are maintained under varying climatic conditions. 4. Demonstrate that any supplementing of water for retained artificial waterbodies can be supplied from non-potable sources such as recycled water, roof water, harvested stormwater or other non-licensed water sources and treated to comply with <i>Australian Guidelines for Recycled Water</i>.
PO3	<p>Retained artificial waterbodies are designed to ensure public safety by addressing failure risk and wildlife attraction.</p>	<ol style="list-style-type: none"> 1. DAs which include the retention of existing artificial waterbodies are to be supported by a risk assessment to address public safety, failure risk and wildlife attraction. The risk assessment should detail recommended management and mitigation measures and any ongoing maintenance requirements. 2. Retained waterbodies address the potential impact of failure and are accompanied by hydraulic modelling in accordance with Dam Safety NSW requirements. If assessed as having failure consequences, the waterbodies would need to be registered with Dam Safety NSW, remediated structurally, and require ongoing asset management and reporting.

4.2.2	Performance Outcome	Benchmark Solution
PO4	The impacts of removal or modification of artificial water bodies are managed to protect water quality, native aquatic ecology (in particular, fauna) and wildlife attraction.	1. Proposals for removal of artificial waterbodies are accompanied by a Dam De-watering Plan.

Figure 4 Retained Artificial Waterbodies – Samples from Existing Farm Dams in the Wianamatta-South Creek Catchment



Source: INSW/Tyrell Studios

4.3 Stormwater Management and Water Sensitive Urban Design

The urbanisation of the catchment will increase the flow of stormwater into the waterways of the Aerotropolis. In the long term, this would destabilise the creek lines causing ongoing erosion, loss of riparian corridors and degrading waterway health. Best practice approaches to stormwater management requires a focus on stormwater volume reduction so the waterways and riparian corridors of the Aerotropolis retain their core ecological and landscape values. Without these core natural values, the NSW Government's vision for a cool, green parkland city cannot be realised.

The performance outcomes and benchmarks solutions for stormwater management and water sensitive urban design respond to the waterway health objectives and stormwater management targets established by NSW Government in accordance with the *Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions*.

To support implementation, the NSW Government will release the *Technical guide to demonstrate compliance with Wianamatta-South Creek waterway health objectives and stormwater management targets* (DPIE, 2021). This guide outlines design principles for water sensitive urban design, compliance pathways for achieving stormwater management targets under the range of urban typologies within the Aerotropolis and requirements for demonstrating how developments comply with the performance criteria for ambient water quality and stream flows specified in the Precinct Plan.

The Stormwater and Integrated Water Cycle Strategy (Sydney Water, 2021) outlines overarching principles for an integrated water management strategy for the Aerotropolis.

4.3.1 Objectives

- O1. Ensure that contemporary water sensitive urban design, specific to the Wianamatta-South Creek Catchment, informs the design of new development to optimise water, cooling, and greening outcomes.
- O2. Ensure that stormwater management does not adversely affect water quality or availability including groundwater.
- O3. Ensure overland flows are conveyed in a safe manner to the trunk drainage system.
- O4. Protect and maintain waterway health within Wianamatta-South Creek and its tributaries by managing development impacts and ensuring the performance criteria for ambient water quality and streams flows are achieved.
- O5. Land use planning and urban development is integrated with water cycle management including:
 - a. Service planning for potable water, recycled water and wastewater;
 - b. Effective management of stormwater flow volume and quality; and
 - c. Effective water management for healthy waterways and riparian corridors at a range of scales.

4.3.2 Performance Outcomes and Benchmark Solutions

4.3.2	Performance Outcome	Benchmark Solution	
PO1	Development is to demonstrate compliance with the construction stormwater quality targets at the lot, estate, or regional level to ensure the NSW Government’s water quality and flow related objectives are achieved		Stormwater Quality Target – Construction Phase
		Total suspended solids (TSS) and pH	90% reduction (minimum) in mean annual load from unmitigated development
		Oil, litter and waste contaminants	No release of oil, litter or waste contaminants
		Stabilisation	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not, or is not likely to, result in visible evidence of soil loss caused by sheet, rill or gully erosion or lead to sedimentation water contamination.

4.3.2	Performance Outcome	Benchmark Solution																									
PO2	Development is to demonstrate compliance with the stormwater quality targets at the lot, estate, or regional level to ensure the NSW Government's water quality and flow related objectives are achieved	<table border="1"> <thead> <tr> <th colspan="2" data-bbox="600 304 906 383">Stormwater Quality Target – Operational Phase</th> </tr> </thead> <tbody> <tr> <td data-bbox="600 389 906 533">Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)</td> <td data-bbox="911 389 1453 533">90% reduction (minimum) in mean annual load from unmitigated development</td> </tr> <tr> <td data-bbox="600 539 906 618">Total Suspended Solids (TSS)</td> <td data-bbox="911 539 1453 618">90% reduction in mean annual load from unmitigated development</td> </tr> <tr> <td data-bbox="600 624 906 703">Total Phosphorus (TP)</td> <td data-bbox="911 624 1453 703">80% reduction in mean annual load from unmitigated development</td> </tr> <tr> <td data-bbox="600 710 906 788">Total Nitrogen (TN)</td> <td data-bbox="911 710 1453 788">65% reduction in mean annual load from unmitigated development</td> </tr> </tbody> </table>		Stormwater Quality Target – Operational Phase		Gross Pollutants (anthropogenic litter >5mm and coarse sediment >1mm)	90% reduction (minimum) in mean annual load from unmitigated development	Total Suspended Solids (TSS)	90% reduction in mean annual load from unmitigated development	Total Phosphorus (TP)	80% reduction in mean annual load from unmitigated development	Total Nitrogen (TN)	65% reduction in mean annual load from unmitigated development														
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PO4	Water Sensitive Urban Design (WSUD) principles and approaches are integrated into the design of the development as described in the	<p data-bbox="600 1783 1453 1850">1. A suite of water sensitive urban design measures to retain stormwater within the development footprint are applied, including:</p> <table border="1" data-bbox="600 1856 1453 2024"> <thead> <tr> <th data-bbox="600 1856 783 1901">Component</th> <th data-bbox="788 1856 1453 1901">Potential Measure</th> </tr> </thead> <tbody> <tr> <td data-bbox="600 1908 783 2024">Roof</td> <td data-bbox="788 1908 1453 2024"> <ul style="list-style-type: none"> a. Compact development typologies; b. Rainwater and stormwater harvesting connected to appropriate reuse; or </td> </tr> </tbody> </table>		Component	Potential Measure	Roof	<ul style="list-style-type: none"> a. Compact development typologies; b. Rainwater and stormwater harvesting connected to appropriate reuse; or 																				
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4.3.2	Performance Outcome	Benchmark Solution	
	Precinct Plan's Draft Stormwater and Water Cycle Management Study Interim Report.		c. Green walls.
		Hardstand	a. Diversion of runoff to deep soil/landscaped areas; b. Bioretention; or c. Stormwater harvesting.
		Driveways, carpark, and crossovers	a. Diversion of runoff to deep soil/landscaped areas; b. Permeable pavement; or c. Bioretention.
		Landscaped areas	a. Infiltration into deep soil; b. Irrigation from on-site rainwater tanks; c. Wetlands and waterbodies (where appropriate); d. Bioretention; or e. Use of dips and concave spaces in the landscape to encourage water retention.
		Public Open Space	a. Infiltration into deep soil; b. Irrigation with collected water from regional/precinct stormwater harvesting; c. Estate/precinct scale stormwater harvesting and irrigation; d. Wetlands and waterbodies; or e. Bioretention.
		Public roads	a. Passively irrigated street trees; or b. Bioretention.
		<ol style="list-style-type: none"> 2. Detail must be provided on the approach to WSUD (including conceptual design details of the stormwater drainage, WSUD systems and on-site detention) and how the approach will be implemented, including detail on ongoing management and maintenance responsibilities. 3. Detail must be provided on how the approach to WSUD complies with the stormwater management targets. 4. Infiltration must not increase existing urban salinity or result in increased salt loads in waterways, wetlands, drainage lines or soils. 5. Permeable paving must be appropriately designed to include under-drainage systems that collect water for reuse, discharge, or infiltration into the subsoil. 6. Runoff directed onto permeable pavement areas is to be minimised. 	
PO5	WSUD infrastructure is to be adopted at a range of scales, including allotment, street, estate, precinct and regional	<ol style="list-style-type: none"> 1. WSUD infrastructure should be integrated with the landscape and maximise evaporative losses to reduce development flows. Vegetated WSUD measures and rainwater/stormwater reuse are preferred. 2. Design principles for WSUD infrastructure, should be consistent with specifications in the Technical guide to demonstrate 	

4.3.2	Performance Outcome	Benchmark Solution
	level to treat stormwater.	compliance with Wianamatta-South Creek waterway health objectives and stormwater management targets (DPIE, 2021).
PO6	Recycled water schemes are to be supplied by stormwater harvesting and or recycled water, with the water infrastructure connecting to the scheme(s).	<ol style="list-style-type: none"> 1. Where a recycled water scheme is planned, developments must: <ol style="list-style-type: none"> a. Connect all non-potable demands and fixtures to the recycled water network; b. Connect street tree irrigation to the recycled water network; c. Not top up rainwater tanks with recycled water unless approved by Sydney Water; and d. Design recycled water reticulation to Sydney Water standards. 2. Be designed to supplement stormwater harvesting with recycled water in a way that does not compromise water quality and flow-related objectives.
PO7	Development is designed to safely convey overland flows in accordance with <i>Stormwater and Integrated Water Management Plan</i> (Sydney Water 2021) and the safety standards included in <i>Australian Rainfall and Runoff Guidelines 2019</i> .	<ol style="list-style-type: none"> 1. Trunk drainage capable of conveying 1% AEP flow shall be designed as naturalised channels connecting to the existing stream system. 2. Trunk drainage is to be located through natural creek lines or constructed natural drainage channels to help detain flows and contribute to biodiversity, public amenity and safety. 3. Designs shall ensure flows are safely conveyed to avoid unsafe conditions for pedestrians and vehicles and to meet the requirements of <i>Australian Rainfall & Runoff Guidelines 2019</i>. Naturalised channels will commence when 12-15 ha of catchment contribute runoff flows.
PO8	Stormwater and WSUD management measures manage the impact of urban salinity on waterways, groundwater dependent ecosystems, soils, and urban development.	<ol style="list-style-type: none"> 1. Layout and design of WSUD systems must not increase the salinity hazard of the natural and build environment. 2. Stormwater treatment measures, including infiltration, stormwater harvesting and reuse: <ol style="list-style-type: none"> a. Responds to salinity risk, and 4. Ensures that existing urban salinity, salt loads in waterways, wetlands drainage lines and soils, are not exacerbated.
PO9	Stormwater management systems to be designed to minimise maintenance and total life cycle costs.	<ol style="list-style-type: none"> 3. Stormwater treatment measures are designed and maintained in accordance with the relevant <i>Integrated Water Management Plan</i> and the relevant Council standard drawings and guidelines or alternative approved Technical Design guidelines.
PO10	Development is consistent with the Precinct Plan Draft Stormwater and Water Cycle Management Study Interim Report, considering the ephemeral nature of the waterways in	<ol style="list-style-type: none"> 1. Development responds to planned regional stormwater infrastructure to achieve the overall water quality and flow objectives established for the Precinct. 2. Development has used the <i>Risk-based Framework for Considering Waterway Health Outcomes in Strategic Land-use Planning Decisions</i> to manage the cumulative impacts of stormwater discharges from development. 4. Undertake bed and bank stabilisation works to prevent erosion and provide habitat for fish and other aquatic life.

4.3.2	Performance Outcome	Benchmark Solution
	<p>planning of the stormwater flow paths and consequent volume and timing of discharges.</p>	
PO11	<p>Achieve the urban typology (site coverage) target and base scenario by integrating design and planning of built form, open space, trees, and landscaping.</p>	<ol style="list-style-type: none"> 1. Use pervious surfaces and permeable pavement to contribute to site permeability in appropriate locations. 2. Enhanced urban typology (site coverage) outcomes through additional design, including: <ol style="list-style-type: none"> a. Use of permeable parking court as an aid to increase permeability and reducing development costs associated with basement parking; b. Increase permeability through perimeter planting and permeable paving; c. Use green walls and/or roofs for greening and water capture/loss in addition to tree planting in deep soil."; d. Use on site storage tanks to capture and release water on building roof to provide evaporative cooling and water loss to the atmosphere; and 3. Create a central courtyard and perimeter with deep soil to maximise perviousness.

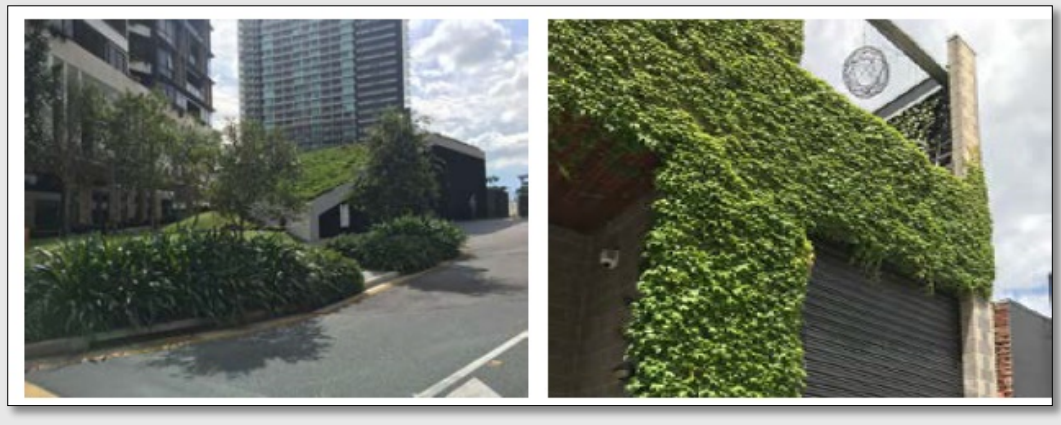
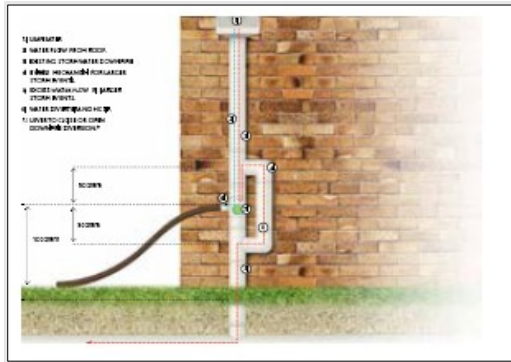


Figure 5 Green Roofs – Samples



Figure 6 Vegetated or Grassed Swales

Figure 7 Downpipe Diverters



4.4 Management and Maintenance of Stormwater Infrastructure

The NSW Government waterway health objectives require efficient and effective delivery, management, and maintenance of stormwater infrastructure (including green infrastructure) to ensure sustained protection of waterways in the Aerotropolis. In some cases, a regional approach to stormwater management is the preferred option to optimise waterway health outcomes.

In this scenario, regional infrastructure, such as trunk drainage and regional treatment systems could be delivered, owned, and maintained by the relevant stormwater authority. Where infrastructure is in private ownership or on private land, there is a need for access rights by the relevant stormwater authority for compliance purposes. Local stormwater infrastructure, including street drainage and street trees, also requires regular management and maintenance to remain effective. These assets would be owned and managed by local councils.

4.4.1 Objectives

- O1. Establish a framework for the delivery of regional stormwater infrastructure in line with urban development.
- O2. Ensure that stormwater assets (including land and infrastructure) are effectively managed and maintained by a stormwater authority to ensure NSW Government waterway health objectives are met and public safety, including wildlife strike risk, is appropriately managed.
- O3. Facilitate opportunities for public ownership of stormwater assets (including land and infrastructure) to optimise waterway health outcomes and multi-functionality of assets.
- O4. Improve efficiency in the delivery of stormwater infrastructure for the Aerotropolis, enabling urban development to proceed in line with precinct planning.

4.4.2 Performance Outcomes and Benchmark Solutions

4.4.2	Performance Outcome	Benchmark Solution
PO1	<p>Stormwater assets (including land and infrastructure) are managed and maintained by the relevant stormwater authority.</p> <p>Note: Regional Infrastructure stormwater assets:</p> <ul style="list-style-type: none"> • Regional stormwater basins (mapped in the <i>Integrated Water Management Plan</i>) • Trunk drainage servicing catchments of 15ha and greater <p>Local Infrastructure stormwater assets:</p> <ul style="list-style-type: none"> • Stormwater basins not mapped in the <i>Integrated Water Management Plan</i> • Drainage servicing catchments less than 15ha • Street trees 	<ol style="list-style-type: none"> 1. Provide an allocation of sufficient suitably located land area to allow for stormwater assets. 2. Where stormwater assets are not dedicated to the stormwater authority, appropriate legal access rights are required for ongoing management and maintenance. Access is required for the purpose of carrying out restoration, rehabilitation and revegetation for riparian management, creek hydraulics for stormwater flows, monitoring for water quality conditions and ecological state, necessary to deliver the NSW Government water quality and flow objectives. Where this option is chosen, legal right of access must be done in consultation with the stormwater authority.
PO2	<p>Development provides opportunities to enable public ownership of waterways.</p>	<ol style="list-style-type: none"> 1. For development to which Part 3 of this DCP applies, the design of development shall allow for the dedication of the vegetated riparian zone of all waterways to the relevant stormwater authority at no cost. The extent of the riparian zone to be dedicated is defined in the relevant Precinct <i>Integrated Water Management Plan</i>.

4.4.2	Performance Outcome	Benchmark Solution
		<p>2. For development to where Control (1) applies, where the riparian zone identified in the <i>Integrated Water Management Plan</i> remains in private ownership, a legal right of access is required for the stormwater authority to undertake required revegetation, management, and maintenance works. The maximum area of land to be designated for access for this purpose is the vegetated riparian zone, for all waterways.</p> <p>Note: The relevant stormwater authority will only be responsible for undertaking defined waterway, stormwater, and riparian zone management activities on this land.</p>

5 Native Vegetation and Biodiversity

5.1 Deep Soil and Tree Canopy

5.1.1 Objectives

- O1. Provision of sufficient deep soil zones for enhanced tree canopy. (Refer to Section 3.2 of the Precinct Plan for more controls.)

5.1.2 Performance Outcomes and Benchmark Solutions

5.1.2	Performance Outcome	Benchmark Solution
PO1	Consolidate areas of deep soil and provide minimum dimensions which allow for sufficient tree planting.	<ol style="list-style-type: none"> 1. Consolidate deep soil areas by establishing these areas right up to abutting boundary walls and fence lines. 2. Consolidate deep soil in setback areas and locate with adjoining deep soil areas in adjoining properties. 3. Tree canopy is delivered by providing the minimum deep soil and tree planting rates as per Table 1. In addition to the requirements set out in this section, applicants must also have regard for the site coverage and pervious surface targets outlined in Section 14.1 of this DCP

Table 1 Tree canopy, deep soil and tree planting requirements for the Aerotropolis

Recommended Guidance	Minimum tree Canopy Target (% of site area)	Minimum deep soil (% of site area)	Minimum Tree Planting Rates*
Detached dwellings – single lots and free standing			
Less than 300m ²	20%	20%	For every 200m ² of site area, or part thereof, at least one small tree is to be planted in the deep soil area
300m ² – 600 m ²	25%	25%	For every 250m ² of site area, or part thereof, at least one medium tree is to be planted in the deep soil area
Greater than 600m ²	30%	30%	For every 350m ² of site area, or part thereof, at least two medium trees or one large tree is to be planted in the deep soil area
Attached dwellings – separate lots (or appearance of), separate driveway/parking, all dwellings face a public road			
Less than 150m ²	15%	15%	At least one small tree is to be planted in the deep soil area
150m ² – 300 m ²	20%	20%	For every 200m ² of site area, or part thereof, at least one small tree is to be planted in the deep soil area
Greater than 300m ²	25%	25%	For every 225m ² of site area, or part thereof, at least one medium tree is to be planted in the deep soil area
Multi-dwelling housing – strata/community lots, ground floor access, shared driveway parking, not all dwellings face public road			
Less than 1000m ²	20%	20%	For every 300m ² of site area, or part thereof, at least one medium tree is to be planted in the deep soil area

1000m ² – 3000 m ²	25%	25%	For every 200m ² of site area, or part thereof, at least one medium tree is to be planted in the deep soil area.
Greater than 3000m ²	30%	30%	For every 350m ² of site area, or part thereof, at least two medium trees or one large tree is to be planted in the deep soil area
Apartments – refer to requirements in the Apartment Design Guide			
Business Parks			
All lots	35% site area	25% site area	For every 300m ² of site area, at least two medium trees or one large tree is to be planted in the deep soil area
Industrial sites			
All lots	25% site area	15% site area	For every 400m ² of site area or part thereof, at least two medium trees or one large tree is to be planted in the deep soil area
Bulky Goods			
All lots	25% site area	15% site area. Minimum 6m dimension	For every 400m ² of site area or part thereof, at least two medium trees or one large tree is to be planted in the deep soil area

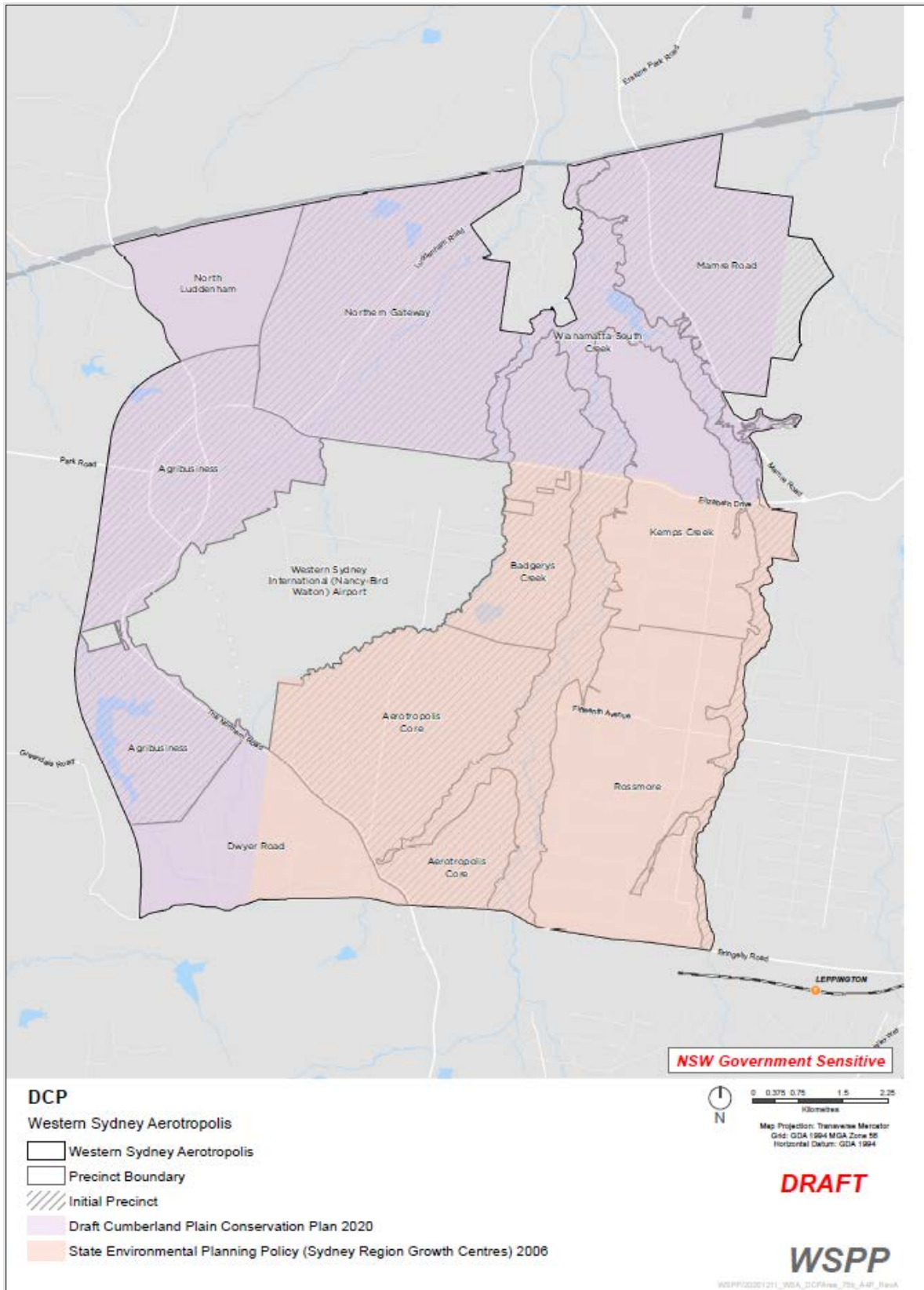
Notes*:

- Small trees are trees with a canopy spread of 6 metres or greater
- Medium trees are trees with a canopy spread of 8 metres or greater
- Large trees are defined as trees with a canopy spread of 12 metres or greater.

5.2 Protection of Biodiversity

Western Sydney is home to some of the last remaining critically endangered plant communities on the Cumberland Plain as well as other threatened flora and fauna. This remnant vegetation is identified by the Biodiversity Certification and Strategic Assessment programs that presently exist under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (Growth Centres SEPP) and the *Draft Cumberland Plain Conservation Plan (CPCP)*. This chapter comprises development controls applicable to land certified for development under the CPCP and land subject to the Growth Centres SEPP certification approval.

Figure 8 Map Biodiversity Certifications (Existing and Proposed) Overlaid on Precinct Boundaries



5.2.1 Objectives

01. Ensure consistency with the requirements of the relevant biodiversity certification for the subject land where applicable.

- O2. Ensure construction and operational works avoid and minimise impacts to native vegetation and ecological communities and mitigate residual impacts unable to be avoided or minimised.
- O3. Retain and protect native vegetation areas, particularly those with Aboriginal cultural value, and provide for areas with a size and configuration that will allow for the survival and improvement of the native vegetation communities.
- O4. Implement the Sydney Region Growth Centres Biodiversity Certification Order.

5.2.2 Performance Outcomes and Benchmark Solutions

Unless specified below, the benchmark solutions apply to both the Growth Centres SEPP certified land and land certified under CPCP.

5.2.2	Performance Outcome	Benchmark Solution
PO1	Development does not encroach on environmental protected land to ensure long-term viability and connectivity of the lands.	<ol style="list-style-type: none"> 1. Asset Protection Zones (APZs) for bushfire protection purposes are to be located wholly within land zoned for urban purposes and in accordance with the biodiversity certification. 2. Stormwater infrastructure associated with a proposed development, including pipelines and detention basins, are to be located in land zoned for urban purposes and in accordance with the biodiversity certification.
PO2	Populations of targeted threatened species are retained, and the condition of suitable habitat improves within areas of the Cumberland subregion most likely to support long-term viability	<ol style="list-style-type: none"> 1. Mitigation to be undertaken in accordance with the following best practice guidelines for threatened ecological communities (TEC): <ol style="list-style-type: none"> a. <i>Best Practice Guidelines: Cooks River/Castlereagh Ironbark Forest</i> (NSW Department of Environment and Climate Change, 2008) within and adjacent to the TEC; and b. <i>Recovering Bushland on the Cumberland Plain: Best Practice Guidelines for the Management and Restoration of Bushland</i> (NSW Department of Environment and Climate Change, 2005). 2. Site design allows public access to fencing for ongoing maintenance.
PO3	Existing weeds are appropriately managed to reduce threats to biodiversity.	<ol style="list-style-type: none"> 1. Weed Eradication and Management Plans on land adjacent to areas avoided for biodiversity are to include specific measures to manage the spread of weeds on known populations of the following threatened flora species: <i>Acacia bynoeana</i>, <i>Cynanchum elegans</i>, <i>Dillwynia tenuifolia</i>, <i>Genoplesium baueri</i>, <i>Grevillea juniperina</i> subsp. <i>juniperina</i>, <i>Grevillea parviflora</i> subsp. <i>parviflora</i>, <i>Persoonia nutans</i> and <i>Pultenaea parviflora</i>. 2. Subdivision design and bulk earthworks must minimise the likelihood of environmental weed dispersion and include measures to eradicate environmental weeds in accordance with the Council's weed policy. 3. Weeds of National Significance, weeds on the <i>National Environmental Alert List</i> under the <i>National Weeds Strategy</i>, and Priority Weeds for the appropriate Local Land Services region (as listed on the NSW Weed Wise website) are to be managed and eradicated. Proponent to reference the NSW Weed Wise website for current weed identification and management approaches.

PO4	Pests are managed to reduce threats to biodiversity.	<ol style="list-style-type: none"> 1. Pest control techniques implemented during and post construction are to be in accordance with regulatory requirements for chemical use, are to reduce the risk of secondary poisoning (e.g. from Pindone or second-generation rodenticides), and address the relevant pest control strategy. Land located in the certified-urban capable area under the <i>Draft Cumberland Plain Conservation Plan</i> is to be consistent with any requirements in the forthcoming <i>Cumberland Plain Conservation Plan Pest Animal Control Implementation Strategy</i>. 2. Appropriate fencing and containment for domestic animals such as cats and dogs are to be considered where permitted and appropriate as per the Council's guidelines.
PO5	Development facilitates the connected movement of native animals through the landscape.	<ol style="list-style-type: none"> 1. Avoid impacts to habitat features which provide essential habitat for native fauna including large trees and dead trees (>50cm diameter at breast height) and avoid impacts to soil within the Tree Protection Zone (TPZ) of the retained trees. 2. Movement of fauna is facilitated within and through wildlife corridors by: <ol style="list-style-type: none"> a. Ensuring that development, services and landscaping associated activities do not create barriers to the movement of fauna along and within wildlife corridors; and b. Separating fauna from potential construction hazards through the pre-construction and construction process. 3. Adopt and implement open structure design for roads adjacent to known populations of the Cumberland Plain Land Snail in accordance with actions under the NSW Government's <i>Saving Our Species</i> program.
PO6	Within land subject to the <i>Draft Cumberland Plain Conservation Plan</i> only, development adjoining conservation areas provides ecological setbacks to targeted threatened species.	<ol style="list-style-type: none"> 1. The following threatened species require setbacks if they are identified within the development area: <ol style="list-style-type: none"> a. Grey-headed flying fox: <ol style="list-style-type: none"> i. Grey-headed flying fox camp requires 100m setback to any buildings and development; ii. The setback area should be maintained free of flying fox roosting habitat; and iii. A flying fox management plan should be provided to demonstrate management and mitigation measures. b. Raptors: <ol style="list-style-type: none"> i. Raptor nests require a 500m circular setback from where nests are in extensive undisturbed bushland; and ii. Where nests are located closer to existing developments, a minimum circular setback distance of 250m should be maintained along with an undisturbed corridor at least 100m wide extending from the nest to the nearest foraging grounds.
PO7	Noise and light adjacent, and near, conservation areas does not result in	<ol style="list-style-type: none"> 1. High intensity lighting including industrial or commercial lighting, sports field lighting, lighting within carparking areas and associated with any industrial or commercial-

	<p>any disturbance to wildlife.</p>	<p>scale retail development shall be designed to avoid light spill into adjoining parks and biodiversity areas (AS 4282 Control of the Obtrusive Effects Of Outdoor Lighting, or updates to that standard, are to be considered as a minimum).</p> <ol style="list-style-type: none"> 2. Install warm coloured LED street lighting where a development footprint contains or is within 100 metres of known microbat colonies or habitat likely to support microbat colonies to deter insects. 3. Manage light spill and noise producing activities where wildlife impacts are likely to arise from the proposed development and where development is adjacent to avoided land. Measures shall include appropriate noise treatment barriers along major roads and other light and noise attenuation mitigation measures. 4. Ensure that any residual noise impacts on wildlife arising from development are appropriately mitigated.
<p>PO8</p>	<p>Traffic calming measures in areas adjacent to conservation areas mitigate risk of vehicle strike on fauna.</p>	<ol style="list-style-type: none"> 1. In all development areas which are not subject to wildlife exclusion fencing, traffic calming measures include the following: <ol style="list-style-type: none"> a. Apply speed limit restrictions on local roads for areas adjacent to open space and land identified as avoided under CPCP; b. Signpost perimeter roads and roads adjacent to wildlife habitat areas in accordance with Austroads, RMS technical guidelines, Council Guidelines and relevant Australian Standards; and c. Install traffic calming devices such as speed humps and audible surfacing along perimeter roads adjacent to wildlife habitat. 2. Install fauna-friendly road design structures such as underpasses, fauna bridges and overpasses consistent with any approval conditions. Reference to the RMS Biodiversity Guidelines is to be made. 3. Ensure that appropriate mitigation strategies (including fauna-sensitive road design elements) are employed to minimise environmental impacts such as vehicle strike during and after road construction and upgrading. 4. Signpost perimeter roads and roads adjacent to wildlife habitat areas in accordance with Austroads, RMS technical guidelines, Council Guidelines and relevant Australian Standards.

5.3 Protection of Trees and Vegetation

This section applies to land identified as avoided land under the Strategic Conservation Planning SEPP. It also applies to the removal of vegetation on land not subject to an existing biodiversity certification approval.

5.3.1 Objectives

- O1. Conserve and manage existing vegetation and contribute to the increase of habitat and tree canopy cover within the Aerotropolis.
- O2. Retain and preserve significant trees and other vegetation to contribute to the Western City Parkland vision, vegetated ridgelines, and urban cooling and to mitigate effects of climate change.

- O3. Protect and enhance native vegetation communities, threatened ecological communities, significant tree habitat and canopy, while appropriately mitigating risks from natural hazards.
- O4. Mitigate impacts of development and associated works on threatened ecological communities to improve and enhance ecological condition over the long term.
- O5. Prioritise development on land clear of vegetation and avoid locating development on steep and densely vegetated land.

5.3.2 Performance Outcomes and Benchmark Solutions

5.3.2	Performance Outcome	Benchmark Solution
PO1	All ridgeline canopy trees, riparian vegetation, trees of cultural, heritage or amenity significance and mature shade providing trees are retained.	<ol style="list-style-type: none"> 1. All existing and remnant native trees with any of the following attributes shall be retained: <ol style="list-style-type: none"> a. A height in excess of 3m; b. A diameter breast height (DBH) (measured at 1.4m from natural ground level) of 500mm; and c. A spread of greater than or equal to 3m. 2. No clearing, or removal of trees or removal of significant vegetation is permitted on non-certified lands. 3. A person must not remove, clear, prune or otherwise cause harm to any tree or other vegetation without a relevant permit.
PO2	Existing trees and vegetation are retained, protected, enhanced, and incorporated into the development, wherever possible.	<ol style="list-style-type: none"> 1. Development is to be in accordance with <i>AS 4970-2009 Trees of Development Sites</i>. 2. Development is designed to avoid impacts on trees, except for invasive species and/or noxious weeds. 3. Development is designed to avoid removal of trees (includes vehicular access, utility installations and ancillary development). 4. Tree protection and enhancement measures are employed to protect vegetation from any disturbance within a designated Tree Protection Zone (TPZ) during construction and ongoing operation of the site, including: <ol style="list-style-type: none"> a. Soil compaction; b. Root, trunk, and limb damage; c. Soil contamination; and d. Changes in surface levels. 5. Existing trees have appropriate soil volumes and setbacks from buildings, footpath, road/kerb and gutter and services to ensure the tree reaches its identified mature height and spread.
PO3	Removal of trees will only be undertaken if it can be clearly demonstrated the principles of avoid and minimise cannot be achieved regarding development impacts on trees. Where it can be demonstrated that tree removal cannot be avoided, appropriate offsets must be applied to the site. (Refer to	<p>A tree removal permit will only be issued where:</p> <ol style="list-style-type: none"> 1. The applicant demonstrates that chance of loss of life/property damage is significantly minimised, or 2. Vegetation is not known to form part of an Aboriginal object or is within an Aboriginal place of heritage significance or, 3. Vegetation is not known to be: <ol style="list-style-type: none"> a. Wholly or partially located within the mapped extent of a heritage item or heritage conservation area in any environmental planning instrument; or b. Trees are not listed in any Significant Tree Register or equivalent of either Liverpool or Penrith Council. <p>Note: For all hollow-bearing and nesting trees, a tree removal permit may be issued where these are in impractical locations, noting reduced development yields will not be considered as satisfactory reason for the removal. (See also PO5 below.)</p>

5.3.2	Performance Outcome	Benchmark Solution
	Table 1 under 5.1.2 for tree canopy targets and tree planting rates.)	
PO4	Minimise threats to the long-term survival of existing trees through tree preservation zones and pruning techniques	<ol style="list-style-type: none"> 1. Works and construction activities are minimised within the Tree Protection Zone (TPZ) of trees unless a qualified arborist has assessed the tree and provided guidelines as to how the work can be carried out with minimal risk to the long-term survival of the tree. 2. Pruning or protection works are carried out in accordance with <i>AS 4373-32007 Pruning of Amenity Trees</i> and <i>AS 4970-2009 Protection of Trees on Development Sites</i>. 3. Any pruning or tree removal works that may impact threatened ecological communities are to adhere to the following best practice guidelines: <ol style="list-style-type: none"> a. <i>Best Practice Guidelines: Cooks River/Castlereagh Ironbark Forest</i> (Department of Environment and Climate Change NSW, 2008) within and adjacent to the threatened ecological community; and b. <i>Recovering Bushland on the Cumberland Plain: Best Practice Guidelines for the Management and Restoration of Bushland</i> (Department of Environment and Climate Change NSW, 2005). 4. Immediately prior to any clearing of native vegetation, any native fauna including arboreal mammals, roosting and hollow-using birds, bats and reptiles are prevented from accessing any vegetation to be cleared and are to be removed from trees or vegetation if present prior to clearing according to the Translation Operational Policy by EES. 5. A tree-felling protocol to be implemented to avoid impacts to fauna for translocation of any found species.
PO5	The removal of a hollow-bearing tree shall be replaced with nesting boxes where the trees cannot be retained.	<ol style="list-style-type: none"> 1. The removal of the hollow bearing trees shall be offset by the installation of nesting boxes. The size of the nest box is to reflect the size and dimensions of the hollow removed. Alternatively, the tree hollow could be appropriately mounted on one of the retained trees in a manner where it will not pose a risk to life or property. 2. Replacement ratios of nest boxes shall be at a minimum of 2:1 (nest boxes: hollows lost). 3. All nesting boxes and hollows shall be mounted at least 5m above the ground. 4. Requirement for 60% of nest boxes (replacement habitat) to be in place prior to clearing of hollow-bearing trees. 5. Hollows from felled hollow-bearing trees should be retained and placed into nearby natural environments to provide habitat for fauna.
PO6	Biodiversity values are conserved and enhanced by retaining and enhancing the existing native vegetation and protecting new trees.	<ol style="list-style-type: none"> 1. Retain existing established native trees and remnant native trees. 2. Incorporate existing trees, including remnant native trees, into street and built form design. 3. All new trees planted are to be retained and protected for the life of the development. 4. Provide an environmental offset where a tree(s) is removed to facilitate development or a utility service. Refer to Table 1 under section 5.1.2 for tree canopy targets and tree planting rates Trees planted should be appropriate species

5.3.2	Performance Outcome	Benchmark Solution
		as identified in the Western Sydney Aerotropolis Landscape Species List. (Refer to Appendix B.) 5. Tree replacement should be of a species native (and grown from seed native) to the Western Parkland City, which would develop to a similar size at maturity. 6. Where practical, plant additional trees native to the Western Parkland City nearby to existing scattered trees and vegetation clusters to strengthen ecological communities.

5.4 Preferred Plant Species

Appendix B contains the Aerotropolis Landscaping Species list, which informs species selection across the Aerotropolis. Any alternative landscape species not identified on this list will be required to have an ecologist report submitted with the Landscape Plan. The ecologist report will need to discuss wildlife attraction in proximity to the Airport.

There are additional landscaping considerations which apply within 3km of the Airport, to mitigate risk of wildlife strike. This is discussed in Section 12 of this DCP.

5.4.1 Objectives

- O1. Landscaping contributes to the Parkland vision and the overall objective of Recognise Country of the Western Parkland City.
- O2. Protect and enhance trees that contribute to the landscape character and scenic qualities of the Aerotropolis, including existing tree canopy and remnant vegetation.
- O3. Landscaping contributes to environmentally sensitive design of the development.
- O4. Enhance the streetscape and promote a scale and density of planting that softens the visual impact of buildings.
- O5. Incorporate WSUD features and provide for the infiltration of water, minimise run-off and assist with stormwater management subject to also satisfactorily addressing salinity and contribute to the health of street trees and plantings.
- O6. Provide a mix of canopy trees, shrubs, and groundcover to manage effects of urban heat.
- O7. Landscaping and green (vegetation) assets are effectively managed, maintained and consistent with airport safeguarding requirements (as further discussed in Section 12 of this DCP) and

5.4.2 Performance Outcomes and Benchmark Solutions

5.4.2	Performance Outcome	Benchmark Solution
PO1	Landscape design reflects the cultural landscape and is integrated with the design intent of the architecture and built form. The landscape species list should be referred to (refer to Appendix B).	1. Incorporate a diverse range tree species, as per Appendix B. Prioritise use of Cumberland species, followed by other species that are suitable for the purpose and the microclimatic conditions of the site. (Refer to examples in Figure 9.) 2. Undertake a holistic approach to site analysis to inform both building design and landscape design solutions. 3. Built form and cut and fill responds to the natural topography and location of existing vegetation. 4. Landscaping is to highlight architectural features, define entry points, indicate direction, and frame and filter views into the site along sight lines.

5.4.2	Performance Outcome	Benchmark Solution
		<ol style="list-style-type: none"> 5. Size and scale of landscaping is responsive to the bulk and scale of the development. 6. In Agribusiness precinct, reinforce the rural character and agricultural history of the precinct through appropriate landscaping.
PO2	Landscaping complements the views to and from the public domain, as well as to and from public and private open spaces within the site.	<ol style="list-style-type: none"> 1. Use appropriate species to screen side (where sufficient width permits) and rear boundaries and enhance visually obtrusive land uses or building elements (e.g. waste enclosures).
PO3	Trees are planted in locations and distances apart to support their ongoing growth without causing conflict, including with the Obstacle Limitation Surface and utility services.	<ol style="list-style-type: none"> 1. Trees are planted in unobstructed spaces where they have a minimum of 3 x mature trunk diameter space to grow and to limit upheaval of pavements and infrastructure. 2. Trees are not to penetrate operational airspace and tree heights should encourage wildlife movements below the OLS, where practical. 3. Demonstrate species have been selected to ensure that at maturity, heights and root systems will achieve adequate clearance from streetlights and underground services such as stormwater pits.
PO4	Landscaping design promotes safety and surveillance.	<ol style="list-style-type: none"> 1. Within high use areas (e.g. car parking areas, children's play areas and walkways), trees at maturity have clean trunks to a height of 1.8m around facilities. 2. Medium height shrubs (0.6m – 1.8m) are avoided along paths and close to windows and doors to maintain sight lines and allow for passive surveillance. 3. Landscaping in the vicinity of a driveway entrance does not obstruct visibility for the safe ingress and egress of vehicles and pedestrians.

Figure 9 Examples of Plants and Trees that are Native to the Area



Source: Infrastructure NSW

5.5 Street Tree Planting Requirements


5.5.1 Objectives

- O1. Utilise stormwater for passive irrigation of street trees to promote healthy trees, optimise canopy cover and contribute to streetscape and amenity.
- O2. Facilitate canopy street tree planting that reaches a mature height that is commensurate with the width of the street and the height of development fronting that street, to enhance the amenity and identity of the street.

5.5.2 Performance Outcomes and Benchmark Solutions

5.5.2	Performance Outcome	Benchmark Solution
PO1	Development is to incorporate street trees within public road reserves, designed to be passively irrigated through the stormwater drainage system and maximise stormwater losses through evapotranspiration.	<p>1. Street trees are planted at 15m intervals (trunk to trunk) on all local streets and designed in accordance with specifications below:</p>
PO2	Continuous tree canopy cover is achieved along	1. Provide verge street trees:

5.5.2	Performance Outcome	Benchmark Solution
	<p>both sides of the street.</p>	<div data-bbox="619 300 1289 674"> <p><small>Verge tree planting on Minogue Crescent, Harold Park. credit: ASPECT Studios</small></p> <p><small>Verge tree planting in Maruden Park. credit: ASPECT Studios</small></p> </div> <p>Source: <i>Western Sydney Street Design Guidelines</i></p> <p>2. Provide kerb extension trees:</p> <div data-bbox="619 779 1289 1249"> <p><small>Street tree planting in kerb extension, Nagurra Place, Rozelle. credit: ASPECT Studios</small></p> </div> <p>Source: <i>Western Sydney Street Design Guidelines</i></p> <p>3. Provide carriageway trees:</p> <div data-bbox="619 1346 1289 1832"> <p><small>Street trees in the carriageway on Pennyroyal Boulevard, Denham Court. credit: ASPECT Studios</small></p> </div> <p>Source: <i>Western Sydney Street Design Guidelines</i></p> <p>4. Provide median street trees:</p>

5.5.2	Performance Outcome	Benchmark Solution
		 <p data-bbox="624 730 1129 777">Retrofitting median street trees in Primrose Avenue, Rosebery. credit: ASPECT Studios</p> <p data-bbox="611 784 1094 808"><i>Source: Western Sydney Street Design Guidelines</i></p> <p data-bbox="560 824 1362 884">5. Retain and supplement trees along all proposed streets so that they provide green linkages across the Aerotropolis.</p>
PO3	Streets trees mitigate urban heat.	<ol style="list-style-type: none"> <li data-bbox="560 891 1385 952">1. Provide 50% of north-south oriented streets with shade for active transit users during the hottest times of the day. <li data-bbox="560 954 1362 1014">2. Provide 80% of east-west oriented streets with shade for active transit users during the hottest times of the day. <li data-bbox="560 1016 1353 1077">3. Provide for deep soil planting within the streetscape, to enable trees to reach mature heights and contribute to canopy cover. <li data-bbox="560 1079 1259 1099">4. Provide landscaping within at grade car parking areas.

6 Access and Movement Framework

6.1 Street Network Functions and Design

This section applies to sites greater than 5,000m², where the road network is being implemented, and development proposals include the delivery of a public street.

Further guidance on street design and engineering standards can be found in the *Western Sydney Street Design Guidelines*, *Western Sydney Engineering Design Manual* and Section 4.3.5 of the Precinct Plan.

6.1.1 Objectives

- O1. Design street networks to support the objectives of *Future Transport 2056* and the NSW Government’s Movement and Place framework.
- O2. Design street networks in line with the street network plan as per the Precinct Plan taking into consideration traditional movement corridors.
- O3. Design street networks to prioritise walking and cycling permeability and to facilitate safe and convenient walking and cycling access to public transport.
- O4. Prioritise the provision of public transport infrastructure to deliver and support the 30-minute city and meet current and future demand.
- O5. Base street grid layouts on the underlying topography and enhance a connection to the wider landscape.
- O6. Incorporate smart solutions to networks and streets to enable future mobility.

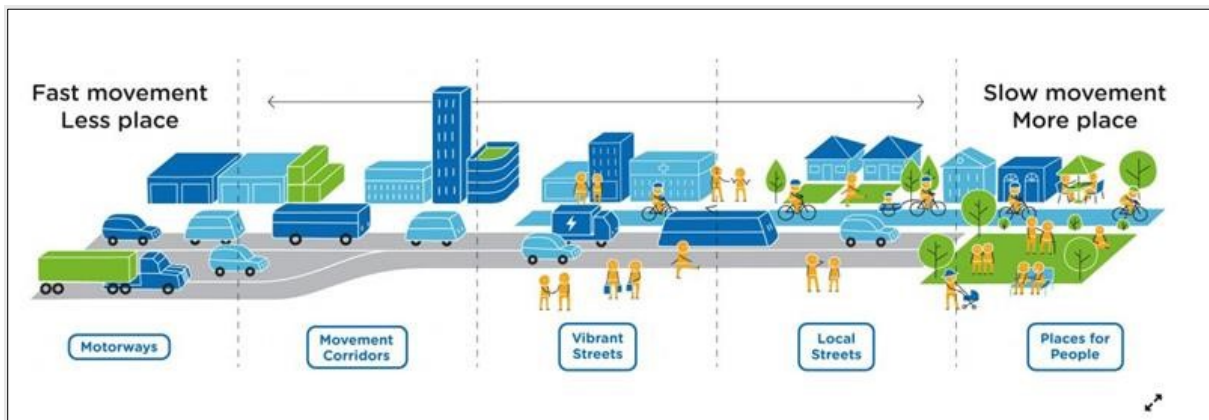



Figure 10 The Movement and Place Framework

Source: Transport for NSW, 2018

6.1.2 Performance Outcomes and Benchmark Solutions

6.1.2	Performance Outcome	Benchmark Solution
PO1	Street networks reflect the function and role of streets based on their hierarchy as shown in the Precinct Plan. Street networks are safe, compliant, and incorporate design elements to protect against hostile vehicles.	<ol style="list-style-type: none"> 1. Streets reflect their movement and place function – e.g. speeds and desired traffic activity of roads. Refer to street hierarchy in the Precinct Plan. 2. Streets are designed with behavioural speeds that suit the function and level of safety required so users understand and comply with the speed limits and drive to the conditions of the road (e.g. design of intersections, curves and sight lines, placement and selection of street tree species). 3. Shared walking and cycling paths are only used in locations where desired pedestrian, cycling usage or place function is low, and shall be a minimum of 3m wide.

6.1.2	Performance Outcome	Benchmark Solution
		<p>4. To encourage younger and less experienced bike riders, shared walking and cycling paths are to be provided within 1km of major transport interchanges (Metro stations) and schools, where separated cycle paths are not provided.</p> <p>5. Locate pedestrian crossings to minimise the crossing distance for pedestrians and maintains clear lines of sight for pedestrians and drivers.</p> <p>6. The design approach minimises the risk of hostile vehicles in accordance with <i>Hostile Vehicles Guidelines for Crowded Places</i>.</p> <p>7. Consider table 2 (Maximum Block Sizes) at the end of 6.2.2.</p> <p>8. Design features that mitigate the risk of hostile vehicles:</p> <ol style="list-style-type: none"> Do not impede pedestrians and bicycles; Have obstacles strategically placed to maximise safety (see image below); and Use greenery (such as tree planting) as mitigation measures. <p><i>Examples of enhancement features</i></p>  <p><small>The bottom two images on the following page are computer generated images demonstrating how a combination of planter boxes and spherical bollards might enhance and protect the area. Please note that these are suggestions only.</small></p> <p><i>Source: Hostile Vehicles Guidelines for Crowded Places (Commonwealth of Australia 2017)</i></p>
PO2	Streets are planned to adapt to changing travel modes and parking areas include innovative and new technologies.	<ol style="list-style-type: none"> Flex zones, which are areas immediately adjoining road carriageways suitable to accommodate planted vegetation, street furniture, parking and bus stops within the road reserve, accommodate future technologies without restricting amenity and serviceability of the zone (as illustrated in Section 4.3.5 Transport framework of the Precinct Plan). The bicycle network accommodates increased use of e-bikes and scooters. This requires: <ol style="list-style-type: none"> Separation of pedestrians and bicycles to address increased speed differentials between users and respective user vulnerability; and Provision of convenient and secure short-stay and long-stay storage parking options alongside mass transit at key destinations including public transport interchanges, centres, local shops, parks, schools and within developments. Utilities required for smart street furniture are provided. Streets and car parking spaces/structures are designed for adaptive reuse and any retrofitting to allow for changing technologies. Neighbourhoods are adaptive to electric, shared, and autonomous vehicles, and facilitate the take up of safe alternate mobility options that reduce pollution, congestion, and transport costs.

6.1.2	Performance Outcome	Benchmark Solution
		6. Street parking incorporates at least 1 electric vehicle charging station per urban block.


6.2 Active Transport Network

6.2.1 Objectives

- O1. Encourage travel by active transport and public transport as outlined in the Precinct Plan.
- O2. Provide safe, accessible and inviting active transport networks to cater for local travel, ensuring movement routes link to key local destinations such as services, transport, public spaces and natural corridors.
- O3. Meet the future mode share target for active transport in as outlined in the Precinct Plan.

6.2.2 Performance Outcomes and Benchmark Solutions

6.2.2	Performance Outcome	Benchmark Solution
PO1	Pedestrian and bicycle movement is prioritised over motorised vehicle movement to provide high levels of pedestrian and bicycle safety, amenity, and comfort.	<ol style="list-style-type: none"> 1. Pedestrian infrastructure is provided in accordance with the <i>Western Sydney Street Design Guidelines</i>. 2. Routes are to: <ol style="list-style-type: none"> a. Be designed to be used by pedestrians and cyclists for a variety of reasons (including fitness, walking pets, emerging delivery services and accessing public transport or local destinations). b. Consider topography and ease of use. c. Provide clear and dedicated access. d. Provide high quality finishes/pavement (refer to the <i>Western Sydney Street Design Guidelines</i>). e. Connect routes to surrounding centres, services, public spaces and public transport. f. Ensure accessible paths of travel and interfaces with adjoining footpaths. g. Be continuous. 3. Streets and adjacent development positively provide the following: <ol style="list-style-type: none"> a. Clear sight lines; b. Lighting; c. Shelter/weather protection along key routes (e.g. in centres); d. Places to rest, dwell, and play (including smart street furniture); e. Clear finding; and f. Access to drinking water.

6.2.2	Performance Outcome	Benchmark Solution
		 <p data-bbox="676 741 1406 768"><i>Source: Case Study – Bourke Street Cycleway (Government Architect NSW)</i></p> <ol data-bbox="632 775 1406 1133" style="list-style-type: none"> 4. Minimise prominence and interface of private vehicular access to promote safe walking and bicycle access. 5. Continuous minimum 1.5m wide pedestrian paths are provided on both sides of the street in all locations, and up to 2.5m in centres where there is higher pedestrian traffic. 6. Paving size and style is continuous along the street and of appropriate strength and physical resistance for the level of traffic. 7. Where laneways are greater than 7m in width, pedestrians are assisted by implementing additional road treatments to constrain the intersection and calm traffic movements. <p data-bbox="632 1144 1406 1211"><small>Note: This is to be used for streets designed with no more than approximately 50 vehicles per hour in peak hour using the intersection (forecasting traffic generation in 2030). No minimum pedestrian per hour flow is required.</small></p>
PO2	<p>Pedestrian crossings provide designated and safe opportunities for pedestrians to cross the street.</p>	<ol data-bbox="632 1225 1406 1809" style="list-style-type: none"> 1. Use raised pedestrian crossings to emphasise crossing points, particularly at un-signalised mid-block crossing locations. 2. Use a change in paving material to enhance the contrast between the carriageway and crossing. 3. Use lighting, street trees and landscaping to visually narrow and compress the street at crossing locations. 4. Controlled crossings prioritise pedestrian and bicycle movements with wait times of no more than 90 seconds. 5. Uncontrolled crossings are designed to reduce the distance for pedestrians to cross without creating a hazard for bicycle riders. 6. In areas of high pedestrian activity, provide appropriate traffic calming measures (e.g. kerb blisters, scramble crossings and signal times as per the guidelines <i>40 Km/H Speed Limits in High Volume Pedestrian Areas</i>) that prioritise pedestrian and bicycle crossing times and safety, and enable quick and easy access to public transport services.
PO3	<p>Safe and convenient set-down and pick-up areas are to be provided for passengers.</p>	<ol data-bbox="632 1823 1406 1912" style="list-style-type: none"> 1. Passenger set down areas are located on or as close as possible to primary frontages and entry points to transit nodes.

6.2.2	Performance Outcome	Benchmark Solution
PO4	Safe and convenient set-down and pick-up areas are to be provided for school students.	1. Set down areas are located at safe locations close to school entry points, noting priority should be provided to pedestrians, cyclists and public transport access.
PO5	Walking and cycling are the foundation for movement around mass transit walking catchments.	1. Car parking within the walking catchment is located to reduce vehicular movements through the catchment and is supported by quality walking and cycling infrastructure to access the centre and mass transit node.
PO6	Block structure supports walking, cycling and public transport.	1. Ensure subdivision layout and block sizes generally accord with Table 2.

Table 2 Maximum Block Sizes

Land Use	Subdivision Block Size
Mixed use centre	Maximum length of a block 250m. Mid-block connections for pedestrians and cyclists provided no more than 130m apart
Employment zone centres	Maximum length of a block 250m. Mid-block connections for pedestrians and cyclists provided no more than 130m apart
Business uses	Maximum length of a block 250m. Mid-block connections for pedestrians and cyclists provided no more than 130m apart
Light industry enterprise	Maximum length of a block 250m. Mid-block connections for pedestrians and cyclists provided no more than 130m apart
High density residential mixed use	Maximum length of a block 250m. Mid-block connections for pedestrians and cyclists provided no more than 130m apart
Medium density residential mixed use	Maximum length of a block 250m. Mid-block connections for pedestrians and cyclists provided no more than 130m apart
Community infrastructure and schools	Maximum length of a block 250m. Mid-block connections for pedestrians and cyclists provided no more than 130m apart
Agribusiness (outside centres including local)	Maximum length of a block 350m. Mid-block connections for pedestrians and cyclists provided no more than 150m apart
Enterprise zone (outside centres including local)	Maximum length of a block 350m. Mid-block connections for pedestrians and cyclists provided no more than 150m apart

7 Travel Demand Management and Parking

7.1 Travel Demand Management

'Travel Demand Management' (TDM) refers to the measures taken to reduce the length of trips (particularly by car), minimise the need to travel, and encourages travel by the most sustainable mode of transport.

Further guidance on street design and engineering standards can be found in the *Western Sydney Street Design Guidelines* and *Western Sydney Engineering Design Manual*.

7.1.1 Objectives

- O1. Implement TDM as stipulated in the Precinct Plan.

7.1.2 Performance Outcomes and Benchmark Solutions

7.1.2	Performance Outcome	Benchmark Solution
PO1	Travel Plans are provided to include measures that reduce car dependency for new developments by encouraging sustainable transport modes.	<ol style="list-style-type: none"> 1. A Travel Plan must be submitted for: <ol style="list-style-type: none"> a. Any residential developments containing more than 50 residential units; and b. Any commercial or industrial developments which exceeds 3,000m² in gross floor area (GFA) or accommodates more than 50 employees.
PO2	Where temporary access is required but not currently available, this shall be provided in a way that regards the safety and efficiency of the transport network. (Refer to Section 6.1 for more controls about the network.)	<ol style="list-style-type: none"> 1. To enable the development of land where access across adjoining properties is required but not yet provided, the consent authority may consider temporary access to arterial or sub-arterial roads where: <ol style="list-style-type: none"> a. The development complies with all other development standards; b. Subdivisional roads generally conform with the road pattern shown on the Indicative Layout Plan; and c. The consent authority is satisfied the carrying out of the development will not compromise road safety. 2. Where the consent authority grants such consent, the temporary access must be constructed to the Council's standards except in the case of a State classified road, which must be designed and constructed to TfNSW's standards. Conditions will also be imposed to limit access to the designated road when alternative access becomes available. Note: Approval from TfNSW will be required for any temporary access to a classified road.

7.2 Bicycle and Car Parking Rates

7.2.1 Objectives

- O1. Encourage ride share.
- O2. Minimise the reliance on private car usage.
- O3. Prioritise the use of public and alternative transport modes including walking and cycling.
- O4. Encourage the use of bicycles as an environmentally beneficial form of transport and an alternative to the use of private motor vehicles.
- O5. Provide car parking and end of trip facilities to drive long-term sustainable transport choices while addressing short-term access needs.

7.2.2 Performance Outcomes and Benchmark Solutions

7.2.2	Performance Outcome	Benchmark Solution
PO1	Rate of parking is in accordance with function of development.	<ol style="list-style-type: none"> 1. A Travel Plan must be submitted for: Bicycle provisions are per Table 3. 2. Car parking provisions are per Table 3. 3. Accessible parking spaces are provided in accordance with A2 2890.1.

7.2.3 Bicycle Parking

Bicycle parking spaces for new developments are to be provided in accordance with the rates outlined in Table 3. Where an apartment in a residential building has a basement storage area on title that is large enough to accommodate a bicycle and is no smaller than a Class 1 bicycle locker, additional bicycle parking for that apartment is not required.

Bicycle parking facilities are additional to other parking requirements.

Table 3 Minimum On-Site Bicycle Parking Rates

Proposed Use	Residents / Employees	Customers / Visitors
Residential		
Residential accommodation	1 space / dwelling	1 space / 10 dwelling
Tourist and Visitor Accommodation		
Hotel, motel, or serviced apartments	1 space / 4 staff	1 space / 20 rooms
Backpackers accommodation		1 space / 10 beds
Commercial		
Office or business premises	1 space / 150m ² GFA	1 space / 400m ² GFA
Bulky goods premises	1 space / 600m ² GFA	1 space / 1,000m ² GFA
Shop, restaurant or cafe	1 space / 25m ² GFA	2 spaces plus 1 space / 100m ² over 100m ² GFA
Shopping centre	1 space / 200m ² GFA	1 space / 300m ² sales GFA
Pub	1 space / 100m ² GFA	1 space / 100m ² GFA
Entertainment facility	N/A	Whichever is greater of: <ul style="list-style-type: none"> • 1 space / 15 seats; or • 1 space / 40m² GFA.
Place or public worship	N/A	
Hospital	1 space / 15 beds	1 space / 30 beds
Industry		
Industry or warehouse	1 space / 10 staff	N/A
Distribution centre		
Community		
Community centre	1 space / 10 staff	2 spaces plus 1 space / 1,000m ² GFA
Childcare centre	1 space / 10 staff	2 spaces / centre
Primary school	1 space / 20 staff	1 space / 5 students
Secondary school		
Tertiary educational institution	1 space / 10 staff	1 space / 10 students
Medical centre or health consulting rooms	1 space / 5 practitioners	1 space / 200m ² GFA

Proposed Use	Residents / Employees	Customers / Visitors
Swimming pool	1 space / 10 staff	2 spaces / 15m ² of pool area
Library	1 space / 10 staff	2 spaces plus 1 space / 200m ² GFA
Art gallery or museum	1 space / 1,000m ² GFA	1 space / 200m ² GFA

Note: The minimum number of bicycle parking spaces is to be rounded up to the nearest whole number.

GFA = Gross Floor Area

7.2.4 Car Parking

On-site car parking for residential and non-residential developments, including visitor parking, is to be provided between the minimum and maximum rates stated in Table 4.

On-site car parking provision significantly below the maximum rates specified in Table 4 will generally only be considered if the proposed development has good access to public transport. Unmet demand for on-site parking may have an impact on surrounding residential streets if viable alternative transport modes are not available.

Table 4 Car Parking Rates for the Aerotropolis

Proposed Use	Land Use Zone	Within 800m walking distance of a metro station	Greater than 800m walking distance of a metro station	
		Maximum parking rate	Minimum parking rate	Maximum parking rate
Industry				
Light industry or warehouse	All	1 space / 200m ²	1 space / 200m ²	1 space / 100m ²
Distribution centre		1 space / 250m ²	1 space / 250m ²	1 space / 100m ²
Residential				
Attached housing	All	Studio or 1 bedroom – 1 space / dwelling (all areas)		
		2 bedroom – 1 space / dwelling	2 bedroom – 1 space / dwelling	2 bedroom – 1.5 space / dwelling
		3 or more bedrooms – 1.5 spaces / dwelling	3 or more bedrooms – 1.5 spaces / dwelling	3 or more bedrooms – 2 spaces / dwelling
Multi-dwelling housing	All	Studio or 1 bedroom – 1 space / dwelling (all areas)		
		2 bedroom – 1 space / dwelling	2 bedroom – 1 space / dwelling	2 bedroom – 1.5 space / dwelling
		3 or more bedrooms – 1.5 spaces / dwelling	3 or more bedrooms – 1.5 spaces / dwelling	3 or more bedrooms – 2 spaces / dwelling
		Visitor – 0.25 spaces / dwelling with a minimum of 1 space.		
		Provision of a car washing space if there are more than 4 dwellings.		
Residential flat buildings Shop-top housing	Mixed Use	Studio or 1 bedroom – 0.5 spaces / dwelling	Studio or 1 bedroom – 0.5 spaces / dwelling	Studio – 0.5 spaces / dwelling 1 bedroom – 1 space / dwelling
		2 bedrooms – 1 space / dwelling		

Proposed Use	Land Use Zone	Within 800m walking distance of a metro station	Greater than 800m walking distance of a metro station	
		Maximum parking rate	Minimum parking rate	Maximum parking rate
		3 or more bedrooms – 1 space / dwelling	3 or more bedrooms – 1 space / dwelling	3 or more bedrooms – 1.5 spaces / dwelling
		Motorcycle parking – 1 space / 10 car spaces		
		Provision of a car washing space for developments with more than 4 dwellings.		
Tourist and Visitor Accommodation (Hotel, motel, or serviced apartments)	All	1 space / 5 apartments or rooms, plus 1 space per 5 employees.	1 space / 5 apartments or rooms, plus 1 space per 5 employees.	1 space / 3 apartments or rooms, plus 1 space per 5 employees.
Commercial				
Office or business premises	All	1 space / 100m ² GFA		
Bulky goods premises		1 space / 100m ² GFA	1 space / 100m ² GFA	1 space / 75m ² GFA
Shop, restaurant of cafe		1 space / 90m ² GFA	1 space / 90m ² GFA	1 space / 45m ² GFA
Supermarkets		1 space / 200m ²	1 space / 200m ²	1 space / 50m ²
Shopping centre		1 space / 400m ² GFA	1 space / 400m ² GFA	1 space / 50m ² GFA
Entertainment facility ¹		1 space / 100m ²	1 space / 100m ²	1 space / 25m ²
Hospital		1 space / 6 beds plus 1 space / 4 staff.	1 space / 6 beds plus 1 space / 4 staff.	1 space / 4 beds plus 1 space / 4 staff.
Place of public worship		1 space / 100m ²	1 space / 100m ²	1 space / 25m ²
Community				
Childcare centre	All	1 space / 2 employees with a maximum of 3 spaces plus: <ul style="list-style-type: none"> • 2 spaces if less than 24 enrolment places; or • 3 spaces if 24 enrolment places and above. 	1 space / 2 employees with a maximum of 3 spaces plus: <ul style="list-style-type: none"> • 2 spaces if less than 24 enrolment places; or 	1 space / employee with a maximum of 6 spaces plus 1 space / 10 children in enrolment.

¹ Consent will not be given for car parking spaces for entertainment facilities unless any existing public car parking in the vicinity of the proposed entertainment facility has been considered. Any car parking allowed specifically for the entertainment facility may, with consent, also be available only for short-stay parking during the hours of 9.30am to 6pm, but for no other purpose.

Proposed Use	Land Use Zone	Within 800m walking distance of a metro station	Greater than 800m walking distance of a metro station	
		Maximum parking rate	Minimum parking rate	Maximum parking rate
			<ul style="list-style-type: none"> 3 spaces if 24 enrolment places and above. 	
Educational		1 space / 6 staff	1 space / 6 staff	1 space / 4 staff
Medical centre or health consulting rooms		1 space / 200m ² Proposals for medical centres must include a traffic report accurately predicting traffic generation based on similar sized medical centres.	1 space / 200m ² Proposals for medical centres must include a traffic report accurately predicting traffic generation based on similar sized medical centres.	1 space / 75m ² Proposals for medical centres must include a traffic report accurately predicting traffic generation based on similar sized medical centres.
Recreational facilities		5 spaces / 100m ²	5 spaces / 100m ²	7 spaces / 100m ²
Swimming pool		5 spaces / 100m ²	5 spaces / 100m ²	7 spaces / 100m ²
Other				
All uses not listed above	Neighbourhood Centre	1 space / 100m ² non-residential GFA	1 space / 100m ² non-residential GFA	1 space / 75m ² non-residential GFA
	Enterprise Zone	1 space / 250m ² non-residential GFA	1 space / 250m ² non-residential GFA	1 space / 150m ² non-residential GFA
	Mixed Use	1 space / 200m ² non-residential GFA	1 space / 200m ² non-residential GFA	1 space / 125m ² non-residential GFA
Non-residential development	All	Motorcycle parking – 1 space / 10 car spaces		
Accessible Parking				
Residential	All	1 space / adaptable dwelling		
		1 space / 20 visitor spaces		
Non-residential		1% of all spaces		

Note: GFA = Gross Floor Area

The minimum number of on-site parking spaces to be made available for car share scheme vehicles is to be provided according to the following rates:

- Residential development – 1 space per 60 car spaces provided.
- Office, business, industrial or retail premises – 1 space per 40 car spaces provided.

The minimum number of on-site parking spaces to be made available for electric vehicles including charging stations is to be provided according to the following rates:

- Residential development – 1 space per 60 car spaces provided.
- Office, business, industrial or retail premises – 1 space per 40 car spaces provided.

7.3 Parking Design/Access and End of Trip Facilities

7.3.1 Objectives






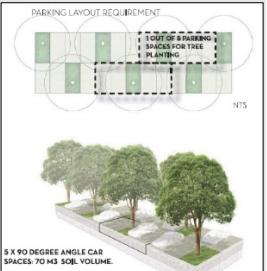
- O1. Provide functional, safe, and efficient parking areas.
- O2. Minimise visual and amenity impacts of car parking on the public domain.
- O3. Ensure adaptability of car parking provision and design to accommodate other uses over time.
- O4. Ensure vehicle access arrangements are appropriate and minimise any adverse impact on infrastructure, road networks, safety, adjoining properties, amenity, and street trees.
- O5. Ensure development makes appropriate provision for transport, access, servicing, and end of trip facilities to meet the needs of development, reduce the demand for private car parking over time and facilitate an environmentally sustainable transport network.
- O6. Manage the number of vehicle movements through high pedestrian and cycling precincts and streets.
- O7. Reduce the effects of heat island in car parking areas.
- O8. Locate bicycle parking a short distance from the user's destination.
- O9. Provide bicycle parking that is highly visible, safe for bicycles and is easy to find.
- O10. Ensure bicycle parking is easy to maintain.
- O11. Provide high quality and innovatively designed end of trip facilities that promote multi-modal trips and efficient use of existing public and private parking facilities.

7.3.2 Performance Outcomes and Benchmark Solutions

7.3.2	Performance Outcome	Benchmark Solution
PO1	The design and layout of car parking and vehicular access is safe and functional.	<ol style="list-style-type: none"> 1. The size and design of all parking spaces and any associated manoeuvring areas must be in accordance with AS 2890. 2. Where security doors or gates are proposed, an intercom system is provided to facilitate visitor and service access to underground parking areas.
PO2	A minimum of 2% accessible car parking is provided for people with mobility impairment.	<ol style="list-style-type: none"> 1. Accessible car parking spaces for people with mobility impairment are: <ol style="list-style-type: none"> a. 5.4m length and 2.4m width for angle parking spaces or 3.2m width for parallel parking spaces and include the provision of adjacent shared areas in accordance with AS 2890.6; b. Located where unimpeded access can be provided between the car parking space and an adjoining accessible walkway compliant with the Building Code of Australia and AS 2890.6; c. Located close to wheelchair accessible entrances or lifts; d. Well-lit, clearly line marked with non-slip or textured paint on the ground; e. Identified by a sign displaying the International Symbol of Access; f. Readily visible from a vehicle at the car park entrance or by guide signs which indicate the

7.3.2	Performance Outcome	Benchmark Solution
		<p>direction of the designated parking spaces; and</p> <p>g. On a level surface with a grade (parallel to or at 90 degrees to the angle of parking) no greater than 1 in 40.</p>
PO3	Prioritise use of basement car parking areas.	<ol style="list-style-type: none"> 1. Locate basement areas beneath building footprints to not extend outside the footprint of the ground floor. 2. A maximum of one 6m wide basement vehicle entry and one 6m wide basement exit is provided per basement. 3. The underside of the basement ceiling level does not exceed natural ground level for the perimeter wall of the basement. 4. Basement ceilings are stepped to allow for ground floor levels to be provided at natural ground level.
PO4	Where required due to flooding or geological constraints preventing the use of basements, at grade and above ground car parking does not detract from public domain or amenity.	<ol style="list-style-type: none"> 1. Locate parking behind the built form, or to the side and rear of the development. 2. Parking is not located in the landscape setback or deep soil area. 3. Parking areas do not significantly interfere with pedestrian through-site links. 4. Car parking is appropriately screened from the street and/or public domain.
PO5	Above ground car parking is designed to activate the streetscape and not detract from the public domain.	<ol style="list-style-type: none"> 1. Locate vehicle access points on the secondary frontage or via a rear lane. 2. Development which includes ground floor or above ground car parking contains active uses on ground floor street frontages. 3. Car parking levels are appropriately screened and integrated into the design of the building.
PO6	Utilise integrated parking solutions to service multiple development sites.	<ol style="list-style-type: none"> 1. Sites identified as being part of an integrated basement car parking area: <ol style="list-style-type: none"> a. Provide shared access to the integrated basement car parking area; b. Must demonstrate how shared access for adjoining sites, including circulation paths and breakthrough walls, will function and are to be accommodated; c. Have basement structures at a depth that adequately accommodates services, stormwater drainage and other infrastructure; and d. Ensure the basement level(s) below the public domain are used for circulation areas, ramps, visitor parking, freight and service vehicle parking, loading areas and waste collection points, not individual strata titled spaces associated with individual units.
PO7	Safe and convenient movement of pedestrians and	<ol style="list-style-type: none"> 1. Locate vehicular access points away from active pedestrian areas and public open space on secondary streets or lanes.

7.3.2	Performance Outcome	Benchmark Solution
	cyclists is prioritised over vehicle movements.	<ol style="list-style-type: none"> 2. At vehicular access points, seek to minimise voids and areas for concealments to ensure lighting is sufficient to allow facial recognition. 3. Separate pedestrian and bicycle access from vehicular circulation areas. 4. Change pavement (colour and/or texture) to: <ol style="list-style-type: none"> a. Provide clear demarcation between pedestrian and vehicle spaces; and b. Reduce vehicle speeds at entries or key nodes. 5. For the egress points of larger developments, install stop signs and lines for motor vehicles crossing pedestrian and bicycle. 6. Provide separate pedestrian access routes to building entries from the public domain and parking areas. 7. Pedestrian access routes are direct, with good sightlines, intuitive wayfinding, and easy gradients. 8. Design of pedestrian access routes consider pedestrian comfort and amenity by providing shade, shelter, and rest areas.
PO8	Vehicle access arrangements and queuing areas on a site shall minimise any adverse impact on infrastructure, road networks, safety, adjoining properties, amenity, and street trees.	<ol style="list-style-type: none"> 1. No direct vehicular access is permitted to allotments from an arterial or sub-arterial road. This must be identified on the Section 88B instrument issued under the <i>Conveyancing Act 1919</i>. 2. Locate vehicle access points on the secondary frontage or rear lanes with access and egress points provided in a forward direction. 3. Where a site has frontage to a classified road, provide access to an alternate road. 4. Ensure that all vehicles can enter and exit in a forward direction. 5. Accommodate turning movements of the largest design vehicle to access the site, with consideration to servicing and garbage collection requirements.
PO9	Car parking spaces and associated infrastructure are designed with the potential to transition to other uses (applicable to sites over 5,000m ²).	<ol style="list-style-type: none"> 1. All development with car parking spaces at grade or above ground floor level demonstrates what infrastructure will be incorporated into the carpark areas of the building to allow for the easy transition to habitable land uses in the future. This includes consideration of: <ol style="list-style-type: none"> a. Retrofitting of utilities and services (water, electricity, and internet); b. Building code requirements for a range of uses; c. Removable ramps; d. Greater reinforcement, such as steel (as residential/commercial spaces are heavier than car parks); and e. Flexible approaches for night-time use (see images below).

7.3.2	Performance Outcome	Benchmark Solution
		<p>2. All at grade or above ground car parking spaces within buildings have a floor to ceiling height of 3.0m to 4.5m (clearance free of mechanical servicing) to allow for adaption to other uses.</p> <p><i>Sample designs of flexible carparking</i></p> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%; text-align: center;">  <p>Restaurant – Miami</p> </div> <div style="width: 50%; text-align: center;">  <p>Music band – Miami</p> </div> <div style="width: 50%; text-align: center;">  <p>Book market – London</p> </div> <div style="width: 50%; text-align: center;">  <p>Orchestra – London</p> </div> </div> <div style="text-align: center; margin-top: 10px;">  <p>Apartments, Melbourne</p> </div> <p><i>Source: ARUP</i></p>
PO10	<p>Landscaping is integrated with vehicular access and car parking areas on development lots to soften their visual impact, provide protection from glare, and reduce heat island effect.</p>	<p>1. Provide 1 medium tree for every 5 at grade car spaces, and maximise shading (as shown below) by:</p> <ol style="list-style-type: none"> a. Orienting the tree parallel to the parking space; b. Staggering the configuration rather than linear; c. Selecting a tree with a Leaf Area Index of >4; and d. Using structurally engineered pits or vaults and WSUD design principles to provide appropriate space for tree root development. <p><i>Spaces for tree planting</i></p> <div style="text-align: center;">  <p>PARKING LAYOUT REQUIREMENT 1. TREE OF 40mm DBH 2. SPACES FOR TREE PLANTING NTS 5 X 90 DEGREE ANGLE CAR SPACES TO 40 SQ. VOLUME</p> </div> <p><i>Source: INSW</i></p> <p>2. All hardstand surfaces (paved areas to store cars) associated with car parking and driveways are offset</p>

7.3.2	Performance Outcome	Benchmark Solution
		<p>from boundaries and buildings, with a minimum landscape buffer width of 2m.</p> <ol style="list-style-type: none"> 3. Landscaping shall not restrict driver sightlines to pedestrians, cyclists, and other vehicles on the frontage road. 4. Where basement car parking extends beyond the building envelope, a minimum soil depth of 1.5m is provided above the basement, measured from the top of the slab, and including the required drainage. This will not be calculated as part of the deep soil zone nor included as part of the urban typology (site coverage) for the site.
PO11	Parking layout, surfacing and drainage design responds to Water Sensitive Urban Design.	<ol style="list-style-type: none"> 1. Use pervious surfaces for at grade parking and driveway design. 2. Where appropriate, incorporate a permeable surface in car washing spaces. The use of turfed or gravel surfaces is considered to prevent contaminants from entering the stormwater system.
PO12	Provision is made, where required, for the integration of car share parking.	<ol style="list-style-type: none"> 1. The maximum amount of car parking spaces for a development is inclusive of the minimum number of parking spaces required for car share schemes. 2. All parking spaces for car share schemes are to be: <ol style="list-style-type: none"> a. Located together in closest proximity to entry and exit points of the building; and/or b. Located adjacent to a public road and integrated with the streetscape through appropriate landscaping where the space is external; and c. Signed for use only by car share vehicles. 3. Parking spaces for car share schemes located on private land are to be retained as common property by the Owners Corporation of the site.
PO13	Electric vehicle parking and charging stations are to be integrated into car park design on the development site.	<ol style="list-style-type: none"> 1. Design electric vehicle parking spaces with associated charging stations within or immediately adjacent to the parking spaces. 2. Site on-street charging stations within the Flex Zone, a minimum of 600mm from the face of the adjacent kerb. 3. Site charging stations clear of pedestrian paths of travel and do not inhibit desire lines. 4. Car parking spaces are designed to be easily converted into electric charging stations. 5. Provide charging points for micro mobility devices and prioritise parking for these vehicles.
PO14	Utilise tandem, stacked, and mechanical parking where appropriate.	<ol style="list-style-type: none"> 1. Where development includes a mechanical parking installation, such as car stackers, turntables, car lifts or other automated parking systems, a Parking and Access Report is to be provided. 2. Access to mechanical parking installations is to be by means of access roadways designed in accordance with AS 2890. 3. Tandem or stack parking will only be permitted where:

7.3.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> a. Each tandem or stacked parking arrangement is limited to a maximum of two spaces; b. The maximum parking limit for spaces in the development is not exceeded; c. In residential buildings and small commercial/retail developments, the spaces are attached to the same strata title; d. In residential buildings and serviced apartments, they are used for tenant parking only; e. In commercial or retail development, they are used for staff parking only; f. They are not used for service vehicle parking; and; g. The manoeuvring of stacked vehicles is able to occur wholly within the premises. <p>4. Mechanical parking installations will be considered for developments involving the adaptive reuse of existing buildings where site or building constraints prevent standard parking arrangements.</p> <p>5. Mechanical parking installations, tandem or stacked parking are not to be used for visitor parking or parking for car share schemes.</p> <p>6. The minimum length of a tandem space is 10.8m.</p>
PO15	Smart technology to be incorporated in large car parks (over 100 spaces) to improve functionality.	1. Use technology which tracks real-time car movement such as wireless parking bay sensors and dynamic signage.
PO16	Bicycle parking is to be functional and secure.	<ul style="list-style-type: none"> 1. All developments provide on-site bicycle parking designed in accordance with AS 2890.3, and its 3 levels of security. 2. Provide Class B bicycle facilities for occupants of residential buildings and visitors, staff, or employees of any land use. 3. Provide Class C bicycle rails for visitors of any land use in the public domain. 4. Where bicycle parking for tenants is provided in a basement, it is located: <ul style="list-style-type: none"> a. On the uppermost level of the basement and with access to the building lobby; b. Close to entry and exit points; and c. Subject to security camera surveillance.
PO17	Provision is made for electric bicycle charging.	1. 1 charging station for electric bicycles is provided for the first 5 bicycle spaces within a development, and for every 10 bicycle parking spaces thereafter.
PO18	Bicycle parking is easily accessible.	<ul style="list-style-type: none"> 1. A safe path of travel from the bicycle parking to entry and exit points is marked. 2. Access to bicycle parking areas are: <ul style="list-style-type: none"> a. Rideable (i.e. users do not have to dismount to access);

7.3.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> b. A minimum of 2m wide to allow a pedestrian and a person on a bicycle to pass each other; c. Accessible via a ramp where needed; d. Clearly identified by signage; and e. Accessible via appropriate security or intercom systems. <p>3. Bicycle parking for visitors is provided in an accessible at grade location near a major public entrance to the development and is appropriately signposted.</p> <p>4. Dedicated spaces for share bicycles/scooters are provided in the public domain close to entrances to trip generators and alongside traditional bicycle racks. These are to incorporate geo-fencing for preferred parking and exclusion zones. (i.e. by establishing a virtual perimeter through GPS, users are informed of suitable parking areas via the bicycle/scooter rental app).</p>
PO19	Change and shower facilities are provided for user needs.	<p>1. Lockers and bicycle parking spaces are decoupled.</p> <p>2. For non-residential land uses, the following facilities are provided at the following rates:</p> <ul style="list-style-type: none"> a. 1 personal locker for each bicycle parking space; b. 1 shower and change cubicle for the first 5 bicycle spaces or part thereof, plus an additional shower for every 10 bicycle parking spaces thereafter; c. Showers and change facilities may be provided in the form of shower and change cubicles in a unisex area or in both female and male change rooms; and d. Locker change room and shower facilities are located close to the bicycle parking area, entry/exit points. <p>3. For residents of strata titled buildings or visitors to other developments, end-of-trip facilities are optional. However, where there are bicycle storage and shower/change facilities, they are to be made available to all occupants of the building.</p>

7.4 Servicing and Loading Design

7.4.1 Objectives

- O1. Provide functional, safe, and efficient loading and servicing areas.
- O2. Minimise visual and amenity impacts of loading and servicing on the public domain.
- O3. Ensure that adequate off-street loading, delivery, and servicing facilities are provided.
- O4. Minimise the impacts of loading, deliveries and servicing operations on the safety and efficiency of the surrounding road system and resident/visitor movement.
- O5. Support efficient off-street facilities to support sustainable last mile freight and servicing for the precinct.

7.4.2 Performance Outcomes and Benchmark Solutions

7.4.2	Performance Outcome	Benchmark Solution
PO1	Provide on-site loading and servicing that meets the demand generated by the development.	<ol style="list-style-type: none"> 1. For any permitted building use, head height clearances and aisle widths on Level 1 of the basement are sufficient for the largest loading vehicle (minimum 5m high) to enter the site, unload and exit the site in only 1 reverse vehicle movement. 2. All servicing, including waste and recycling collection, to be carried out wholly within the site with collection points at convenient locations. 3. Waste and recycling bin rooms and collection points are located within the basement and have a floor to ceiling clearance of 6.5m to allow for the overhead mechanical loading of bins within the basement by garbage trucks.
PO2	Loading and unloading facilities are adaptable to future technologies.	<ol style="list-style-type: none"> 1. Loading and unloading facilities are adaptable to technology or other services (e.g. food donation operations, or reverse logistics to return items for reuse or repair).
PO3	Service vehicle types are appropriate to the scale and requirements of the proposed development.	<ol style="list-style-type: none"> 1. Developments containing more than 30 dwellings but less than 60 provide at least 1 service delivery space, capable of accommodating at least 1 Medium Rigid Vehicle. 2. Developments containing more than 60 dwellings provide at least 1 service delivery space, capable of accommodating at least a: <ol style="list-style-type: none"> a. Medium Rigid Vehicle; and b. Heavy Rigid Vehicle. 3. Swept turning paths provided for HRV and single articulated (20m). 4. Medium Rigid Vehicles and Heavy Rigid Vehicles are deemed to be the same as that described in Section 2 of AS 2890.2 – <i>Parking facilities – Part 2: Off-street commercial vehicle facilities</i>. 5. Off-street loading and unloading facilities are provided for all commercial and industrial premises. The number and size of loading bays will be determined by the consent authority having regard to the: <ol style="list-style-type: none"> a. Intended use of the premises; b. Frequency of deliveries/collections; c. Size and bulk of goods to be delivered/collected; d. Size of vehicles to be used; and e. Likely impacts on traffic safety and efficiency on adjoining roads.
PO4	Loading areas provide safe access and they are designed to avoid dominating the public domain.	<ol style="list-style-type: none"> 1. Loading zones are provided on each street block to support freight generating activity. 2. Vehicle access is arranged so that: <ol style="list-style-type: none"> a. The turning movements of the largest design vehicle to access the site are accommodated; b. The full lifecycle of a development and its freight and service vehicle demands are catered for within the development site (i.e. provisions for servicing, loading/deliveries, removalists, renovations and repairs, garbage collection requirements); c. Freight and service vehicle and loading/delivery areas are separated from other car parking areas and pedestrians within the site;

7.4.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> d. Turnaround areas are designated and kept clear of obstructions at all times; e. Service vehicles are wholly accommodated within a site before being required to stop; and f. Swept turning paths provided for HRV and single articulated (20m). <p>3. Driveways, loading docks and servicing facilities avoid fronting public spaces such as station plazas and parks, significant pedestrian routes to stations and other significant destinations. Access via side streets or rear lanes is preferred.</p> <p>4. Loading areas are encouraged to provide space to service a broader precinct or buildings beyond the one it is developed in.</p>

8 Building Siting and Design

8.1 Building Setbacks and Interfaces

The interfaces between any new development and the airport, major roads and rail infrastructure along the public domain are important to ensure liveability and productivity.

8.1.1 Objectives

- O1. Create appropriate interfaces between uses. New development needs to consider the desired future character for the area and be responsible for providing appropriate interfaces going forward.
- O2. Ensure good design and planning occurs at the interface between existing and new major infrastructure and built form.
- O3. Orientate new development towards blue-green corridors to provide connection to Country, surveillance, and activation along the interface.

8.1.2 Performance Outcomes and Benchmark Solutions

8.1.2	Performance Outcome	Benchmark Solution
A. Interface between potential conflicting uses		
PO1	New development occurs alongside existing major land uses in a compatible manner to ensure co-existence for the period of transition.	<ol style="list-style-type: none"> 1. The application is to demonstrate that the buffer, building setback and building separation is appropriate from the existing neighbouring uses and identify any mitigation measures to be implemented on the site. The assessment must include consideration to hours of operation, noise, vibration, odour, lighting, traffic, visual impact and any other potential nuisance from the existing or proposed major transport infrastructure operations.
B. Interface with a major road		
PO1	Built form is located at an appropriate distance and setback from major roads to create an interface that responds to the topography, soil preservation principles and ensures design excellence.	<ol style="list-style-type: none"> 1. Surface levels within private lots adjacent to major roads align with ground levels within the public domain at the boundary. Any level difference is dealt with internally within the lot. 2. In the Enterprise zone, discrepancies between surface levels within lots and the adjoining public domain can be achieved by locating an office and administrative building surface level at ground level of a building. 3. Buildings do not address Elizabeth Drive as a 'back interface'. 4. The interface is landscaped to complement the intent of the Western Parkland City. Development is set back to allow deep soil planting of trees and understorey between the road and the development-built form. 5. Ensure back-of-house uses (including external storage) are not visible from any road and active transport corridor. 6. A Local Road provides the interface between the Eastern Ring Road / Northern Road and built form. 7. For setbacks, refer to Table 5 below and the cross sections from the Western Sydney Street Design Guidelines.
C. Interface with Badgerys Creek Road		
PO1	Development is orientated to Badgerys Creek Road and creates an interface and relationship to the	<ol style="list-style-type: none"> 1. Development along Badgerys Creek Road provides an interface that enables pedestrian amenity, activity at ground level and the front doors of buildings to present to the road. 2. Provide a front setback area for deep soil planting of trees and understorey.

8.1.2	Performance Outcome	Benchmark Solution
	street through built form and landscaping.	3. Ensure back-of-house uses (including external storage) are not visible from any road and active transport corridor.
D. Interface with the future Outer Sydney Orbital (OSO)		
PO1	Design of the built form and the future location, height and transition of the OSO preserves strategic sight lines from the Agribusiness precinct to the west.	1. For setbacks, refer to refer to Table 5 below and the cross sections from the Western Sydney Street Design Guidelines.

Table 5 Interfaces with Roads

This table is to be read with the sections for road interfaces on the preceding page.

Type of Road	Setbacks for Road Interfaces
Classified road	20m
Collector & distributor road	12m
Local road	7.5

8.2 Universal Design and Access

8.2.1 Objectives

- O1. Provide equitable, safe, and legible access to the public realm and built form for all people.

8.2.2 Performance Outcomes and Benchmark Solutions

8.2.2	Performance Outcome	Benchmark Solution
PO1	Buildings and public places are designed for equity, accessibility and safety.	<ol style="list-style-type: none"> 1. Paths, ramps, steps, and lifts comply with <i>AS 1428-2009 Design for Access and Mobility</i>. 2. Provide safe, logical, and predicable pathways that consider: <ol style="list-style-type: none"> a. Sight lines; b. Legibility; c. Weather protection; d. Cultural safety; e. The needs of children, the elderly, and people with disabilities; and f. Access and signage information. 3. Built form is stepped with the topography to provide at grade access for all ground floor uses.

8.3 Design for Safe Places

8.3.1 Objectives

- O1. Design in accordance with Crime Prevention Through Environmental Design (CPTED) principles.
- O2. Ensure the development contributes to the activity, vibrancy, diversity and safety of streets and the public domain through the day and night.

8.3.2 Performance Outcomes and Benchmark Solutions

8.3.2	Performance Outcome	Benchmark Solution
PO1	Passive surveillance is maximised.	<ol style="list-style-type: none"> 1. Visibility and surveillance are provided in all areas of development. 2. Adjoining buildings overlook public places. 3. Building frontages face streets and transport corridors to provide passive surveillance. 4. Use open grill or transparent security (at least 50% visually transparent) shutters to retail frontages.
PO2	Access and sightlines promote safe movement. Ensure pedestrian and cycleways are designed in accordance with CPTED to ensure a safe and secure environment that encourages activity, vitality and visibility, enabling a greater level of security.	<ol style="list-style-type: none"> 1. Entrances are accessible, clearly visible, legible and allow users to see into or out of the building before entering exiting. 2. Pedestrian paths have well defined routes, clear sight lines and do not channel users into dead ends that are poorly lit or to areas with opportunities for concealment 3. Minimise corners, poorly lit corridors, laneways with low activity and other kinds of entrapment spots. 4. If entrapment spots are unavoidable, they are to be mitigated using measures such as CCTV surveillance.
PO3	Car parking areas, pathways and other	<ol style="list-style-type: none"> 1. Car parking areas and structures are designed in accordance with CPTED principles.


8.3.2	Performance Outcome	Benchmark Solution
	<p>elements of transport network infrastructure are in accordance with Crime Prevention Through Environmental Design (CPTED) principles to enhance public safety by discouraging crime and anti-social behaviour.</p>	<ol style="list-style-type: none"> 2. Car park areas and structures are well maintained and incorporate CCTV as a deterrent to crime and anti-social behaviour. 3. Ground levels of car park structures are sleeved with active uses to support passive surveillance. 4. Ensure passive surveillance to and from the public domain for at grade car parking areas. 5. Pedestrian access points to car parks are clearly delineated and located in areas with good visibility from the public realm. 6. Facade systems (shown below) are designed to integrate safety barriers and systems while also incorporating visual transparency to facilitate passive surveillance from and to the public realm. <p><i>Example of a facade system that facilitates passive surveillance</i></p> 
PO4	<p>Safety is ensured via the use of appropriate lighting.</p>	<ol style="list-style-type: none"> 1. Use public lighting to connect areas between lights and avoid unnecessary areas of darkness. The areas should be lit to the minimum AS 1158. 2. Illuminate public areas, entrances to buildings and concealed corners. 3. Minimise lighting spillage onto surrounding properties by designing in accordance with AS 4282.
PO5	<p>Public and private spaces are clearly delineated.</p>	<ol style="list-style-type: none"> 1. Clearly demonstrate ownership of private and public space in the design of the public realm and built form. 2. Use landscaping to delineate between public and private spaces rather than building materials (e.g. solid fences).
PO6	<p>Building materials are durable.</p>	<ol style="list-style-type: none"> 1. Use vandalism and graffiti resistant materials.

Figure 11 Interface to Main Streets within Centres



Figure 12 Interface to Main Streets Containing Commercial Activity



8.4 View Sharing

8.4.1 Objectives

O1. Protect and retain high-quality view lines and corridors.

8.4.2 Performance Outcomes and Benchmark Solutions


8.4.2	Performance Outcome	Benchmark Solution
PO1	Streets, the public domain, and open space protect and provide views to significant scenic and culturally valuable landscapes, particularly ridges, creek lines and riparian corridors.	<ol style="list-style-type: none"> 1. Where possible, view lines to significant scenic and culturally valuable landscapes, particularly ridges, creek lines and riparian corridors are protected and provided through the appropriate location of public domain and streets. 2. Active spaces and building frontages address creek lines, riparian corridors, and green spaces. 3. Street and road networks highlight significant views to, and vistas of, scenic landscapes. View lines end with visual landmarks to connect urban areas with the landscape.


8.5 Signage and Wayfinding

8.5.1 Objectives

- O1. Ensure signs and advertisements contribute positively to the public domain and achieve a high level of design quality.
- O2. Ensure that visual and physical amenity are not adversely impacted by visual clutter associated with a proliferation of signs.
- O3. Ensure signs are clearly visible without dominating buildings, streets, or public places.
- O4. Ensure signs and advertisements do not create a safety risk or hinder direct movement in high volume pedestrian areas.
- O5. Provide signage for the purpose of wayfinding.
- O6. Promote an integrated design approach so that signage is in character with the locality, its architectural and landscape features and local Aboriginal culture.

8.5.2 Performance Outcomes and Benchmark Solutions

8.6.2	Performance Outcome	Benchmark Solution
PO1	Businesses are readily identifiable, while the visual and physical amenity of a locality is not impaired by a proliferation of signs.	<ol style="list-style-type: none"> 1. Signage is provided only for the purposes of business identification or wayfinding. 2. Where signage is for the purpose of business identification, it clearly identifies the name and street number of the business or activity undertaken on the premises. 3. Signage placement, design and dimensions comply with Table 6. (Refer to Figure 13 for types of signage.) 4. Within Enterprise and Agribusiness zones, ensure that: <ol style="list-style-type: none"> a. 1 business identification sign is permitted per commercial/industrial unit. b. For developments with multiple tenancies, 1 freestanding common tenancy sign is allowed per street frontage and the size is restricted to a maximum size of 10m². c. Sculptural features that reflect company branding (as shown below) may be considered as signage on a merit basis. 5. Within Mixed Use zones, confine signs to the ground level of the building, awning, or fascia, unless demonstrated that the building is of a scale, architectural style and in a location that would be enhanced by signage at different elevations. <p><i>Examples of sculptural features that reflect company branding</i></p> 

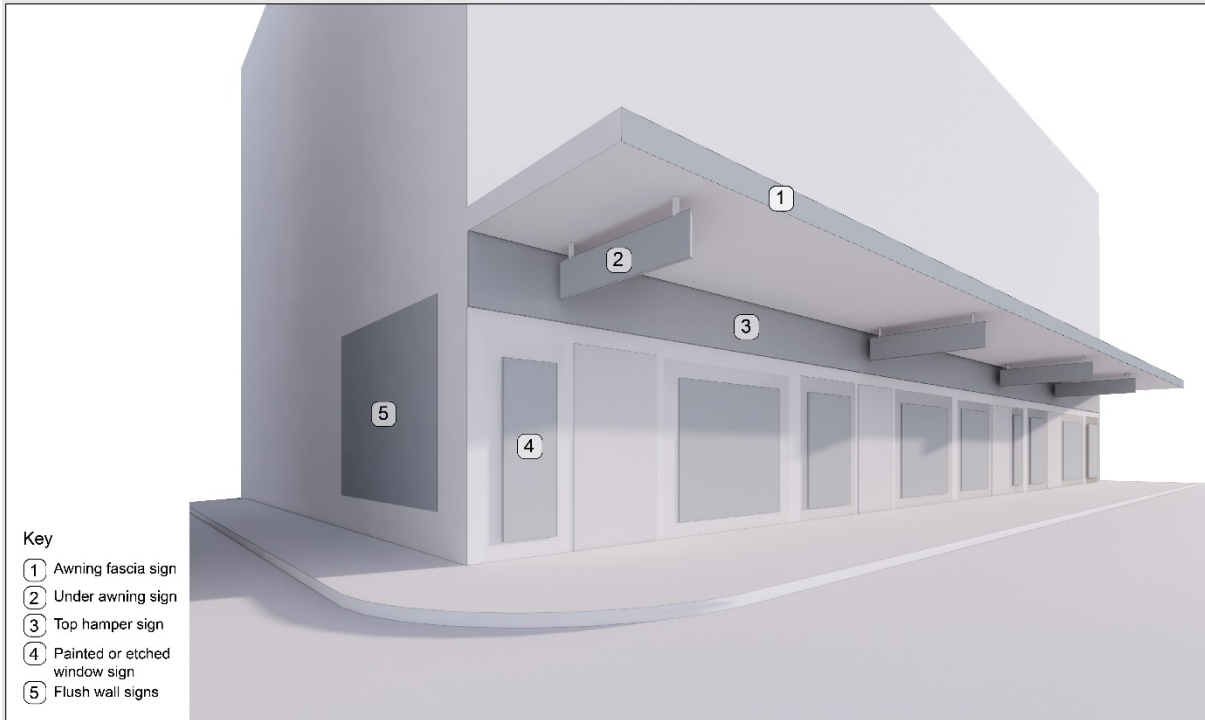
8.6.2	Performance Outcome	Benchmark Solution
		
PO2	Signage is of high visual quality, compatible with the character of the precinct and complements the public domain.	<ol style="list-style-type: none"> 1. Consider signage design and placement from the design stage. 2. Signs are compatible with the design, scale and architectural character of the building or site and make a positive visual contribution to the public domain. 3. Signs are designed and placed so they do not adversely impact on the amenity of the streetscape and the surrounding locality or result in visual clutter. 4. Structures supporting signs are aesthetic and do not impact on the visual amenity of the locality. 5. Signage is a minor and unobtrusive element of the built form, and complements location, scale, materials, colour, landscape and setting. 6. Signage is constructed of high quality and durable materials that can be maintained in a neat, clean, and tidy manner.
PO3	Signage does not result in adverse impacts on amenity.	<ol style="list-style-type: none"> 1. Signage does not intrude into areas of scenic value or degrade the quality of views from major scenic viewpoints. 2. Signage does not include moving, revolving, strobing, or flashing components. 3. Signage does not cause undesirable overshadowing or impacts on properties overlooking the signage. 4. Signage is installed/constructed so it can easily be removed when the business is no longer operating on the premises.
PO4	Signage's level of illumination is safe and does not cause detrimental impacts on the amenity of its locality.	<ol style="list-style-type: none"> 1. Illuminated signage may only be permitted where it can be demonstrated that it is necessary, suitable to its context, and will not result in adverse impacts on visual amenity and safety, including aviation safety. 2. The illuminance, luminance and threshold increment of illuminated signage complies with AS 4282-1997. 3. Up-lighting of signs is prohibited. Any external lighting of signs is: <ol style="list-style-type: none"> d. Downward pointing; e. Focused directly on the sign; and f. Prevents or minimises the escape of light beyond the sign. 4. Illumination must not cause glare, traffic hazard, environmental impacts, or other nuisance. 5. The maximum night-time luminance of any sign does not exceed 300 cd/sqm. A lighting report may be required in some circumstances.

8.6.2	Performance Outcome	Benchmark Solution
		<p>6. A curfew may be imposed on the operation of illuminated signs where continuous illumination may impact adversely on the amenity of residential buildings, serviced apartments or other tourist and visitor accommodation, or have other adverse environmental effects.</p>
PO5	<p>Signage maintains appropriate levels of safety and not unduly obstruct, or distract, vehicular or pedestrian traffic.</p>	<ol style="list-style-type: none"> 1. Signage is structurally sound and securely fastened to prevent accidental damage or injury. 2. Overhead signage provides a minimum of 2.4m high clearance to a public footpath below any signage device. 3. Signage must maintain the view of any traffic sign, traffic signals or street name, and does not reduce drivers' line of sight.
PO6	<p>Wayfinding signage provides direction to connection points, places of cultural significance, activity or links to active transport routes.</p> <p>Note: The complexity of a wayfinding strategy will be dependent on the size and nature of the development. For example, large master planned areas and multi tenancy developments may be subject to more complex wayfinding considerations, while a single site would not have to provide such a strategy.</p>	<ol style="list-style-type: none"> 1. Provide a wayfinding signage strategy to guide the provision of wayfinding signage for all new development (see Section 2.1.2 C. PO2).

Table 6 Signage Placement Design and Dimensions

Signage type	Placement/ Maximum size
Shop front sign	Does not project above, below or beyond the return edge of the fascia.
Under-awning signage	Maximum dimensions 2.5m x 0.3m.
Flush wall sign	Maximum 5m ² .
Building identification sign	Maximum of 1 sign per building.

Figure 13 Types of Signage



9 Flooding and Environmental Resilience and Adaptability

The NSW Government is planning for the Aerotropolis to be resilient and adaptable. Planning for resilience enables the Aerotropolis to resist, absorb, accommodate and recover from the effects of a hazard.

9.1 Flood Risk Management

9.1.1 Objectives

- O1. Ensure development in the floodplain is consistent with the *NSW Flood Prone Land Policy* and the principles of the *NSW Floodplain Development Manual*.
- O2. Embed Aboriginal cultural knowledge and caring for Country practices to minimise the impact of development on flood behaviour and function of the floodplain and avoid adverse impacts to the existing flora, fauna and community.
- O3. To minimise the flood risk to life and property associated with the use of land considering the full range of flooding.
- O4. Enable key community services and infrastructure that respond to flood threats to function during flooding.
- O5. To allow development on land that is compatible with the flood function and behaviour on the land, taking into account projected changes as a result of climate change.
- O6. Consider areas within the floodplain for amenity and recreation use where compatible with flood function and flood risk.
- O7. Development is not intensified in a floodway or flood storage area.
- O8. Avoid cut and fill on land located below the 1% annual exceedance probability (AEP).
- O9. To avoid adverse or cumulative impacts on flood behaviour and the environment.
- O10. To enable the safe occupation and efficient evacuation of people in the event of a flood.

9.1.2 Performance Outcomes and Benchmark Solutions

9.1.2		Benchmark Solutions		
Performance Outcome		1% AEP Floodway and Critical flood Storage Areas (defined in Appendix A) <i>Unsuitable for urban land uses</i>	Between 1% AEP Floodway / Critical Flood Storage and Flood Planning Area (defined in Appendix A) <i>Unsuitable for Critical and Sensitive Land Uses</i>	Outside Flood Planning Area to Probable Maximum Flood (defined in Appendix A) <i>Unsuitable for Critical Land Uses</i>
PO1	<p>Conveyance and storage of floodwaters through the floodplain is managed.</p> <p>The siting and layout of development considers flood constraints, including risks to personal safety during the full range of floods.</p> <p>The site layout and built form of the development is compatible with flood constraints and potential risk.</p>	<ol style="list-style-type: none"> 1. Except for concessional development, development is not permissible in this area – refer to clause 4b of the Aerotropolis SEPP. 2. For concessional development, the applicant is to demonstrate that the structure can be undertaken in accordance with a Flood Impact and Risk Assessment (FIRA). 3. The FIRA is undertaken by a suitably qualified professional engineer and considers the impacts of: <ol style="list-style-type: none"> a. Flooding on the development; b. The development on flooding; c. Flooding and the development on property and the existing and future community; and d. Climate change consistent with the objectives of this DCP. 4. The FIRA has considered the impacts on flooding due to encroachment of structures and the associated collection of debris and potential for blockage. 5. The FIRA assesses flood constraints for both pre and post development cases to ensure there are no significant detrimental impacts on flood behaviour or the community within and outside the development site. 	<ol style="list-style-type: none"> 1. Applicant to demonstrate that development as a consequence of a subdivision or development proposal, can be undertaken in accordance with a FIRA. 2. The FIRA is undertaken by a suitably qualified professional engineer and considers the impacts of: <ol style="list-style-type: none"> a. Flooding on the development; b. The development on flooding; c. Flooding and the development on property and the existing and future community; and d. Climate change consistent with the objectives of this DCP. 3. The FIRA assesses flood constraints for both pre and post development cases with and without climate change to ensure there are no significant detrimental impacts on flood behaviour or to the community upstream, downstream, or adjacent to the site. 4. The FIRA considers: <ol style="list-style-type: none"> a. Car parks; b. The type of car park; c. For open car parks, the restraints used to secure and prevent floating vehicles from leaving the car park; and d. For enclosed car parks, how floodwaters will be stopped from entering the enclosed car park. 5. For all zones, any development that includes a residential component has Habitable Floor Levels equal to or greater than the 1% AEP flood level plus 500mm freeboard. 	<ol style="list-style-type: none"> 1. Applicant to demonstrate that development as a consequence of a subdivision or development proposal, can be undertaken in accordance with a FIRA. 2. The FIRA is undertaken by a suitably qualified professional engineer and considers the impacts of: <ol style="list-style-type: none"> a. Flooding on the development; b. The development on flooding; c. Flooding and the development on property and the existing and future community; and d. Climate change consistent with the objectives of this DCP. 3. The FIRA assesses flood constraints for both pre and post development cases with and without climate change to ensure there are no detrimental impacts on flood behaviour or to the community upstream, downstream, or adjacent to the site. 4. Critical and sensitive land uses are to have floor levels equal to or greater than the PMF level where intended to be utilised during flooding.

9.1.2		Benchmark Solutions		
			6. Building Floor Levels are equal to or greater than the 1% AEP flood level plus 500mm freeboard in the following areas: <ol style="list-style-type: none"> Enterprise Zone; Agribusiness Zone; and Mixed Use Zone. 	
PO2	Development has minimal impact on flood behaviour.	<ol style="list-style-type: none"> In addition to concessional development, the only structures to be considered in this area are for the purposes of creek crossings (pedestrian bridges and road bridges). The FIRA demonstrates the structure will not increase flood affectation to existing and proposed development within and outside the development site. The FIRA considers the cumulative impact of potential future development from the upstream hydraulic control to the downstream hydraulic control. The FIRA demonstrates the peak flow at the downstream hydraulic control is maintained with development and the shape of the flood hydrograph is generally maintained for events up to and including the 1% AEP flood event. 	<ol style="list-style-type: none"> The FIRA demonstrates that development will not increase flood affectation to existing and proposed development within and outside the development site. The FIRA demonstrates the cumulative impact of potential future development from the upstream hydraulic control to the downstream hydraulic control. The FIRA demonstrates the peak flow at the downstream hydraulic control is maintained with development and the shape of the flood hydrograph is generally maintained for events up to and including the 1% AEP flood event. 	<ol style="list-style-type: none"> Except for residential development, an engineer's report is required to certify the development will not increase flood affectation to existing and proposed development.
PO3	Structures are designed and constructed so they remain structurally sound for the life of the development considering flood and debris forces.	<ol style="list-style-type: none"> In addition to concessional development, the only structures to be considered in this area are for the purposes of creek crossings (pedestrian bridges and road bridges). All structures are of flood-compatible building components below or at the flood planning level. An engineer's report is submitted to certify the structure can withstand the forces of floodwater including debris and buoyancy up to and including the flood planning level (based on the 1% AEP flood plus 500mm freeboard). 	<ol style="list-style-type: none"> All structures are of flood-compatible building components below or at the flood planning level. An engineer's report is submitted to certify the structure can withstand the forces of floodwater including debris, immersion, and buoyancy up to and including the flood planning level. The FIRA demonstrates that all new electrical equipment, power points, wiring, fuel lines, sewerage systems or any other service pipes and connections can be waterproofed and/or located above the flood planning level. 	<ol style="list-style-type: none"> Critical and sensitive land uses are of flood-compatible building components below or at the PMF level where intended to be utilised during flooding. An engineer's report is submitted to certify the structure can withstand the forces of floodwater including debris and buoyancy up to and including the PMF level for sensitive development or essential community facilities intended to be utilised during flooding.
PO4	All fill ensures the long-term stability of the development site and is not affected by erosion.	<ol style="list-style-type: none"> The FIRA demonstrates that any fill as a result of the development will not be impacted by erosion and will have long term stability. 		

9.1.2		Benchmark Solutions		
PO5	The safety of users of developed areas located on the floodplain for the full range of flooding is ensured.	<ol style="list-style-type: none"> 1. Applicant demonstrates evacuation of the proposed development can be undertaken in accordance with the Local Flood Plan or SES flood emergency management strategy for the area. 2. The FIRA demonstrates evacuation can be undertaken consistent with the Local Flood Plan or SES flood emergency strategy for the area. 	<ol style="list-style-type: none"> 1. Vehicular and pedestrian access ensures access/egress is provided to above the predicted peak level of the PMF. 2. The FIRA demonstrates evacuation can be undertaken consistent with the Local Flood Plan or SES flood emergency strategy for the area. 	<ol style="list-style-type: none"> 1. Vehicular access to precincts are designed to ensure rising road access/egress is provided to above the predicted peak level of the PMF. 2. FIRA for sensitive and critical development demonstrates evacuation can be undertaken consistent with the Local Flood Plan or SES flood emergency strategy for the area.
PO6	Public safety and the environment are not adversely affected by the detrimental impacts of floodwater on hazardous materials manufactured or stored in bulk.	<ol style="list-style-type: none"> 1. No external storage of materials which may cause pollution or be potentially hazardous during any flood. 	<ol style="list-style-type: none"> 1. No external storage of materials which may cause pollution or be potentially hazardous during any flood. 	<ol style="list-style-type: none"> 1. No external storage of materials which may cause pollution or be potentially hazardous during any flood.
PO7	Fencing is designed and constructed so it does not impede and/or direct the flow of floodwaters, add debris to floodwaters or increase flood affectation on surrounding land.	<ol style="list-style-type: none"> 1. Use open type fencing. 2. Fencing is not permissible unless it can be shown, through a FIRA, not to impact on flood conveyance or behaviour. 	<ol style="list-style-type: none"> 1. Fencing is constructed in a manner that does not obstruct the flow of floodwaters. 2. Fencing of flow paths is limited to permeable open type fences. 	N/A
PO8	Earthworks including cut and fill do not impact flood storage areas.	<ol style="list-style-type: none"> 1. The FIRA demonstrates earthworks will not affect flood storage capacity or flood behaviour for the full range of flood events. 	<ol style="list-style-type: none"> 1. The FIRA demonstrates earthworks will not affect flood storage capacity or flood behaviour for the full range of flood events. 2. Any fill platform associated with development does not create a local site-specific flood island isolating the user from safety during flooding. 	<ol style="list-style-type: none"> 1. The FIRA demonstrates earthworks will not affect flood storage capacity or flood behaviour for the full range of flood events. 2. Any fill platform associated with development does not create a local site-specific flood island isolating the user from safety during flooding

*Areas identified in *Wianamatta (South) Creek Flood Study – Existing Conditions* prepared by Advisian for Infrastructure NSW in November 2020 or subsequent versions of this report by Advisian for Infrastructure NSW and the Western Sydney Planning Partnership.

Note: Refer to Appendix A of this DCP for a definition of terms referred to in this section, including definitions for critical and sensitive land uses, as well as concessional development.

9.2 Mitigating the Urban Heat Island Effect

9.2.1 Objectives

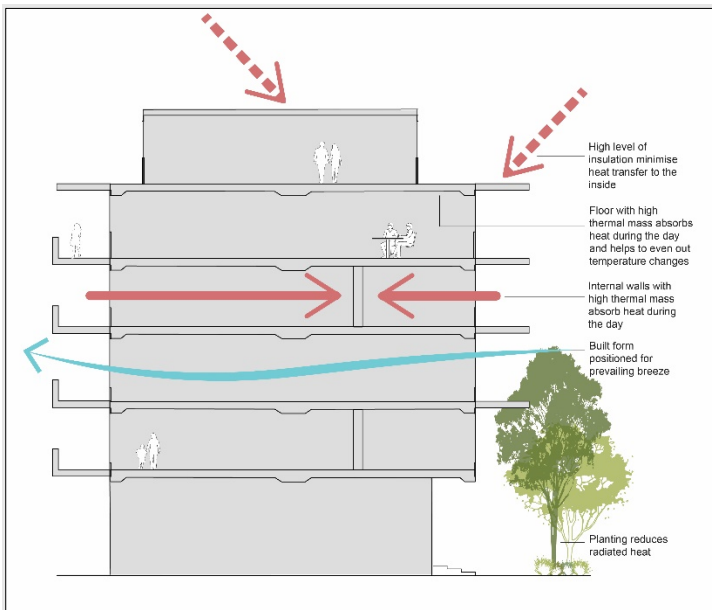
- O1. Design built form and open space with measures that contribute to a reduction in the number of very strong and extreme heat stress days.
- O2. Manage urban heat island effects to ensure a high level of comfort for workers and residents throughout the year, with a focus on hot days and the summer period.
- O3. Harness the effects of blue and green infrastructure to enable urban cooling.

9.2.2 Performance Outcomes and Benchmark Solutions

9.2.2	Performance Outcome	Benchmark Solution
PO1	Site layout of development and public domain mitigates urban heat island effect.	<ol style="list-style-type: none"> 1. Evaporative cooling is enabled through implementation of design initiatives and features, including: <ol style="list-style-type: none"> a. Water Sensitive Urban Design; b. Misting infrastructure in public places during high and extreme heat days; c. Irrigation of all public and private open spaces (using harvested stormwater) with 50% of grassed areas and 100% trees irrigated; d. Use of dips and concave spaces to trap water and reduce run off; and e. Use of fountains, water features and other water-based infrastructure to cool the environment. 2. Provide shade for the protection of summer sun through: <ol style="list-style-type: none"> a. Trees; b. Awnings, eaves, and overhangs; and c. Building design. 3. Use pavements which are permeable and have high albedo, resulting in less solar absorption. When using permeable pavers, it must be demonstrated there is no impact on the salinity or sodicity of underlying soils. 4. Provide public drinking taps in public areas every 500m. 5. Provide tree canopy cover in parks as follows: <ul style="list-style-type: none"> • for open spaces without sports courts and fields, a minimum tree canopy of 45%; • for open spaces with sports courts and fields, a minimum tree canopy of 45% applies to areas outside the courts and fields. Where possible, the remaining area should exceed the 45% minimum to compensate for the lack of canopy on the courts and fields. 6. Provide a microclimate impacts assessment report that integrates heat preparedness and outlines the planning and design for a cooler community. 7. Public seating has adequate shading.
PO2	Buildings minimise cooling demand indoors and heat absorbance through orientation, the design of roofs and facades and materials.	<ol style="list-style-type: none"> 1. Orientate buildings to take advantage of prevailing winds, natural ventilation, and solar access (Refer to Figure 14). 2. Provide western and northern facades with external shading devices to shield the building from hot summer sun, while allowing direct sunlight in winter. 3. Integrate green infrastructure into buildings, including healthy vegetation, green walls, and irrigation in open spaces (Refer to the Western Sydney Aerotropolis Landscape Species List in Appendix B).

9.2.2	Performance Outcome	Benchmark Solution
		<ol style="list-style-type: none"> 4. Use light coloured building materials. 5. Dark or black external wall colours do not exceed 10% of the total wall space in developments. 6. Built form and roofs are developed with eaves, awning, and overhangs to provide shade. 7. 50% of rooftops are either vegetated, light coloured or irrigated using harvested stormwater. 8. Low heat conductive materials, appropriate insulation, wider eaves on northern and western facades reduce passive internal heating of the building. 9. The building includes: <ol style="list-style-type: none"> a. Maximum efficiency appliances (NABERS applicable to office development and Green Star to all other), such as: <ol style="list-style-type: none"> i. 100% energy efficient lighting; ii. 5-star efficient cooling and heating systems (targets spaces that require heating/cooling instead of the entire building); and iii. fridge ventilation spaces. b. Insulation to the highest R-value appropriate to site. c. External shading on north and north west facades; d. Sub floor ventilation; and e. Outdoor drying facilities. 10. To minimise energy use, buildings: <ol style="list-style-type: none"> a. Use high levels of insulation as a simple means of reducing energy consumption; b. Apply green roof and green façade/wall elements to reduce heat loads on internal spaces; and c. Provide effective metering systems to monitor the energy performance of buildings, including individual dwellings and tenancies. 11. Where cooling towers are used, they are connected to a conductivity meter to ensure optimum circulation before discharge and include a water meter connected to a building energy and water metering system to monitor water usage. 12. Hot Water Systems are insulated and solar powered (solar and heat pump systems must be eligible for at least 24 Renewable Energy Certificates or RECs). 13. Buildings comply with or exceed the Building Sustainability Index (BASIX).

Figure 14 Cooling Buildings



9.3 Bushfire Hazard Management

9.3.1 Objectives

- O1. Ensure development appropriately responds to bushfire hazards to protect life, property, and the community, and minimises impacts on the environment.
- O2. Manage fire risk by regimes that protect biodiversity and habitats in the long term.
- O3. Embed Aboriginal cultural knowledge and caring for Country practices to minimise the impact of development on bushfire hazards and function of the landscape and avoid adverse impacts to the existing flora, fauna and community.

9.3.2 Performance Outcomes and Benchmark Solutions

9.3.2	Performance Outcome	Benchmark Solution
PO1	Development responds appropriately to the level of bushfire risk, as per <i>Planning for Bushfire Protection 2019</i> .	<ol style="list-style-type: none"> 1. Where a site is identified as being bushfire prone, Asset Protection Zones (APZs) are contained within the development site. Clearing for bushfire protection is not permitted in the Warragamba Pipelines Corridor, transport corridors or any land identified for open space. 2. A bushfire report is required for all development on sites located within a bushfire prone area.
PO2	Native vegetation is retained, while other mitigation measures are implemented as a response to bushfire risk.	<ol style="list-style-type: none"> 1. Ensure appropriate fire management regimes and hazard reduction techniques for native vegetation areas, waterways, and riparian zones. 2. APZs are located outside of areas identified as retained vegetation, key habitat, and corridors.

9.4 Salinity

9.4.1 Objectives

- O1. Manage and mitigate the impacts of development in relation to salinity processes, to prevent any degradation of soils, groundwater or vegetation, where present in the landscape.

- O2. Minimise salt movement in the landscape to promote landscape-led design approaches and ensure development will not significantly increase the salt load in existing watercourses.
- O3. Ensure application of water to the landscape and developable areas does not adversely impact the environmental value and the ecological health of waterways, groundwater dependent ecosystems, soil quality, trees, and vegetation.
- O4. Assist government agencies, land management authorities and landholders in developing appropriate salinity management practices.
- O5. To avoid or mitigate the impacts of salinity on development, including damage to buildings and infrastructure and the loss of productive agricultural land.

9.4.2 Performance Outcomes and Benchmark Solutions

9.4.2	Performance Outcome	Benchmark Solution
PO1	The extent and location of salinity in the landscape and hydrogeologic regimes are accurately identified.	<ol style="list-style-type: none"> 1. Review hydrogeological landscape (HGL) for the area prepared by NSW DPIE at 1:100,000 and the Western Sydney Potential Salinity Map as a guide to determine where detailed investigations may be required. 2. Undertake salinity investigations prior to development and prepare a salinity management plan. 3. A detailed salinity analysis, to be prepared by a qualified expert, will be required if: <ol style="list-style-type: none"> a. An initial investigation shows the site as saline or affected by salinity; or b. The site of the proposed development has been identified as being a moderately saline area on the Western Sydney Potential Salinity Map.
PO2	Development avoids disturbing high-risk saline soils to minimise the movement of salt in the landscape, increase soil health and prevent soil structural decline.	<ol style="list-style-type: none"> 1. Demonstrate that disturbance to the natural hydrological system is minimised by: <ol style="list-style-type: none"> a. Maintaining effective drainage, or where modification occurs, the modification mimics effective drainage systems; b. Reducing waterlogging on the site and the potential for waterlogging via landscape-led design; c. Having minimal impact on the water table; and d. Having minimal impact on the hydrogeologic regime for sub soils, lateral flows, and deep groundwater systems.
PO3	Soil landscapes are protected, and the impacts of soil or groundwater salinity are avoided through landscape-led design approaches. Minimise major earthworks to manage salinity issues and, in open space and public areas, to minimise soil disturbance.	<ol style="list-style-type: none"> 1. Use construction techniques to prevent structural damage as a result of salinity, including: <ol style="list-style-type: none"> a. Building footings that do not impede groundwater movement; b. Correct drainage to protect building footings and foundations and avoid ponding; c. Use of building materials that are resistant to salt effects; d. Implementation of WSUD principles in suitable areas where salinity risk is lower; and e. Connection of roof drainage to stormwater systems, rather than sillage pits. 2. Landscape-led design minimises disturbance of subsoils, where possible. Replace topsoils (A horizon) and subsoil (B horizon) with like for like soils to mimic natural conditions. 3. Soils with high salinity are deemed to be contaminated fill and are subject to measures under the <i>Contaminated Land</i>

9.4.2	Performance Outcome	Benchmark Solution
		<p><i>Management Act 1997</i>, and other respective environmental legislation.</p> <p>4. Minimise groundwater recharge by:</p> <ol style="list-style-type: none"> a. Lining or locating any water storages/ponds/drainage basins higher in the landscape to avoid recharge where proximity to the water table is likely to create groundwater mounding; and b. Providing on site detention of roof water runoff.
PO4	Active irrigation of green infrastructure does not adversely impact the environmental value and ecological health of waterways, soil quality, trees, and vegetation.	<p>1. Where required, the Salinity Management Plan considers water application rates, size of the block and timing and management of irrigation to ensure overwatering and salt movement is minimised.</p>
PO5	Salinity management and codes of practise are adhered to and based on NSW and local government guidelines.	<p>1. Implement the following salinity management guidelines and codes of practise (or updates thereto) for land development (not limited to):</p> <ol style="list-style-type: none"> a. <i>Western Sydney Salinity Code of Practice</i> (Western Sydney Regional Organisation of Councils, 2003). b. <i>Western Sydney Hydrogeological Landscapes: May 2011 (First Edition)</i> data package. c. Relevant Australian Standards, including AS 2159, AS 2870, and AS 3600; and d. Local Government salinity initiative documents, including: <ol style="list-style-type: none"> i. <i>Site Investigations for Urban Salinity</i>; ii. <i>Land Use Planning and Urban Salinity</i>; iii. <i>Building in a Saline Environment</i>; and iv. <i>Roads and Salinity</i>. <p>2. Where soil sampling is required to be undertaken as part of salinity investigations, provide the following details:</p> <ol style="list-style-type: none"> a. Location of investigation soil samples and bores on plan; b. Electrical conductivity (EC) and texture profiling down the soil profile; c. Density of sampling; d. Use of electromagnetic (EM) survey; and e. Preliminary block layout to allow for development plans to address salinity issues.
PO6	Achieve healthy ecosystems by supporting soil ecology and support water retention in the clay landscape of the Cumberland Plain.	<p>1. Where possible, retain soils of the Cumberland Plain in an undisturbed and continuous state allowing for connectivity of soil ecology, resulting in healthier vegetation and increased water retention and increased carbon storage.</p> <p>2. Retain undisturbed soil networks that occur in riparian corridors, parks, nominated streets and specially designed natural soil corridors.</p>

9.5 Acid Sulfate Soils

Acid sulfate soils are predominantly a coastal issue, therefore the likelihood of acid sulfate soil occurrence within the Western Sydney Aerotropolis is low. For inland acid sulfate soil to occur, a source of sulfate, labile carbon/organic matter, low oxygen/reducing conditions and sulfate-reducing bacteria is required.

Within the Western Sydney Aerotropolis, this is only likely to occur in some dams, ponds and low rainfall events where ephemeral streams become ponds, and the conditions persist to generate acid sulfate soil.

9.5.1 Objectives

- O1. Manage and mitigate the impacts of land development in relation to acid sulfate soils, where present in the landscape.
- O2. Ensure the environmental value and ecological health of waterways, soil, trees, and vegetation are appropriately protected from the release of acid water from disturbed acid sulfate soils.
- O3. Ensure only soils classified as acid sulfate soil require management and mitigation as part of land development to minimise waste and energy expended to treat soils that are acidic but not from sulfidic sources.
- O4. Manage and mitigate the impacts on infrastructure within acid sulfate soils and waterways where degradation and accelerated corrosion could occur.

9.5.2 Performance Outcomes and Benchmark Solutions

9.5.2	Performance Outcome	Benchmark Solution
PO1	Acid sulfate soils are managed during development to ensure reuse of acid sulfate soil (with treatment) is considered and managed with no adverse impact to the environment, waterways, and infrastructure.	<ol style="list-style-type: none"> 1. Disposal of any acid sulfate soil as waste during development is undertaken in accordance with guidelines made and approved by the NSW EPA. 2. Where acid sulfate soils are present, an Acid Sulfate Soils Management Plan is prepared by a suitably qualified person and demonstrates that development will have no impact on the current level of the water table.
PO2	Infrastructure and concrete and steel structures placed in acid sulfate soil or within waterways for land development is designed to withstand acid sulfate soil environments.	<ol style="list-style-type: none"> 1. Engineering designs are built in accordance with relevant standards to withstand increased corrosion and durability impacts associated with acid sulfate soil.
PO3	Where possible, land development avoids excavation, dewatering and disturbance of acid sulfate soil.	<ol style="list-style-type: none"> 1. Landscape-led design minimises the potential for environmental and waterway impacts from development on acid sulfate soils.

9.6 Erosion and Sediment Control

9.6.1 Objectives

01. Protect the health of Wianamatta-South Creek and its tributaries from construction and building runoff and meet the performance criteria for ambient water quality objectives.
02. Encourage vegetation retention, protect vegetation during construction and operation, and facilitate prompt rehabilitation through revegetation strategies.
03. Minimise site disturbance during construction, reduce the amount of erosion, and stabilise construction works as quickly as possible following completion.

9.6.2 Performance Outcomes and Benchmark Solutions

9.6.2	Performance Outcome	Benchmark Solution
PO1	Development applications include an Erosion and Sediment Control Plan (ESCP)	<ol style="list-style-type: none"> 1. ESCP to be prepared by a Certified Professional in Erosion and Sediment Control (CPESC), and consider the following: <ol style="list-style-type: none"> a. Identify all areas likely to cause pollution of waterways from stormwater run-off and implement appropriate devices to stop the risk of pollution; b. Divert clean water around the construction site to prevent contamination; c. Retain as much natural vegetation as possible and limit site disturbance; d. Control stormwater that enters the construction site from upstream; e. Divert stormwater from undisturbed upper slopes onto stable areas; f. Retain and stockpile all excavated topsoil for future landscaping; g. Prevent sediment/silt from entering adjoining property by installing sediment control devices at the low side of sites and wash down areas; h. Install high efficiency sediment basins to ensure compliance with the water quality target throughout the construction and building phases; i. Provide a single, stabilised entry/exit point to the site; j. Prevent sediment, including building materials, from reaching the road or stormwater system. Sediment is to be removed by sweeping, shovelling or sponging. Under no circumstances shall sediment be hosed; k. Where a work zone permit over public property is applicable, debris control devices are to prevent spillage of building materials into stormwater drains; l. Compact all drainage lines when backfilling; m. Connect downpipes to the stormwater system as early as possible; n. Revegetate all disturbed areas, after on-site works are completed; and o. Maintain all sediment control devices during earthworks and construction.
PO2	The ESCP is to be implemented under the	<ol style="list-style-type: none"> 1. The relevant consent authority will require the CPESC to regularly audit and certify that the works are suitable to

9.6.2	Performance Outcome	Benchmark Solution								
	supervision of a CPESC.	protect Wianamatta-South Creek and its tributaries, including audit reports								
PO3	Soil erosion and sediment control measures are to be provided on-site before the commencement of any earthworks or development activity, in accordance with the approved ESCP.	1. Soil erosion and sediment control measures to be maintained throughout the course of construction until disturbed areas have been revegetated and the soil stabilised to the satisfaction of the relevant planning authority.								
PO4	Development is to ensure 80% of all flows leaving the construction site achieves total suspended solids of 50mg/L or less and a pH of 6.5-8.5 during the construction and building phases until the site is stabilised and landscaped.	<p>1. The ESCP must demonstrate compliance with the construction phase targets, outlined in the table below throughout the construction and building phases until the site is stabilised and landscaped.</p> <p>2. The ESCP must illustrate that appropriate controls have been planned which will, when implemented, minimise erosion of soil from the site and, accordingly, sedimentation of drainage systems and waterways.</p> <table border="1" data-bbox="624 1003 1380 2027"> <thead> <tr> <th data-bbox="624 1003 1007 1055"></th> <th data-bbox="1007 1003 1380 1055">Construction Phase Target</th> </tr> </thead> <tbody> <tr> <td data-bbox="624 1055 1007 1536">Total suspended solids (TSS) and pH</td> <td data-bbox="1007 1055 1380 1536">All exposed areas greater than 2,500m² must be provided with sediment controls which are designed, implemented and maintained to a standard which would achieve at least 80% of the average annual runoff volume of the contributing catchment treated (i.e. 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, and pH in the range (6.5–8.5)</td> </tr> <tr> <td data-bbox="624 1536 1007 1619">Oil, litter and waste contaminants</td> <td data-bbox="1007 1536 1380 1619">No release of oil, litter or waste contaminants.</td> </tr> <tr> <td data-bbox="624 1619 1007 2027">Stabilisation</td> <td data-bbox="1007 1619 1380 2027"> Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not, or not or is not likely to result in visible evidence of soil loss caused </td> </tr> </tbody> </table>		Construction Phase Target	Total suspended solids (TSS) and pH	All exposed areas greater than 2,500m ² must be provided with sediment controls which are designed, implemented and maintained to a standard which would achieve at least 80% of the average annual runoff volume of the contributing catchment treated (i.e. 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, and pH in the range (6.5–8.5)	Oil, litter and waste contaminants	No release of oil, litter or waste contaminants.	Stabilisation	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not, or not or is not likely to result in visible evidence of soil loss caused
	Construction Phase Target									
Total suspended solids (TSS) and pH	All exposed areas greater than 2,500m ² must be provided with sediment controls which are designed, implemented and maintained to a standard which would achieve at least 80% of the average annual runoff volume of the contributing catchment treated (i.e. 80% hydrological effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, and pH in the range (6.5–8.5)									
Oil, litter and waste contaminants	No release of oil, litter or waste contaminants.									
Stabilisation	Prior to completion of works for the development, and prior to removal of sediment controls, all site surfaces must be effectively stabilised including all drainage systems. An effectively stabilised surface is defined as one that does not, or not or is not likely to result in visible evidence of soil loss caused									

9.6.2	Performance Outcome	Benchmark Solution	
			by sheet, rill or gully erosion or lead to sedimentation water contamination.
PO5	Erosion and sediment control measures are to be installed in accordance with best practice (including <i>Managing Urban Stormwater – Soils and Construction</i> and <i>Best Practice Erosion and Sediment Control</i>).	1. The ESCP must be submitted in accordance with <i>Managing Urban Stormwater Soils and Construction</i> , also known as the <i>Blue Book</i> (current edition); and form part of the engineering design drawings and be documented in the construction plans. They must include a set of plans drawn to scale which show the layout of appropriate sedimentation and erosion control and outline of appropriate sedimentation and erosion control measures including HES basin details and calculations. The drawings must be developed and certified by the CPESC who developed the ESCP.	

9.7 Contaminated Land

This section applies to land which may be subject to land contamination. Some activities that are likely to cause contamination include:

- Agricultural/ horticultural activities;
- Airports;
- Asbestos production/disposal;
- Batteries manufacture and recycling;
- Chemical manufacture/formulation (including acid/alkali products, adhesives/ resins, dyes, explosives, fertiliser, flocculants, foam production including per- and poly-fluoroalkyl substances (PFAs), fungicides, herbicides, paints, pesticides, pharmaceuticals, service stations and fuel storage facilities);
- Defence work;
- Drum reconditioning;
- Dry cleaning;
- Electrical manufacturing (transformers).
- Electroplating and heat treatment premises;
- Engine works (including mechanics and air conditioning repairers);
- Explosives industry;
- Foundries;
- Gas works;
- Iron and steel works;
- Metal treatment;
- Landfill sites;
- Metal treatments;
- Mining and extractive industries;
- Oil production and storage;
- Paint formulation and manufacture;
- Pesticide manufacture and formulation;
- Power stations;
- Printing shops;
- Railway yards;
- Scrap yards;
- Service stations;
- Sheep and cattle dips;
- Smelting and refineries;
- Tanning and associated trades;
- Water and sewage treatment plants; and
- Wood preservation.

Where a preliminary site investigation identifies any past or present potentially contaminating activities or contaminants, a detailed site investigation must be conducted to determine the full nature and extent of the soil, groundwater, surface water (if applicable), leachate (if applicable), and hazardous ground gas (if applicable) contamination.

The EPA's Contaminated Land Consultant Certification Policy supports the development and implementation of nationally consistent certification schemes in Australia and encourages the use of certified contaminated lands consultants by the community and industry.

9.7.1 Objectives

- O1. Prevent harm and avoid unnecessary restrictions on land use by implementing a precautionary approach to dealing with contaminated land and identifying and dealing with contamination issues at an early stage in the planning process.
- O2. Manage and mitigate the impacts of development in relation to contaminated land.
- O3. Ensure all developable land is validated as suitable for its intended land use and zoning or made suitable through remediation or management methods.
- O4. Ensure development implements the principles of circular economy by implementing on-site resource recovery and design measures for soils and waste, with consideration of the NSW EPA waste hierarchy.
- O5. Ensure the safety of future site users and/or purchasers of sites that require an environmental management plan for the management of on-site contamination.

9.7.2 Performance Outcomes and Benchmark Solutions

9.7.2	Performance Outcome	Benchmark Solution
PO1	Development is located and designed to ensure users and nearby sensitive land uses are not exposed to unacceptable levels of contaminants.	<ul style="list-style-type: none"> 1. Management of contamination is considered through the design, development, and approval process to ensure development considers end use, waste and circular economy approaches to managing contaminated land. 2. Contamination does not migrate from the development site during and/or after development.
PO2	Waste generated through remediation and contamination management is appropriately handled and disposed of.	<ul style="list-style-type: none"> 1. All waste soil, spoil and fill material generated that requires offsite disposal as waste from the developable land is classified prior to disposal in accordance with the NSW EPA's <i>Waste Classification Guidelines</i>.
PO3	The site contamination assessment process is undertaken on affected lands within the Aerotropolis.	<ul style="list-style-type: none"> 1. The assessment of site contamination as per <i>National Environment Protection (Assessment of Site Contamination) Amendment Measure 2013 Schedule A</i> is part of the DA.
PO4	Land is safe and suitable for the proposed uses prior to subdivision.	<ul style="list-style-type: none"> 1. An appropriately qualified person/consultant is engaged throughout the duration of works to ensure that any work required in relation to contamination is appropriately managed.

9.8 Odour

9.8.1 Objectives

O1. Manage and mitigate the impacts of development in relation to odour.

9.8.2 Performance Outcomes and Benchmark Solutions

9.8.2	Performance Outcome	Benchmark Solution
PO1	Development manages and mitigates odour impacts from development.	<ol style="list-style-type: none"> 1. Development (including construction) does not unreasonably affect the amenity and environmental quality of the locality, nearby residential premises, sensitive uses or public spaces due to odour impacts. 2. Residential development and other sensitive land uses do not encroach upon existing or approved uses that may impact upon the amenity of those proposed uses in terms of odour nuisance. 3. Waste materials generated as a result of the development do not cause odour nuisance issues for adjoining land uses. 4. Development is to be in accordance with <i>Protection of the Environment Operations Act 1997</i> and other Environmental Protection Authority guidelines for odour management.

9.9 Air Quality

9.9.1 Objectives

O1. Manage and mitigate the impacts of development in relation to air quality.

O2. To protect air quality for sensitive uses, including adjoining busy roads and rail corridors.

9.9.2 Performance Outcomes and Benchmark Solutions

9.9.2	Performance Outcome	Benchmark Solution
PO1	Development manages and mitigates air quality impacts from development.	<ol style="list-style-type: none"> 1. Development (including construction) does not unreasonably affect the amenity and environmental quality of the locality, nearby residential premises, sensitive uses or public spaces due to air quality impacts. 2. Air emissions resulting from development, do not cause environmental harm or nuisance, and surrounding land uses are not exposed to unacceptable levels of air pollutants 3. Proposed sensitive land uses are adequately separated from existing lawful land uses that produce air emissions. 4. Development is to be in accordance with the <i>Protection of the Environment Operations Act 1997</i> and other Environmental Protection Authority guidelines for air quality. 5. For development located in or adjacent to road corridors and intersections, incorporate site layout and building design features that address higher level of air emissions generally found in transport corridors.

10 Airport Safeguarding

This section of the DCP is to be read in conjunction with Part 3 of the Aerotropolis SEPP which details airport safeguard development controls in relation to aircraft noise, building wind shear and turbulence, wildlife hazards, wind turbines, lighting, airspace operations and public safety areas. Where the provisions in this section contradict those in another section of this DCP, the provisions in this section take precedence.

10.1 Protection of Operational Airspace

10.1.1 Objectives

- O1. Safeguard the future 24-hour operations of the Airport and provide appropriate protections for the surrounding community.

10.1.2 Performance Outcomes and Benchmark Solutions

10.1.2	Performance Outcome	Benchmark Solution
PO1	Development does not generate turbulent emissions into the protected airspace.	<ol style="list-style-type: none"> 1. Any plumes caused by a development do not: <ol style="list-style-type: none"> a. Have peak vertical velocities of more than 4.3m/sec; or b. Incorporate flares, unless an aviation impact assessment is completed and determines flares are acceptable.
PO2	Development does not impact on aviation or the operation of the Airport with regard to light emission and reflective surfaces.	<ol style="list-style-type: none"> 1. Within 6km of the Airport, development that comprises significant lighting must comply with the provisions of regulation 94 of the <i>Civil Aviation Regulations 1988 (Cth)</i> and not cause distraction or confusion to pilots due to its configuration, pattern or intensity or prevent clear reception of aerodrome lights or signals. Significant lighting includes: <ol style="list-style-type: none"> a. Motorway and freeway lighting; b. Flare plumes from industrial activities; c. Flood lighting from stadiums or outdoor recreation facilities; and d. Construction lighting. 2. Lighting within the primary light control zones – Zones A, B, C and D: <ol style="list-style-type: none"> a. Must not exceed the following intensity of light above a 3-degree horizontal: <ol style="list-style-type: none"> i. Zone A – 0 cd; ii. Zone B – 50 cd; iii. Zone C – 150 cd; and iv. Zone D – 450 cd. <p style="text-align: center;">OR</p> <ol style="list-style-type: none"> b. Be fitted with a screen/shroud that prevents the light emission above the horizontal plane. 3. Proposals within 6km of the Airport: <ol style="list-style-type: none"> a. Must not include coloured or flashing lights; or b. Where coloured or flashing lights are to be incorporated, the proposal must be referred to the relevant Commonwealth body.

10.2 Noise

10.2.1 Objectives

- O1. Safeguard the future 24-hour operations of the Airport and provide appropriate protections for the surrounding community.
- O2. Development does not introduce or intensify noise sensitive uses.

10.2.2 Performance Outcomes and Benchmark Solutions

10.2.2	Performance Outcome	Benchmark Solution
PO1	Development within the ANEC 20 and above contours (including extensions to existing development) is constructed to achieve indoor design sound levels as per the Indoor Design Sound Levels for Determination of Aircraft Noise Reduction in AS 2021 – Acoustics Noise Intrusion – Building Siting and Construction.	<p>1. Residential development is constructed in accordance with Table 7.</p> <p style="text-align: center;">OR</p> <p>2. An acoustic report is provided which specifies the construction standards required to achieve the specified indoor design sound levels.</p> <p>Note: Residential development within the ANEC 20 and above contours will only be permitted where provided under clause 19(4) of the Aerotropolis SEPP or existing use rights apply. Development of residential accommodation will have the option of either incorporating the specified construction standards or provide an acoustic report. All other noise sensitive development specified within Table 4 of AS2021 will be required to be accompanied by a report prepared by a suitably qualified and experienced acoustic engineer.</p>

Table 7 Residential Acoustic Treatments Required to Ensure Compliance with Indoor Design Sound Levels in AS2021:2015

Building	Aircraft Noise Level dBA	Space	Indoor Design Sound Level	Aircraft Noise Reduction	Treatment
2-storey pitched roof	60-70	Bedrooms	50	20	6mm openable windows plus air conditioning
		Living rooms	55	15	Standard openable doors and windows plus air conditioning
	70-80	Bedrooms	50	30	10mm laminated openable windows, acoustic seals plus 75mm insulation (glass wool 20-30kg/m ³) in ceiling and 16mm fire rated plasterboard ceiling plus air conditioning
		Living rooms	55	25	8mm laminated doors and windows, acoustic seals plus air conditioning

Building	Aircraft Noise Level dBA	Space	Indoor Design Sound Level	Aircraft Noise Reduction	Treatment
	80-90	Bedrooms	50	40	Double window system 12mm laminated windows/100mm airspace/6mm windows plus 13mm plasterboard under rafters and 75mm insulation (glass wool 20-30kg/m ³) and two layers 16mm fire rated plasterboard ceiling plus air conditioning
		Living rooms	55	35	Double window and door systems 12mm laminated windows or doors/100mm airspace/6mm windows or doors plus air conditioning
Single storey pitched roof	60-70	Bedrooms	50	20	6mm openable windows plus air conditioning
		Living rooms	55	15	Standard openable doors and windows plus air conditioning
			55	25	8mm laminated doors and windows, acoustic seals, 75mm insulation (glass wool 20-30kg/m ³) in ceiling, 13mm plasterboard immediately under roof, three layers 16mm fire rated plasterboard ceiling plus air conditioning
	80-90	Bedrooms	50	40	Double window system 12mm laminated windows/100mm airspace/6mm windows, pitched roof with 75mm insulation (glass wool 20-30kg/m ³) in ceiling, 13mm plasterboard immediately under roof, two layers 16mm fire rated plasterboard ceiling plus air conditioning
		Living rooms	55	35	Double window and door systems 12mm laminated windows or doors/100mm

Building	Aircraft Noise Level dBA	Space	Indoor Design Sound Level	Aircraft Noise Reduction	Treatment
					airspace/6mm windows or doors, pitched roof with 75mm insulation (glass wool 20-30kg/m ³) in ceiling, 13mm plasterboard immediately under roof, two layers 16mm fire rated plasterboard ceiling plus air conditioning

Source: Wilkinson Murray (2020)

Note 1: Standard Construction entails:

- a. The roof as indicated, no insulation in the ceiling space, 13mm plasterboard ceiling;
- b. Sliding windows of 3-6mm glazing; and
- c. Sliding glazed doors of 6-8mm glazing.

Note 2: For external noise levels of 80-90 dBA, a flat roof is not acceptable.

Note 3: The noise exposure contour map can be found within the Aerotropolis SEPP Mapping.

10.3 Wildlife Hazards

10.3.1 Objectives

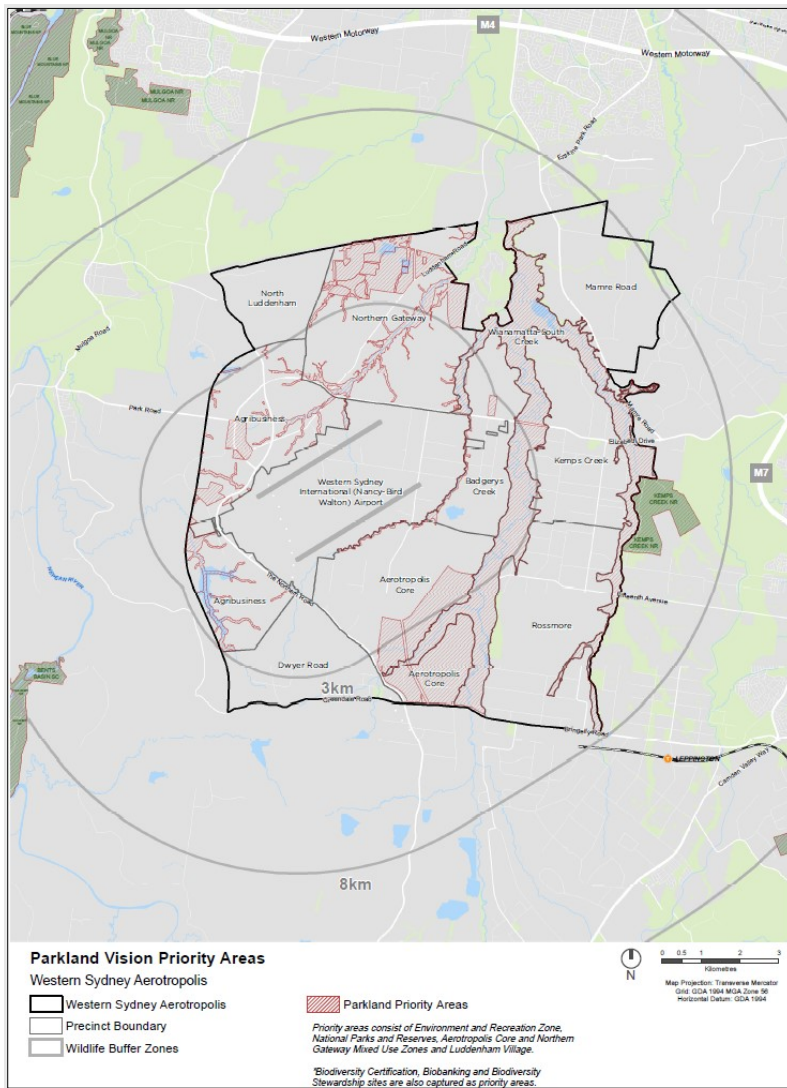
- O1. Safeguard the future 24-hour operations of the Airport and provide appropriate protections for the surrounding community.
- O2. Ensure compatible development that exhibits design excellence occurs on land surrounding the Airport.

10.3.2 Performance Outcomes and Benchmark Solutions

10.3.2	Performance Outcome	Benchmark Solution
PO1	Development does not attract wildlife which would create a safety hazard to the operations of the Airport.	<ol style="list-style-type: none"> 1. All waste bins are designed and installed with fixed lids. 2. Any bulk waste receptacle or communal waste storage area is contained within enclosures that cannot be accessed by birds or flying foxes. 3. Any stormwater detention within the 3km and 8km wildlife buffer is designed to fully drain within 48 hours after a rainfall event. 4. Buildings and structures are designed to minimise the opportunity for roosting areas.
PO2	Landscaping does not attract wildlife that could create a safety hazard to the operations of the Airport.	<ol style="list-style-type: none"> 1. Refer to Appendix B for a list of suitable landscape species. 2. In areas within the 3km wildlife buffer but outside of the priority/parkland areas shown in Figure 15, a report prepared by a suitability qualified and experienced ecologist is to be submitted with any application when the landscaping plan: <ul style="list-style-type: none"> a. Incorporates alternative landscape species not listed within Appendix B; b. Incorporates landscape species denoted within the landscape species list; c. Will result in more than 5 trees being planted in 1 group (group refers to touching mature canopies); and/or

		<p>d. Provides a spacing between a group of 5 or more trees that is less than 100m.</p> <p>3. The ecologist report is to consider building, site, and water body design outcomes and/or landscape maintenance measures that will mitigate bird and flying fox attraction and roosting areas.</p>
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Figure 15 Western Parkland City Vision – Government Commitment Areas map



10.4 Communications, Navigation and Surveillance Systems

10.4.1 Objectives

- O1. Safeguard the future 24-hour operations of the Airport and provide appropriate protections for the surrounding community.

10.4.2 Performance Outcomes and Benchmark Solutions

10.4.2	Performance Outcome	Benchmark Solution
PO1	Development must not impact upon communication, navigation, and surveillance systems.	<ol style="list-style-type: none"> Development within the building restricted area does not create electromagnetic field radiations that will interfere with signals transmitted by the communication, navigation, or surveillance (CNS) facility. Note: Contact Western Sydney Airport of the location of CNS facilities.

11 Sustainability and Circular Economy

The NSW Government aims to achieve its net zero target by 2030. This includes leading industry practise targets by 2025, sustainable regenerative targets beyond 2026 and principles for energy, waste, and circular economy.

11.1 Energy

11.1.1 Objectives

- O1. Minimise energy consumption and achieve net zero energy emissions by 2030.
- O2. Provide innovative and environmentally responsible design that achieves energy efficiency and renewable energy outcomes.
- O3. Integrate utility structures in the site planning and design of development.
- O4. Ensure the design and location of utilities consider space for alternative future services.

11.1.2 Performance Outcomes and Benchmark Solutions

11.1.2	Performance Outcome	Benchmark Solution
PO1	<p>Incorporate a diversity of renewable energy systems to ensure all buildings can achieve a 100% renewable energy supply by 2030.</p> <p>Residential mixed-use buildings are to demonstrate how the renewable energy target can be achieved in a staged manner, subject to any amendments to BASIX.</p>	<ul style="list-style-type: none"> 2. All developments demonstrate how 100% renewable energy supply can be achieved by 2030, whether on or off site. 3. Renewable energy systems include: <ul style="list-style-type: none"> a. Solar (paired with sufficient battery storage); b. Wind; c. Green hydrogen; d. Bioenergy/bio-waste to energy (such as anaerobic digestion of organic waste); e. Geothermal; or f. Other sources of renewable energy under s43 of the <i>Renewable Energy (Electricity) Act 2000</i>. 4. Energy generation on site may include: <ul style="list-style-type: none"> a. Grid and/or battery energy storage on site; or b. Battery storage integrated into a Battery Management System (BMS) or grid connected to support solar gardens or community solar schemes. 5. Decentralised local generation and supply may include: <ul style="list-style-type: none"> a. Buildings connected to bioenergy at a lot or regional scale; b. Community-owned Virtual Power Plants (VPP); c. Utility partnership to connect solar and storage, and to support renewables on the grid; or d. Flexible and integrated energy management systems at the lot, neighbourhood and precinct scale. 6. Where the net zero energy target cannot be accommodated on site, the proponent must provide an offset e.g. with a Power Purchase Agreement. 7. Any development involving back up power generation using diesel equipment with the capacity to burn more than 3 megajoules of fuel per second includes a best practice review of reasonable and feasible diesel emission reduction technology.
PO2	<p>Utilise the roofscape of the buildings to improve environmental</p>	<ul style="list-style-type: none"> 1. All developments feature solar panels on rooftops and provide suitable surface area for solar collection.

11.1.2	Performance Outcome	Benchmark Solution
	performance of buildings and Aerotropolis as a whole, including energy generation.	Note: Rooftops are to include solar panels in addition to other features such as building services and green roofs, where applicable. 2. The use, location, and placement of solar panels (e.g. photovoltaic) is to take into account the potential permissible building form on adjacent properties. 3. The appearance, material, reflectivity and aesthetics of the roofscapes consider the flight path and flight zone.
PO3	Where possible, provide gas services as an alternative energy source to assist in reducing reliance on electricity for heating and hot water.	1. Meet the design requirements as per the <i>Western Sydney Street Design Guidelines</i> Section C5.5 Gas.

11.2 Reducing Waste and Supporting the Circular Economy through Design and Construction

Thoughtful building design and material choices can support the reuse of materials. The circular economy supports sustainability by giving building materials and resources an ongoing lifecycle, reducing the amount of waste generated. Waste reduction is also achieved by choosing durable materials that increase the lifespan of a development.

Waste is produced during all phases of the development process, including demolition, construction, and occupation. The demolition of buildings can have environmental impacts, especially in older buildings, which may contain toxic or hazardous materials. Where materials cannot be reused on a site because they are toxic or hazardous, waste must be managed or disposed of in accordance with NSW Government regulations. The occupation of new buildings generates an ongoing need for the storage and collection of waste and recycling.

11.2.1 Objectives

- O1. Ensure design and construction techniques contribute to the circular economy.
- O2. Embed circular economy design principles into buildings to maximise the recycling and reuse of materials.
- O3. Encourage connection to, and use of, recycled water or third pipe systems.

11.2.2 Performance Outcomes and Benchmark Solutions

11.2.2	Performance Outcome	Benchmark Solution
PO1	Building design and construction techniques minimise waste and ensure efficient construction.	1. Details are to be provided identifying: <ol style="list-style-type: none"> a. The location from where building materials will be transported to the site; b. Any off-site prefabrication to minimise waste generation on site and maximise the potential for reuse of waste; and c. The use of durable construction materials which reduce the need for replacement.
PO2	Reuse and recycle construction and demolition waste, aiming for zero waste to landfill.	1. Where possible, use building materials that have been reused and recycled, or can be reused or recycled at the end of their life. This could include materials such as concrete, bricks, roof tiles, hardwood beams, other timber, doors / windows / fittings, glass, synthetic rubber, carpet, plasterboard, green waste, etc.

11.2.2	Performance Outcome	Benchmark Solution
PO3	Support the delivery of a circular economy across the Aerotropolis.	1. Develop a life cycle management plan to be used as part of the construction, demolition and day-to-day operation of buildings to prioritise the reuse and recycling of materials.

11.3 Waste Management and Recovery

11.3.1 Objectives

- O1. Incorporate well-designed and innovative waste and recycling facilities in the building design stage.
- O2. Encourage circular economy infrastructure such as reuse and repair facilities, sharing and leasing facilities, reverse vending machines and community recycling centres within the Aerotropolis.
- O3. Minimise the amount of waste generated and going to landfill.
- O4. Ensure waste services occur in a safe, efficient, cost-effective and timely manner.
- O5. Maximise waste separation and resource recovery.
- O6. Provide innovative and best practice waste management collection systems and technologies for reuse, recycling, organics collection and product stewardship.
- O7. Provide waste and recycling facilities that do not impact on amenity for residents, neighbours and the public, such as visually unpleasant areas, noise, traffic and odours from waste collection services, while also ensuring facilities are accessible and easy to use.
- O8. Ensure recycling can be easily separated on site, reused and if required, moved off site.

11.3.2 Performance Outcomes and Benchmark Solutions

11.3.2	Performance Outcome	Benchmark Solution
PO1	Waste management measures are implemented at lot and neighbourhood scale to support circular economy activities.	<ol style="list-style-type: none"> 1. Submit a waste management plan that details the quantity and type of waste generated and how this will be managed. 2. Incorporate, where possible, technologies such as vacuum extraction or on-site food processing. 3. Co-locate and integrate waste infrastructure on sites with multiple uses by providing a single collection point for waste and recycling.
PO2	Waste and recycling facilities promote waste separation and reduce contamination. Materials are separated at source to achieve higher value recovery.	<ol style="list-style-type: none"> 1. Provide efficient waste separation of general waste, recycling and organics and a place to store bulky waste awaiting collection. 2. Collection points (including, but not limited to, reverse vending machines and e-waste drop-off) must be located with adequate space for servicing, ease of use and to encourage the separation of waste material such as textiles, e-waste, glass, plastics etc. Collection points are documented in the waste management plan and are easily accessible. 3. Provide separate storage for liquid, chemicals, and hazardous waste. 4. Where general waste chutes are used, provide for the collection of recycling and organic waste at each level within the building. 5. For residential development, each residence is internally fitted with an appropriate amount of storage space for

11.3.2	Performance Outcome	Benchmark Solution
		<p>waste separation into a minimum of 3 streams (e.g. general waste, organic and recycling).</p> <ol style="list-style-type: none"> 6. Demonstrate that organic waste can be managed in the building through measures such as: <ol style="list-style-type: none"> a. Multiple options for on-site organic waste to maximise recovery (e.g. communal composting, worm farms, individual composting, dehydrators); b. Organics and recycling service to all households; c. Energy generation from organic waste (anaerobic digestion) at lot and precinct scale; or d. Consolidated organic waste drop off points designed to minimise any potential odour and vermin risks. This includes the provision of rooms that are temperature controlled and suitably ventilated.
PO3	The location of waste management is clearly indicated for each site and neighbourhood.	<ol style="list-style-type: none"> 1. Provide uniform waste management design and colour coding in accordance with AS 4123 across residential and commercial developments. 2. Information signs in common areas clearly identify waste, recycling and organic bins and storage areas using symbols and universal communication standards. 3. Waste management systems are located inside buildings. Waste must not be left outside to avoid attracting animals.
PO4	Waste bins are provided to a level commensurate with waste produced for each development as outlined in Council's waste and recycling service.	<ol style="list-style-type: none"> 1. Waste storage areas are designed to: <ol style="list-style-type: none"> a. Accommodate the required number and size of waste bins; b. Provide space for the bins to be accessed, rotated and manoeuvred for emptying; c. Allow for future waste separation practices; and d. Account for different uses in mixed use development. 2. Align building design and collection points with Council's waste and recycling services and collection fleets. 3. Allocate space for flexibility in services, including space for additional recycling options such as the collection of e-waste, textile, cardboard and soft plastics.
PO5	Implement innovative waste management storage systems that are safe, healthy, and efficient.	<ol style="list-style-type: none"> 1. Waste storage areas are to: <ol style="list-style-type: none"> a. Be well-lit and ventilated; b. Include water and drainage facilities for cleaning the bins and bin storage area; c. Be easily and conveniently accessible for all users; d. Be located so residents do not have to walk more than 30m for access; e. Be accessible by collection vehicles; f. Comply with the Building Code of Australia and relevant Australian Standards; and g. Refer to the <i>Better Practice Guide for Resource Recovery in Residential Developments</i>. 2. Collection points are to be: <ol style="list-style-type: none"> a. Level; b. Free of obstructions; and

11.3.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> c. Easily accessible from the nominated waste and recycling storage area. 3. Provide safe and easy access to waste and resource recovery areas for residents, building managers and collection contractors. 4. Storage areas are designed with room to open and close doors and avoid obstacles. 5. Ensure waste and recycling areas flexibly adapt to other types of waste and materials storage over time. 6. Design waste and recycling facilities to prevent litter and contamination of the stormwater drainage system.
PO6	Waste management storage systems minimise negative impacts on the streetscape, public domain, building presentation or amenity of pedestrians, occupants, and neighbouring sites.	<ul style="list-style-type: none"> 1. Waste storage areas are to: <ul style="list-style-type: none"> a. Integrate within developments (except for boarding houses) and where possible, across separate buildings; b. Not be visible from the street or public domain; c. Not adjoin private open space, windows, habitable rooms, or clothes drying areas; d. Be wholly located within a designated area of the building (may require more than 1 location); and e. Not be located within front setbacks. 2. Collection points and systems are designed to minimise noise for occupants and neighbours during operation and collection.

12 Services and Utilities

This chapter focuses on utilities and services required to accommodate growth and investment, and includes infrastructure relating to utility services and infrastructure (internet, pipelines, easements, and telecommunication), and telecommunication facilities.

12.1 Services and Utilities Design

12.1.1 Objectives

- O1. Ensure the construction of utility services/infrastructure provision occurs in a logical and staged manner, and in sequence with development.
- O2. Encourage innovative and sustainable utility and servicing across the Aerotropolis to promote effective and efficient delivery of services. Ensure utilities designs and locations consider space for alternative future services.
- O3. Design and provide utility infrastructure to integrate with, and not negatively impact, use of the public realm, liveability, and the environment.

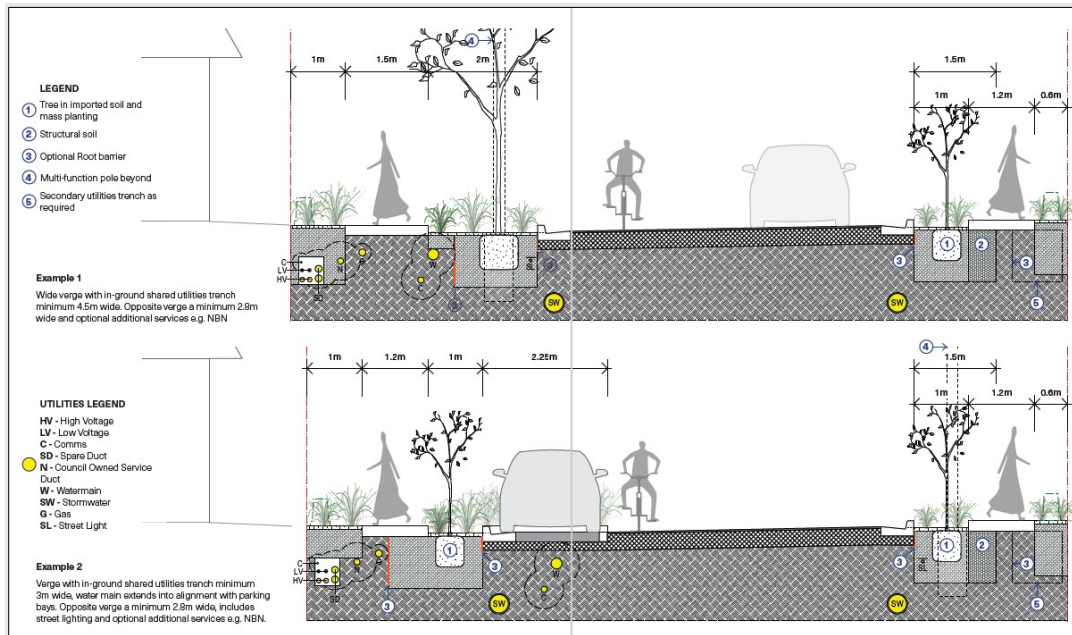
Note: This section does not preclude private sector utility services solutions.

12.1.2 Performance Outcomes and Benchmark Solutions

12.1.2	Performance Outcome	Benchmark Solution
PO1	Site is serviced with electricity.	<ol style="list-style-type: none"> 1. Meet the design requirements as per the Western Sydney Street Design Guidelines Section C5.4 Electricity. 2. Locate electricity supplies within verge.
PO2	Services and utilities (hydrants, NBN boxes etc) are designed and located to integrate with building context and the public realm.	<ol style="list-style-type: none"> 1. Infrastructure is designed and located to: <ol style="list-style-type: none"> a. Integrate with building design and the public domain; b. Not be visible from the public domain; c. Make a positive contribution to the public domain; and d. Utilise landscaping to screen where required. 2. All existing and additional utility infrastructure is identified from the site planning stage. 3. New streets integrate utilities within the street reservation, with services located underground and in a manner that facilitates tree planting and consistent with the <i>Western Sydney Street Design Guidelines</i>. 4. Where services must be located on a street, they do not dominate the pedestrian experience and are designed as an integrated component of the facade, as per the <i>Western Sydney Street Design Guidelines</i>.
PO3	Infrastructure is adequately protected from development.	<ol style="list-style-type: none"> 1. Development near a utility service must be in accordance with the relevant service authority's guidelines and requirements. 2. Development near utility services: <ol style="list-style-type: none"> a. Does not adversely affect the function of the service; b. Does not place an additional structural load on the service;

12.1.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> c. Protects the infrastructure from physical damage; and d. Allows ongoing necessary access for maintenance purposes. <ol style="list-style-type: none"> 3. Infrastructure is designed to achieve minimum cover and clearance requirements to other services and infrastructure, such as planting, and WSUD features. 4. Locate infrastructure taking into account any future road widening to minimise relocation of assets.
PO4	Shared utility trenches combine multiple utilities within a compact area of the street verge, and futureproof service location within road cross-sections.	<ol style="list-style-type: none"> 1. Refer to Figure 16 and provisions within the <i>Western Sydney Engineering Design Manual</i> for details on shared utility trenching. 2. Avoid placement of services within the road carriageway. 3. Ensure sufficient width in the utility corridor. 4. Avoid disruptive works across/ under existing carriageways. 5. Adopt a 'dig once' policy where spare conduits and road crossings are installed in strategic locations to avoid disturbing the road in the future.
PO5	Development near infrastructure easements does not impact on the continued operation of the infrastructure.	<ol style="list-style-type: none"> 1. A 330kV transmission line traverses the Agribusiness and Northern Gateway Precincts and has a 60m wide easement. Future land use planning is to provide adequate buffers to this easement. 2. Where development is proposed on land containing or adjacent to easements, applicants are to consult with the organisation responsible for management of the easement. 3. Development on sites adjacent to the Warragamba Pipeline are planned so local roads, accessways and landscaping are located adjacent to the pipeline corridor to provide further buffers and opportunities for casual surveillance. 4. Minimise subdivision of easements. 5. Development adjacent to any future fuel pipeline is subject to a land use risk safety audit with the relevant buffers provided, subject to the airport authority.
PO6	Infrastructure allows for co-location of compatible similar uses.	<ol style="list-style-type: none"> 1. Allow for the installation of the following within the utility corridor: <ul style="list-style-type: none"> a. Recycled water purple pipes; b. Vacuum waste collection system; c. Hydrogen district cooling/heating systems; and d. Micro-grids for energy sharing.
PO7	Provide fast, reliable, and high-speed fixed and wireless internet connectivity across the Aerotropolis to the standards listed in the Australia and New Zealand Smart Cities Council's Code for Smart Communities.	<ol style="list-style-type: none"> 1. Demonstrate access to the NBN. Where coverage at time of lot registration is not or will not be above minimum network connectivity speeds, demonstrate how and where allowances for future network augmentation have been made. 2. Follow the design guidance as per the <i>Western Sydney Street Design Guidelines</i> Section C5.6 Telecommunications and Section C6.3 5G Mobile Telecommunications.

Figure 16 Example of a Shared Utility Trench



Source: Western Sydney Street Design Guidelines – Section 5.7

12.2 Telecommunication Facilities

12.2.1 Objectives

- O1. Minimise impacts of telecommunication facilities on the environment, surrounding properties, workers, residents, and future character of the precinct.

12.2.2 Performance Outcomes and Benchmark Solutions

12.2.2	Performance Outcome	Benchmark Solution
PO1	Co-location of telecommunication facilities minimises the number of facilities required.	<ol style="list-style-type: none"> 1. The siting and design of a facility considers the existing and future potential for co-location of telecommunications facilities. 2. Any facilities do not impact on significant landscapes and view lines.
PO2	Telecommunication facilities do not have adverse impacts on the environment.	<ol style="list-style-type: none"> 1. The facility is not located on Environmentally Significant Land or on land below the PMF level.
PO3	Telecommunication facilities ensure human health and safety, including risks associated with the emission of electro-magnetic radiation.	<ol style="list-style-type: none"> 1. Consult with the local community and ensure compliance with <i>NSW Telecommunications Facilities Guideline including Broadband</i> or any further updates. 2. Provide a minimum 300m separation from any residential area or other sensitive use. 3. The level of electro-magnetic radiation emitted from any telecommunications facility does not exceed the limit of 0.2uW/cm². 4. Signs are erected around a telecommunications facility displaying warnings and information to minimise public risk. 5. The facility is enclosed with a minimum 1.8m open mesh (or similar) to prevent public access to the site.

12.2.2	Performance Outcome	Benchmark Solution
PO4	Visual impact on the public domain is minimised.	<ol style="list-style-type: none"> 1. Locate the facility so it does not detract from: <ol style="list-style-type: none"> a. The heritage significance or settings of a heritage item or potential archaeological site; b. The amenity of open spaces; and c. Key regional and district views and vistas. 2. Facilities are of a “slimline monopole” construction. 3. The facility does not include advertising signs, including logos. 4. The facility does not contain night illumination (except where a proposed telecommunications facility infringes the Obstacle Limitation Surface (OLS) for aircraft safety).
PO5	Landscaping screens the facility from the public domain.	<ol style="list-style-type: none"> 1. Locate the facility where vegetation, landform or open space features screen or reduce its visual impact. 2. Provide additional landscaping where existing vegetation does not adequately screen the facility. 3. Provide sufficient distance between the facility and landscaping or existing trees.

12.3 Precinct Integrated Water Management

Water servicing for precincts is to feature total water cycle management that integrates and balances drinking water, wastewater, recycled wastewater and harvested stormwater.

A range of trunk drainage and preferred water sensitive urban design and stormwater management elements have been developed through consultation with Penrith and Liverpool Councils, and an integrated water management approach informed by Sydney Water. These water sensitive urban design elements work together to preserve the local waterways that cross the precincts as well as waterways in the lower catchment. Achieving the stormwater management objectives will require a shift away from stormwater filtration to an approach that is more focussed on capturing stormwater as a beneficial resource for integrated water management.

The *Stormwater and Water Cycle Management Study* (Sydney Water 2020) outlines how stormwater, wastewater, recycled water, and trunk drainage should be managed for each of the initial Aerotropolis precincts.

12.3.1 Objectives

- O1. Manage and balance urban water elements (drinking water, wastewater, and stormwater) through integrated water management.
- O2. Design and delivery of infrastructure, servicing and development shall be driven by an integrated water cycle management approach to build resilience in Sydney’s water supply through encouraging the use of recycled water, optimising stormwater management and maximising efficiency in the use of potable water.
- O3. Facilitate the delivery of regional water infrastructure to optimise the efficiency of development and deliver better outcomes for waterways, amenity, and liveability.
- O4. Minimise potable water use through water efficient fixtures and alternative water sources (e.g., recycled water and rainwater).
- O5. Integrate utilities structures in the site planning and design of development.
- O6. Ensure integrated water cycle management is safe, practicable and provides the best environmental outcomes.

12.3.2 Performance Outcomes and Benchmark Solutions

12.3.2	Performance Outcome	Benchmark Solution
PO1	Water supply is provided to all development, as part of a comprehensive water infrastructure network.	<ol style="list-style-type: none"> 1. The applicant must demonstrate that adequate provisions are in place to connect to reticulated drinking water supply and effluent/wastewater disposal. 2. On-site Sewerage Management System (OSMS) will only be considered for lots of 2,000m² or greater, where reticulated wastewater services cannot be provided. This is to be developed in accordance with relevant Council and Sydney Water requirements. 3. Locate potable water supply mains within verge. 4. Avoid planting trees within 3m of a water main. Species selection should be determined with regard to site constraints.
PO2	<p>Water supply is to come from a diversity of interconnected sources, to achieve a minimum of 80% non-potable water demand supplied from non-potable sources including harvested rainwater (roof water), harvested stormwater and recycled wastewater, where this does not materially impact on ongoing waterway health.</p> <p>Rainwater and harvested stormwater are encouraged to be the primary source then backed up by recycled wastewater then potable water.</p>	<ol style="list-style-type: none"> 1. Stormwater harvesting schemes are aligned with the Integrated Water Management and water sensitive urban design requirements of this DCP. 2. Stormwater harvesting schemes are integrated with wastewater recycling. Stormwater harvesting measures are provided to meet the demand from recycled and stormwater sources. 3. Use harvested stormwater (from on-site water storage or regional stormwater harvesting for all non-potable water purposes, including: <ol style="list-style-type: none"> a. Passive cooling methods that supplement or preclude mechanical cooling; b. Internal reticulation for toilet flushing and other appropriate uses (e.g. laundry, hot water taps in baths, showers, laundry troughs and washing machines); c. Irrigation of: <ol style="list-style-type: none"> i. Deep soil; ii. Landscaped areas (onsite, communal areas and public land); iii. Street trees; iv. Open space (e.g. playing fields and parks); and v. Vegetation areas (existing where appropriate and revegetation). d. Water features; e. Cooling of industrial roofs; and f. Connection to regional/precinct harvesting and reuse schemes. 4. Supply third pipe reticulation to all buildings to deliver harvested stormwater or recycled wastewater to non-potable water uses. 5. Design development to support water re-use internally and externally to the site. 6. Where storage is utilised, tank systems and or stormwater harvesting system requirements is to be determined considering the required stormwater management flow targets for the Aerotropolis.

13 Smart Places

13.1 Smart Places Design

Smart Places use technology-enabled solutions to improve the quality of life for citizens and business, while actively responding to the problems and opportunities that matter most to the people living and working in these places. The scale of initiatives can vary greatly, however, common to all solutions is their use of embedded, connected and interoperable technology tools and platforms, taking advantage of smart devices that work together across different infrastructure assets (including from planning through to delivery and operation), services and sectors.

13.1.1 Objectives

- O1. Support the Aerotropolis as a connected, open data digital city and global innovation hub to improve life for individual citizens, future populations, businesses, and communities, in line with the *NSW Smart Places Strategy* and *Smart Western City Program*.
- O2. Embrace innovative development by installing new and emerging technologies and utility provision.
- O3. Design smart streets capable of collecting data and conveying insights in real time to inform citizens.
- O4. Support a resilient and sustainable region that uses technology to manage natural resources efficiently and is focused on environmental, air and water quality.
- O5. Provide the utilities necessary to support community events and activities.
- O6. Build on initiatives over time in line with the Australian Digital Inclusion Index.

13.1.2 Performance Outcomes and Benchmark Solutions

13.1.2	Performance Outcome	Benchmark Solution
PO1	Multi-function poles (also known as Smart Poles) accommodate several functions and services on the same pole. This reduces the total number of poles on the street, improving amenity and reducing street clutter.	<ol style="list-style-type: none"> 1. Implement multi-function poles where street poles are required. 2. Potential services which could be incorporated into multi-function poles include: <ol style="list-style-type: none"> a. RMS signals and signage; b. Street lighting; c. Telecommunications (such as mobile cellular network providers); d. Council digital infrastructure requirements (e.g. CCTV, signage, lighting); and e. Relevant sensing networks, with flexibility to enhance these in the future. 3. Meet the following design requirements: <ol style="list-style-type: none"> a. Placement is a minimum of 600mm from the face of kerb; b. Placement avoids impacts on existing and future mature street tree canopies; c. Co-locate with other street furniture; and d. Pit and pipe to each light pole is provided to enable the future upgrading to 'intelligent' lights and the installation of 'smart meter' to Council specification at each new lot.
PO2	Pit and pipe infrastructure support future requirements to service smart city infrastructure.	<ol style="list-style-type: none"> 1. Where developments are providing pit and pipe infrastructure, specifications in the <i>Digital Infrastructure Technical Report: Western Parkland City</i> are met to accommodate future smart city infrastructure.

13.1.2	Performance Outcome	Benchmark Solution
PO3	Buildings utilise smart technologies to promote performance, sustainability, resilience, and resource management throughout their operational lives.	<ol style="list-style-type: none"> 1. Where new connections to the water and recycled network are proposed, include smart water meters and fittings to minimise water consumption. 2. Use smart technologies to monitor and self-regulate building environment and operations (e.g. lighting, heat, ventilation, and air conditioning). 3. Install smart energy solutions to increase self-sustainability and reduce reliance on the main energy grid. 4. Demonstrate alignment to relevant NSW policy, including but not limited to the <i>NSW Internet of Things (IoT) policy</i>, <i>NSW Cyber Security Policy</i> and <i>NSW Smart Infrastructure Policy</i>.
PO4	Embedding smart technologies enhances experiences in the public domain and creates liveable public open spaces.	<ol style="list-style-type: none"> 1. Install smart monitoring equipment, including for water quality, ambient temperature, tree canopy cover and soil moisture content, cycle, and car movements. Specific monitoring requirements for each development are provided by the consent authority. 2. The following smart solutions meet Council's system interoperability and data source requirements and are installed in key locations such as open space and public domain areas: <ol style="list-style-type: none"> a. Dedicated internet/fibre connection points; b. Public Wi-Fi network that provides sufficient coverage to the whole public space; c. Smart lighting where key locations may be used at night-time for active uses, ensuring lighting is adequate for active and passive uses; d. Security cameras at key locations to ensure coverage within the public space; e. 'Smart bins' with capacity rubbish bin sensors. f. 'Smart park furniture' with USB-charging capacity and potentially Wi-Fi connectivity; g. Digital display screen, linked to a Council-accessible network to share key community information, data, and activities; h. Weather monitoring network/devices to monitor temperature and weather within the park and have this accessible to the public; and i. Wireless connectivity (e.g. Bluetooth) with free access within the community's parks, particularly in proximity to the basketball court/youth spaces.

Part 3 – Additional Provisions for Large Sites

This section provides controls for larger sites, either at master plan or DA stage.

14 Benchmarks for Larger Sites, Subdivision or Master Planning

14.1 Targets for Site Coverage, Perviousness and Quantum of Public Domain by Typology

Urban typologies establish perviousness and site cover requirements to achieve the objectives of the integrated water management strategy. They apply over a development area that may vary in size. Acceptable solutions to site coverage and permeable areas are provided in Table 8.

Table 8 Urban Typologies with Acceptable Solutions for Site Cover and Perviousness

Urban typology	Lot requirements			Typology elements					
	Site Cover	Perviousness		Lot area		Streets (including plazas and urban public spaces adjacent to a street)		Open space (including parks, gardens, playgrounds, playing fields, and alike)	
				% of Overall Area	Perviousness	% of Overall Area	Perviousness	% of Overall Area	Perviousness
High-density mixed-use centre	60%	40%	Base scenario	50%	35%	35%	35%	15%	90%
			Alternative/ Parkland solution	58%	30%	32%	35%	20%	90%
Medium density mixed use centre	50%	50%	Base scenario	55%	50%	30%	35%	15%	90%
			Alternative/ Parkland solution	58%	35%	32%	38%	20%	90%
Employment – business, commercial and light industrial	60%	40%	Base scenario	55%	40%	30%	30%	15%	90%
			Alternative/ Parkland solution	55%	30%	30%	30%	20%	90%
Employment – Large format industrial	70%	30%	Base scenario	60%	30%	25%	35%	15%	90%
			Alternative/ Parkland solution	65%	15%	20%	35%	15%	90%

* The perviousness of a lot may be subsidised by other on-site detention and landscaping measures where it is not deemed acceptable or it is seen to be too onerous by a delegated authority for the site coverage to be reduced to meet the perviousness requirements. An example of this would be in a zero lot line opportunity (for a podium or attached built forms) in a centre, employment area or for an integrated development

The concept of an Urban Typology has been developed as part of the ‘Beyond Business as Usual’ vision of the Western Parkland City. A landscape-led approach integrates landscape and urban development so they work together. This approach also achieves higher land use efficiencies by co-locating uses such as recreational open space and conservation areas. Urban areas will play an important role in urban cooling by ensuring there is sufficient areas of tree canopy and water to sustain the landscape. Urban Typologies are areas of urban development comprising the range of uses typical of the place.

Urban typologies explore how development can achieve the Parkland City benchmarks of permeable area and canopy cover, at a range of scales, from an individual lot (or amalgamated lots), a super lot large enough to create a public domain of streets and public open space, to a large master plan or sub precinct scale. The more land is amalgamated the more flexibility there is for development footprint as the public domain can work harder and individual lot requirements can be simpler. This reflects a place-based approach and ensures the environmental performance requirements are appropriate to the various development types.

14.2 Street Patterns

For large sites 5,000m² and above, an appropriate street pattern will ensure a fine grain, highly connected urban place, except in the Agribusiness Precinct. The emphasis on fine grain urban form will create better places and sustainable transport options.

14.2.1 Objectives

- O1. Provide an appropriate block size for the zone and ensure a finer grain to the urban structure to improve public transport, pedestrian, bike and vehicular access, permeability and connectivity through large sites.
- O2. Establish a clear hierarchy of public streets that are well connected to the existing street network.
- O3. Improve access and visibility to public open spaces.
- O4. Provide a clear public address for all buildings within a development.
- O5. Allow for a diversity of building footprints to achieve the zone objectives within a Precinct.

14.2.2 Performance Outcomes and Benchmark Solutions

6.1.2	Performance Outcome	Benchmark Solution
PO1	Street blocks are permeable and provide adequate open space.	<ol style="list-style-type: none"> 1. Provide through-site links and narrow building frontages to create permeable street blocks, which facilitate access to public transport, major destinations and open space. 2. Ensure streets align and connect with the surrounding street network, maximising connectivity and creating view corridors. 3. Provide adequate open space within the blocks to support amenity for residents and workers. 4. Compliance with Table 2 Maximum Block Sizes at the end of Section 6.2.2 is required. This outlines that mid-block connections for pedestrians and cyclists are provided no more than 130m apart. <p>Note: These solutions are subject to further review.</p>

14.3 Public Art

This section supplements Councils’ public art policies and applies only to development greater than 20 hectares or with a capital investment value exceeding \$20 million.

14.3.1 Objectives

- O1. Enrich and enliven the public and private domain with high quality, aesthetic, and functional art.
- O2. Provide public art consistent with Council's Public Art Policy.
- O3. Recognise and celebrate Aboriginal heritage, values and living culture in the public domain.

14.3.2 Performance Outcomes and Benchmark Solutions

14.3.2	Performance Outcome	Benchmark Solution
PO1	High-quality public art is integrated into the design and function of the development in order to embellish and enliven the public domain.	<ol style="list-style-type: none"> 1. The strategy should respond to cultural values mapping to deliver a suitable artwork for the development demonstrating that the scale of the public art provided is commensurate to the intensity of use at the site or landscape. 2. For such development defined above, a minimum of 1 work of public art is provided within the publicly available and accessible spaces of the development such as: <ol style="list-style-type: none"> a. Any frontage to the public domain; b. Building entrances; or c. Arcades and through site links. 3. Different types of public art may be incorporated into the following aspects of development: <ol style="list-style-type: none"> a. Murals may form part of the facades of new buildings; b. Sculptures may be multipurpose and be integrated into urban furniture (e.g. shade, seating, water/drinking fountains or play/exercise equipment); c. Light installations may be combined with public lighting to support the needs of pedestrians or active transport after dark; or d. Artworks may form part of landscaping as part of wayfinding or interpretive walking trails.
PO2	Public art is provided to capture and reflect the qualities and essence of place, community values and the stories of past and present cultures, places, and people.	<ol style="list-style-type: none"> 1. Artwork is the result of collaboration with an artist to deliver a coordinated and cohesive development and public art response. 2. Public art is created in conjunction with a community consultation process to ensure alignment between public art, cultural/community values, and development. 3. Commissioning and contract processes prioritise artworks which are: <ol style="list-style-type: none"> a. Created by Aboriginal artists and/or created with direct involvement and collaboration with Aboriginal communities (see Section 2.1.2 B. PO4); and/or b. Initiated by the local community (i.e. unsolicited requests for public art). 4. Public art themes provide a response to elements particular to a place. Considerations include, but are not limited to: <ol style="list-style-type: none"> a. Aboriginal culture and places of significance; b. Unique place qualities and attributes; c. Natural landscape elements; and/or

14.3.2	Performance Outcome	Benchmark Solution
		d. Historical land uses; buildings, persons, and events.
PO3	Public art is easy to maintain.	<ol style="list-style-type: none"> 1. Where art is permanent, use materials that are: <ol style="list-style-type: none"> g. Appropriate to the landscape/environment; h. Resistant to vandalism; i. Safe for the public; and j. Require minimal maintenance. 2. Where art is temporary, develop clear and concise agreements with artists/organisations on expectations and deaccession (the process used to permanently remove an object, artwork, or assemblage). In this case, replacement art is to be provided, so the site has art in perpetuity.

14.4 Social Infrastructure

Social and cultural infrastructure is critical to support the future residents and workers within the Aerotropolis. The Precinct Plan and the Special Infrastructure Contribution provides significance guidance for the provision of social infrastructure.

14.4.1 Objectives

- O1. Ensure that social infrastructure plays a critical role in creating the communities that will live in, work, and visit the Aerotropolis, by contributing to the sense of place, strengthening communities, and nurturing social interactions and community partnerships.
- O2. Ensure that social infrastructure spaces, which comprises both unenclosed and enclosed spaces, and which may be either publicly or privately owned and operated, remain welcoming, safe, open, and accessible to all people.
- O3. Create an integrated hierarchy of social infrastructure within the Aerotropolis precincts that are centrally located and equitably distributed.

14.4.2 Performance Outcomes and Benchmark Solutions

14.4.2	Performance Outcome	Benchmark Solution
PO1	Social infrastructure is located within centres that are highly accessible by public transport and within reasonable walking and cycling distance.	<ol style="list-style-type: none"> 1. Social infrastructure is a focal point and gathering space in the centres and needs to be scaled appropriately in relation to the centre size. 2. Social infrastructure is co-located or integrated with other community, recreational infrastructure, or public spaces (e.g. parks) to enable activation of the centre, encourage social connection, and accessibility to the green network. 3. Urban design and layout demonstrates strong sightlines and pedestrian access links (between the centres and the social infrastructure). 4. Co-locate social infrastructure, public transport, and mixed-use development (e.g. non-traditional providers of social infrastructure such as shopping centres or businesses) to: <ol style="list-style-type: none"> a. Allow linked trips and trip containment within neighbourhoods; b. Support links between multi-generational social infrastructure; and c. Support flow-on economic benefits of co-locating mixed uses.

14.4.2	Performance Outcome	Benchmark Solution
PO2	Social infrastructure is designed in accordance with Crime Prevention Through Environmental Design (CPTED) principles as well as the <i>Principles of Universal Design</i> .	<ol style="list-style-type: none"> 1. Community facilities located adjacent to public open space is orientated to the open space and have glazing and openings fronting the open space to enable visual and physical connections and create active and passive surveillance. 2. Incorporate a mix of inward and outward facing spaces to allow for a variety of public uses for day and night.
PO3	Social infrastructure is flexible so it can respond and adapt as population, technology, or community (residents and employees) needs change. It supports the health and wellbeing of the community and their changing needs.	<ol style="list-style-type: none"> 1. Social infrastructure achieves the benchmark size (in line with the Aerotropolis Precinct Plan's Draft Social Infrastructure Needs Assessment) for its intended use/s and is staged commensurate with nearby residential and employment development. 2. Demonstrate that social infrastructure is designed to be flexible to enable expansion or adaptation for other uses or activities such as: <ol style="list-style-type: none"> a. Large, medium, and small gatherings; b. Temporary public or private events; c. Public responses to emergencies or disasters; d. Changing population, including age; e. Changing demand or needs of the community; or f. Changing technology. 3. Where land availability is constrained, existing local open space is considered for active use where it can accommodate both active and passive uses. 4. Social infrastructure is of high quality and 'fit for purpose' allowing for flexibility so it can respond and adapt as needs change, attract high levels of usage, and ensure long-term viability. 5. Where public car parking is provided, it should be multifunctional and allow for community pop-up uses outside of standard work hours. 6. Enclosed district or regional social infrastructure incorporates: <ol style="list-style-type: none"> a. Amenities for religious uses (if permissible) such as washing facilities and appropriate ventilation; b. Amenities for cultural uses (where relevant) – see Section 2.1.2 B. PO2; c. Outward-facing public toilets; and d. Internal facilities should include audio-visual technology, equipment for self-catering or healthy food options where food is sold, as well as water drinking stations.

Part 4 – Additional Provisions for Certain Land Uses

This section provides detailed controls for certain uses and applies at DA stage for those uses only. The standards and objectives should inform any master planning that incorporates these uses.

15 Certain Land Uses

15.1 Mixed-Use Development, Residential and Commercial Development

This section provides controls for mixed use, residential and commercial only developments. For Residential Flat Building components of mixed-use development, *State Environmental Planning Policy No. 65 (Design Quality of Residential Apartment Development)* (SEPP 65), the *Apartment Design Guide* (ADG) and other relevant design guidelines and requirements apply. The provisions below for residential components are in addition to the requirements above.


Where relevant, the *Medium Density Housing Guide* for development applications applies where this DCP is silent. The DCP provisions relate to zones where multiple dwellings are permissible (within Mixed Use zones).

15.1.1 Objectives

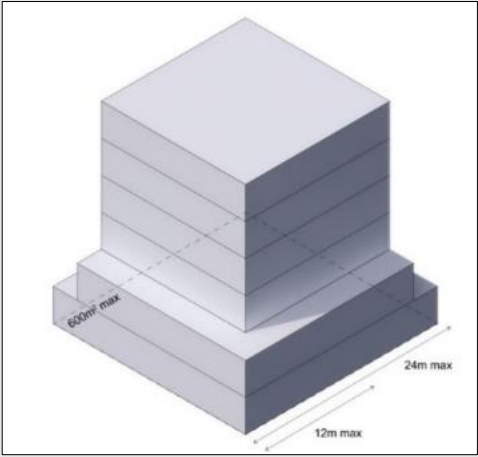
- O1. Implement the land use and built form strategy of height, FSR, density, land uses, and activation as outlined in the Precinct Plan.
- O2. Commercial buildings, including office, or community/cultural uses, respond to the desired future scale of the Precinct, and are located within the centres.
- O3. Provide higher buildings with a mix of uses around the Metro stations and moderate built form in local centres, orienting urban development towards the natural environment.
- O4. Ensure high-quality architecture, design and built form outcomes which respond to topography and site characteristics.
- O5. Encourage pedestrian activity in the streets and other public spaces.
- O6. Clearly define the character of the main street by activating the street and public domain.
- O7. Provide a high-quality public domain to achieve desired employment outcomes.
- O8. Establish a consistent front building alignment and landscaped streetscape in accordance with the intended character of the Precinct.

15.1.2 Performance Outcomes and Benchmark Solutions

15.1.2	Performance Outcome	Benchmark Solution
A. Relationship to the public domain		
PO1	Building massing responds to context and future character including significant landforms, topography, landscape, built environment and the public domain. (Refer to Figure 17 for a list of building elements interfacing with public domain.)	<ol style="list-style-type: none"> 1. Building design responds appropriately to topography, with regular transitions that maximise integration between ground floor level and street level. 2. Pedestrian entries are to be clearly visible from the public domain. 3. A schedule of all external materials is to be provided. 4. Building design is to incorporate a variety of materials. 5. Materials provided to building under crofts are to be integrated into the main building facade treatments. <p><i>Example of ground floor level response</i></p>

15.1.2	Performance Outcome	Benchmark Solution
		
PO2	<p>Built form is orientated to activate the street and public realm, to provide positive address and architectural presence to the street.</p>	<ol style="list-style-type: none"> 1. Locate active uses such as retail outlets and restaurants at ground level street frontages built to the boundary, and offices or residential above ground level. 2. Non-active uses to the principal street frontages are to be minimised. 3. Provide wide and legible entry/lobby areas and pedestrian pathways accessed from a public street or public open space. 4. Building facades at street level on active frontage streets and facing the public realm are to have a minimum of 80% clear glazing free of advertising and be open to the street. Dark glazed facades are not supported. 5. Residential, commercial, and retail uses on the upper floors are to be designed to overlook streets and public places to provide casual surveillance. 6. Maximum 20% frontage can be occupied by appropriately detailed walls with no openings, car park entrances and service areas. 7. Ground level accommodates a range of tenancy sizes, including smaller tenancies that provide visual interest and numerous opportunities for interaction and activity along the street front. 8. Provide publicly accessible landscaped pedestrian linkages through mixed use large blocks, achieving mid-block connections 130m apart. 9. Shopping centres and arcades are to maximise activation of the adjacent street and public domain and enhance permeability between public streets and places. 10. In commercial only developments, ground floor tenancies and building entry lobbies are to have entries and ground floor levels at the same level as the adjacent footpath or public domain. 11. In Enterprise and Agribusiness zones, building functions that have a higher activation and street presence, such as office space, childcare, restaurants or active workspaces, are to be oriented towards, and located near, streets and public spaces, and contain openings appropriate to the building function to maximise street activation. 12. Within Centres: <ol style="list-style-type: none"> a. Build new development to the edge of the property boundary; b. Establish continuity of ground floor shops along streets and lanes to promote retail uses and outdoor dining areas; and

15.1.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> c. Ground level accommodates a range of tenancy sizes, including smaller tenancies with regular variances that provide visual interest and numerous opportunities for interaction and activity along the street front.
B. Amenity and Sustainability		
PO1	<p>The floor to floor height provides flexibility to adapt to future permissible uses.</p>	<ol style="list-style-type: none"> 1. In mixed use developments, provide a minimum floor to floor height of: <ol style="list-style-type: none"> a. 4m within podium levels in mixed use developments; and b. Above the podium, if the use is residential accommodation then the floor to ceiling heights is to comply with the ADG. 2. In commercial only developments, provide a minimum floor to floor height of: <ol style="list-style-type: none"> a. 5m on the ground floor of commercial buildings; and b. 3.6m on the first commercial floor and any commercial floor above.
PO2	<p>Building depth and length is an appropriate scale to ensure adequate light, cross ventilation, and amenity for occupants, visitors and/or workers.</p> <p>Building design and modulation create interest and suit the functionality of the building.</p>	<ol style="list-style-type: none"> 1. Within the Mixed-Use zone: <ol style="list-style-type: none"> a. The glass line or primary wall is set back 3m and articulation elements (such as balcony projections blades and the like) are set between this zone and the boundary; and b. The maximum gross footprint for a residential tower above 5 storeys in height is 650m². 2. In mixed-use developments, the building depth and footprint are as follows: <ol style="list-style-type: none"> a. Depth to core is to 12m maximum for the commercial levels (as shown below); b. The maximum gross footprint for a residential tower below 27m in height is 850m²; and c. The maximum gross footprint for a residential tower above 27m in height is 650m². 3. In commercial only developments, the building depth and footprint are as follows: <ol style="list-style-type: none"> a. Building depth from facade to core is to be 12m. b. Any part of a building in excess of 40m in length must be designed with at least two distinct building components, each of which is to: <ol style="list-style-type: none"> i. Have its distinct architectural character; and ii. Not exceed 25m in length. c. Buildings less than or equal to 40m in length, may have a single architectural character provided that the cohesive elements establish a 'fine grain' articulation. d. The maximum gross footprint for a commercial tower is 1,500m².

15.1.2	Performance Outcome	Benchmark Solution
		<p><i>Building depth and height requirement</i></p> 

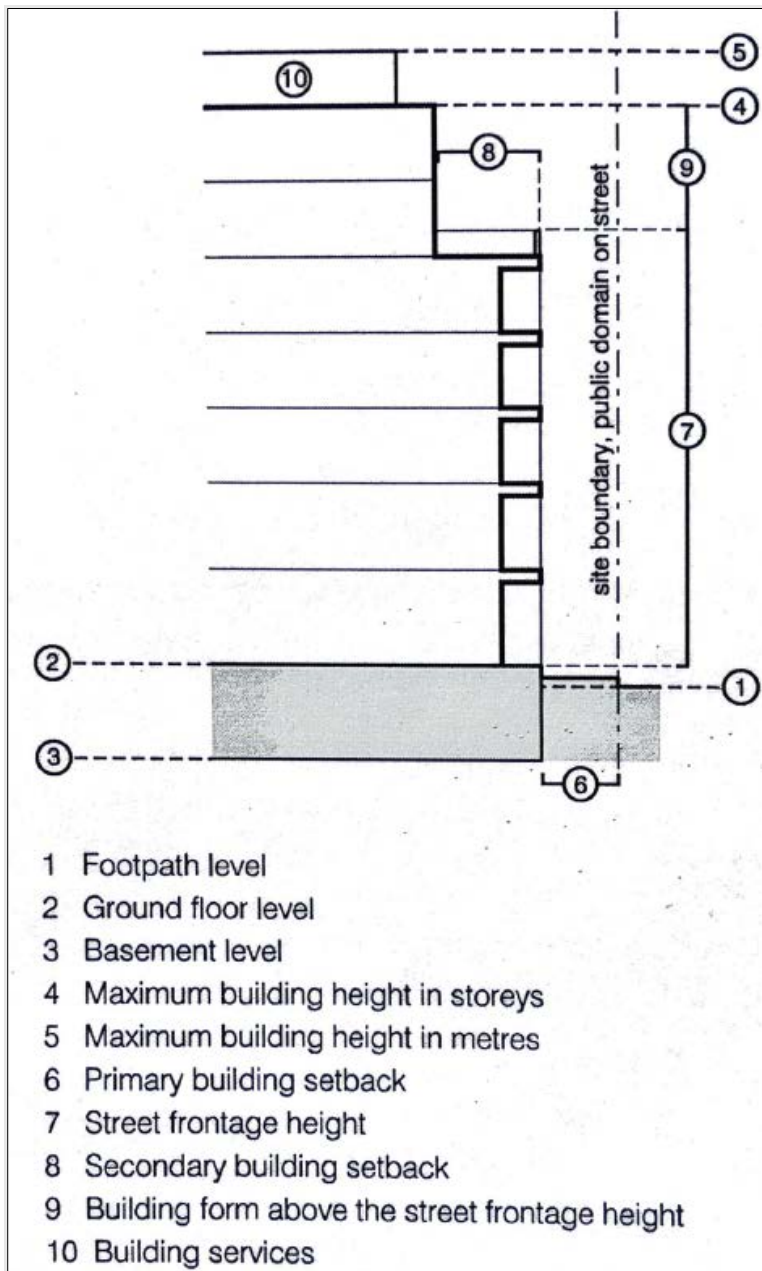
C. Building setbacks and separation

<p>PO1</p>	<p>Building setbacks and separation provide for variation of built form in the street, and adequate upper building separation to support privacy, ventilation, and solar access.</p> <p>In commercial centres, setbacks and height result in the desired character and a high level of amenity.</p>	<ol style="list-style-type: none"> 1. In a mixed-use development, the provisions for podium and tower elements are as follows: <p>Podium</p> <ol style="list-style-type: none"> a. Zero side setbacks are provided for the podium where residential uses are not provided on the ground level: and b. Zero front and rear setbacks are provided unless stated otherwise in the Precinct Plan. <p>Tower</p> <ol style="list-style-type: none"> a. A primary street setback between 3m and 6m is provided. A rear setback of 3m to 6m is provided unless stated otherwise in the Precinct Plan; and b. A residential tower above the podium can have an increased setback away from main streets so that residential towers can have generous ground floor or landscaped courtyards. 2. In a commercial building, the provisions for podium and tower elements are as follows: <p>Podium</p> <ol style="list-style-type: none"> a. Zero side setbacks are provided (height varies). <p>Tower</p> <ol style="list-style-type: none"> a. 6m side setbacks are provided; b. A primary street setback of minimum 6m is provided unless stated otherwise in the Precinct Plan; c. Rear setback of 12m is provided unless stated otherwise in the Precinct Plan; and
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15.1.2	Performance Outcome	Benchmark Solution
		<p>d. Towers can have a nil setback on the primary street, subject to wind and microclimate analysis.</p> <p>3. Within Centres, there is a build to requirement being on the property boundary.</p> <p>Note: A podium is a pedestrian-scale structure generally up to 3 storeys in height and a tower is a structure that does not go to ground level (unless otherwise agreed as part of design excellence process).</p>
PO2	Built form retains high levels of solar access to open spaces and/or public spaces.	1. A minimum of 4 hours solar access between the hours of 9am and 3pm during the winter solstice is to be provided to a minimum of 70% of those public areas impacted by a proposed development.
D. Built Form		
PO1	Built form, massing and design will define the placed based character and provide identity to the streetscape and the neighbourhood. Building design is also to serve a functional purpose including solar control, scale, and amenity.	<p>1. Building design is to reflect the following:</p> <ol style="list-style-type: none"> The use and the various components of the building; The part of the building that relates to the public domain; and The details and building elements including building entries, ground floor, lower floors, top floor, roof and corners. <p>2. The applicant is to provide a materials schedule that demonstrates the use of a variety of materials to create architectural interest. Facade materials are to be durable and form an integral part of the finish of the building.</p> <p>3. Building facades consist of a variety of materials and openings (i.e. windows, door, and balconies) to create an architectural response that creates depth and visual diversity.</p> <p>4. Incorporation of balconies, openings and other design elements that modulate the facade are encouraged above the ground floor to provide rhythm and interest.</p>
E. Shelter and Shade		
PO1	Provide continuous weather protection within Centres and where buildings do not have a setback from the public domain, that is integrated into building entrances and frontages. This will optimise the provision of shade and shelter to the public domain.	<p>For development within Centres and where buildings do not have a setback from the public domain:</p> <ol style="list-style-type: none"> Provide continuous awnings along the built form for shading and shelter of the adjacent sidewalk or public domain (including station plazas). Awnings are to be designed with: <ol style="list-style-type: none"> A soffit height of 3.6m above the finished ground floor level; or On sloping sites, awning soffit height may vary from a minimum of 3.2m and maximum of 4.0 m. The design of awnings is to provide: <ol style="list-style-type: none"> Integration between neighbouring properties in terms of awning height and setbacks; and Adequate space to support street trees canopy growth. Separation between the awning edge and: <ol style="list-style-type: none"> Streetlights; Signage;

15.1.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> iii. The kerb of trafficable lanes to protect from bus and truck overhang; and iv. Other street infrastructure.
F. Development in Walking Catchment of Mass Transit		
PO1	Development within mass transit walking catchments provide a public realm and built form that links the building with the station	<ol style="list-style-type: none"> 1. New development is designed to deliver extensive integration between the development, the adjacent station plaza/place (as designed or constructed), station interchange areas and the Metro station itself. 2. All building frontages to a station plaza or interchange addresses and activates the public realm with well-designed and active street frontages, providing for land uses that support both daytime and night-time activity (e.g. restaurants, bars, community uses, libraries,). 3. Built form is to maintain continuity and alignment of the street and to physically define the station plaza. 4. Driveways, loading docks, electrical substations and servicing facilities are located away from transit entry points and waiting areas, adjoining station plaza areas or significant pedestrian routes to the transit node.
PO2	Development supports employment opportunities, housing, and local services and amenities.	<ol style="list-style-type: none"> 1. Development in station walking catchments are designed to support a diverse mix of land uses and deliver a balance of residential, retail, commercial and community-oriented uses. 2. Development co-locates a range of public and private uses within the walking catchments of the Metro station and rapid bus transit nodes, including schools, public services, community, and recreation facilities.
G. Diversity and Accessibility for Housing Components		
PO1	A diverse range of dwelling types are provided to meet a range of household sizes and income and cultural needs.	<ol style="list-style-type: none"> 1. The minimum mix of dwellings typologies is achieved: <ul style="list-style-type: none"> a. 20% 3 bedroom; b. 20% 2 bedroom; c. 20% 1 bedroom and/ or studio; and d. 5% meeting cultural responsive housing requirements (see Section 2.1.2 B. PO3). <p>Note: the remaining 35% can be flexible to cater for the market demand. A mix of 1, 2, and 3-bedroom dwellings are located on the ground floor.</p>
PO2	Universally designed dwellings are provided which cater to a range of household and personal need, (including peoples changing mobility requirements over their lifetime).	<ol style="list-style-type: none"> 1. 20% of all dwellings incorporate the <i>Liveable Housing Guidelines</i>' silver level universal design features. Refer to Appendix C of this DCP. 2. Liveable dwellings are spread throughout the proposed development at the same rate of 1 bedroom, 2 bedroom, and 3 bedroom dwellings. <p>Note: A verification report from an Access Consultant is required to ensure achievement of the Liveable Design Guideline Standards.</p>

Figure 17 Building Elements Interfacing with Public Domain



H. Multi Dwelling Housing Components – Built Form								
PO1	Lot size is appropriate for development.	1. Minimum lot size is 1,000m ² . 2. Minimum lot width is 24m.						
I. Multi Dwelling Housing Components – Setbacks								
PO1	Set buildings back from the street and adjacent properties to provide: <ol style="list-style-type: none"> Consistent front building alignment; Space for landscaping, open space, and retention of existing trees; 	1. Minimum front and secondary setbacks are to be as follows: <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Street</th> <th>Front setback</th> <th>Secondary setback to corner dwelling only</th> </tr> </thead> <tbody> <tr> <td>Ground Floor</td> <td>4.5m</td> <td>2.5m</td> </tr> </tbody> </table>	Street	Front setback	Secondary setback to corner dwelling only	Ground Floor	4.5m	2.5m
Street	Front setback	Secondary setback to corner dwelling only						
Ground Floor	4.5m	2.5m						

	<p>c. Solar access, and visual and acoustic privacy; and</p> <p>d. Convenient and unobtrusive vehicle access and car parking without the use of excessive driveways.</p>	<table border="1"> <tr> <td></td> <td>(5.5m for garages)</td> <td></td> </tr> <tr> <td>First Floor</td> <td>5.5m</td> <td>2.5m</td> </tr> <tr> <td>Classified Roads</td> <td>10m</td> <td>10m</td> </tr> </table> <p>2. The development may have an articulation zone that extends up to 1.5m forward of the minimum required setback from the primary road.</p>		(5.5m for garages)		First Floor	5.5m	2.5m	Classified Roads	10m	10m
	(5.5m for garages)										
First Floor	5.5m	2.5m									
Classified Roads	10m	10m									
PO2	<p>Provide adequate setbacks from the side and rear boundaries, for:</p> <ol style="list-style-type: none"> 1. Solar access; and 2. Open space and landscaping privacy. 	<ol style="list-style-type: none"> 1. Side and rear setbacks <ol style="list-style-type: none"> a. Side: 6m to ground and first floors b. Rear: 6m to ground floor and first floors 									
PO3	<p>Building articulation to the primary and secondary street frontages achieves:</p> <ol style="list-style-type: none"> a. Articulated facades are to be provided to reduce perceived building bulk and create visual interest when viewed from the public domain; b. Landscaping is to be maximised; and c. Solar access is to be maximised to both the development and neighbouring properties. 	<ol style="list-style-type: none"> 1. Any element protruding into the articulation zone will be calculated as impervious area. The following elements can be located in the articulation zone: <ol style="list-style-type: none"> a. An entry feature or portico; b. A balcony, deck, pergola, terrace, or veranda; c. A window box treatment; d. A bay window or similar feature; e. An awning or other feature over a window; f. A sun shading feature; or g. An eave. 									
PO4	<p>Ensure the amenity of surrounding developments by providing screen planting on the boundary.</p>	<ol style="list-style-type: none"> 1. Provide a minimum of 3m landscape width along all fence lines for the inclusion of screen planting and boundary planting. 2. Screen planting on the boundary is to reach a minimum height of 2.5m at maturity. 3. Landscaping along the boundary is to be strategically placed to have the optimal effect in relation to both the provision of privacy and the achievement of solar access controls. 									
<p>J. Multi Dwelling Housing Components – Public Domain Interface</p>											
PO1	<p>Buildings address and activate both the primary and secondary street frontage and any immediately adjoining public space.</p>	<ol style="list-style-type: none"> 1. Habitable room windows are to address the street. 2. Entry points shall be enhanced/emphasised to all dwellings especially those facing the street, to be easily recognisable from both the street and within the site. 3. Provide clear numbering. 4. Facades are to be articulated by: <ol style="list-style-type: none"> a. Off-setting walls; b. Providing a physical break in the building. c. The use of a mix of different materials and detailing; and d. The inclusion of balconies, verandas, pergolas, and landscaped beds. 5. The maximum permitted depth of any balcony is 2m noting that balconies must comply with the 									

		<p>maximum permitted 1.5m front boundary articulation zone requirement.</p> <p>6. No hardstand parking spaces are permitted directly in front of any dwelling front door or pedestrian entrance point.</p>
PO2	Fencing is to complement the streetscape, provide separation between properties, and allow for passive surveillance.	<p>Primary Frontage</p> <ol style="list-style-type: none"> 1. The maximum height of a front fence is 1.2m. 2. Fences must not prevent surveillance by the dwelling's occupants of the street or communal areas. 3. The front fence must be at least 30% transparent for elements exceeding 1m in height from natural ground level. 4. Front fences are to be constructed in masonry, timber, metal pickets and/or utilise vegetation and must be compatible with the proposed design of the dwelling. <p>Secondary Frontage</p> <ol style="list-style-type: none"> 1. Side fences and walls for a corner dwelling may be a maximum of 1.8m in height adjacent to the courtyard, stepping down to allow for casual surveillance from the dwelling to the street frontages. Such fencing must be constructed of masonry and/or timber. Long expanses of side walls and fences shall be avoided and be broken up with landscaping and varying setbacks. 2. For side walls or fences along the secondary frontage, a maximum height of 1.2m is permitted up until to the front building alignment. The fence/wall may then be stepped up to a maximum of 1.8m. 3. Where a fence abuts public open space, colours and fencing material construction should match other properties as practically as possible. <p>Boundary Fences</p> <ol style="list-style-type: none"> 1. The maximum height of side boundary fencing within the front building setback is 1.2m. 2. Boundary fences shall be lapped and capped timber or metal sheeting.
K. Multi Dwelling Housing Components – Solar and Daylight Access		
PO1	Ensure appropriate solar access to living areas and private open space.	<ol style="list-style-type: none"> 1. The subjective development site and adjoining properties must receive a minimum of three hours of sunlight between 9am and 3pm on 21 June to the following areas: <ol style="list-style-type: none"> a. 1 living room; and b. 50% of the private open space. 2. Orient habitable rooms and windows to take advantage of northern aspects. 3. Locate non-habitable rooms, such as service areas and circulation areas on the south side of the buildings. 4. Provide skylight or clerestory windows to improve solar access and provide shared light to poorly lit parts of a dwelling, where orientation and design cannot achieve performance outcome. 5. Maximum depth of a habitable room with a single window must not exceed 8m from the openings that receive daylight.

L. Multi Dwelling Housing Components – Natural ventilation		
PO1	Provide for cross ventilation within the dwelling.	<ol style="list-style-type: none"> 1. The internal layout of the dwelling must incorporate cross ventilation. 2. Natural ventilation is available to each habitable room.
M. Multi Dwelling Housing Components – Ceiling height		
PO1	Ceiling heights are an appropriate height for residential amenity.	<ol style="list-style-type: none"> 1. Floor to floor heights are to be a minimum of 3.1m on the ground floor and internal floor to ceiling heights on floor above must be a minimum of 2.7m.
N. Multi Dwelling Housing Components – Internal Dimensions and Storage		
PO1	Room dimensions are appropriate for their intended use and purpose.	<ol style="list-style-type: none"> 1. Living room or lounge rooms must have a minimum dimension of 4m (excluding fixtures). 2. Bedrooms must have a minimum dimension of 3m in any direction (excluding wardrobe space). 3. 1 bedroom must have a minimum area of 10m² excluding space for a wardrobe. <p>Note: Attic floor space may be used when it is contained wholly within the roof pitch and will not be counted as a storey provided that the attic space is part of the dwelling.</p>
PO2	Each dwelling is provided with storage space in a range of formats and locations.	<ol style="list-style-type: none"> 1. Provide a minimum storage area of 8m³ within each dwelling (excluding storage areas within garages or basements). 2. Provide all bedrooms with built in wardrobes.
O. Multi Dwelling Housing Components – Principal Private Open Space		
PO1	<p>Each dwelling contains an area of principal private open space (PPOS) with dimensions that are proportionate with the size of the dwelling and intended use.</p> <p>Principal private open space areas are of sufficient area and minimum dimensions to allow for private recreation.</p> <p>Principal private open space areas are not obstructed by uses that impede their function for private recreation.</p>	<ol style="list-style-type: none"> 1. Each dwelling provides PPOS with a minimum dimension of 4m and a minimum area as follows: <ol style="list-style-type: none"> a. 1 bed / studio: 16 m²; b. 2 bed: 25m²; and c. 3+ bed: 35m². 2. PPOS is to be located at existing natural ground level. 3. Where the minimum 4m dimension cannot be provided at a level gradient due to site constraints, terraced areas may be considered. 4. The following are excluded from the calculation of PPOS area: <ol style="list-style-type: none"> a. Areas less than 4m in width; b. Rainwater tanks; c. Bin storage areas; d. Air-conditioning units; e. Hot water systems; and f. Planting beds for screen planting. 5. Any drainage pit or other service provision is included within the side or rear setback area.
PO2	Ensure the location of PPOS is private, not visible from the street and is not unreasonably overlooked by neighbouring and internal development.	<ol style="list-style-type: none"> 1. PPOS is not to be located within any front boundary setback and must be located behind the front building alignment. 2. The siting of windows of habitable rooms on the first floor shall minimise overlooking to the PPOS of neighbouring properties.

PO3	PPOS maximises amenity by acting as an extension of the ground floor internal living areas.	1. Provide a direct link from at least 1 living area to the PPOS.
PO4	Areas of PPOS receive solar access.	1. Minimum of 50% of the PPOS must receive 3 hours of hours of sunlight between 9:00am and 3:00pm on 21 June. 2. Trees adjacent to PPOS areas and living rooms are to provide summer shade and allow winter sun entry.
PO5	Provide for adequate soft landscape areas to support liveability and amenity.	1. Soft landscaping is provided to a minimum 15% lot area. First 1m of the lot measured from the street boundary (excluding paths) is to be soft landscaped, and it must be included in communal open space. 2. Driveways are to be offset a minimum of 1 metre from side boundaries to allow for landscaping on either side of the driveway.
P. Multi Dwelling Housing Components – Visual Privacy and Surveillance		
PO1	Dwelling layout and site design maximise visual privacy to dwellings.	1. Building siting, window location, balconies and fencing are designed to maximise privacy on site and adjoining buildings and outdoor spaces. 2. Windows to habitable rooms are located so they do not overlook windows in adjoining properties or other dwellings onsite. 3. Use windows with high sill heights (1.6m minimum) where privacy issues are identified. 4. Offset the location of any adjoining ground and first floor windows so that viewing is oblique rather than direct. 5. Screening devices are to be at least 60% obscure, permanently fixed and made of durable materials. Screening devices include: a. Obscure glazing; b. Timber screens; c. External ventilation blinds; d. Window hoods; or e. Shutters.
PO2	Dwelling design promotes passive surveillance of the street and public places.	1. For ground floor dwellings, provide active use rooms or habitable rooms with windows overlooking the street and any communal/public areas (e.g. playgrounds, gardens).
Q. Multi Dwelling Housing Components – Site Services		
PO1	Letterboxes are easily accessible, complement the streetscape and assist in wayfinding.	1. Letterboxes are provided for each dwelling on site, easily accessible from the street, able to be securely locked and provided in accordance with Australia Post's requirements. 2. Letterbox structures are designed and constructed of materials that relate to the main building. 3. Residential numbering is attached to the letterbox so that it is clearly visible from the street frontage.

15.2 Industrial, Agribusiness, Specialised Retail/Bulky Goods Uses

15.2.1 Objectives

- O1. Implement the land use and built form strategy of height, FSR, density, land uses, and activation as outlined in the Precinct Plan.
- O2. Ensure development responds to the intended scale and character of the precinct.
- O3. Provide high-quality sustainable buildings that support industrial enterprise business investment.
- O4. Urban design requirements ensure the range of permissible industrial uses and built form are compatible with each other and with adjoining development.
- O5. Development in the industrial zones are compatible with the natural environment and integrate with blue-green infrastructure.
- O6. Bulky goods retail development positively contributes to the streetscape and public domain with high-quality architecture, materials, finishes and landscaping.
- O7. Attractive streetscapes are achieved by ensuring that buildings, even if they are larger footprints, present an acceptable scale, setback and bulk when viewed from the public domain.
- O8. Support the development of agribusiness industries that are responsive to the visual and functional qualities as outlined in the Precinct Plan.

15.2.2 Performance Outcomes and Benchmark Solutions

15.2.2	Performance Outcome	Benchmark Solution
A. Relationship to the public domain		
PO1	Building massing responds to the sites' context and future character, including significant landforms, topography, landscape, built environment and the public domain.	<ol style="list-style-type: none"> 1. Screen building under-croft levels where visible from the public domain. These are to be integrated as part of building facade treatments.
PO2	Built form should orientate to and activate the street and public realm.	<ol style="list-style-type: none"> 1. Building entries are to be at the same level as the adjacent footpath or public domain. 2. Storage, truck parking and operations, and back of house areas are to be screened. Note: Screening should not rely entirely planting which may or may not achieve that intention due to poor maintenance. Other options may include well designed screens, walls, integrated with building external walls. 3. Where an allotment has a frontage to a classified road and a secondary road, the development is to provide vehicle access from the secondary road and provide trees to parking areas. 4. Details of the colour of fencing, type and location must be provided. The location should be setback from front and secondary boundaries with landscaping between it and any boundary to reduce the visual impact of fences.
B. Amenity and Sustainability		
PO1	Building orientation and siting should respond to natural elements such as topography, wind, and sunlight.	<ol style="list-style-type: none"> 1. Use light-coloured reflective materials to roofs and facades to minimise heat gain. Note: The materials are not to cause an aircraft hazard.

15.2.2	Performance Outcome	Benchmark Solution
PO2	Ensure worker amenity by providing sufficient indoor and communal open space and informal recreation areas.	1. Industrial tenancies provide indoor and outdoor communal open space which includes landscaping, shade, paving, suitable area for outdoor seating and dining.
C. Building setbacks, separation, and pedestrian permeability		
PO1	To provide building and landscaped setbacks which minimise the potential visual impact of development and support the urban typology (site coverage).	1. All buildings in industrial areas are to be set back a minimum of 10m from the front property boundary unless otherwise specified in the Aerotropolis Precinct Plan. 2. No building other than a public utility undertaking shall be erected within any setback.
PO2	Larger format buildings provide built form interest to minimise visual bulk.	1. Building design should include elements such as: <ul style="list-style-type: none"> a. External structures, finishes, etchings, and recessed patterns; b. Decorative features, textures, and colours; c. Locating offices and highlighting entries within front facades; d. Emphasised customer entries and service access doors; or e. Protrusions and penetrations in building elements
D. Built Form		
PO1	Larger format buildings provide a street address with clear entries and active uses located to the street frontage.	1. Offices, retail components and/or customer areas are located to address the primary road frontage and scaled for pedestrians. 2. External industrial activity and storage areas are not permitted within the street frontage. 3. Large expanses of blank walls must be screened with landscaping or treated as sculptural elements incorporating public art, variation in materials and other methods reflecting contemporary architectural design.
PO2	Encourage flexible building design to ensure buildings can be converted for a range of uses.	1. Development is to meet the market demand for industrial development, including the warehousing and freights logistics industry and is to provide high ceilings of at least 4m and adaptable open planning for the ground and first floors to cater for different future uses of the building.
E. Ancillary Development		
PO1	Ancillary offices and industrial retail outlets are to be directly related to the industrial development and assist in the activation of industrial frontages.	1. Ancillary offices and industrial retail outlets are to be: <ul style="list-style-type: none"> a. Located at the street frontage to provide an active frontage; and b. Integrated into the design and layout of the industrial building.

15.2.2	Performance Outcome	Benchmark Solution
PO2	Ancillary dwellings (e.g. caretakers dwelling) are to be designed to be considerate of resident/s amenity.	<ol style="list-style-type: none"> 1. Provide a separate pedestrian access from the front of the building to the dwelling. 2. Provided the dwelling with private open space area. 3. Provide a separate car parking space. 4. Design and locate the dwelling so that it does not suffer adverse impact from the operation of the development (noise, light, dust, overshadowing), and ensures adequate provision for solar access, visual and acoustic privacy.
F. Specialised Retail/Bulky Goods Premises		
PO1	Bulky goods are located alongside major roads in accessible areas with landscaping.	<ol style="list-style-type: none"> 1. Where an allotment has a frontage to a classified road and a secondary road, the development is to provide vehicle access from the secondary road and provide trees to parking areas.
PO2	The built form of bulky goods is designed to reflect a finer grain urban form and may be broken up or modulated to prioritise pedestrian movement despite having large building footprint.	<ol style="list-style-type: none"> 1. Bulky goods retail developments are designed to: <ol style="list-style-type: none"> a. Address and activate street frontages with large display windows with clear glazing; b. Define and enhance the public domain and introduce setbacks consistent with surrounding development; c. Be in scale with surrounding buildings; d. Incorporate detail and architectural interest and the use of a variety of high-quality external materials in facades that face streets and the public domain. e. Use parapets to screen any roof top plant and equipment f. Connect the site and building to any pedestrian and bicycle networks; and g. Provide active uses (for example cafes) that address the street and can be seen from the public domain. 2. Entrances, with awnings, are to be provided along the primary street frontage. 3. Pedestrian paths are provided along all streets and adjacent to car parking areas. 4. All pedestrian access to the building is to be clearly identifiable, particularly through car parking areas. 5. Development is to provide sufficient manoeuvring areas on site to accommodate large truck and bus movements, frequency of servicing, and customer vehicles.
PO3	Encourage flexible building design to ensure buildings can be converted for a range of uses.	<ol style="list-style-type: none"> 1. Provide high ceilings of at least 4m and adaptable open planning for the ground and first floors to cater for different future uses of the building.

15.3 Night-time Economy Uses

15.3.1 Objectives

- O1. Support a safe, diverse, inclusive, vibrant, and accessible night-time economy for the Aerotropolis.
- O2. Support the Aerotropolis Core as a 24-hour, global centre for workers, residents and visitors coming to and from the Airport, using high quality public and active transport.
- O3. Enable trading hours to support night-time economy uses and activities in appropriate locations.
- O4. Ensure that night-time accessibility to centres promotes high levels of activity and a strong night-time economy.

15.3.2 Performance Outcomes and Benchmark Solutions

15.5.2	Performance Outcome	Benchmark Solution
PO1	Night-time uses are highly accessible, preferably by public transport, and take into consideration movement of people, especially women, elderly and children.	<ol style="list-style-type: none"> 1. Prioritise the locations of night-time uses in areas where they can be easily and safely accessed by public transport (walking distance from a Metro station, or a bus stop with high frequency service aligned with proposed hours of operation) or walking and cycling. 2. The design of key pedestrian routes from public transport nodes to areas of night-time activity provides for safe night-time walking. 3. Provide wayfinding (signage and lighting) to direct patrons between late-night services and public transport options.
PO2	Night-time uses are designed to have minimal adverse impacts on the comfort and safety of patrons, nearby residents and the broader community while balancing the choice to reside as part of the urban lifestyle within centres.	<ol style="list-style-type: none"> 1. Design development in accordance with CPTED principles. 2. Night-time economy uses are to include passive surveillance over the street frontage, avoiding the use of roller doors, blank walls or other components which do not enhance safety of the area. 3. The design of venues is to locate populated rooms at the front of the site. 4. Night-time uses shall include noise mitigation measures to manage any land use conflicts. 5. A Plan of Management is to be submitted where night-time uses exceed 9pm.
PO3	Hours of operation promote a safe and vibrant night-time economy in mixed-use centres taking into account the location of residential development.	<ol style="list-style-type: none"> 1. Hours of operation are to be considered on a merit basis, with consideration of the following: <ol style="list-style-type: none"> a. The nature of the night-time use and its likely impacts; b. Hours of operation of surrounding businesses, cumulative impact and how the proposed hours interact with these; c. Availability and frequency of public transport. d. The likelihood of the proposed use to promote antisocial activities; e. Levels of public lighting available at and to the site; f. Amenity impacts on surrounding premises; and g. Cumulative impact of uses in a location.
PO4	A range of opportunities for activation should be explored to promote daytime and evening activity.	<ol style="list-style-type: none"> 1. Use public domain areas (laneways, plazas etc) and car parking areas, to facilitate night-time activity 2. Explore opportunities to support and connect the sharing of the local Aboriginal culture.

15.4 Outdoor Dining

15.4.1 Objectives

- O1. To ensure that outdoor dining for restaurants, bars and cafés enhances the economic viability of centres and retains and attract residents and workers.

15.4.2 Performance Outcomes and Benchmark Solutions

15.6.2	Performance Outcome	Benchmark Solution
PO1	Outdoor dining enhances the streetscape to create attractive and vibrant centres.	<ol style="list-style-type: none"> 1. Footpaths are a minimum of 4m wide with appropriate lighting (whether temporary or fixed). 2. Seating areas are enclosed with planter boxes or similar privacy and separation measures.
PO2	<p>Outdoor dining areas do not impact the public domain.</p> <p>Public domain is designed to ensure safety of users and pedestrians from vehicles.</p>	<ol style="list-style-type: none"> 1. Outdoor dining areas associated with ground floor tenancies does not impact movement within the public domain if it is not to be provided in the expanded verge width. 2. Seating is at least 3m away from any change in direction of kerb and gutter on the street. 3. Appropriately separate dining areas from pedestrian crossings, disabled parking spaces, or other structures (e.g. post box, street sign, street tree). 4. Dining areas achieve a 1m setback from the kerb edge, separated by planter boxes or other appropriate barriers. Where outdoor dining is proposed on a footpath adjoining a classified road, the kerbside setback from trafficable lanes for dining areas is to be determined with reference to the kerbside clear zone requirements set out in the <i>Guide to Road Design</i> from Austroads. 5. Outdoor dining furniture is designed, such that: <ol style="list-style-type: none"> a. There are no sharp edges. b. Patio umbrellas do block wind entirely. c. Access is allowed for all users, including people who have limited mobility; and d. Furniture is easily removed or rearranged depending on the intensity of patronage and pedestrian traffic, as well as the hours of operation.
PO3	Outdoor dining provision provides adequate footpath space for expected pedestrian volumes along the footpath	<ol style="list-style-type: none"> 1. A minimum of 2.5m of footpath is available to pedestrians at all times, or where pedestrian traffic is heavy the available width responds to the demand. 2. Outdoor cafe seating is located close to the kerb to allow space for pedestrian passage. 3. Allow appropriate public access across the footpath between the kerb and property boundary.
PO4	Provide a high level of amenity for users and surrounding areas.	<ol style="list-style-type: none"> 1. Any additional lighting to normal street lighting is provided at the applicant's expense and shall be completed to the satisfaction of Council. 2. Dining areas include waiting areas (i.e. queues should not extend into pedestrian areas).
PO5	Adapt non-traditional areas (e.g. car parks and parks) for outdoor dining	<ol style="list-style-type: none"> 1. Approval is required for food trucks/markets to the satisfaction of Council.

15.6.2	Performance Outcome	Benchmark Solution
	when temporarily activated by food trucks or markets.	2. Outdoor dining in areas such as car parks or parks does not interfere with pedestrian and emergency vehicle access.

15.5 Childcare Centres

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 applies. The following are in addition to the controls in the *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017*.

15.5.1 Objectives

- O1. To manage vehicle and pedestrian conflict and safety.

15.5.2 Performance Outcomes and Benchmark Solutions

15.7.2	Performance Outcome	Benchmark Solution
PO1	Pedestrian safety surrounding childcare centres is enhanced by locating these facilities on lower order streets.	<ol style="list-style-type: none"> 1. Primary frontage and access of new childcare centres are not located on classified roads. 2. Access to new childcare centres is provided from lower order streets. 3. Childcare centres provide drop off and pick up facilities and associated traffic movements on site.

15.6 Education Facilities

State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 applies. The following are in addition to the controls in the *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017*.

15.6.1 Objectives

- O1. Enable the efficient use of social infrastructure to promote sharing among users and to rationalise costs and space required.
- O2. Enable education (school) sites to be used outside of school hours.

15.6.2 Performance Outcomes and Benchmark Solutions

15.8.2	Performance Outcome	Benchmark Solution
PO1	Pedestrian safety surrounding education facilities is enhanced by locating these on lower order streets.	<ol style="list-style-type: none"> 1. Primary frontage and access of new facilities are not located on classified roads. 2. Access to new facilities is provided from lower order streets. 3. Education facilities provide adequate drop off and pick up facilities and adequately cater for the traffic movements associated with this.
PO2	Schools support community needs by sharing their spaces outside of school hours.	<ol style="list-style-type: none"> 1. Locate libraries/halls on the edges of education sites and incorporate security features to allow public access outside of school hours while keeping other school grounds off-limits. 2. Incorporate multi-functional meeting spaces and/or workspaces in libraries/halls and deliver kiosk libraries in school libraries as part of the wider public library network. 3. Design open spaces appropriately with learning and play landscapes with moveable fences to allow for public access (e.g. community events, weekend markets or

15.8.2	Performance Outcome	Benchmark Solution
		<p>passive recreation) during designated times outside of school hours.</p> <ol style="list-style-type: none"> 4. Enhance community access through an integrated booking system. 5. Set up appropriate funding and maintenance agreements between schools and social infrastructure authorities.
PO3	Incorporate multipurpose fence designs which maintain school and student security while improving the amenity for the public.	<ol style="list-style-type: none"> 1. Soften the edges of school sites by including landscaping around the fences such as tree canopy and verge gardens. 2. Integrate public art and public seating around the main entry/exit points of fences, along with recessed spaces. 3. Where school sites interface with key connections, the design and location of fences allow for through-site access.

15.7 Places of Public Worship

15.7.1 Objectives

- O1. Ensure the visual impact of places of public worship is consistent with the intended character of the precinct.
- O2. Ensure places of public worship are located on sites of sufficient size for their intended use.
- O1. Ensure the design, location, and operation of places of public worship do not adversely impact on the amenity of the area and neighbouring properties.
- O2. Ensure places of public worship have sufficient infrastructure, services, and access to support the use.

15.7.2 Performance Outcomes and Benchmark Solutions

15.9.2	Performance Outcome	Benchmark Solution
PO1	Places of public worship are located on sites of sufficient size to accommodate all proposed buildings, parking areas, vehicular and pedestrian access, outdoor areas, and other ancillary uses.	<ol style="list-style-type: none"> 1. All supporting facilities, such as parking and outside areas for informal congregation before and after services, must be accommodated wholly within the site. 2. Where capacity is >100 persons, places of public worship: <ol style="list-style-type: none"> a. Are located on a road with sufficient capacity to accommodate traffic generated; and b. Demonstrate how sustainable modes of transport will be encouraged (e.g. proximity to public transport or privately run provision of transport). 3. Places of public worship are situated on streets with widths that permit the adequate and safe manoeuvrability of vehicles and lines of sight for pedestrians, cyclists, and vehicles. 4. The front entrance is easily located and accessible.

15.9.2	Performance Outcome	Benchmark Solution
		5. Formal car parking is behind the front building alignment and is not visible from the street or adjacent public domain.
PO2	Places of public worship respond to the context, are accessible to and have minimal adverse impacts on the surrounding area.	<ol style="list-style-type: none"> 1. Built form complements the intended character of the precinct, their relationship with landform and the ability of the landscape to absorb the visual impact of the spire, tower etc. 2. Where located adjacent to existing or proposed residential development, a 10m landscaped buffer zone to side and rear boundaries is provided. This zone is not to be used for parking areas. 3. Spires, towers, and similar structures have a maximum height of 15m (or specified by OLS, whichever is the lesser) and may be considered on the basis of their: <ol style="list-style-type: none"> a. Bulk and scale; b. Extent of overshadowing; and c. Contribution to the streetscape. 4. An acoustic report demonstrates relevant acoustic measures have been implemented to mitigate noise impact on adjoining properties and the public domain. 5. Grassed areas which includes tree planting areas are protected from parking and compaction.

15.8 Animal Boarding or Training Establishments

15.8.1 Objectives

- O1. Ensure the design and location of animal boarding or training establishments is consistent with the precinct vision and does not adversely impact on the amenity of existing and future developments.

15.8.2 Performance Outcomes and Benchmark Solutions

15.10.2	Performance Outcome	Benchmark Solution
PO1	Development does not impact the amenity of adjacent neighbours.	<ol style="list-style-type: none"> 1. Locate animal boarding or training establishments a minimum distance of 150m from existing or future residential areas, including in mixed-use zones. This minimum distance proportionally increases on merit, depending on the number of animals permitted, with a maximum of 40 animals at 300m. 2. Site selection meets the following criteria: <ol style="list-style-type: none"> a. Minimum street frontage is 90m; b. Minimum setback is 60m from any public road; c. Facility is screened to ensure animals cannot see the street or be seen from the street;

15.10.2	Performance Outcome	Benchmark Solution
		<ul style="list-style-type: none"> d. Concrete floors are provided to all kennels and runs to facilitate cleaning; e. Facility design prevents pollution to surface and ground waters (e.g. washdown waters are collected and directed to sewer); f. Sound-proofed holding sheds are provided for distressed animals (as per the <i>NSW Animal Welfare Code of Practice No 5 – Dogs and cats in animal boarding establishments</i>); g. Animals are confined to their individual runs or exercise areas at all times; and h. Sale of animals, breeding, training and treating of animals are ancillary to the boarding of animals. <p>3. An acoustic report demonstrates that relevant acoustic measures have been implemented to mitigate noise impact on adjoining properties and the public domain.</p>

15.9 Roadside Stalls

15.9.1 Objectives

- O1. Ensure the development and operation of roadside stalls is compatible with the intended precinct character.
- O2. Minimise impacts on surrounding properties, road safety and traffic movement.
- O3. To be temporary in nature and able to be return to their natural landform form at any time.

15.9.2 Performance Outcomes and Benchmark Solutions

15.11.2	Performance Outcome	Benchmark Solution
PO1	Roadside stalls are compatible with the surrounding urban and natural environment and do not impact upon the amenity of the area.	<ol style="list-style-type: none"> 1. Roadside stalls meet the following site and design requirements: <ul style="list-style-type: none"> a. Be located on a lot with a minimum frontage of 20m; b. Have a maximum temporary GFA of 20m²; c. Have a maximum temporary height of 3m; and d. Be located immediately behind the front boundary of private property. 2. Roadside stalls are designed to establish a harmonious visual relationship with the streetscape and natural features of the site and broader locality. 3. The roadside stall does not incorporate facilities which produce pollution (e.g. noise pollution as per the <i>Protection of the Environment Operations Act 1997</i>). 4. Appropriate waste provisions are made to ensure waste is disposed of daily.
PO2	Roadside stalls do not impact upon road or pedestrian safety.	<ol style="list-style-type: none"> 1. The roadside stall allows good visibility for vehicles and provides suitable vehicle access without causing a traffic hazard. 2. The roadside stall will not require parking on the public road reserve. 3. Roadside stalls are not located on bends or where it is unsafe for vehicles to pull over.

15.11.2	Performance Outcome	Benchmark Solution
		4. Car parking areas, internal driveways and access driveways are clearly delineated and made of a hard standing, all weather material.

15.10 Sex Services and Restricted Premises

15.10.1 Objectives

- O1. Ensure sex services and restricted premises are appropriately separated from residential areas and other sensitive land uses.
- O2. Prevent the concentration of sex services and restricted premises in a single area.
- O3. Ensure safe access to sex services and restricted premises for staff and patrons.

15.10.2 Performance Outcomes and Benchmark Solutions

15.12.2	Performance Outcome	Benchmark Solution
PO1	Sex services and restricted premises are separated from sensitive land uses.	<ol style="list-style-type: none"> 1. Sex services and restricted premises are not located within 150m of residential development (within the mixed-use zone) or any place of worship, school, community facility, childcare centre, or any place regularly frequented by children for recreational or cultural pursuits. 2. These premises are not located within a 75m radius from an existing, approved sex services premises or restricted premises. 3. Development complies with the relevant Council requirements for health, safety and security. 4. When considering appropriate locations for sex services and restricted premises, consider the following: <ol style="list-style-type: none"> a. Size; b. Location; c. Hours of operation; d. Number of employees; and e. Number of clients.
PO2	Safe access is provided to the premises.	<ol style="list-style-type: none"> 1. Patron access is from the primary frontage within the public domain and not from a laneway. 2. Appropriate lighting is provided to the entry and pedestrian access. 3. A surveillance system is installed at the main entrance.
PO3	Signage is appropriate, discreet, and unobtrusive.	<ol style="list-style-type: none"> 1. Provide a maximum of 1 sign per premise, with a maximum size of 1.5m². 2. Signage is limited to the trade name of the business, phone number and address. 3. No other characters, depictions, pictures, or drawings are displayed on the sign. 4. The content, illumination, size, shape, and location of the sign does not interfere with the amenity of the neighbourhood. 5. No merchandising is displayed in areas visible from the public domain and access corridors.

15.12.2	Performance Outcome	Benchmark Solution
PO4	The external appearance reflects the intended character of the streetscape.	<ol style="list-style-type: none"> 1. The premises are not a prominent feature in the street. 2. The interior of the premises and any restricted material is not visible from the public domain.

15.11 Boarding Houses

This section provides supplementary controls for Boarding Houses in addition to those contained within *State Environmental Planning Policy (Affordable Rental Housing) 2009* (ARH SEPP) and the general controls elsewhere in this DCP.

15.11.1 Objectives

- O1. Ensure boarding houses deliver high levels of amenity by providing sufficient communal facilities for occupants.
- O2. Ensure boarding houses operate in a manner that maintains a high level of amenity, health, and safety for residents.

15.11.2 Performance Outcomes and Benchmark Solutions

15.13.2	Performance Outcome	Benchmark Solution
PO1	Bedrooms provide high levels of amenity.	<ol style="list-style-type: none"> 1. In addition to compliance with controls for bedrooms within the ARH SEPP, bedrooms: <ol style="list-style-type: none"> a. Do not open directly onto communal living, kitchen, or dining areas. b. Have access to natural light from a window or a door; and c. Provide facilities at the following minimum sizes where rooms are self-contained: <ol style="list-style-type: none"> i. Bathroom: 2.1m²; ii. Shower in bathroom: 0.8m²; iii. Laundry: 1.1m²; and iv. Kitchenette: 2m².
PO2	Boarding houses provide sufficiently sized communal facilities proportional to the number of occupants.	<ol style="list-style-type: none"> 1. Provide indoor communal living areas with a minimum area of 12.5m² or 1.5m² per bedroom (whichever is greater). The communal living area can include any dining area, but cannot include bedrooms, bathrooms, laundries, reception areas, kitchens, corridors, and the like. 2. Where rooms do not have a kitchenette, communal kitchens are provided with a minimum area of 8m² plus an additional 1.2m² per boarding room over 5 boarding rooms. 3. A communal kitchen provides the following per 5 boarding rooms (or part thereof): <ol style="list-style-type: none"> a. 1 sink; b. 1 stove top cooker; and c. 1 suitably sized fridge. 4. Where boarding rooms are not self-contained, boarding houses provide the following communal facilities at a rate of 1 per 5 boarding rooms: <ol style="list-style-type: none"> a. 1 bathroom; b. 1 washing machine and 1 washing sink; c. 30m or external clothesline; and

15.13.2	Performance Outcome	Benchmark Solution
		<p>d. 1 toilet and wash basin (separate from bathroom).</p> <p>5. Any noise generating activities and areas that cause exposure to sensitive uses on neighbouring site are restricted between 10pm-7am.</p>
PO3	Boarding houses operate in a safe and clean manner that protects the amenity of residents and neighbours.	1. In accordance with Council specifications, a plan of management for a boarding house is submitted with the DA.

15.12 Tourist and Visitor Accommodation

Tourist and visitor accommodation include hotels, motels, guesthouses, backpacker accommodation, bed and breakfast accommodation and serviced apartments.

15.12.1 Objectives

- O1. Ensure that tourist and visitor accommodation provide acceptable standards of health, safety, cleanliness and amenity for guests and staff.
- O2. Ensure that tourist and visitor accommodation operate in manner that does not adversely impact on the amenity of the surrounding locality.

15.12.2 Performance Outcomes and Benchmark Solutions

15.14.2	Performance Outcome	Benchmark Solution
PO1	Tourist and visitor accommodation operate in a safe and clean manner that protects the amenity of guests, staff, and neighbours.	1. In accordance with Council specifications, a plan of management for tourist and visitor accommodation is provided with the DA.
PO2	Tourist and visitor accommodation provide adequate amenity for the purpose of short term stays only.	<ol style="list-style-type: none"> 1. The maximum number of guests in a bedroom or dormitory within a hotel, motel or backpacker's accommodation is determined on the basis of the following minimum floor areas: <ol style="list-style-type: none"> a. 3.25m² per person; and b. 5.5m² per person for rooms occupied by guests. 2. The maximum length of stay for any guest is 3 months. 3. Provide individual, secure, and lockable storage facilities with a minimum capacity of 0.6 cubic metres per person for guests to individually store baggage and travel items within the sleeping room. 4. Tourist and visitor accommodation provide communal recreation areas of 20m² or at a rate of 0.75m² per person based on the maximum number of guests, whichever is greater. 5. Any noise-generating activities and areas that cause exposure to sensitive uses on neighbouring sites are restricted between 10pm-7am.
PO3	Tourist and visitor accommodation are located close to public transport to provide a high level of amenity to guests.	1. Tourist and visitor accommodation are located within 400m of public transport and within easy access to facilities and services.

15.13 New and Upgraded Waste or Resource Management Facilities

15.13.1 Objectives

- O1. Ensure new and upgraded waste or resource management facilities deliver best practice environmental performance controls.
- O2. Recognise waste as a resource and the collection and transport of waste, repair, reuse, and recycling as an essential service in the Aerotropolis.
- O3. Enable the collection and transport of waste and extractive materials in a manner that is safe, efficient, cost effective and does not negatively impact on liveability and the environment.
- O4. Provide circular economy employment opportunities.
- O5. Ensure waste management and circular economy facilities are designed with a visual transition barrier to ensure a high standard of visual amenity.
- O6. Ensure building design is adaptable, recognising waste types, generation rates and separation needs may change during the useful life of the building.
- O7. Ensure waste management facilities do not attract wildlife in a manner which impacts Airport operations.

15.13.2 Performance Outcomes and Benchmark Solutions

15.16.2	Performance Outcome	Benchmark Solution
PO1	Waste and resource recovery are managed to minimise risk of wildlife attraction and land pollution.	<ol style="list-style-type: none"> 1. Receive, process, handle and stockpile any organic or putrescible waste in an enclosed building. 2. Do not store organic or putrescible wastes outside.
PO2	Waste and resource recovery are managed in a way that maximises amenity.	<ol style="list-style-type: none"> 1. A waste and resource recovery management plan are submitted with the DA. 2. Waste and resource recovery facilities do not result in adverse impacts on surrounding existing or future sensitive land uses (including in terms of odour, air quality, dust, and noise).
PO3	Pollution is managed during the construction and operation of the facility to ensure there are no adverse environmental and health impacts.	<ol style="list-style-type: none"> 1. There is no pollution of waters (including surface and groundwater) except in accordance with an Environment Protection Licence issued under the <i>Protection of the Environment Operations Act 1997</i>. 2. Polluted water (including process waters, wash down waters, polluted stormwater, or sewage) is captured on the site and directed to a reticulated sewer where available. Otherwise, polluted water is collected, treated, and beneficially reused, where this is safe, practicable and will not harm the environment. 3. Prevent the tracking of waste and sediment onto adjoining roads from vehicle wheels. 4. Demonstrate emissions do not cause adverse impact upon human health or the environment.
PO4	The end state is considered at the initial design stage.	<ol style="list-style-type: none"> 1. Development consents for new or modified applications require the site to be backfilled (according to the definition of clean fill) and returned to its original landform or to an appropriate adaptation relevant to the landform at the time of backfilling.
PO5	Recognise waste types, generation rates and separation needs may change during the useful life of a building.	<ol style="list-style-type: none"> 1. Waste and resource recovery facilities are sited to enable possible future expanded floor area. 2. Design waste and resource recovery facilities to enable installation of new, potentially larger equipment.