# STATEMENT OF ENVIRONMENTAL EFFECTS

## Catherine Park

Residential Subdivision, Signage and

South Creek Riparian Works

931 Oran Park Drive, Oran Park

dpp
Development
Planning Strategies

# STATEMENT OF ENVRIONMENTAL EFFECTS

## CATHERINE PARK RESIDENTIAL SUBDIVISION

19 MARCH 2014


Prepared for: Harrington Estates Pty Ltd on behalf of Hixson Pty Ltd

PO Box 42

NARELLAN NSW 2567

T: 02 4631 3200

Prepared by: Development Planning Strategies

PO Box 2819

SYDNEY NSW 2001

T: 02 9290 3311

E: dps@dpsnsw.com.au



Acknowledgments: Jim Higgs TTM Consulting (Vic) Pty Ltd

Evan Jones Responsive Environments

Stephanie Barker Barker Strategic


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# ABBREVIATIONS

| | |
|---|---|
| AEC | Area of Environmental Concern |
| AHIP | Aboriginal Heritage Impact Permit |
| APZ | Asset Protection Zone |
| CMP | Conservation Management Plan |
| DA | Development Application |
| DCP | Development Control Plan |
| DPI | Department of Planning and Infrastructure |
| EP&A Act | Environmental Planning and Assessment Act |
| ILP | Indicative Layout Plan |
| HIS | Heritage Impact Statement |
| LEP | Local Environmental Plan |
| LGA | Local Government Area |
| PAP | Precinct Acceleration Protocol |
| PBFP | Planning for Bush Fire Protection 2006 |
| SREP | Sydney Regional Environmental Plan No. 20 |
| RMS | Roads and Maritime Service |
| SEE | Statement of Environmental Effects |
| SEPP | State Environmental Planning Policy |
| VMP | Vegetation Management Plan |

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# 1 INTRODUCTION

This Development Application seeks approval for the first major phase of the 'Catherine Park' residential subdivision and associated works on land within the Catherine Fields (Part) Precinct of the South West Growth Centre. The proposal is seeking a 'merit based' assessment in relation to residential streets to achieve the highest quality in urban design standards and design excellence for a new residential community, which is also representative of 'best practice' outcomes in street design.

The subject land comprises two landowners, being Hixson Pty Ltd and the Catholic Church. Harrington Estates Pty Ltd, who is currently developing the award winning residential development of Harrington Grove, is the developer of 'Catherine Park' which is the future proposed name for the locality. The majority of the proposed development is within the Hixson landholdings and only on the fringe of the Catholic Church land.

The subdivision proposal includes 339 new residential allotments, 18 superlots for integrated housing, a public neighbourhood park and drainage facilities. In addition, the proposal seeks approval for:

- connection and construction of new public roads including upgrading works to Oran Park Drive,
- provision of services, infrastructure and street landscaping,
- the erection of signage relating to the new residential development, and
- extensive riparian regeneration works within the southern bank of South Creek.

The subject land contains Oran Park House, which is on Council's local heritage register and earmarked for State listing. Whilst there are no physical works proposed in relation to the House or within the expected future State heritage curtilage for the residence, the proposal includes interpretation and substantial embellishment of the former driveways that connected the House to nearby public roads. Both driveways are to be converted to pedestrian and share paths with high quality landscaping, which will form high quality public facilities for the future community. These heritage works form part of a larger comprehensive heritage strategy for Oran Park House and its surrounds.

An underlying aspect of this subdivision proposal is to deliver 'best practice' residential streets that adopt excellence in design outcomes which facilitate all forms of transportation and access requirements, including vehicles, cyclists and pedestrians. In addition, it is considered imperative that residential streets are created as places of high residential amenity and become an extension of people's homes and their residential living space.

Fundamental to establishing the urban design philosophy for Catherine Park, comprehensive and detailed investigations into best practice in street design have been undertaken to ensure a high quality development outcome is achieved. This included investigations in nationwide Government policies, sustainable development objectives, housing affordability and costs, and case studies of award winning residential developments throughout Australia.

In addition, a specialist independent study on residential street design and best practice was prepared by Jim Higgs of TTM Consulting (Vic) Pty Ltd in association with Evan Jones and Stephanie Barker, whom all were involved in the formulation of the Sydney's Growth Centres planning framework. Furthermore, Jim Higgs and Evan Jones were involved in the formulation of best practice planning policies in urban and community design in other States of Australia and are highly regarded in the urban design and land development industry.

Their independent study is clear that best practice street design should embrace the following:

> *"Residential street design should seek to appropriately balance out the needs of all of the users of the street so that they are functional for vehicles and safe and amenable for other users. The residential environment is dominant in the design of access streets so that traffic is subservient, speed and volume are to be kept low, and safe pedestrian and cycle movements are facilitated."*

To achieve best practice in residential streets and to build a strong vibrant residential community at Catherine Park the following key outcomes are considered imperative:

- encourage people to get out of their house to walk or cycle to nearby shops and parks, and enjoy their neighbourhood, which will improve health and well-being,
- ensuring local neighbourhood is fully accessible for people of all ages and levels of mobility,
- create more inviting and safe streetscapes for pedestrians and motorists,
- encourage slower vehicle speeds throughout residential areas, and
- provide quality residential spaces that are separated from traffic.

This proposal provides comprehensive explanation on how these key outcomes will be achieved and how they will contribute to creating a new community where people will want to live.

The Development Application proposes design outcomes that are different to some standards in the Camden Growth Centre Precincts Development Control Plan (DCP), in particular with the residential street designs. This proposal seeks to adopt best practice design outcomes under a 'merit-based' assessment basis as the proposed street standards are different to the 'typical' and 'indicative' requirements outlined in the DCP.

The *Environmental Planning and Assessment Act 1979* (EPAA 1979) provides flexibility in the application of controls in a DCP. Section 79C(3A), which was recently amended by the NSW Government to clarify how DCP should be applied, requires council to be flexible when applying DCP provisions and to allow alternative solutions. In addition, there are other allowances in the Camden Growth Centre Precincts DCP that enable a responsible authority to consider alternative solutions to the DCP.

This proposal is employing the recently adopted amendments to the planning legislation and the allowances in the Camden Growth Centres DCP for alternative street designs. Furthermore, this proposal presents a fully integrated approach between residential street design, lot design and street parking to ensure the proper street function objectives and requirements are adequately achieved.

With the exception of the differences with the residential street standards outlined above, overall the proposed development is generally consistent with the planning provisions and development policies applying the proposal. Whilst there are a small number of minor inconsistencies with the planning provisions and/or development policies applying to the proposal, in all cases the objectives of the provisions or policies are achieved as well as high quality development outcomes that achieve design excellence. Detailed discussion on how the objectives are satisfied is included throughout this report and a summary of these issues is outlined below.

1. Specific residential densities in the Growth Centres SEPP mapping are slightly different to the densities on the proposed subdivision. However, it is envisaged that the net density for the whole project area will achieve the minimum overall densities required under the SEPP. The development area adjacent to Robbins Lane provides an outstanding opportunity to deliver appropriately located medium density housing that will benefit from higher amenity from the open space, and therefore, a higher density than the minimums is being achieved in this proposal. It is proposed that any exceedence in dwelling densities will be balanced across future proposals to ensure the minimum densities in the SEPP are achieved. Accordingly, any density above the minimums will be used to offset dwelling density requirements in future Development Applications.

2. The proposal incorporates a residential structure and allocation of densities that is different to the DCP as the proposed development seeks improved design outcomes for the medium density residential areas in accordance with the comprehensive planning undertaken to preserve the heritage significance of Oran Park House and its heritage elements. The residential structure is revised to utilise the opportunity of creating high quality public spaces which offer higher levels of amenity and are therefore more suitable for higher densities. Notwithstanding, the proposal continues to adopt a logical residential structure based on proper urban design principles and achieves the objectives of the DCP.

3. An acoustic assessment has been undertaken in accordance with the requirements of the Infrastructure SEPP and where applicable, noise attenuation requirements will be adopted in accordance with the Infrastructure SEPP. The potential noise impacts of development have been considered utilising the NSW Planning & Infrastructure guideline titled *Development Near Rail Corridors and Busy Roads – Interim Guideline* and acoustic treatments are to be provided to dwellings as per the guidelines to achieve the noise level dBA requirements for habitable rooms.

4. Corner lots typically have splays of 4m x 4m which is inconsistent with Council's engineering requirements. However, the application clearly demonstrates that these splays will accommodate all turning, stormwater and servicing requirements, and are therefore considered appropriate for the subdivision.

5. A minor reduction to the median in the Rickard Road extension is proposed 4.2m to 4m. The 200mm reduction in the width of the median is suitable as it will be landscaped with no pedestrian or cycle functionality. In addition, the median will not require indented right hand turning bays and the slightly reduced width of the median will not be visually apparent.

6. Different street trees are to be provided along the streets adjacent to the heritage driveways. The proposed street trees are in accordance with a comprehensive heritage planning outcome for Catherine Park and have been subject to heritage review by heritage specialists Tropman & Tropman. Whilst some of the species will achieve heights slightly taller than the requirements, the heritage objectives are still upheld.

In meeting its objective of ensuring 'best practice' in street creation is achieved, the proposal includes residential streets that have different carriageway widths from the 'Typical' street designs outlined in the Camden Growth Centres Precincts Development Control Plan. Notwithstanding, this proposal utilises the allowances in the DCP for alternative street designs and presents a fully integrated approach between street design, lot design, and off/on street parking to ensure the proper street function objectives and requirements are adequately achieved.

A comprehensive analysis of residential streets function combined with urban design excellence will create an outstanding new residential development for the future residential community of Catherine Park. The developer, Harrington Estates Pty Ltd, is committed to building a quality new residential development and strong community in the Camden Local Government Area, as it has already done with its development of Harrington Grove and Harrington Park. Accordingly, Council's support for the delivery of this outstanding new residential development is sought.

This report has been prepared pursuant to provisions of the *Environmental Planning and Assessment Act 1979* (EPAA 1979) and the *Environmental Planning and Assessment Regulation 2000*. The report addresses the heads of consideration listed under section 79C of the EPAA 1979 as relevant to the proposed development. Supporting documents and plans are enclosed with the Development Application and should be read in association with this Statement of Environmental Effects.

# 2 LAND DETAILS

This Development Application seeks approval for a residential subdivision, signage and riparian works on land comprising two landowners, being Hixson Pty Ltd (developer) and the Catholic Church. Table 1 provides Land Title details and Figure 1 defines the areas on a plan.

Table 1 – Land Title and Landowner Details

| Land Title Details | Area (approx.) | Landowner |
|---|---|---|
| Lot 17 DP31996 | 2.05ha | Hixson Pty Ltd |
| Lot 24 DP31996 | 2.15ha | |
| Lot 25 DP31996 | 2.13ha | |
| Lot 26 DP31996 | 2.08ha | |
| Lot 27 DP213330 | 92.7ha | |
| Lot 201 DP1182662 | 0.9ha | Catholic Church |
| Lot 203 DP1188135 | 11.56ha | |

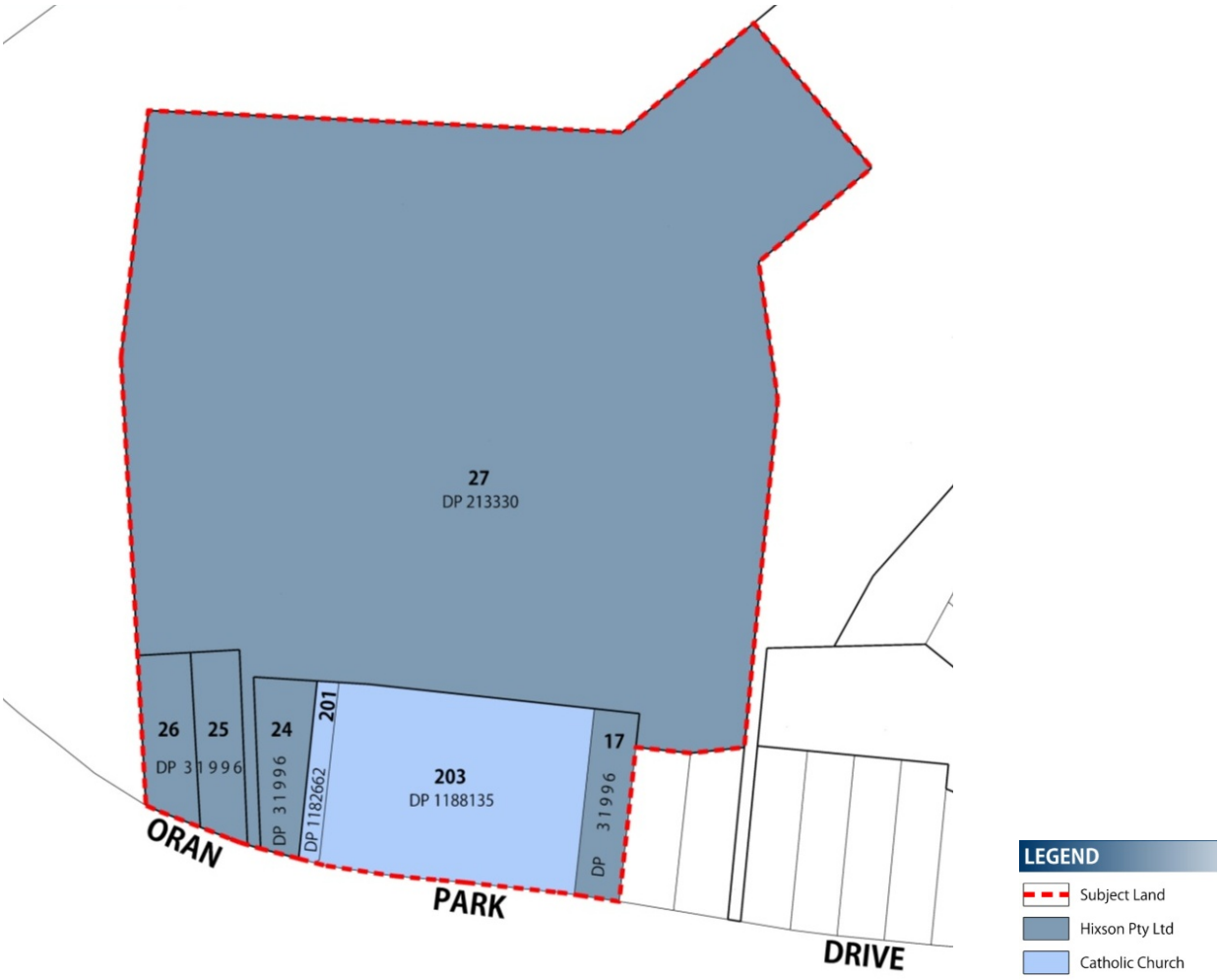



Figure 1 – Land Title Details and Landownership Plan

# 3 SITE ANALYSIS

## 3.1 Regional Context

The site is located within a major urban growth area of Sydney's South West in the Camden Local Government Area. It is located approximately 6.5 kilometres north-east of the Camden town centre and approximately 19 kilometres south-west of the Liverpool CBD.

The subject land is situated within the southern portion of the South West Growth Centre. NSW Planning and Infrastructure has been facilitating urban growth within the Growth Centre since 2007 with over 110,000 new homes being forecast to be completed by 2035.

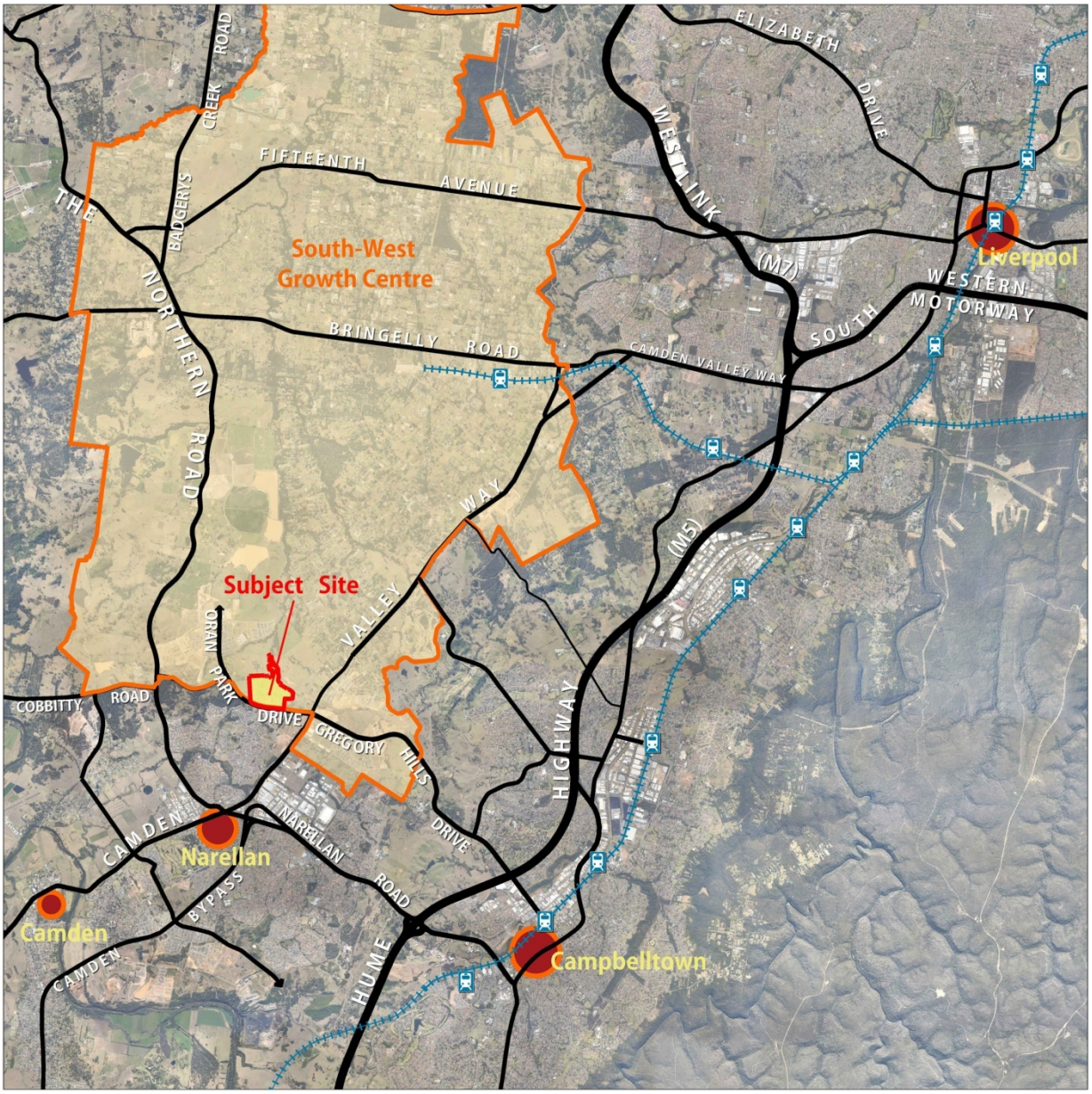


Figure 2 – Regional Context

## 3.2 Local Context

The subject site is located within the Catherine Fields (Part) Precinct of the South West Growth Centre. The Oran Park Precinct is located to the northwest and the Turner Road Precinct to the east. Urban development for new housing and employment generating activities has been ongoing for the last 5 years with over 2000 new residential allotments being developed during this timeframe.

In addition, the Central Hills Business Park to the southeast within the Turner Road Precinct has been constructed with major bulky goods and highway service activities in operation. A new local centre is also proposed within the residential areas of the Turner Road Precinct which will provide retail and community services for the locality. In addition, Stage 1 of the Oran Park Town Centre in the Oran Park Precinct is under construction which will contain over 13,000m$^2$ of retail/commercial floor space including a major supermarket, specialty retail stores and commercial office.

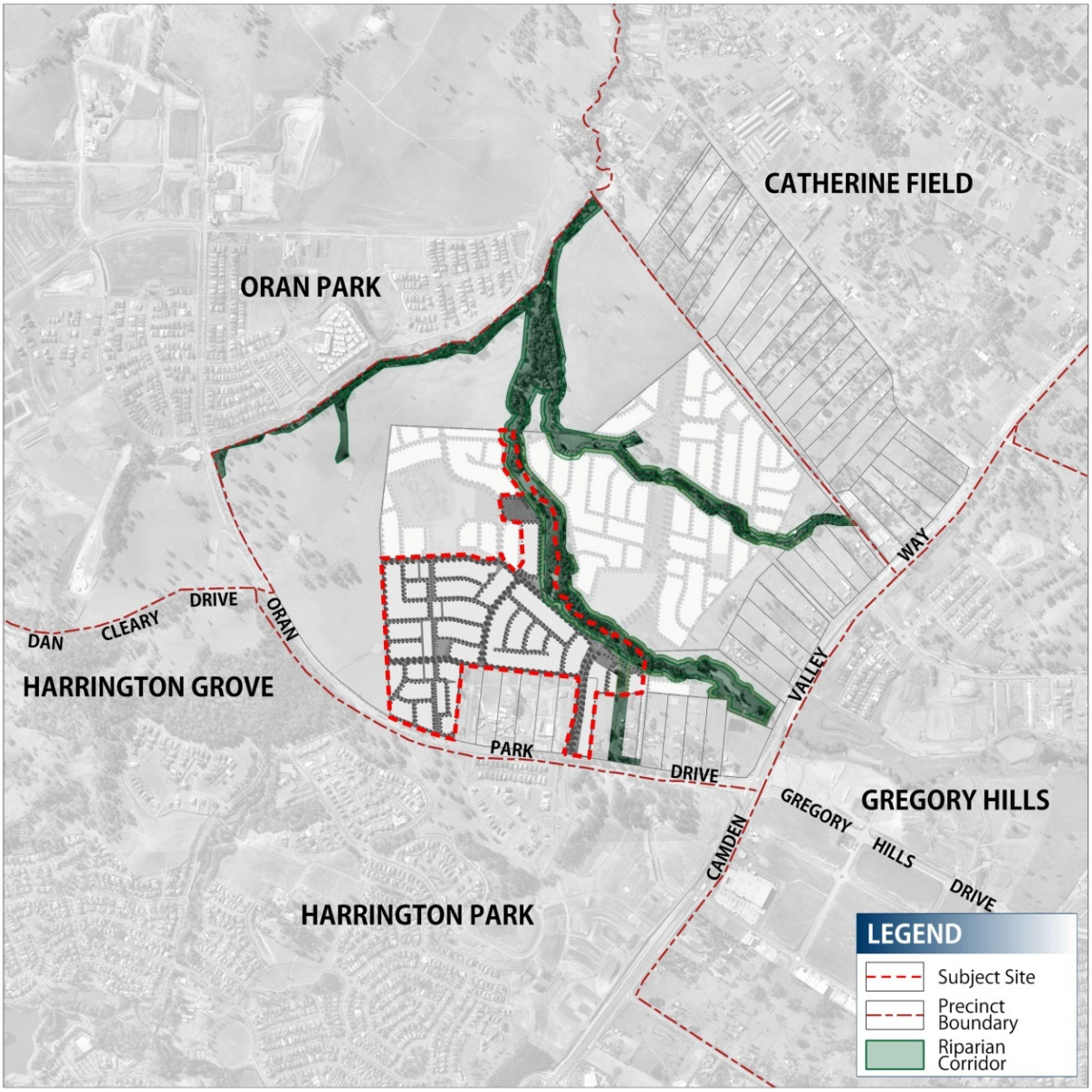



Figure 3 - Locality Plan

The Catherine Fields (Part) Precinct abuts Oran Park Drive and Harrington Grove to the south, with Kolombo Creek and the urban areas of Oran Park Precinct to the northwest. Camden Valley Way is to the east and small rural properties that do not form part of the released Precinct form the north-eastern boundary.

The Catherine Fields (Part) Precinct covers approximately 320 hectares and is planned to accommodate approximately 3,000 dwellings when completed. Land within the Precinct is generally of a rural character with large rural residential properties lining the major roads of Camden Valley Way and Oran Park Drive.

Oran Park House and its surrounds is sited on a highpoint in the central western portion of the site. South Creek traverses the Precinct and flows in a northerly direction where it discharges into the Nepean River. There are two Catholic schools being St. Justin's Primary School and St. Benedict's Catholic College located within the southern portion of the Precinct abutting Oran Park Drive, which were recently established and are still under construction.

## 3.3 Site Analysis

The application area subject to works under this Development Application is located within the southern portion of the Catherine Fields (Part) Precinct on the southern side of South Creek. Whilst the subject landholdings comprises approximately 113.5 hectares, the portion of the subject land subject to works under this proposal is approximately 46 hectares.

The site is generally cleared of vegetation and has been highly modified due to its use as a grazing and agricultural property. A disused dam is undergoing filling in accordance with Council's approval issued under DA 939/2013.

Specific detail on analysis is provided as follows:

**Landform** — The land is generally flat and slopes gently from the east and south to the northeast towards the South Creek.

**Buildings/Structures** — Oran Park House, a two-storey homestead with swimming pool in a garden setting, is located on the elevated land to the northwest of the subject site. The driveway to the house extends directly south of the House and connects with Oran Park Drive. There is also a former coach house that is in poor repair between the House and South Creek.

**Access** — The subject land has two frontages to Oran Park Drive to the south. The main access point is the existing driveway for Oran Park House and the other is a secondary access on the frontage to Oran Park Drive east of St. Benedict's Catholic College.

**Vegetation** — Isolated small tracts of vegetation exist adjacent to the former farm dam and boundaries with the Catholic schools. There are isolated mature trees scattered across the site. Higher densities of vegetation exist within the riparian areas, which are degraded due to the grazing activities occurring on the site.

**Watercourses** — South Creek, a 3rd Order watercourse in accordance with the Strahler System endorsed by the NSW Office of Water, and a smaller tributary are defined watercourses within the subject land. There is also an undefined drainage line that once conveyed flows to the farm dam and the South Creek.

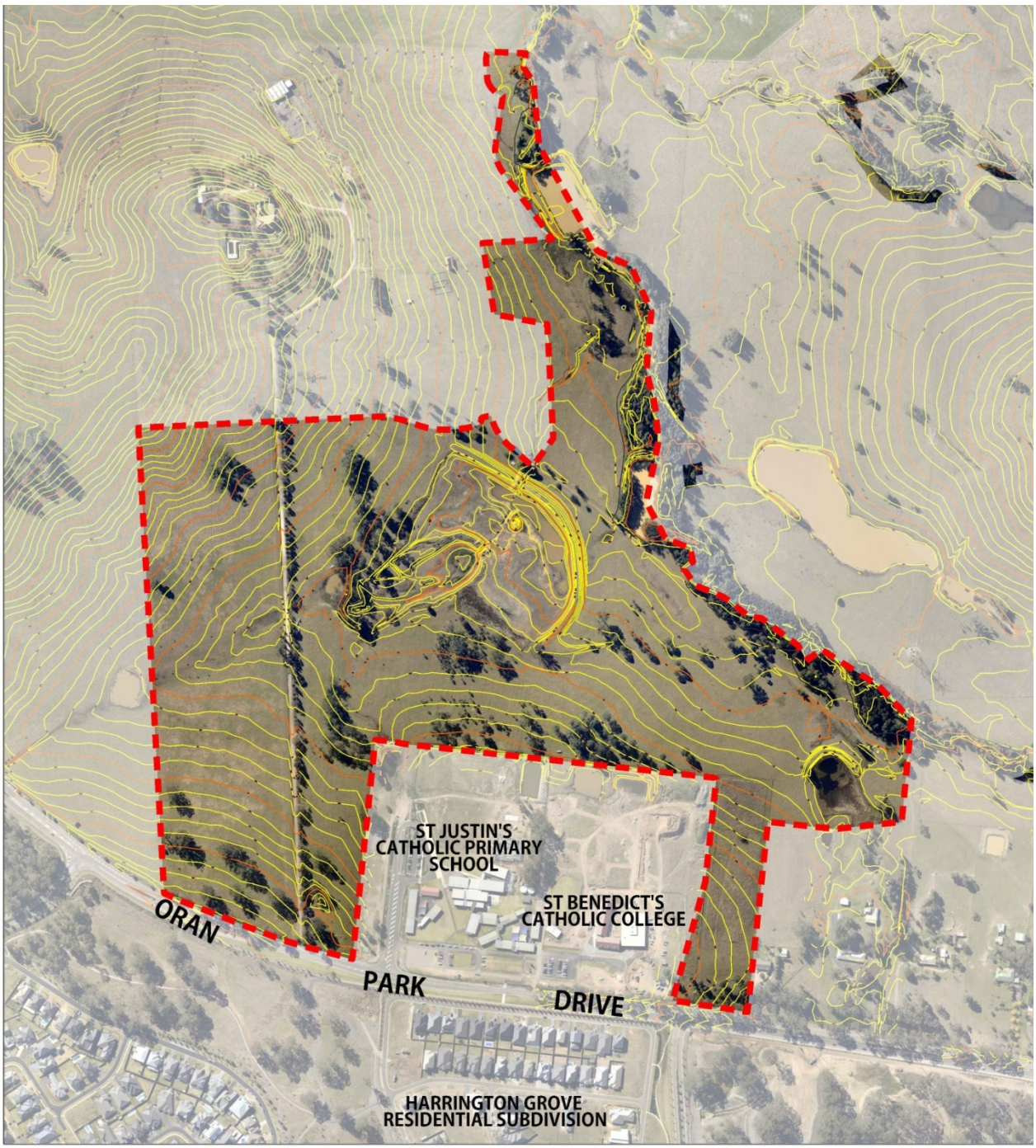


Figure 4 - Site Plan (Area subject to works)

# 4 CATHERINE PARK VISION AND OBJECTIVES

## 4.1 Vision

The development seeks to create a sustainable and vibrant new residential community that responds to the environmental and heritage assets of the area, and fulfils the objectives of the Sydney Growth Centres to deliver new housing in an efficient and timely manner. The new residential community is to provide an interconnected street and pathway network that promotes sustainable communities through encouraging walking and cycling to the local schools, future community facilities, parks and neighbourhood shops. Importantly, the street network is to accommodate and support public transport accessibility for the future residents.

## 4.2 Master Plan

On behalf of the developer, Harrington Estates Pty Ltd, a Master Plan has been prepared to guide the delivery of the new residential development within their land (Refer to Figure 5). The Master Plan adopts regular street blocks with consistent block widths, a legible street layout and open space areas that have been spatially located to ensure every future resident will have easy access to public recreational facilities.


Figure 5 – Master Plan

A variety of housing types and lot sizes will be provided to accord with the objectives for the Sydney Growth Centres and to satisfy market demand, and also to contribute towards creating diverse and interesting streetscapes with character along with a strong and identifiable sense of place. The new community will contribute to promoting housing affordability whilst ensuring the creation of an inclusive, socially and environmentally sustainable community.

Open space will be provided in highly accessible locations with strong connections to the pedestrian and bicycle path network, linking to community facilities and shops. Open space, landscaping and riparian rehabilitation will enable active and passive recreation opportunities for new residents, and outer riparian land will provide natural buffers between residential land and the environmental significance of South Creek. Trees will line streets and pathways, providing shade for pedestrians to encourage activity and health lifestyles for the future residents.

The Oran Park House and the remnants of the former use of the Homestead will be celebrated and integrated into the residential use of Catherine Park. This includes maintaining important views and vistas, and creating open spaces to ensure the heritage significance of Oran Park House is preserved. A major feature of the open spaces relating to the House is creating a linear park incorporating a pedestrian and cycle path on the alignment of the driveway access between Oran Park Drive and the house. The linear park to be named Robbins Lane will fulfil an important recreation and amenity function for residents, particularly those living in the higher density forms of housing within the development.

## 4.3 Urban Design Principles

Good urban design embraces and promotes excellence in liveability combining productive, healthy, accessible, environmentally sensitive and inclusive communities. To achieve delivery of the Catherine Park vision as a highly liveable and desirable residential community, which respects the natural (South Creek) and heritage (Oran Park House) features of the property and promotes quality new housing for South West Sydney, the subdivision proposal has evolved with clear urban design principles.

These urban design principles include:

- create identifiable places for people,
- create local character and recognition,
- locate higher density housing in areas of higher amenity,
- ensure proper function and movement of vehicles, cyclists and pedestrians within the residential development,
- maintain a human scale to residential streets to ensure safety for non-vehicle forms of transport and a low speed traffic environment,
- economic utilisation of land and infrastructure,
- enable integration of public transport services,
- provide high quality public open spaces,
- encourage active and healthy lifestyles,
- adopt sensitive integration of the former use and heritage buildings within the site, and
- restore environmentally significant natural assets.

To ensure delivery of the vision, the above urban design considerations are strongly embedded in the design of the proposed residential subdivision.

## 4.4 Best Practice Residential Street and Streetscape Design

This application is proposing residential streets that are consistent with 'best practice' design standards, which recognise streets as an extension of where people live, and their importance in facilitating all forms of movement within the neighbourhood. Furthermore, most importantly in a residential environment, best practice streets are of human-scale and encourage people to use them for non-vehicular trips and are not dominated by vehicles doing speeds that compromise safety and amenity.

There are a number of recognised urban design policies in operation within Australia that promote best practice outcomes in street design and community creation. These include *Liveable Neighbourhoods* in Western Australia and *AMCORD* which was formulated by the Federal Government. Both policies provide comprehensive, evidence-based guidelines on best practice urban design for residential subdivision. In addition, the best practice guidelines in both documents are consistent with best practice urban design and street design in other western countries around the world, including the United States, Canada and United Kingdom.

As an important part of defining the urban design philosophy for Catherine Park, a detailed investigation into best practice in residential street design throughout Australia titled 'Catherine Park: Residential Streets Review' was undertaken by DPS, which is included in Appendix 1. The investigation considers nationwide Government policies, sustainable development objectives, housing affordability and costs, and case studies of award winning residential developments around the country.

In addition, an independent assessment on residential streets in Catherine Park by TTM Consulting (Vic) Pty Ltd that also provides discussion on best practice street design in residential developments (Refer to Appendix 2).

The assessment highlights best practice street design should embrace the following:

> *"Residential street design should seek to appropriately balance out the needs of all of the users of the street so that they are functional for vehicles and safe and amenable for other users. The residential environment is dominant in the design of access streets so that traffic is subservient, speed and volume are to be kept low, and safe pedestrian and cycle movements are facilitated." (p3)*

And:

> *"Best practice residential street design objectives also include sustainability related aspects such as minimizing paved surfaces, non-renewable materials and embodied energy in construction materials and processes, and providing an appropriate response to urban density objectives." (p3)*

Liveable Neighbourhoods, being an adopted urban design policy that defines clear principles for best practice street design, establishes guidelines on residential street hierarchy and street types and provides a clear explanation of how various street types function with regard to their respective carriageway (Refer to Figure 6).

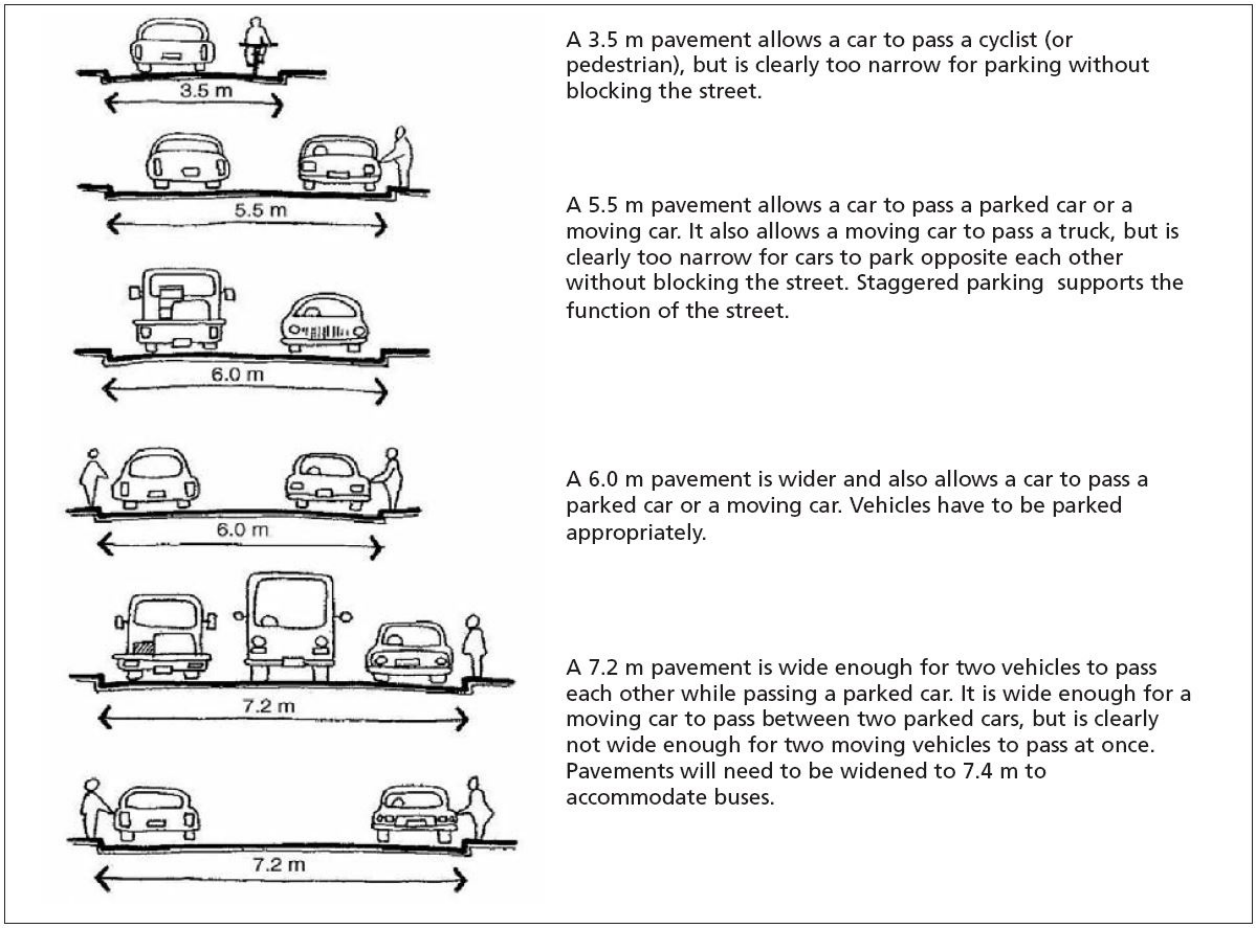



Figure 6 – 'Diagram of physical determinants for pavements' in *Liveable Neighbourhoods*

*Liveable Neighbourhoods* explains the function of local and access streets and the relationship to carriageway widths. Importantly for this proposal, a 7.2 metre carriageway provides parking on both sides of the street and a 5.5 metre carriageway provides parking on one side of the street, with staggered parking supporting the low speed and low traffic function of the lower order street. This is representative of best practice street design.

TTM Consulting outlines in their assessment the principles for carriageway widths in residential streets. Specifically, the function of the carriageway can be easily understood by dividing the function elements into modules which can be used to form the 'basic building blocks' to determine carriageway widths with regard to traffic volumes, street length and the number of dwellings (p4).

The basic building blocks are described as follows:

Table 2 – Carriageway Width Basic Building Blocks

| Function Element | Module |
|---|---|
| Parked car | 2m |
| Moving car <40km/h | 2.5m |
| Slow moving truck | 3.2m |

The building block modules therefore form a logical basis for determining carriageway width in a residential street, which is consistent with the Liveable Neighbourhoods requirements outlined in Figure 6 above. Accordingly, this is the approach for establishing the 'merit-based' residential street standards for the proposed subdivision in Catherine Park.

Additional to the proper function of a residential street, is making streets more attractive for pedestrians and cyclists, as well as motorists. This can only be achieved by making streets more inviting by creating a 'human scale' to the streetscape and providing places where people feel protected and safe. This includes being protected from vehicles but also being shelter from climate.

Below are examples of best practice residential streets and residential streets with wider carriageways within recently constructed residential developments in Sydney.

*Best practice local residential streets*

*Local residential streets with wider carriageways*

The best practice street is clearly more 'human-scale' than the street with wider carriageway. The wider street is dominated by asphalt and concrete in the streetscape and feels out of context as a residential street. Further, it encourages faster vehicle speeds due to more carriageway width and people feel less safe trying to cross the street. The wider expanses of hard surfaces also adversely impact on mirco-climate, residential amenity and people relationship with their street.

Conversely the best practice street feels significantly more inviting, safer and pleasant. It also feels more community oriented as people feel closer together when they leave their front door. It is not difficult to observe that the best practice street is a far more attractive street to walk in and feels safer as there is less pavement to cross and vehicle speeds will be significantly lower, which is naturally enforced by less carriageway width and parked cars creating 'slow points'.

The image below details the elements of a 'best practice' street and how they relate to the streetscape. Best practice street design is ensuring all functional requirements and objectives are achieved in balance, with regard to vehicles and pedestrians.


*Best practice streets balance a multitude of elements for all its users*

In light of the above best practice considerations for residential streets, the key objectives for providing residential streets in Catherine Park are as follows:

- encourage people to get out of their house to walk or cycle to nearby shops and parks, and enjoy their neighbourhood, which will improve health and well-being,
- make the local neighbourhood more accessible for people of all ages and levels of mobility,
- create more inviting streetscapes for pedestrians and motorists,
- encourage slower vehicle speeds throughout residential areas, and
- provide quality residential spaces that are separated from traffic.

The 'merit-based' assessment of residential streets in Catherine Park and satisfaction of the functional objectives and requirements for streets are discussed in greater detail later in this report. The assessment is to be considered in conjunction with the DPS analysis on residential streets (Appendix 1) and the TTM independent assessment on streets (Appendix 2).

# 5 PROPOSED DEVELOPMENT

## 5.1 Proposal Overview

This Development Application seeks approval for the residential subdivision with the southern portion of the subject land, incorporating the construction of new public roads (including a new intersection within Oran Park Drive), the creation of quality public open spaces, a local park and connecting pathway areas, and associated subdivision works. In addition, the Development Application seeks approval for estate signage and the riparian regeneration works for South Creek.

Whilst one of the existing allotments subject to this application contains Oran Park House, which is on Council's local heritage register and earmarked for State listing, there are no works proposed as part of this application that relate to the House or within the expected future State heritage curtilage for the residence.

The residential development component of the proposal is in three (3) stages and comprises 339 residential allotments and 18 superlots for future integrated housing. A summary of the Development Application proposal is as follows:

- creation of 339 residential lots,
- creation of 18 superlots for future integrated housing development,
- creation of a public local park and connected pathway reserves along the alignment of the former access to Oran Park House (to be decommissioned),
- creation of stormwater management facilities and dedication of drainage reserves to Council,
- new public roads with street trees and black streetlight poles and overreaches,
- an intersection upgrade at Oran Park Drive, which will form the entry to the new development, and an entry feature wall within the Catholic School's land at the new intersection,
- landscaping of streetscape areas and creation of pathways in public open spaces and key residential streets,
- installation of services,
- the erection of three (3) billboard signs, and
- extensive revegetation and conservation works within the southerner portion of the South Creek riparian corridor.

The Subdivision Plan is included in Appendix 3 and further details of the proposal are discussed in the following sections.

An underlying aspect of this subdivision proposal is to provide best practice residential streets that adopt design outcomes that facilitate all forms of transportation and access requirements, including vehicles, cyclists and pedestrians, in a safe and effective manner. In addition, it is considered imperative that residential streets are created as places of high residential amenity and become an extension of people's homes and their residential living space.

To achieve these outcomes, this proposal includes residential street designs that are different to the 'Typical' street designs outlined in the Camden Growth Centres Precincts Development Control Plan (CGCDCP). Therefore, a 'merit-based' assessment of street design is sought.

This proposal recognises the recently adopted amendments to the planning legislation by the NSW Government which clarify the application of Development Control Plans in assessing Development Applications. The proposal also recognises the allowances in the CGCDCP for alternative street designs and presents a fully integrated approach between residential street design, lot design and parking to ensure the proper street function objectives and requirements are adequately achieved.

The integrated approach is summarised as follows:

- Residential streets that easily accommodate the low traffic volumes projected by the traffic modelling.
- A self-imposed requirement for all residential allotments for detached dwellings to have a minimum lot width of 13m, which easily accommodates a double garage and driveway.
- A self-imposed requirement for every detached dwelling having four (4) off-street parking spaces (double garage with two spaces between garage and lot boundary).

In addition to preserving the residential street function objectives and adopting specific 'self-imposed' development standards, the proposed residential streets adopt contemporary 'best practice' urban design standards, which are evident in various Government policies and have been adopted in the construction of numerous new residential developments throughout the country.

A Traffic Impact Review by Christopher Hallam & Associates accompanying the Development Application has modelled the traffic volumes on all the residential streets within the proposal. The Review confirms that all residential streets are subject to very low traffic volumes with all streets predicted to have traffic flows significantly below the capacity and function thresholds (i.e 1000-3000vpd for local streets and <1000vpd for access streets). This is largely due to the capability of the highly efficient street network hierarchy being proposed to disperse traffic between each residence in the proposed subdivision and the broader district and regional road network.

In addition to the Traffic Impact Review, an independent assessment on the proposed residential streets has been undertaken by TTM Consulting (Vic) Pty Ltd. The 'peer review' considers the proposed residential street designs and confirms that the residential street hierarchy in this proposal meets the street functional objectives and requirements, and furthermore, the proposed streets represent 'best practice' outcomes in urban design.

In light of the above, the proposed residential street designs combined with the integrated design approach to vehicle use in residential areas provide a superior outcome to the typical standards specified in the DCP.

## 5.2 Residential Street Block and Subdivision Layout

This proposal seeks approval for the subdivision of the subject land to create 339 residential lots ranging in size from 390m$^2$ to 826m$^2$ and 18 superlots ranging from 1,484m$^2$ to 3,958m$^2$, which will contain integrated housing that will be facilitated under future Development Application(s). All residential allotments have a minimum 13 metre frontage at the front building line and are typically 30 metres in depth.

The residential block layout and subdivision proposed under this application generally maintains the principles of housing density and housing mix adopted under the Catherine Fields (Part) Precinct Indicative Layout Plan (ILP). The proposal incorporates a regular residential block configuration to enable the delivery of regular residential allotments. Whilst there are various physical constraints influencing the configuration and orientation of residential blocks, such as Oran Park House and South Creek, a regular pattern of residential blocks of appropriate lengths and widths is achieved in the proposed subdivision design.

The proposed subdivision design provides a variety of allotment sizes with variation in frontages within each street. The variation in allotment frontages will encourage interesting streetscapes throughout the new residential community and will ensure high levels of diversity in housing product for the development. Accordingly, this will therefore promote housing choice for the future residents of Catherine Park.

In addition to providing a range of allotment sizes for detached dwellings, the provision of superlots for integrated housing in appropriate locations will contribute to achieving the housing affordability and diversity objectives for the region. Smaller residential allotments will be located in areas of higher amenity, such as adjacent to open spaces, green links and bus routes. Importantly, the future residential buildings within the residential allotments and integrated housing sites will adopt high quality design standards to promote quality streetscapes, which will define a distinctive character for Catherine Park.

The future subdivision of the proposed superlots and associated integrated housing will be progressed under separate Development Applications that incorporate coordinated building designs for each respective site.

## 5.3 Residential Street Hierarchy and Street Design

The street layout was formed on the principles of the Catherine Fields (Part) Precinct Indicative Layout Plan (ILP), which is the Master Plan that informed the zoning of the subject land. Catherine Park Drive (known as the Rickard Road extension in the Precinct Planning phase) forms the main entry road and is identified as a 'transit boulevard' road. Within the street hierarchy for the residential area five types of streets are proposed encompassing collector streets, local streets, access streets and laneways. Collector streets provide connections to high order roads (sub-arterial and arterial roads) and facilitate bus movement within the development. Local streets and the lower order residential streets typically facilitate traffic movement between a residence and the collector streets.

The proposed typical section design standard for Catherine Park Drive (Rickard Road extension) is as follows:

Table 3 – Catherine Park Drive Section Details

| Road Type | Verge | Carriageway | Median | Carriageway | Verge |
|---|---|---|---|---|---|
| TRANSIT BOULEVARD | 4.5m | 7m | 4m | 7m | 4.5m |
| | 26.5m Reserve | | | | |

The proposed typical section design standards for the residential street hierarchy are as follows:

Table 4 – Residential Street Section Details

| Street Type | Verge | Carriageway | | | Verge |
|---|---|---|---|---|---|
| COLLECTOR STREET – BUS ROUTE | 3.5m | 2.1m | 7m | 2.1m | 3.5m |
| | 18.2m Reserve | | | | |
| COLLECTOR STREET – BUS CAPABLE | 3.5m | 2.1m | 6.4m | 2.1m | 3.5m |
| | 17.6m Reserve | | | | |
| LOCAL STREET | 3.5m | 7.2m | | | 3.5m |
| | 14.2m Reserve | | | | |
| ACCESS STREET | 3.5m | 5.5m | | | 3.5m |
| | 12.5m Reserve | | | | |
| LANEWAY | - | 6.4m | | | - |
| | 6.4m Reserve | | | | |

The street hierarchy relating to the proposal is detailed in Figure 7 on the following page.

The street hierarchy has been established following a detailed investigation in to the best urban design practice in residential street design throughout Australia by DPS titled 'Catherine Park: Residential Streets Review' (Refer to Appendix 1) and extensive consideration of vehicle and pedestrian movements through the Catherine Park. Every street type has been considered in detail to ensure all function requirements can be achieved.

As stated earlier, street design has been based on creating streets that have a human scale that are not dominated by vehicles. Streets are an extension of the home and form important non-vehicular connections between a residence and a school, park or shop. The design objective is to create residential streets that offer high levels of amenity and safety to ensure people feel safe by promoting low traffic speeds within the residential neighbourhood.

The street network and intersection layout has been designed to satisfy the street design planning objectives. This ensures that the proposed street network satisfies the design principles, and safety and function objectives for the Catherine Fields (Part) Precinct ILP. This is achieved by providing a permeable, legible street network with streets that are appropriately sized to move traffic within the residential area and to the regional higher-order road network.

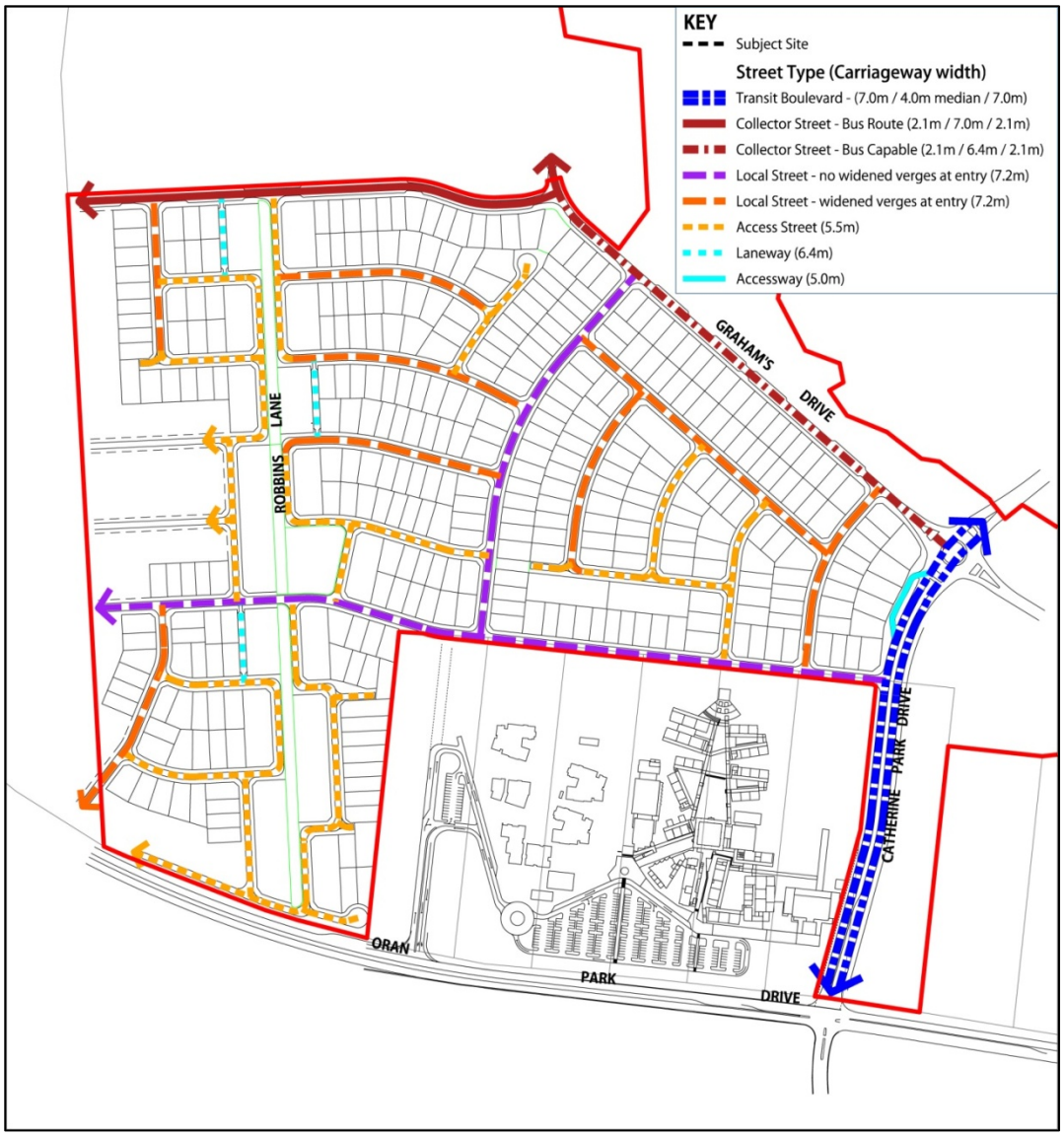



Figure 7 - Street Hierarchy

A Traffic Impact Review has been prepared by Christopher Hallam and Associates Pty Ltd and is provided with this Development Application. The Review confirms the suitability of the residential street hierarchy proposed above and concludes that the proposed street network will address internal and external traffic demands without any significant adverse effects, and is therefore acceptable.

The Traffic Impact Review includes a detailed model of traffic volumes for the residential streets throughout the proposed subdivision, which confirms that all residential streets will be subject to very low traffic flows relative to the traffic flow thresholds for each street within the street hierarchy.

The Traffic Impact Review predicts that the proposed subdivision will generate traffic flows below 500vpd on almost all residential streets (local streets and access streets) and generated traffic flows for the collector streets are typically between 1500vpd and 3500vpd. Based on the capacity and function thresholds for each street type outlined in the table below, which have been validated by the traffic specialist in the Review, the traffic volumes generated by the proposed residential development for each street in the proposal are significantly below the maximum function and capacity requirements. Furthermore, in most cases the street type in the proposal is a level higher in the hierarchy than what it needs to be.

Table 5 – Summary of Highest Traffic Volumes by Street Type in Proposed Subdivision

| Street Type | Function and Capacity Threshold | Actual Highest Traffic Volume in Subdivision |
|---|---|---|
| Collector Street (10.6/11m carriageway) | 3000vpd – 7000vpd | 3500vpd |
| Local Street (7.2m carriageway) | 1000vpd – 3000vpd | 850vpd |
| Access Street (5.5m carriageway) | <1000vpd | 360vpd |

### 5.3.1 Catherine Park Drive (Rickard Road Extension)

A portion of Catherine Park Drive (identified as Rickard Road extension in the Catherine Fields (Part) Precinct Planning) will be constructed as part of the Stage 1 subdivision. Proposed Catherine Park Drive will form the entry into Stage 1 of Catherine Park and will connect to Oran Park Drive to create a 4-way intersection with Forestgrove Drive within Harrington Grove.


*Above: Forestgrove Drive is a divided residential street with landscaped median*
*Right: North and south views of Forestgrove Drive at the intersection with Oran Park Drive*

The Precinct Planning process within Catherine Fields (Part) Precinct has identified Catherine Park Drive as a future strategic regional public transit corridor that is to connect to the future Leppington Town Centre and railway station. In addition to the strategic regional public transport corridor function of the road, Catherine Park Drive will also be designed to include bicycle and pedestrian paths to ensure the new residential community is connected to the wider surrounding pathway networks in the locality.

The proposed major road has a reserve width of 26.5m, consisting of two carriageways of 7m in width that comprises a total of four (4) travel lanes, a central median of 4m and two verges each with a width of 4.5m.

The land forming Catherine Park Drive occupies a small portion of the Catholic School's land within the southeast portion of their site to enable an aligned new 4-way intersection with Forestgrove Drive in Harrington Grove, which is on the south side of Oran Park Drive. In addition, the new 4-way intersection on Oran Park Drive will include traffic signals.

Under this proposal Catherine Park Drive will be constructed from Oran Park Drive to the south side of South Creek, and therefore, no riparian crossings are proposed as part of this application. A roundabout will be constructed at the northern extent of this major road which will connect with a collector street to the western exit. A local street connection with Catherine Park Drive is to be provided at the northeast corner of the Catholic Schools site.

### 5.3.2 Collector Streets

Two (2) collector streets are proposed with each having slightly different carriageway widths to ensure consistency with the bus requirements in the development controls for the Precinct (Refer to Figure 8). The 'bus capable' collector street aligns with the southern side of South Creek linking Catherine Park Drive to the future local neighbourhood centre in Catherine Park and further connection to the Oran Park Town Centre to the north. The 'bus route' collector street connects with the 'bus capable' collector street south of Oran Park House and provides an east-west connection towards the intersection of Oran Park Drive and Dan Cleary Drive.

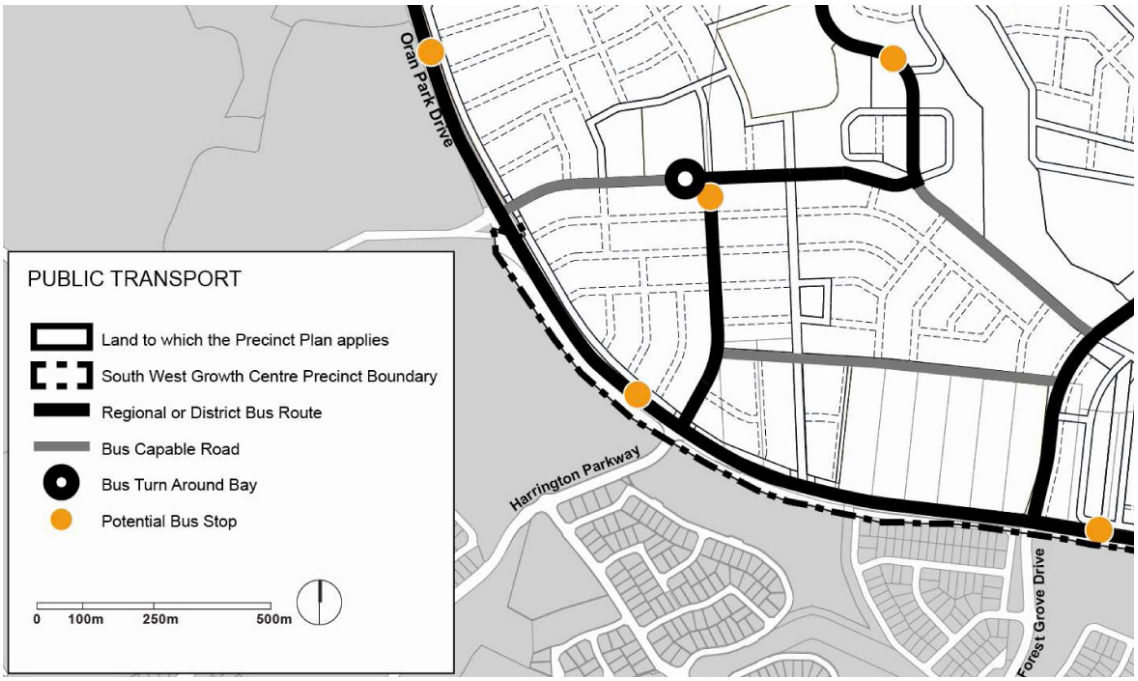



Figure 8 – Precinct Controls for Bus Routes and Bus Capable Streets in Catherine Fields Precinct

The collector street identified as a 'bus route' has two travel lanes of 3.5 metres each with indented parking to ensure free-moving traffic and provide additional landscaping within the streetscape. Whilst 3.2 metres is the minimum desirable width to accommodate bus movements, as confirmed in the NSW Transport State Transit 'State Transit Bus Infrastructure Guide – Issue 2' Revision 1 July 2011 (Refer to Appendix 4), travel lane widths of 3.5 metres in either direction are proposed as the corresponding street in the Precinct development controls is identified as being a bus route. In addition, indented parking of 2.1 metres is proposed where demand for parking is anticipated, with a 3.5 metre verge unless the verge is abutting a non-residential use where a 1 metre verge is provided.

The other collector street identified as 'bus capable' is slightly different as it has two travel lanes of 3.2 metres in width. The provision of indented parking and verges is the same as described above. Given this street is identified as 'bus capable' as opposed to 'bus route' in the Precinct development controls, the minimum desirable width to accommodate bus movements of 3.2 metres per travel lane, as stated in NSW Transport State Transit Guide, is proposed. Accordingly, this street will still facilitate bus movements if required.

The two collector streets are consistent with the alignments in the development controls for the Precinct and form important connections within the development and to future urban development on adjoining land.

### 5.3.3 Local Streets

Embracing the principles identified as being critical in delivering best practice residential street outcomes, local streets within the proposed subdivision have been designed to promote a low speed traffic environment whilst achieving the function and safety objectives for local residential traffic, in particular parking. Local streets have been designed to be residential spaces for shared use and the need to also serve the non-vehicular functions of pedestrian and cycling movements in a low speed traffic environment. In addition, the proposed local streets will make an important contribution to residential amenity through the provision of landscaping, whilst also supporting appropriate levels of on-street parking. Traffic studies undertaken highlight that the traffic volumes on local streets proposed are very low, and well below the threshold for this street category.

There are two (2) types of local streets in this proposal. In both cases local streets have a reserve width of 14.2 metres (unless adjacent to non-residential uses where a 1m verge is proposed) comprising a carriageway of 7.2 metres in width and 3.5 metre verges. The carriageway enables on-street parking on both sides of the street and allows vehicular traffic to easily travel through the streets at low speeds. Most importantly, the 7.2m carriageway promotes lower speeds and therefore safety in the residential areas of the development, being one of the cornerstone objectives.

A subtle but important point of difference between the two local streets is one of the street types has widened verge on one side of the carriageway at the entry points. The widened verge provides an urban design opportunity to increase soft landscaping and creates a 'gateway' to a local street. It also provides as slow point to encourage slower vehicle speeds at intersections which makes crossing the streets significantly safer. The benefits of the widened verge at the entry of local streets include improved urban design and safety outcomes. The photographs below show examples of this type of intersection treatment.

*Widened verge at entry to local streets*

The widened verge at the entry points is proposed on local streets with lower traffic volumes. The widened verge is only on one side of the entry to the local street and always on the left side turning into the street. As a vehicle turns into the street with a widened verge at the entry, the carriageway widens on the left side.

Local streets that do not have a widened verge are key local streets that provide direct access to the Catholic schools or local streets that intersect with a higher order street or road, such as a collector street or transit boulevard.

There are two (2) local streets that do not have widened verges. One runs north-south from the future main entry to the Catholic schools and the other is aligned along the common boundary with the schools, with the carriageway half on the school land and half on the parcel owned by Hixson (existing Lot 27). This local street forms an important access for the future operation of the Catholic schools. This access is required to enable the relocation of their main entry away from Oran Park Drive, which was negotiated between Camden Council, RMS, Catholic Education Office and Harrington Estates. The benefits of relocating the school's main entry is that it eliminates the need for an additional set of traffic signals on Oran Park Drive, which will improve efficiency and better performance of the sub-arterial. In addition it will integrate the existing schools with the future residential community of Catherine Park.

The provision of the new local street access to the schools has been supported and approved by Council as part of the consent for the schools, which has a 'sunset' clause requiring the streets and access be constructed before 31 December 2014 (see DA No. 878/2010). This highly desirable outcome integrates the school into the Precinct and eliminates traffic movement inefficiency for Oran Park Drive.

This is documented in the aforementioned 'Catherine Park: Residential Streets Review' is included in Appendix 1.

### 5.3.4 Access Streets

Access streets form an important part of the street hierarchy to provide access to residential lots with larger lot frontages (15m+) on shorter streets with very low traffic volumes (typically <250vpd). Furthermore, access streets proposed typically serve a small number of residences and/or these streets have only residential development on one side, with non-residential uses on the other, and therefore, they have low demands for on-street parking.

The access streets proposed have a 12.5 metre reservation (unless adjacent to non-residential uses where a 1m verge is proposed) with a carriageway width of 5.5m with 3.5m verges designed to provide pedestrian friendly and aesthetically pleasing streetscapes. The 5.5m carriageway for an access street promotes a low speed environment that is proportionate with very low traffic volumes, which ensures higher levels of safety and residential amenity for local residents. In addition, informal on-street parking is allowed on both sides of the street in a staggered formation, which further ensures vehicles maintain low speeds as they move through these streets. With such low traffic volumes in this type of access street, the frequency of two vehicles travelling at the same time in the same street is extremely low, which is confirmed in the TTM Consulting report in Appendix 2.

### 5.3.5 Laneways

Laneways are provided within the proposal to facilitate access to rear-loaded lots, which are currently identified as superlots for integrated housing. Laneways are very low order streets that only provide access to a small group of allotments and are not intended to service garbage collection, as this will be achieved at designated bin collection areas on the adjoining residential street.

The Laneways have a reservation width of 6.4 metres incorporating a carriageway of the same width, and therefore there are no verges. In addition, to discourage use if the laneway as a thoroughfare, the carriageway at the entry points are proposed to be narrowed to 3 metres by widening the verges. The widened verge areas will provide opportunities for quality landscaping and also provide suitable areas for lighting poles to laminate the laneways.

### 5.3.6 Residential Car Parking and Manoeuvring

As part of formulating the urban design and street design principles for this subdivision proposal, an analysis of car parking in residential areas within the Camden Local Government Area was undertaken to better understand parking pressures in new residential estates (Refer to Catherine Park Residential Parking Study in Appendix 5). In examining residential areas identified by Council as having parking pressure, it was evident that the night-time parking of heavy vehicles, in particular semi-trailers, was creating parking problems for residents. In response, it is proposed that residents will not be allowed to park heavy vehicles, including semi-trailers, in residential streets. This is to be enforced by a covenant on the land title for every dwelling.

A new and proactive approach to on-street and off-street parking is being proposed within Catherine Park to ensure adequate parking is delivered for every new home throughout the development. Proposed residential parking provision rates are as follows:

In regard to the parking provision for detached dwellings with a frontage 13m or greater, it is proposed that it be mandatory for each dwelling to contain a double garage and two additional uncovered spaces within the driveway between the garage and the adjoining street. This equates to four (4) off-street spaces per dwelling in addition to 1-2 on-street spaces per dwelling depending on the frontage of the allotment, as residential lots with larger frontages can achieve 2 spaces.

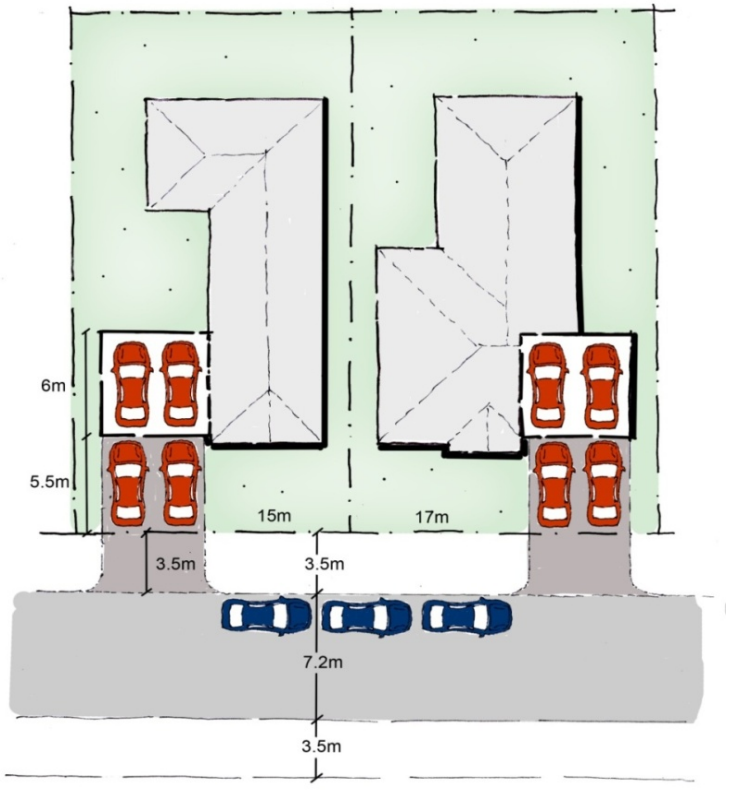



Figure 9 – On/off Street Parking in Residential Streets

Table 6 – Parking Provision in Catherine Park

| Dwelling Type | Off-street Parking Provision | On-street Parking | Total Minimum Spaces per Dwelling |
|---|---|---|---|
| Detached Dwelling (13m+ frontage) | 4 spaces | Min. 1-2 spaces | 5-6 spaces |

In relation to the superlots for integrated housing, the provision for parking will be addressed in association with the built form designs.

### 5.3.7 Garbage Truck Movement and Collection

Garbage collection is proposed in all residential streets except for laneways, where garbage collection will be achieved from the adjoining local or access street. Included in the engineering plans and report enclosed with this Development Application, are detailed plans showing the swept paths for a Camden Council garbage truck. The swept paths are defined for all intersections in both left and right turns when entering and exiting each street in the subdivision proposal. The plans confirm that the garbage truck can enter and exit each street within the carriageways provided for each street type.

In addition, the engineering plans with garbage truck movements also show bin collection areas where bin collection cannot be achieved directly in front of the allotment. The proposed bin collection areas are located in close proximity of the corresponding dwelling and ensure convenient garbage collection by garbage vehicles.

### 5.3.8 Street Poles

To integrate and preserve the significance of the surrounding natural environment, black coated street poles have been selected for use within Catherine Park. These will ensure that the poles are unobtrusive and blend into the surrounds. This achieves a responsive approach to preserving the significance of Oran Park House and South Creek with a high quality interface between development and these natural and historical assets.

## 5.4 Pedestrian and Cycle Pathways

A highly connected and logical network of cycling and pedestrian pathways is to be provided within the proposed subdivision. Share-paths that accommodate cycling and pedestrian movement will be provided within the verge of collector streets and throughout public open spaces and the outer areas of the riparian corridors, which are outlined in Figure 10 below.

As a minimum a pedestrian pathway is proposed in every residential street unless a path is already proposed in adjoining open space. The pedestrian pathway is 1.2 metres in width and will be contained within the 3.5 metre verge. Pedestrian paths are proposed on both sides of the street for key local streets which provide connections to the entrance for the Catholic schools.

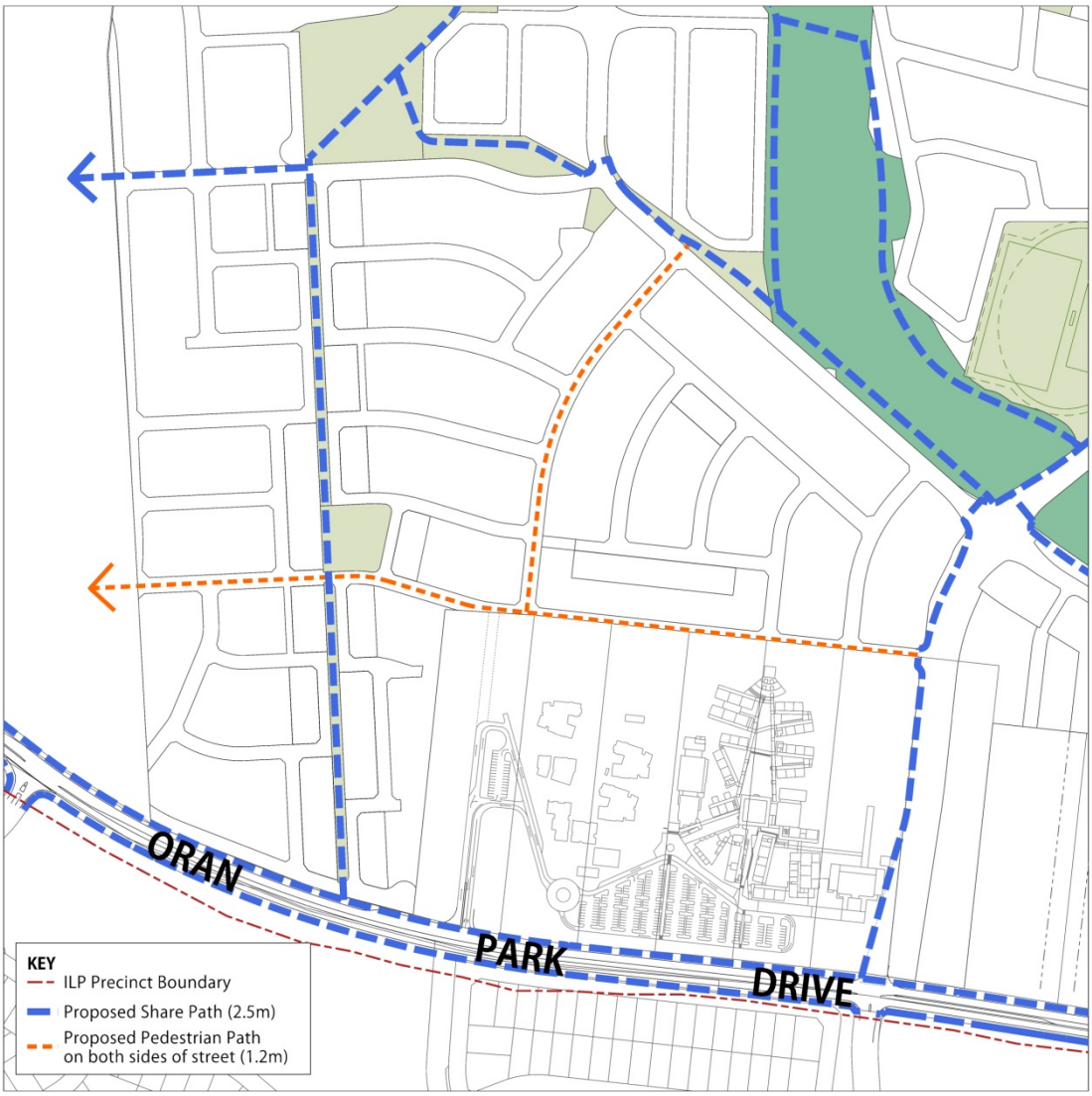



Figure 10 - Indicative Path Network

Pedestrian paths are to be provided in streets that facilitate logical connections within the pathway network. The former internal driveways to the Oran Park House will also be reinterpreted into pathways to facilitate non-vehicular modes of transport, which is discussed in greater detail in Section 5.5.

## 5.5 Heritage Works

The proposal does not include any development within the future heritage curtilage of Oran Park House, which is currently being considered by the Heritage Council. However, the proposal does include works immediately adjacent to the southern boundary of the future heritage curtilage. In addition, the proposal includes works associated with two former internal access streets to the House, which were identified as Moore's Prospect and Dawson-Damer Drive during the Precinct Planning process. The location of Robbins Lane and Graham's Drive are shown in Figure 11 below.


Figure 11 – Heritage Driveway Locations

As part of preserving the heritage significance of Oran Park House, it is proposed that the driveways be retained and readapted as functional landscaped green links, accommodating cycling and pedestrian movements that maintain significant view corridors towards Oran Park House. The driveways are to be retained as an important historical reference within the development, which reinforces an identity for the new community and promotes a sense of place for the future residents of Catherine Park. This represents a quality design outcome that captures the opportunity to strengthen the character of the new residential development.

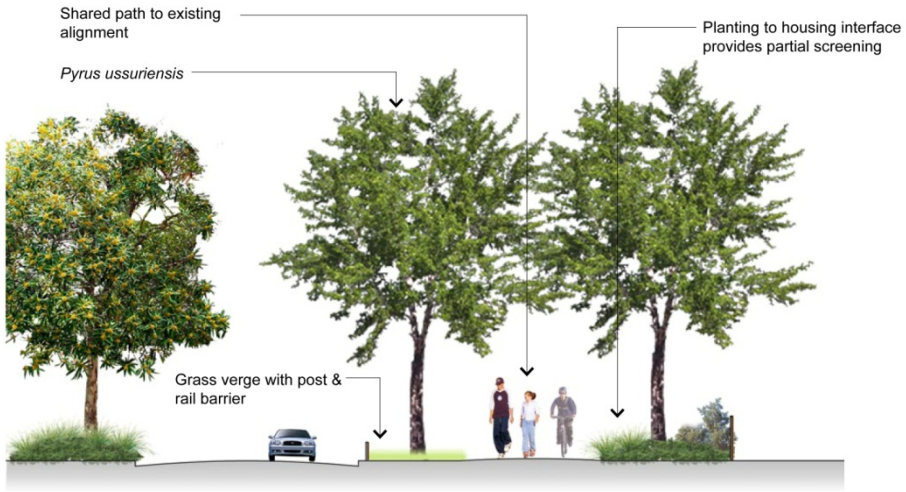



Figure 12 – Robbins Lane Treatment (Refer Landscape Plans)


Figure 13 – Grahams Drive Treatment (Refer Landscape Plans)

### 5.5.1 Graham's Drive

Moore's Prospect, as was identified in the Precinct Planning process, is to be renamed 'Graham's Drive' and is proposed to be incorporated into the development as a pedestrian and cycle pathway. Following a detailed heritage review of the historic significance of the driveway by Tropman and Tropman Architects (Refer to Appendix 6), Graham's Drive was considered to be a highly suitable name instead of Moore's Prospect for the following reasons:

- The drive runs predominantly through land that was called "Graham's Farm" from 1832.
- The Oran Park and Graham's Farm properties, along with Netherbyres, were amalgamated by Mrs Joyce Edith Robbins in 1946 and sold to Daniel James Cleary. After purchasing the property, Cleary then re-subdivided leaving part of the Oran Park property and the former Graham's Farm property as one lot, with Netherbyres and part of the Oran Park property as another lot.
- This drive is and historically appears to have been the predominate access to the house, running through the former Graham's Farm property from c1880.

The driveway will form a shared pathway that is situated within a large open space area near the Oran Park House then it will follow its original alignment along the southern boundary of South Creek to Catherine Park Drive. The pathway will form a major connection on the north side of the adjacent collector street that links the future neighbourhood centre to the southeast portion of the Precinct. Graham's Drive will provide an opportunity for active and passive recreation and form a high quality visual entry to Catherine Park.

### 5.5.2 Robbins Lane

Dawson-Damer Drive, as was identified in the Precinct Planning process, is to be renamed 'Robbins Lane' and currently forms the existing main entry for Oran Park House. As with Graham's Walk, a detailed heritage review of the historic significance of the driveway by Tropman and Tropman Architects considered Robbins Lane to be a highly suitable name instead of Dawson-Damer Drive for the following reasons:

- Hubert Harry Robbins purchased the Oran Park, Graham's Farm and Netherbyres properties in 1939.

- Robbins is responsible for carrying out major renovations to the house and grounds throughout his period of ownership 1939-1945. He undertook considerable modifications and additions to the house to give it the appearance of a Georgian Revival homestead and adding the west wing and eastern extension, and formally laid out the gardens in front of the house. Improvements were made throughout the property to support agricultural uses and the silo is thought to have been constructed in this period.
- This accessway was purposely created into the landscape. It was designed with the front garden as a prospect over the front paddocks from the house.
- This accessway should not be given a higher status than "Lane" as it is a lesser used track leading from Oran Park Road (formerly Cobbitty Road) to the house.

The driveway access will be removed as part of the urban development of Catherine Park to become a high quality landscaped pedestrian and cycle pathway. Robbins Lane will be 10 metres in width and extend from Oran Park Drive to Oran Park House.

With appropriate building setbacks and high quality landscaping, Robbins Lane will be an attractive feature of the residential development. This is enhanced by the cycle path following the traditional alignment of the entryway and meandering street network. Integrated two-storey attached terraces will directly front Robbins Lane providing an attractive, activated and well defined urban character to this corridor. In addition to amenity benefits for residents and increased safety to the lane through surveillance, the proposed design will also retain significant views towards Oran Park House, further establishing it as a focal point within Catherine Park. The design will incorporate an avenue of trees located along the either side of the driveway to create a highly attractive pathway and green space.

The design of the laneway has been reviewed by Tropman and Tropman Architects who consider that it provides a sensitive response to the heritage significance of Oran Park. The outlook from Oran Park House has been retained to Oran Park Drive by utilising the traditional access track to the House. This is visually interpreted through the pedestrian and cycle path and separation between buildings fronting the laneway. Landscape treatments are also used to strengthen the connection between the traditional laneway and Oran Park House.

The Oran Park House Heritage Principles Plan is included in Appendix 7.

## 5.6 Public Open Space and Landscaping

Public open space is to be spatially dispersed throughout the overall development to ensure each residence has convenient access to outdoor recreation facilities. In the case of this application, a local park is to be centrally located to serve informal active and passive recreational pursuits for the local neighbourhood catchment. The local park is a rectangular configuration that is to be landscaped and incorporate quality recreation facilities. In addition, the local park is to adopt passive surveillance principles with housing orientated to overlook the open space on all boundaries. The landscape design plan for the open space and drainage areas, entry statements and streets prepared by Sturt Noble Associates are enclosed with the proposal. An insert of the Landscape Master Plan for the subdivision is in Figure 14 below.


Figure 14 – Landscape Master Plan (Refer to Landscape Plans)

The local park is located approximately halfway along Robbins Lane and intersects with the pedestrian and cycle pathway. It has an area of approximately 3,322m$^2$ and will be an attractive focal point for the local community with informal active grassed areas, a playground, pathways and seating. The area will complement existing trees with attractive gardens and coordinated palette of deciduous feature trees to provide shade in summer and sun access in winter. The selection of trees will also provide an attractive environment through their floral display and contrasting leaf colour. A post and rail fence will wrap the open space area and in addition to delineating the space, will ensure a safer environment for children.

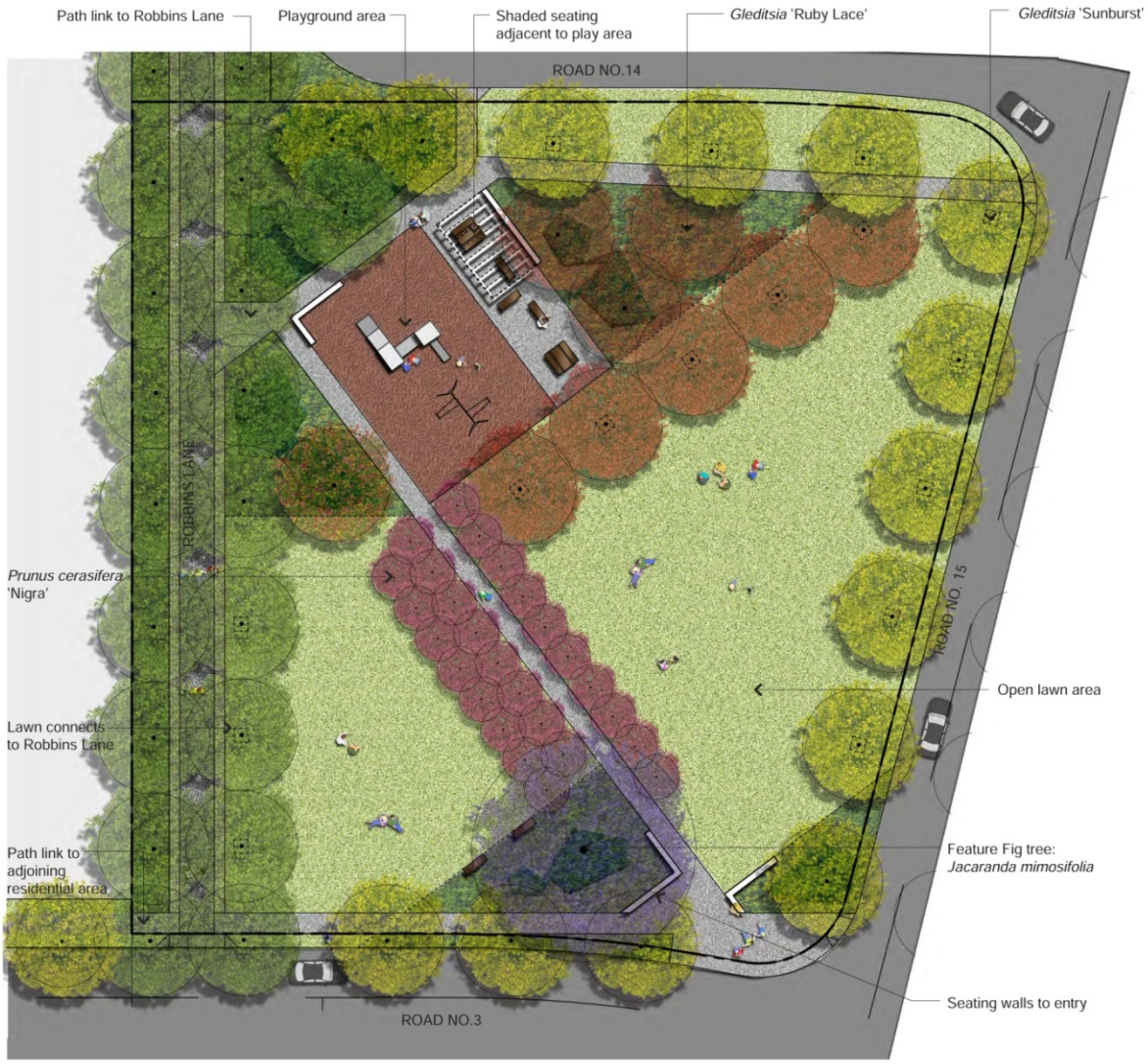



Figure 15 – Local Park Concept (Refer to Landscape Plans)

A small drainage area adjacent to proposed Road No. 2 within Stage 2 of the residential subdivision is proposed to accommodate drainage flow requirements for the development in response to topographical constraints. Whilst the drainage area will primarily have a drainage function, it will be suitably landscaped with turf and trees. It will also function as a non-vehicular connection between nearby residences and the future local neighbourhood centre.

The proposed streetscape landscaping promotes attractive streets and is illustrated in the Street Tree Concept Plan within the landscaping package of plans (enclosed in proposal). It is consistent with the landscape theme for open spaces and other key landscape features throughout the development, including the gateway entrances.

Entry points into Catherine Park will be defined by formal gardens and landscaping. The Oran Park Drive/Catherine Park Drive entry will incorporate existing trees that will be supplemented by feature plantings, street trees and informal grassed areas. A secondary row of trees will further define and support the entry treatment, contributing to a spectacular green entry. A feature wall and fencing within the Catholic school land will utilise a variety of materials including stone and post and rail fencing that will provide an entry statement complete with the name Catherine Park. The entry statement will form an important and attractive landscaped element of the entry gardens. It should be noted that the entry feature will be of a similar style to the existing feature on the opposite side of Oran Park Drive in Harrington Grove.

Figure 16 – Entry Statement Concept (Refer to Landscape Plans)

Catherine Park Drive between Oran Park Drive and Graham's Drive will have boulevard street tree plantings that when mature will provide an attractive and shaded corridor. Internal streets will be defined by a hierarchy of deciduous and evergreen trees. Larger trees will be provided on the internal collector street network. Selected street trees species will create an interesting and individual character with the seasonal changes throughout the year. Furthermore, no two connecting streets will use the same street trees. This is shown in the Street Tree Concept Plan accompanying the Development Application.

## 5.7 Riparian Works

The proposal includes riparian works for the land south of the central creek line of South Creek. The riparian corridors are a key natural asset and will be preserved through conservation management measures. The riparian corridor land subject to this proposal will be revegetated to provide natural creek corridor environments, incorporating buffer areas and core riparian plantings. The riparian corridors will be integrated with the drainage and open space strategies, enhancing the amenity value of the creek line as well as protecting local biodiversity. Plantings will utilise indigenous plant species to re- establish the typical riparian corridor vegetation that would ordinarily occur in this area.

As part of the proposed development, extensive revegetation and regeneration of the southern/eastern South Creek riparian corridor areas will be undertaken. In addition to enhancing the natural values and rehabilitating the South Creek ecosystem to a state representative of the native vegetation communities in the area, the proposed works will also protect and enhance habitat for the endangered Australian Bittern which has been observed on the site. Restoration and rehabilitation works also involve stabilisation of the South Creek watercourse. Regeneration of the riparian corridors will provide broader benefits to the future Catherine Park community including high quality passive open space opportunities.

To ensure that the environmental objectives are achieved in the riparian restoration works, Eco Logical Australia Pty Ltd was engaged to prepare a Vegetation Management Plan (VPM), which is included with this Development Application. The VMP provides a detailed plan including identification of management zones and required work, plant schedule for each management zone with rate of planting per square metre, costing and implementation, and monitoring and reporting. The plan also ensures that construction works associated with the subdivision of Catherine Park does not impact on the integrity of the corridor, in particular with consideration of the drainage facilities. Whilst the VMP provides a comprehensive plan for the majority of riparian areas within the Precinct, only the riparian works within the southern/eastern areas of South Creek form part of this proposal.

## 5.8 Infrastructure Works

### 5.8.1 Stormwater Management

Browns Consulting has prepared a detailed Stormwater Management Strategy for the overall development Catherine Park, which is included in this Development Application. The Stormwater Management Strategy models the potential impacts of the development and details mitigation measures and water quality facilities to ensure the necessary standards are achieved.

This application proposes the construction of two drainage basins (Basin 3 and 12a) which will have a total capacity of 26,090m$^3$ (including the area of basin 12b) in order to adequately service the subdivision. Each basin will include a water quality component (bio-retention) in a dry basin that typically extends 1-1.5m above the basin floor. Plantings will assist the bio-retention method. The basins will be inspected on a 3 monthly basis in order to establish maintenance and cleaning schedule.

The Stormwater Management Strategy includes a 672m$^2$ drainage reserve near the junction of Road No. 1 and Road No. 2 within Stage 2, which will also form a pedestrian link.

### 5.8.2 Servicing

Brown Consulting has prepared the engineering and infrastructure strategy associated with this Development Application and the overall Catherine Park development. There has already been significant planning work in respect utility service infrastructure has been undertaken in conjunction with Precinct planning by the Department of Planning and Infrastructure and the proponent. Land-partners report *Catherine Fields (Part) Precinct Services Infrastructure Strategy & Implementation Plan* provides a framework for provision of utility service infrastructure to the development.

More recently, the proponent has progressed the water and sewer strategy, with Sydney Water endorsing the *South Catherine Fields Detailed Planning Options Report* prepared by GHD on 20th November 2013. In addition the proponent has commenced design work with the relevant authorities in respect of electrical supply, gas and telecommunications.

Essential services will be provided as follows:

**Potable Water Supply** — It is intended to supply potable water to the site from the existing mains located in Oran Park Drive by extension.

| | |
|---|---|
| Waste Water | It is intended to supply a gravity sewer carrier along the creek line towards the north-west connecting to the existing pump station in the adjoining lands. |
| Electrical Supply | Electricity supply to Stages 1, 2 and 3 will be provided by extension of mains located in Oran Park Drive. |
| Telecommunication & Gas | Telecommunication to the site will be provided by NBN by extension of supply located in the vicinity. Gas will be provided by Jemena by connection into the new main recently constructed in Oran Park Drive. |

The significant planning undertaken during the Precinct Planning process has ensured that the site can be serviced with essential infrastructure, and therefore, it is evident that the site can be adequately serviced by extending the planned service infrastructure in the vicinity.

## 5.9 Earthworks

Brown Consulting has prepared the earthworks plans and strategy for this development application. Engineering plans provide details of all earthworks associated with this development application.

### 5.9.1 Bulk Earthworks

Approximately 81,000m$^3$ of cut and 186,000m$^3$ of fill is required during Stages 1, 2 and 3. This will necessitate the importation of 105,000m$^3$ of fill material into the site. Along with fill material that will need to be imported, it is also envisaged that material will be obtained from other landholdings north of South Creek. Prior to importation from either off-site or from other parcels owned by the proponent, appropriate validation of the material will be arranged to ensure suitability for residential use. The bulk earthworks are required to provide a suitable land profile for residential development, creation of streets and installation of services and drainage infrastructure. Overall the bulk earthworks strategy seeks to retain the natural landscape profile of the site as much as possible.

Due to the existing topographical constraints of relatively flat land and the need to satisfy Council's engineering requirements, streets have been designed with an appreciation of the existing level constraints on the site. South Creek traverses the site and has a longitudinal grade around 0.5% as the existing area of Stages 1 and 2 is very flat and the creek is ill-defined. Filling in this area is necessary to ensure that the perimeter street (Road 02) and the adjacent allotments are above the design 100 year ARI flood level in the creek with adequate freeboard, and in accordance with Council's engineering requirements.

To minimise the quantity of fill material that would otherwise be imported, the perimeter street (Road 02) adjacent to South Creek and some sections of minor local streets have been designed with a longitudinal grade of 0.5%. This ensures that the perimeter street is not unnecessarily higher than otherwise would be required relative to the creek. A design longitudinal grade of 0.5% is considered justifiable in these locations and complies with Table 8.5 of Austroads Part 3- Geometric Design 2010. All other streets have a minimum grade of 1% and a maximum grade of approximately 5%.

The locations for the proposed drainage basins have been carefully selected to utilise the existing topography of the site. Details of the drainage design are discussed in 'Section 2.9.1 Stormwater Management' of this SEE and the *Catherine Park Stormwater Management Strategy* prepared by Brown Consulting and submitted with this Development Application.

Details of the bulk earthworks can be found in street and drainage plans submitted in support of the Development Application.

### 5.9.2 Allotment Grading

The existing natural surface grades in Stage 1, 2 and 3 are generally extremely flat running between less than 1% in the lower locations near South Creek to approximately 5%. As a result the proposed allotments will be graded with gentle slopes and importantly, maintain a minimum 1% cross fall as required by Camden Council Engineering Design Specification. No significant inter-allotment retaining walls are proposed and the lot levels will be highly suitable for residential buildings.

## 5.10 Staging

The construction works associated with the residential development of the proposal will be undertaken in three (3) Stages (Refer to Figure 17).

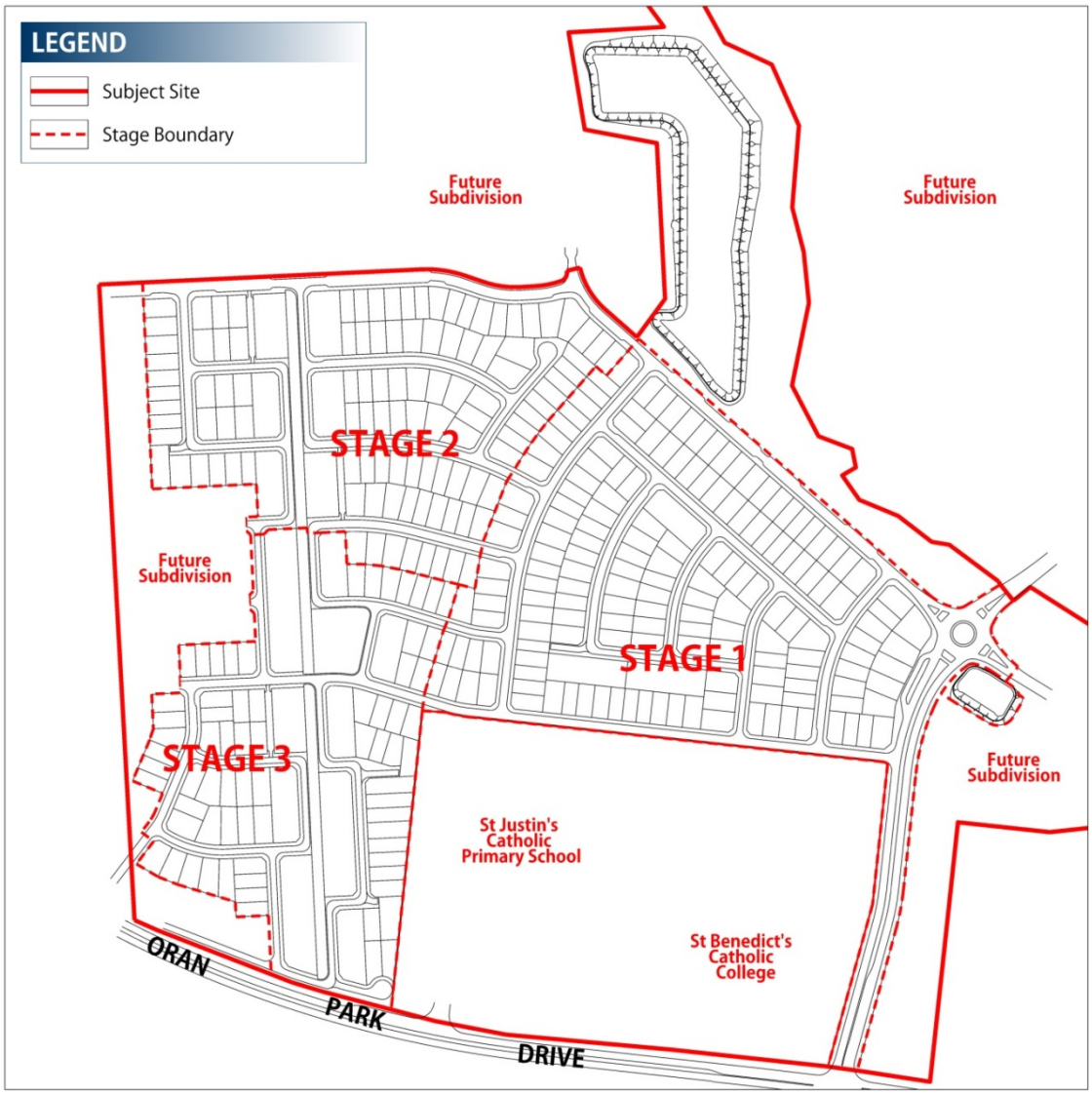



Figure 17 - Staging

**Stage 1** Includes the construction of a section of Catherine Park Drive, the street access to the Catholic Schools, and 165 residential allotments, 3 superlots, 2 drainage basins and landscaping works along Graham's Drive.

**Stage 2** Includes 113 residential allotments, 6 superlots, a local park (3,322m$^2$) and part pathway space of Robbins Lane.

**Stage 3** Includes 65 residential allotments, 8 integrated housing superlots and part pathway space of Robbins Lane.

The riparian works will be undertaken progressively throughout the residential development but will not be linked directly to staging of the residential works.

A specific set of Staging Plans that are to be used for servicing applications have been prepared by JMD and are enclosed with this proposal. These plans are required to be stamped as part of the approval to meet the servicing authority's application and approval requirements for services.

## 5.11 Signage

In addition to the above, this application seeks approval for the erection of three billboard signs which will be used to market the Catherine Park development. Specifically, the three proposed signs will display information relating to development which will occur on the site. A signage locality plan has been provided with this documentation and the signage locations are outlined in Figure 18.

The signs are all located along the Oran Park Drive frontage of the site. One sign will be located in each of the following land parcels: Lot 26 DP31996, Lot 27 DP 213330 and Lot 17 DP 31996. The proposed sign boards have dimensions of 8m in length and 4m in height. The proposed signs will be re-skinned at regular intervals during the ongoing development of the subject site.

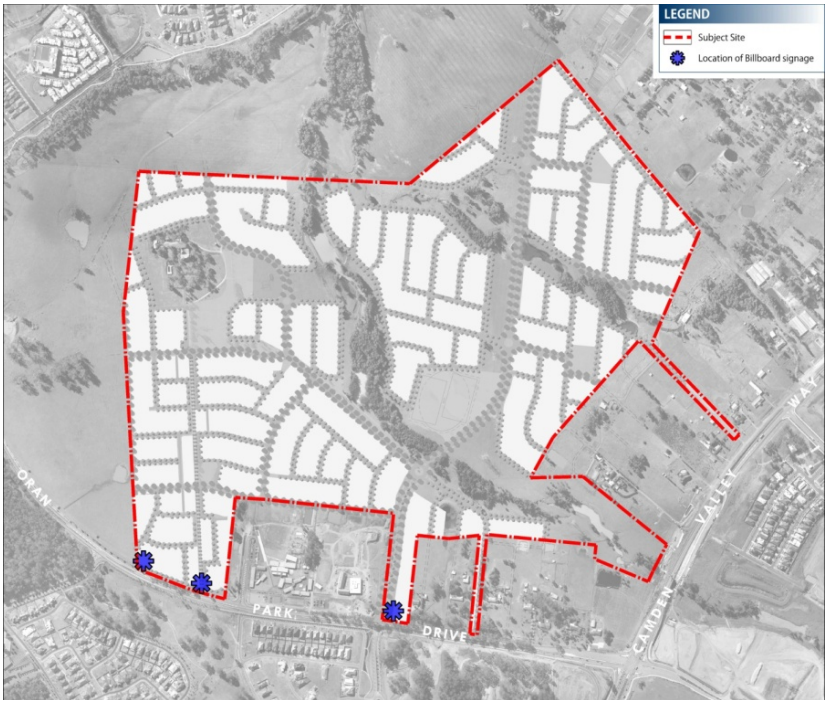



Figure 18 - Indicative Signage Locations

# 6 ENVIRONMENTAL PLANNING & ASSESSMENT ACT 1979

## 6.1 Section 77A – Designated Development

Section 77A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) provides that development is considered to be Designated Development where declared as such by any Environmental Planning Instrument or the Regulations.

Schedule 3 of the *EP&A Regulations 2000* outlines the criteria for development which is classified as Designated Development. Development classed as 'designated' requires particular scrutiny because of its nature or potential environmental impacts. Designated development includes development that has a high potential to have adverse impacts because of their scale or nature or because of their location near sensitive environmental areas, such as wetlands and coastal areas.

The proposed development does not satisfy the criteria within Schedule 3 of the *EP&A Regulations 2000* and is therefore not considered to be Designated Development as defined under the Regulations.

## 6.2 Section 91 – Integrated Development

Section 91 of the *EP&A Act 1979* outlines development that is considered to be Integrated Development, requiring concurrence/approval under a variety of Acts. Various referrals are required in accordance with this section.

### 6.2.1 Heritage Act 1977

The Oran Park Homestead, gardens, outbuildings, old cottage, silo, stable building, carriage house, drive and circular carriage drive are listed in Schedule 5 of Appendix 9 in the Sydney Growth Centres SEPP as an item of local heritage significance (Item 18). As Item 18 is of local heritage significance, no referral to the Office of Environment and Heritage is necessary.

### 6.2.2 Threatened Species Conservation Act 1995

There are no significant ecological impacts resulting from the proposal as defined under the *Threatened Species Conservation Act 1995*, and therefore, referral to the Office of Environment and Heritage is not required.

### 6.2.3 National Parks and Wildlife Act 1974

A number of key Aboriginal archaeological sites and areas were identified within the Catherine Fields (Part) Precinct as part of the specialist background studies undertaken during the Precinct Planning process. These background studies were undertaken in consultation with the Aboriginal community the former Department of Environment and Conservation (now Office of Environment and Heritage). An assessment of the impact of the development proposal on Aboriginal archaeological sites is provided in Section 4.1.1.1 of this SEE.

An assessment of Aboriginal cultural heritage significance provided with this application, prepared by Kelleher Nightingale Consulting, should be referred to the relevant Government agency with this proposal.

### 6.2.4 Roads Act 1993

As part of the Stage 1 development application, a portion of Catherine Park Drive, connecting to Oran Park Drive is proposed to be constructed. Under Section 138 of the *Roads Act 1993*, Camden Council is the authority responsible for Oran Park Drive as it is not a classified road. Accordingly, referral to the RMS is not required under the Roads Act.

Notwithstanding the above, it is noted that referral will be required in accordance with *State Environmental Planning Policy (Infrastructure) 2007*.

### 6.2.5 Rural Fires Act 1997

The site is located on land that is identified as Bushfire Prone Land under Camden Council's Bushfire Prone Land Map. The proposal therefore requires referral under Section 100B of the *Rural Fires Act 1997*.

A bushfire assessment is provided with this application, prepared by Eco Logical Australia Pty Ltd, should be referred to the relevant Government agencies with this proposal.

### 6.2.6 Water Management Act 2000

Approval under the *Water Management Act 2000* is required as the proposed development incorporates drainage works and also restoration management works within South Creek, and a Controlled Activity Approval will be necessary. Accordingly, referral to the NSW Office of Water is required.

# 7 ENVIRONMENTAL ASSESSMENT (S79C OF EP&A ACT)

## 7.1 Environmental Planning Instruments

### 7.1.1 State and Regional Environmental Planning Instruments

#### 7.1.1.1 State Environmental Planning Policy (Sydney Region Growth Centres) 2006

The subject site is located within the southern portion of the Catherine Fields Precinct, released by the NSW Government in August 2011 under the Precinct Acceleration Protocol (PAP). On 20 December 2013 the subject land was included in the Growth Centres SEPP, with specific provisions in Appendix 9 of the SEPP. The SEPP is the primary Environmental Planning Instrument applying to the subject land.

*Clause 2 - Aims of Policy*

Clause two of the Growth Centres SEPP provides the aims that guide the release of land, land use planning and future development within the Growth Centres. Consistency with relevant aims of the Growth Centres SEPP are outlined in the table below:

Table 7 – Assessment on Consistency with Grown Centres SEPP Aims

| Aim | Response | Consistency |
|---|---|---|
| c) to provide for comprehensive planning for those growth centres, | The proposed development of the subject site is a further refinement of the vision for Catherine Fields in the SEPP and within Camden Council Growth Centres DCP 2013.<br><br>The proposed development is formed on a comprehensive master planned vision and will create a highly liveable residential community that respects the natural (South Creek) and heritage (Oran Park House) features of the property, and promotes quality new housing. This detailed planning ensures that the subject site will deliver an outstanding new sustainable community in the South West Growth Centre. | Yes |

| Aim | Response | Consistency |
|---|---|---|
| d) to enable the establishment of vibrant, sustainable and liveable neighbourhoods that provide for community well-being and high quality local amenity, | The proposed subdivision will create a highly liveable community with a high standard of amenity and accessibility. This is achieved by:<br>• creating identifiable places for people,<br>• locating higher forms of density in locations of higher amenity such as around the Robbins Lane,<br>• delivering best practice street and streetscape design outcomes,<br>• providing a street hierarchy that ensures proper function and movement of vehicles, cyclists and pedestrians within the residential development,<br>• maintaining a human scale to residential streets to ensure safety for non-vehicular forms of transport and a low speed traffic environment,<br>• enabling the integration of public transport services,<br>• provision of high quality public open spaces,<br>• sensitive integration of the historic use and buildings of the site, and<br>• restoration of environmentally significant natural assets. | Yes |
| h) to protect and enhance land with natural and cultural heritage value, | This development application has enhanced the conservation values of the site by:<br>• forming a comprehensive heritage design response to Oran Park House,<br>• restoring the South Creek Riparian Corridor,<br>• providing habitat for the endangered Australasian Bittern, and<br>• creating a linear park for pedestrians and cyclists that enhances the connection to Oran Park House. | Yes |

*Clause 19 - Development on flood prone and major creeks land – additional heads of consideration*

This clause requires the consent authority to consider how development may impact on flood behaviour on identified floodplains. Stormwater drainage and flood planning has been considered in detail during the precinct planning process and as part of the subdivision design. Whilst development is proposed within land identified as being flood prone Flood Prone Land Maps in the Growth Centres SEPP, a detailed Stormwater Management Strategy has been prepared to confirm the proposed works will not adversely affect flooding and that any risk is properly managed within the development area.

Accordingly, assessment of stormwater and flood management as discussed in Section 2.9.1 of this report and a Stormwater Management Strategy prepared by Brown Consulting is provided with this Development Application, which confirms compliance with relevant flood planning requirements.

*Part 6 - Development controls – vegetation, Clause 21 - Land to which Part applies*

Clause 21(h) provides that Part 6 does not apply to land to which Camden Growth Centres Precinct Plan 2013 applies.

#### 7.1.1.2 Appendix 9 in Camden Growth Centres Precinct Plan in Growth Centres SEPP

Appendix 9 of the Growth Centres SEPP contains the zoning and key development standards and provisions for development within Catherine Park. This section addresses the key requirements of the Camden Growth Centres Precinct Plan (CGCPP).

*Clause 1.2 - Aims of Precinct Plan*

Clause 1.2 of the Precinct Plan provides the aims that guide the development of the Catherine Fields Precinct within the Growth Centres. Consistency with relevant aims of Clause 1.2 is outlined below:

Table 8 – Assessment on Consistency with Clause 1.2 Aims

| Aim | Response | Consistency |
|---|---|---|
| (b) to protect and enhance environmentally sensitive natural areas and cultural heritage, | The proposal protects the heritage significance of Oran Park House and rehabilitates the riparian corridor areas, including South Creek. It addition, it provides habitat for the endangered Australasian Bittern and creates a linear park for pedestrians and cyclists along the disused access ways to Oran Park House. | Yes |
| (c) to provide for recreational opportunities, | Recreational opportunities are to be provided within the linear park of Robbins Lane, a centrally located neighbourhood park abutting Robbins Lane, and within the conservation lands. This provides a range of passive and active recreational opportunities | Yes |

| Aim | Response | Consistency |
|---|---|---|
| | and future development stages will provide other recreational facilities (i.e. sports fields). | |
| (e) to promote housing choice and affordability, | Housing choice and affordability is encouraged in the proposal. A range of residential lot sizes are provided from 389m$^2$ to above 700m$^2$ for detached housing. In addition, 19 super-lots are provided that will create a variety of medium density housing outcomes. The wide range of housing typologies and lot sizes therefore promotes housing choice and affordability within the development. | Yes |
| (f) to provide for sustainable development, | The development of the subject site encourages the efficient use of land by providing a range of lot sizes as well as medium density housing products. The subdivision design promotes walking and cycling connectivity to public transport, open space, schools and the neighbourhood shops. Environmentally sensitive land is to be retained and enhanced and is used as a defining feature of the precinct. Together, this suite of initiatives ensures that sustainable development practices are implemented. | Yes |
| (g) to promote pedestrian and vehicle connectivity. | A highly connected, safe and efficient network of streets, and cycling and pedestrian pathways is provided within the proposed subdivision design. A logical street hierarchy that connects residents to higher order roads in the region.<br><br>Share-paths that accommodate cycling and pedestrian movement will be provided within the verge of collector streets and throughout public open spaces and the outer areas of the riparian corridors. Pedestrian paths are to be provided in key streets that facilitate logical connections within the pathway network. The former internal driveways to the Oran Park House will also be reinterpreted into pathways to facilitate non-vehicular modes of transport. | Yes |

*Clause 2.2 - Zoning of land to which this Precinct Plan applies*

The subject site is zoned 'R2 Low Density Residential' and 'E2 Environmental Conservation' as shown on the South West Growth Centre Land Zoning Map. It is also noted that the land within Oran Park Drive immediately to the south is zoned 'SP2 Infrastructure'. The zoning of the subject site is shown in Figure 19 below.

R2 Low Density Residential

A range of housing types are proposed within the R2 Low Density Zone including detached **dwelling houses, attached and semi attached housing** and **multi dwelling housing**. These housing types are permissible within the zone and are consistent with the zone objectives that aim to provide a diverse range of housing types to meet community housing needs.

E2 Environmental Conservation

The South Creek Riparian Corridor is zoned E2 Environmental Conservation. Within this zone a range of works are proposed including **drainage, environmental protection works** and a **recreation area** with pedestrian and cycle paths. This suite of works restores significant environmental assets, provides high quality open spaces and creates a community with an identifiable character and high standard of amenity. This therefore satisfies the zone objectives by protecting, managing and restoring areas of high ecological, scientific, cultural and aesthetic values.

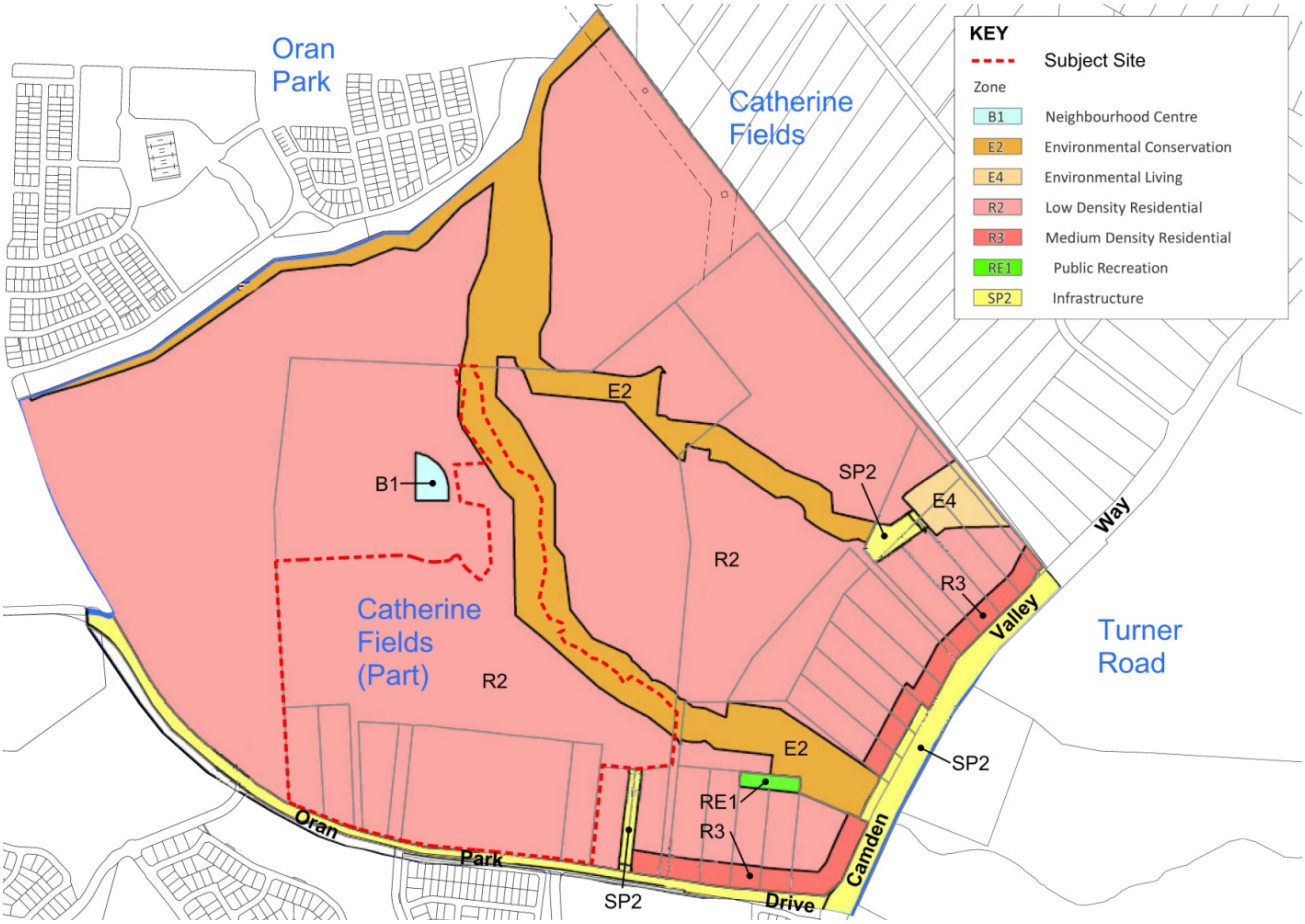



Figure 19 – Land Zoning Map

*Clause 2.6 - Subdivision – consent requirements*

Subdivision is permissible development with consent in all zones under Cl. 2.6 of the Camden Growth Centres Precinct Plan.

*Clause 3.3 - Environmentally sensitive areas excluded*

It is noted that certain land identified as environmentally sensitive within the subject site, it is not able to carry out either exempt or complying development. This does not prevent the development of the subject site as envisioned in the wider precinct plan for Catherine Park.

*Clause 4.1 - Minimum subdivision lot size*

The Minimum Lot Size Map does not apply a minimum lot size to the subject site. It is noted that the Map only applies minimum lot size standards to land in the vicinity of the Oran Park Homestead, which is not within the subject site.

*Clause 4.1A - Minimum lot sizes for residential development*

Clause 4.1A(3) establishes minimum lot sizes for certain types of residential development. Excluding the superlots, which will subdivided in a future proposal, the only form of residential subdivision is for a 'dwelling house (detached)'. Subclause (3) establishes a minimum lot size of 200m$^2$ for this type of residential development. The smallest lot size proposed for a 'dwelling house (detached)' is 389m$^2$, and therefore the proposal complies with the minimum lot size standards in the Appendix 9.

*Clause 4.1B - Residential density*

Clause 4.1B incorporates three objectives to ensure the delivery of appropriate densities within the Precinct, which read as follows:

> *(a) to establish minimum density requirements for residential development, and*
>
> *(b) to ensure that residential development makes efficient use of land and infrastructure, and contributes to the availability of new housing, and*
>
> *(c) to ensure that the scale of residential development is compatible with the character of the precinct and adjoining land.*

This Clause also imposed residential density requirements as annotated on the Residential Density Map and subclause (4) establishes the following definitions for determining and calculating residential density.

> *In this clause:*
>
> ***density*** *means the net developable area in hectares of the land on which the development is situated divided by the number of dwellings proposed to be located on that land.*
>
> ***net developable area*** *means the land occupied by the development, including internal streets, but excluding land that is not zoned for residential purposes.*

It is important to note that there are significant issues with both of the above definitions in determining and calculating residential density for the proposal, which are explained as follows:

1. The definition for 'density' is incorrect as 'net developable area in hectares' divided by the 'number of dwellings proposed to be located on that land' does not equate to a dwellings per hectare figure.

   The correct calculation for determining residential density is the ***number of dwellings proposed to be located on a defined parcel of land*** divided by the ***net developable area in hectares***, which is demonstrated in the example below:

$$\frac{450 \text{ dwellings}}{30 \text{ hectares}} = 15 \text{ dwellings per hectare}$$

   Accordingly, the definition of 'density' in Appendix 9 of the SEPP cannot be applied to calculate residential density for the proposal.

2. The definition for 'net developable area' is inappropriate and unreasonable for determining and calculating residential density for the proposal as it does not exclude non-residential land uses, such as open space, drainage areas and non-residential streets.

   The Growth Centres' definition of 'net developable area' for calculating residential densities was first published in the Growth Centres Development Code 2006 and is defined on page A-3 of that document as follows:

   *Net Developable Area:*

   - *residential land - the land occupied by development, including internal streets plus half the width of any adjoining access roads that provide vehicular access, but excluding public open space and other non-residential land.*

   An illustrative representation on how to determine residential density is also included in page B-64 of the Development Code, which is shown in Figure 20 below:

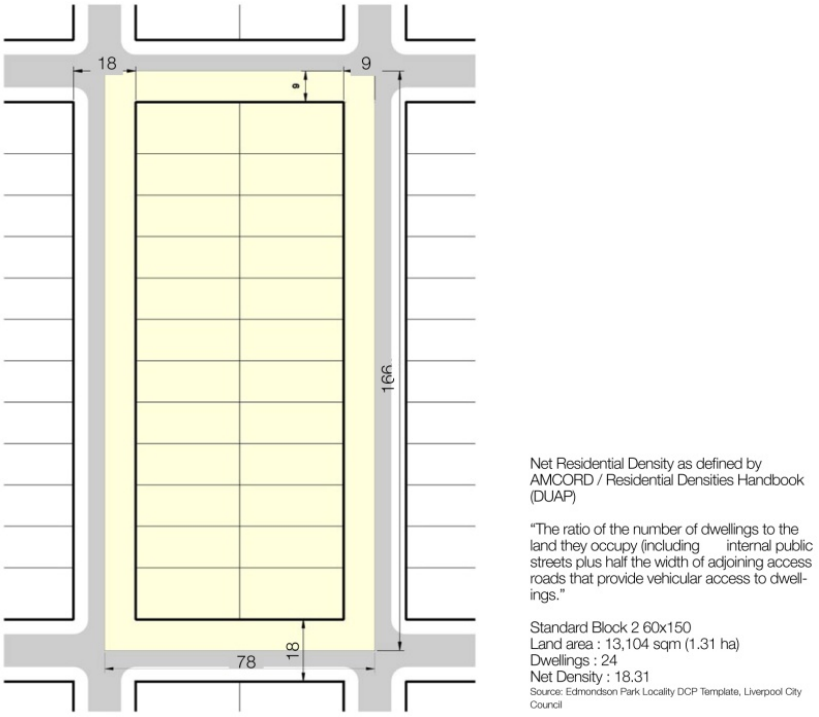



Figure 20 – Net Residential Density illustration from Growth Centres Development Code 2006

In light of the above, the foundation definition for 'net development area' in the Growth Centres Development Code, which is the same approach applied in AMCORD, is the appropriate method for calculating and determining residential densities. Accordingly, the Growth Centres Development Code definition will be utilised to determine residential density for the proposal given the deficiencies of the two definitions included in Clause 4.1B of Appendix 9.

The Residential Density Map requires the majority of the subject site to deliver 15 dwellings per hectare with a small portion of the site, including Catherine Park Drive (Rickard Road extension) and adjacent land, to deliver a residential density of 20 dwellings per hectare, which is shown in Figure 21 below.

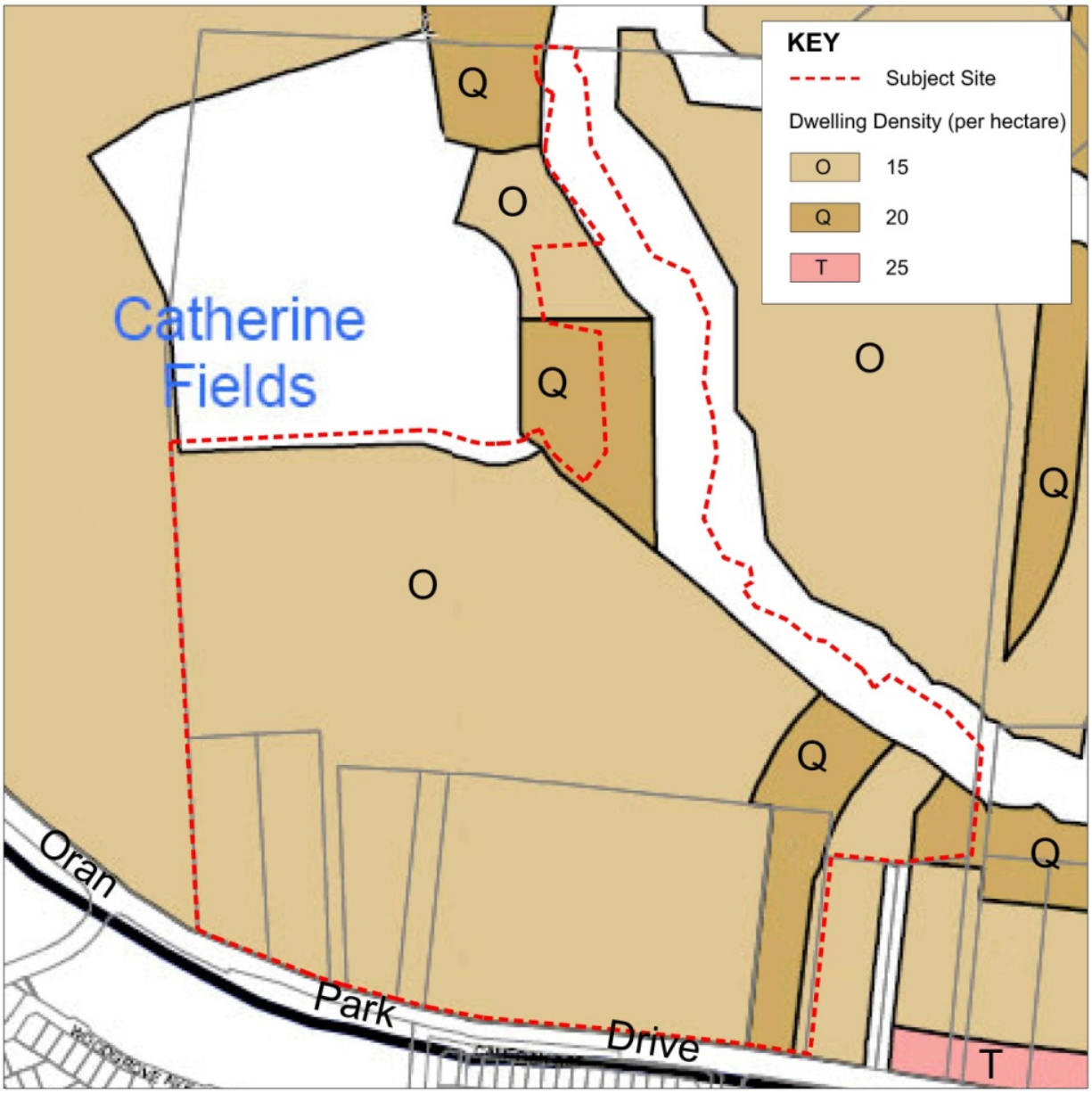



Figure 21 – Residential Density Map

The area comprising the proposed residential subdivision of the subject site will deliver an ultimate residential density of 17.5 dwellings per hectare. The calculation includes the dwellings projected for the super lots for integrated housing, which will further subdivided under integrated housing Development Application(s) for the residential buildings.

An NDA Calculation Plan illustrating the above calculations is included in Appendix 8, which includes the projected dwelling figures for each of the superlots. Furthermore, the proponent is committed to deliver the number of allotments identified in each superlot to ensure the densities and Precinct development objectives are achieved.

Residential density in relation to the ILP incorporates densities of 15 and 20 dwellings per hectare for the subject site. The proposed subdivision delivers a density of 17.5 dwellings per hectare, and therefore, the proposal delivers a slightly higher density than the corresponding area in the Catherine Field Precinct (Part) Indicative Layout Plan.

The combined dwelling densities for the first three stages in Catherine Park are slightly higher than the minimum density required for the application. However, it is envisaged that the net density for the whole project area will achieve the minimum overall densities required under the SEPP. The development area adjacent to Robbins Lane provides an outstanding opportunity to deliver appropriately located medium density housing that will benefit from higher amenity from the open space, and therefore, a higher density than the minimums is being achieved in this proposal. It is proposed that any exceedence in dwelling densities will be balanced across future proposals to ensure the minimum densities in the SEPP are achieved. Accordingly, any density above the minimums will be used to offset dwelling density requirements in future Development Applications.

Given the above, the proposal satisfies all objectives and requirements in Clause 4.1B by:

- achieving the prescribed minimum density requirements,
- increasing the efficiency of land for infrastructure and availability of land for housing, and
- maintaining the compatibility of development.

*Clause 5.10 - Heritage conservation and Schedule 5 Environmental heritage*

Clause 5.10 requires Council to consider the impact of development on the items of heritage significance. The Oran Park Homestead, gardens, outbuildings, old cottage, silo, stable building, carriage house, drive and circular carriage drive are listed in Schedule 5 of Appendix 9 of the Growth Centres SEPP and Item 18 on Heritage Map as an item of local heritage significance.

The subject site includes works associated with two former internal access driveways to the House, which were identified as Moore's Prospect and Dawson-Damer Drive during the Precinct Planning process, and are now named 'Graham's Walk' and 'Robbins Lane' respectively. Oran Park Homestead and associated gardens, outbuildings, old cottage, silo, stable building, carriage house and circular carriage drive are outside the land to works in this Development Application. However, the works within Robbins Lane and a drainage basin are within the area defined as 'Item – General' on the Heritage Map.

A Heritage Impact Assessment has been prepared by Tropman and Tropman Architects to assess the impacts of residential subdivision of the proposed subdivision in relation to Oran Park House, which is included with this proposal. The Heritage Impact Statement follows the standards set out in the "NSW Heritage Manual" Update August 2000, prepared by the NSW Heritage Office. The report considers any potential impacts from the proposed development with regard to views and vistas, outlook from Oran Park House and the curtilage around the house and grounds. These three potential impacts are discussed below:

*Views and Vistas:*

The change of use from rural to urban land uses will alter the views and vistas that currently exist. However, the subdivision design planning has been established to interpret and reinforce the heritage values of Oran Park House and grounds. To ensure that significant views and vistas are maintained, an appropriate curtilage has been established, view corridors are protected and utilised as significant features of the estate, particularly Robbins Lane, an active space that draws people towards Oran Park House along an attractive, landscaped corridor. Likewise the view corridors are maintained along collector streets and areas of open space such as the riparian corridor. This, along with the low scale character of the area, will strengthen significant views and vistas and enhance the significance of the local heritage item.

*Outlook for Oran Park House:*

A landscaped lane with terrace housing on its edges that links the House's garden gates to Oran Park Drive will be sensitively designed and developed to provide an attractive pedestrian and cycle link through the Precinct. The retention of the 'rural lane' acknowledges the former paddock track which linked the formal garden design with the extensive landscape beyond the House entry gates. Further, this establishes an attractive outlook to and from Oran Park House.

Additional measures to protect the outlook from Oran Park House include:

- Extensive open space from the east to the south-east.
- South Creek Riparian Corridor which will be regeneration and revegetation and remain a significant landscape feature of the north-east to south-east outlook.
- Existing landscape and garden features of the grounds itself.

*Curtilage*

The residential subdivision has been designed to be consistent with the intended heritage curtilage for the State listing when finalised. Notwithstanding, the impact assessment for the proposed development outlines that the curtilage will be enhanced by:

- A landscape lane with terrace housing on its edges that links the House's garden gates to Oran Park Drive.
- Landscape treatments within the Oran Park House lot.
- The predominant two-storey residential character within a landscaped streetscape.
- Larger residential blocks surrounding the perimeter of Oran Park House and open space.
- The enhancement of the South Creek Riparian Corridor.

The residential subdivision has been designed to mitigate and minimise any potential impacts on the significance of Oran Park House and complies with the Conservation Management Plan. The proposed subdivision of Catherine Park is therefore respectful of the heritage significance of the Oran Park House and grounds.

## Aboriginal Heritage

Clause 5.10(8) requires a consent authority to consider the impact of development on places of Aboriginal heritage significance.

Within the proposed development area there are two areas of Aboriginal cultural heritage identified as CDPP-02 and CFPP-007. The location of these sites within the context of the residential subdivision is shown in Figure 22. These two sites are part of ten areas of Aboriginal heritage significance. To understand the potential impacts of subdivision, Kelleher Nightingale Consulting has assessed the Aboriginal cultural heritage of these sites.


Figure 22 - Aboriginal Cultural Heritage Significance Sites

Site CFPP-007 is a highly disturbed site by factors including flooding, gradient, erosion and colluvial deposits. Though Aboriginal objects exist within this area, Kelleher Nightingale have identified CFPP-07 as having low scientific value because they are far removed from their original human context due to the disturbed nature of the land. Site CFPP-002 is identified as having moderate/ better scientific significance as it remains an intact archaeological site.

In light of the above, an Aboriginal Heritage Impact Permit (AHIP) is required. An application to the NSW Office of Environment and Heritage for an AHIP will be made.

*Clause 6.2 - Development Controls – native vegetation retention areas*

This clause seeks to prevent the clearing of native vegetation identified on the Native Vegetation Protection Map, which identifies vegetation within the South Creek riparian area. The proposed development does not propose to clear native vegetation in this area. The proposal is consistent with this development provision and further discussion on environmental works is Section 7.4 of this SEE.

#### 7.1.1.3 State Environmental Planning Policy No. 55 – Remediation of Land

SEPP 55 is a NSW-wide planning instrument relating to the remediation of contaminated land. When considering a Development Application, the consent authority must observe the requirements of SEPP 55.

Under Clause 7, a consent authority must not consent to the carrying out of any development on land unless:

a) It has considered whether the land is contaminated, and

b) If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable after remediation) for the purpose for which the development is proposed to be carried out, and

c) If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.

A Land Contamination and Salinity Assessment was prepared by WSP at the Precinct Planning stage of development. The land contamination testing satisfied the criteria of a Phase 1 Preliminary Site Investigation. The report identified potential areas of environmental concern (AECs) and determined that sites identified as Level 1 and Level 2 required further contamination investigation. The land identified incorporates the subject land.

A Stage 2 Environmental Site Investigation has been prepared by Douglas Partners for the subject land and is included with this Development Application. Site contamination is further discussed in Section 4.1.2 of this report.

#### 7.1.1.4 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 applies to the proposed development as it is traffic generating development in accordance with the criteria listed in Cl.104 and Schedule 3. Under this SEPP, developments with more than 200 lots and where the subdivision includes the opening of a public road are to be referred to the Roads and Maritime Services for their consideration.

A Traffic Impact Review prepared by Christopher Hallam and Associates Pty Ltd is submitted with this application. The Traffic Impact Review report has concluded that the street hierarchy and network proposed for Stages 1-3 is satisfactory as the design implements appropriate traffic management principles. The Review also confirms that the proposed street and intersection layout will address internal and external traffic demands and will not have any significant adverse effects on external road systems.

Traffic impacts are further discussed in Section 4.3.6 of this SEE.

### 7.1.1.5 State Environmental Planning Policy No. 64 – Advertising & Signage

State Environmental Planning Policy No 64 – Advertising and Signage generally aims to ensure that signage is compatible with the desired amenity and visual character of an area and provides effective communication in suitable locations.

The proposed signage is identified as a 'business identification sign' under SEPP 64. A business identification sign is defined as follows:

> *business identification sign means a sign:*
>
> *(a) that indicates:*
>
> *(i) the name of the person, and*
>
> *(ii) the business carried on by the person,*
>
> *at the premises or place at which the sign is displayed, and*
>
> *(b) that may include the address of the premises or place and a logo or other symbol that identifies the business,*
>
> *but that does not include any advertising relating to a person who does not carry on business at the premises or place.*

The proposal includes three (3) business identification signs each with a signage area of 32m$^2$ and Clause 17 and Clause 18 of SEPP 64 therefore apply.

Clause 17 applies to a sign that has a display area larger than 20m$^2$ and/or is 8m or higher than the ground level, and the following must be addressed before consent can be granted:

- consideration of the assessment criteria within Schedule 1 of the SEPP,
- advertising of the proposal, and
- a copy of the application provided to the RMS if Clause 18 applies.

Clause 18 applies to signs with a signage area greater than 20m$^2$ and 'within 250 metres of a classified road' with 'any part of which is visible from the classified road'. Specifically Clause 18 requires concurrence of the RMS. If within 21 days no advice has been provided, the application is to be considered as if the RMS has provided their approval.

Consistent with Clause 17 of SEPP 64, an assessment of the proposed signage under the criteria established in Schedule 1 of SEPP 64 is provided below.

Table 9 – Compliance with SEPP 64

| SEPP 64 – Schedule 1 | Proposal | Compliance |
|---|---|---|
| *Character of the area*<br>• Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located?<br>• Is the proposal consistent with a particular theme for outdoor advertising in the area or locality? | • The proposed signage relates to sale of residential lots within the subdivision as stages become available. The small scale ensures that the signs are compatible with the future urban character of the area. In addition, the signs are not permanent fixtures and will be removed after the lots have been sold and the area developed.<br>• The proposed signage is consistent with signage within the area advising of land for sale within similar subdivisions. | Yes |
| *Special areas*<br>• Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas? | • The discrete nature of the signs, small size and location ensures that there is no impact on special areas. This is demonstrated in the attached signage location plan which shows three signs suitably spaced along Oran Park Drive boundary of the site. This ensures the heritage values of Oran Park House and the existing landscape character is not affected. | Yes |
| *Views and vistas*<br>• Does the proposal obscure or compromise important views?<br>• Does the proposal dominate the skyline and reduce the quality of vistas?<br>• Does the proposal respect the viewing rights of other advertisers? | • The proposal does not obscure or compromise important views or dominate the skyline. There are no other advertisers. | Yes |

| SEPP 64 – Schedule 1 | Proposal | Compliance |
|---|---|---|
| *Streetscape, setting or landscape*<br>• Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape?<br>• Does the proposal contribute to the visual interest of the streetscape, setting or landscape?<br>• Does the proposal reduce clutter by rationalising and simplifying existing advertising?<br>• Does the proposal screen unsightliness?<br>• Does the proposal protrude above buildings, structures or tree canopies in the area or locality?<br>• Does the proposal require ongoing vegetation management? | • The scale, proportion and form of the proposed signage is appropriate for the landscape setting and size of the Catherine Park subdivision.<br>• Graphics on the signs will be of high quality and notify of the changing character of the area from rural to urban land. It therefore contributes to the visual quality of the landscape.<br>• Signage only relates to the subdivision of Catherine Park and will not result in visual clutter.<br>• The proposal is located within rural land transitioning to urban land uses. There is no area of unsightliness. | Yes |
| *Site and building*<br>• Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located?<br>• Does the proposal respect important features of the site or building, or both?<br>• Does the proposal show innovation and imagination in its relationship to the site or building, or both? | • The proposal is compatible with the scale, proportion and other characteristics of the future subdivision of Catherine Park.<br>• The signs are small scale billboard signs primary used to advertise the development. Graphics will be of high visual quality and updated as necessary. This will ensure that signs are well maintained and remain contemporary in graphic style whilst they are in use. It should be noted that these signs are not permanent fixtures within the landscape. | Yes |
| *Associated devices and logos with advertisements and advertising structures*<br>• Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed? | • This is not relevant to this application. | Yes |

| SEPP 64 – Schedule 1 | Proposal | Compliance |
|---|---|---|
| *Illumination*<br>• Would illumination result in unacceptable glare?<br>• Would illumination affect safety for pedestrians, vehicles or aircraft?<br>• Would illumination detract from the amenity of any residence or other form of accommodation?<br>• Can the intensity of the illumination be adjusted, if necessary?<br>• Is the illumination subject to a curfew? | • The proposed bill board signs will be illuminated in a similar manner to existing billboard signs in close proximity to the subject land. Illumination will be controlled to ensure minimal light spill, and therefore, there will be no adverse impacts on safety or residential amenity. | Yes |
| *Safety*<br>• Would the proposal reduce the safety for any public road?<br>• Would the proposal reduce the safety for pedestrians or bicyclists?<br>• Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas? | • Given the size and clearances of the proposed billboard signs, the proposal will not result in any adverse impacts on road safety. | Yes |

The proposed signage will therefore not have a significant impact on the surrounding environment and is considered satisfactory under SEPP 64.

#### 7.1.1.6 Sydney Regional Environmental Plan No. 20

The Sydney Regional Environmental Plan No. 20 (SREP 20) applies to the entire Hawkesbury-Nepean River catchment and sets out the policy framework to protect the environmental significance of the catchment. Clause 6 of the SREP 20 includes policies and strategies that must be considered when determining development proposals within the catchment.

A detailed review of compliance with the policies and strategies in SREP 20 is provided in Appendix 9.

### 7.1.2 Local Environmental Plans

The State Environmental Planning Policy (Sydney Region Growth Centres) 2006 prevails over Camden Local Environmental Plan 2010 (LEP). Accordingly, the LEP does not apply to the subject land.

## 7.2 Camden Growth Centre Precincts DCP 2013

Section 79C of the Environmental Planning and Assessment Act 1979 requires assessment of Development Applications under the provision of relevant Development Control Plans. The Camden Growth Centres DCP came into force in April 2013 and includes general controls that guide development within the Growth Centres in the Camden LGA. In addition, the Camden Growth Centres DCP includes 'Schedule 4' which provides Precinct-specific controls for the Catherine Fields (Part) Precinct. Accordingly, the proposal requires assessment against the controls in Schedule 4 where relevant to the Development Application.

The Catherine Fields (Part) Precinct Indicative Layout Plan (ILP) provides a guide to the urban layout of the Precinct. It has been informed by the extensive background investigative studies such as ecology, contamination, land capacity, noise, transport, Aboriginal and European Heritage, water management, economy, and requirements for community facilities and open space. The outcomes of these studies have been translated into the ILP, which has informed various DCP planning controls applying to the subject land.

The ILP provides a broad indication on how the Precinct is to be developed and shows the general street layout, location of land uses, open space areas, and key infrastructure assets such as electricity easements, riparian corridors and heritage conservation areas. Notwithstanding, the ILP design is 'indicative' and can be changed during the detailed design process, as long as the principles and vision of the DCP are achieved.

Tables 10 and 11 below assess and provide explanation on how the proposal is consistent with the development controls for residential subdivision in the DCP and Schedule 4. Table 10 includes the general DCP provisions and Table 11 incorporates the specific design standards from Schedule 4 in the DCP.

Table 10 – Compliance with DCP

| DCP Control | Proposal | Compliance |
|---|---|---|
| **2.2 The Indicative Layout Plan** | | |
| All development applications are to be generally in accordance with the Indicative Layout Plan. Any variations must be consistent with the Precinct Planning vision in the relevant Precinct Schedule. | The proposal as described in Section 5 of this SEE is generally consistent with planning and design principles of the ILP and wider vision for Catherine Park established in Schedule 4 of the DCP. | Yes |
| **2.3 Site analysis** | | |
| **2.3.1 Flooding** | | |
| No residential allotments are to be located within the 1% AEP flood extent as shown in Figure 2-2 of the Precinct Schedule. | No residential allotments are proposed within flood prone land as identified in Figure 2-2. | Yes |
| Roads are to be designed to ensure suitable evacuation routes are provided in accordance with Council's Floodplain Risk Management Policy. | The proposed street design is a permeable grid network and is designed to enable safe and suitable evacuation routes away from the risk in the event of flooding. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| **2.3.3 Water cycle management** | | |
| Stormwater management is to be in accordance with Council's Engineering Specifications. | Details of stormwater management have been included in the Stormwater Management Strategy enclosed with this proposal. The Strategy is in accordance with Council's Engineering Specifications. | Yes |
| Trunk drainage is to be provided in accordance with Figure 2-3 of the Schedule 4. | The locations and configuration of the proposed drainage basins are consistent with Figure 2-3. | Yes |
| Roads on primary drainage lines are to be designed in accordance with Figure 2-3 of the Schedule 4 and Council's Engineering Specifications. | Streets along drainage lines have been design to meet the standards in Council's Engineering Specifications. Refer to detailed engineering plans are enclosed in with the proposal. | Yes |
| Pre-development flows are to be maintained. | A detailed Stormwater Management Strategy has been prepared by Brown Consulting that confirms that pre-development flows will be maintained. | Yes |
| Water quality treatment facilities are to be constructed in accordance with the Precinct Water Management Cycle and the Council's Engineering Specifications. The water quality targets contained in Table 2-1 must be met. | A detailed Stormwater Management Strategy has been prepared by Brown Consulting that confirms that the targets included in Table 2-1 are met. | Yes |
| Trunk drainage channels are to be designed as naturalised channels. | The engineering design prepared by Brown Consulting and provided with this Development Application complies with this requirement. | Yes |
| **2.3.3 Salinity and soil management** | | |
| Salinity issues are to be addressed. All works are to comply with the Western Sydney Salinity Code of Practice 2004. | Salinity risk areas are identified in Figure 2-4 of the Schedule 4. Areas with moderate to high salinity potential are identified within Stages 1 - 3. As such a salinity management plan has been prepared by Douglas Partners. The plan addresses salinity issues and is enclosed in this proposal. | Yes |
| Soil and Water Management Plans are to be prepared in accordance with Managing Urban Stormwater – Soils and Construction prepared by Landcom (3rd Edition, March 2004). | Erosion and sediment control measures will be implemented prior to and during construction.<br>Management plans have been prepared by Brown Consulting are provided with this Development Application. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| **2.3.4 Aboriginal and European heritage** | | |
| Aboriginal archaeological sites identified in Figure 2-5 of the Precinct Schedule are to be addressed. | To understand the potential impacts of subdivision on Aboriginal archaeological sites, Kelleher Nightingale Consulting were commissioned to provide a report which is included in this proposal.<br><br>Two aboriginal archaeological sites CFPP-002 and CFPP-007 will be impacted by the stage 1 subdivision and riparian rehabilitation associated within this development application.<br><br>Site CFPP-002 is identified as having moderate scientific significance as it remains an intact archaeological site.<br><br>Site CFPP-007 is a highly disturbed site by factors including flooding, gradient, erosion and colluvial deposits. Though Aboriginal objects exist within this area, Kelleher Nightingale have identified CFPP-07 as having low scientific value because they are far removed from their original human context due to the disturbed nature of the land.<br><br>An Aboriginal Heritage Impact Permit is required for both these sites before development can take place. This will be issued by the NSW Office of Environment and Heritage following approval of this Development Application. | Yes |
| European heritage conservation sites identified in Figure 2-6 of the Precinct Schedule are to be retained. A Heritage Management Document and Heritage Report are to be submitted with the Development Application. | Two heritage driveways are located within the proposed State Heritage Register Curtilage. Robbins Lane (formerly Dawson-Damer Drive) and Graham's Drive (formerly Moore's Prospect) will be retained as landscaped green links with key pathway connections, as detailed in Section 5 for this report. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| **2.3.5 Native vegetation and ecology** | | |
| Areas identified as Environmental Conservation in the ILP and Figure 2-3 of the Precinct Schedule is to be retained and rehabilitated where possible. | The proposal incorporates the protection and maintenance of riparian corridor land within the site.<br><br>A VMP has been prepared and is included with this proposal. The VMP provides for regeneration and revegetation works to be undertaken within the riparian corridors indicated in Figure 2-3. | Yes |
| Native vegetation located in land identified as Riparian Corridor in the ILP and Figure 2-3 of the Precinct Schedule is to be conserved and managed in accordance with Guidelines for Riparian Corridors on Waterfront Land prepared by the Office of Water. | The VMP documents how native vegetation within the Riparian Corridor will be conserved and managed in accordance with the Waterfront Lands Strategy. Accordingly, the proposal is consistent with the DCP and will guide revegetation and management works to restore the key natural assets across the site. | Yes |
| Development adjoining land zoned E2 Environmental Conservation is to ensure that there are no detrimental impacts to the vegetation within the zone. | Drainage facilities with appropriate landscape treatments, wide green links with pathways and landscape street verges are proposed adjacent to the E2 zoned areas. These treatments will ensure these are no adverse impacts on the E2 zoned areas. | Yes |
| A landscape plan is to be submitted with all subdivision Development Applications. | A Landscape Master Plan has been prepared by Sturt Noble and Associates and is included with this Development Application. | Yes |
| **2.3.6 Bushfire hazard management** | | |
| Development is to be consistent with PBFB 2006. | Eco Logical Australia Pty Ltd has prepared a Bushfire Protection Assessment for the subject site. The bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development, consistent with *Planning for Bush Fire Protection 2006*. | Yes |
| The indicative location and widths of APZs are to be provided in accordance with Figure 2-7 of the Precinct Schedule. | The Bushfire Protection Assessment prepared for the subject site provides APZs consistent with Figure 2-7 of the Precinct Schedule. The location and widths are provided in the attached Bushfire Protection Assessment. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| **2.3.7 Site contamination** | | |
| A Stage 1 Preliminary Site Investigation is to be submitted with all subdivision Development Applications. | A contamination assessment was prepared during the Precinct Planning phase which fulfils the requirements of a Stage 1 Preliminary Investigation. The Phase 1 Preliminary Investigation is listed on the Growth Centres internet page for the Catherine Fields Precinct. | Yes |
| A Stage 2 Detailed Site Investigation is to be prepared for areas identified as having potential or actual site contamination. Where contamination is identified a RAP is required to be submitted with the Development Application. | A Phase 2 Detailed Site Investigation has been prepared for Stages 1-3 and is enclosed with this proposal.<br><br>The Phase 2 Contamination Assessment has been prepared to further assess the contamination and suitability of the site for residential development with associated open space.<br><br>AEC 4 is within the northern portion of the subject site and is to be further investigated and potentially remediated. Prior to works occurring in this area, additional investigation is therefore necessary. | Yes |
| **2.3.9 Noise** | | |
| An acoustic report is to be submitted with the Development Application where noise attenuation measures are required. | An acoustic assessment has been undertaken in accordance with the requirements of the Infrastructure SEPP. Where applicable, noise attenuation requirements will be adopted in accordance with the Infrastructure SEPP.<br><br>The traffic assessment report by Christopher Hallam and Associates submitted with this Development Application provides traffic volumes for Catherine Park Drive, Graham's Drive and collector streets. The Hallam report also includes the projected traffic flows for Oran Park Drive, which were prepared during the Precinct Planning process. Impacts of road noise emissions are assessed in Section 4.3.6 of this SEE. | An acoustic assessment is included in Section 7.4.7 of this SEE to inform acoustic attenuation requirements for residential development. |

| DCP Control | Proposal | Compliance |
|---|---|---|
| **2.6 Earthworks** | | |
| Subdivision and building work is to be designed to respond to the natural topography of the site wherever possible, minimising the extent of cut and fill both during subdivision and when buildings are constructed. | Brown Consulting has designed the earthworks strategy for the site and estimate that approximately 105,000m$^3$ of fill will be imported into the site. The proposed allotments will be graded with gentle slopes. This approach ensures that the natural topography of the site is responded to and retained.<br><br>Details of the bulk earthworks are described in Section 5 of this SEE and are also provided in the road and drainage plans submitted with this Development Application. | Yes |
| A Validation Report is required to be submitted to Council prior to the placement of imported fill on site. All fill shall comply with the NSW Office of Water – "Site Investigation for Urban Salinity" and the OEH Contaminated Sites Guidelines – "Guidelines for the NSW Site Auditor Scheme (2nd edition) – Soil Investigation Levels for Urban Development Sites in NSW". | In addition to fill material to be imported into the site, it is also envisaged that material will be obtained from to the north of South Creek. Prior to importation from either off site or from other parcels held by the proponent, appropriate validation of the material will be arranged to ensure suitability for residential use. | Yes |
| **3.2 Neighbourhood and subdivision design** | | |
| **3.2.1 General controls** | | |
| A permeable and legible street network is to be provided. | The proposed development has been designed with a grid-based network, ensuring permeability and legibility throughout the subdivision layout. Importantly, the street network will typically provide easy access options to move north-south and east-west within the local street network and connections to the regional road network. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| Street blocks are to be generally a maximum of 250m long and 70m deep. Block lengths in excess of 250m may be considered by Council where pedestrian connectivity, stormwater management and traffic safety objectives are achieved. | The design incorporates a grid based street network. One street blocks is slightly longer than 250 metres. Notwithstanding, this block has a configuration and location that ensures a safe, efficient and legible street network is achieved by minimising the number of connections to collector streets. In addition, a high standard of pedestrian connectivity and stormwater management requirements are maintained.<br><br>The proposal therefore complies with the objectives to allow street blocks greater than 250 metres in length. | Yes |
| Residential lots should be rectangular in geometry. | Residential lots within Stages 1, 2 & 3 are generally rectangular in shape and geometry. Lots that do have slightly irregular shapes have been designed to ensure a residential building can be suitably built within the lot in compliance with the DCP requirements. | Yes |
| 3.2.2 Residential character | | |
| The residential density target is 15 dwellings per hectare with a small portion west of Catherine Park Drive 20 dwellings per hectare. | The baseline residential density across both the 15 and 20 dwellings per hectare density areas delivers a dwelling yield of 412 dwellings for the subject site.<br><br>In comparison, the proposed area within the subdivision will deliver 464 dwellings within the same area. Accordingly, the proposal will deliver significantly higher density (additional 52 dwellings) than the corresponding area in the Catherine Field Precinct (Part) Indicative Layout Plan.<br><br>Given there is an additional 52 dwellings than would be delivered under the baseline requirements for the subject site, the residential density targets are exceeded, and therefore the requirements of this provision are achieved. This additional uplift is to be used to offset dwelling densities in future development proposals. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| Development is to be generally in accordance with Figure 2-10 of the Precinct Schedule. | The residential structure proposed for the development includes minor modifications from Figure 2-10. The proposal includes a greater amount of medium density sites than shown in Figure 2-10 and does not adopt a street along the alignment of Robbins Lane. | There are minor differences but proposed layout is consistent with DCP objectives |
| The orientation and configuration of lots is to be generally consistent with Figures 3-1 and 3-2. | Residential lots have been designed to achieve solar access with the majority generally located in a north--south orientation to maximise solar access. | Yes |
| Diversity in lot sizes is to be provided. | It is proposed to have a variety of sizes in residential allotments throughout the subdivision ranging from 389m$^2$ to 826m$^2$. In addition, the proposal seeks approval for 18 superlots for integrated housing which will provide medium density, small lot product in the future. | Yes |
| **3.2.3 Street network and design** | | |
| Street cross sections are to be in accordance with the 'typical designs' in Figures 3-3 - 3-7. Notwithstanding, Control 4 states that 'Alternative street designs for local streets and access ways may be permitted on a case by case basis if they preserve the functional objectives and requirements of the design standards.' | The street cross sections proposed for this development are different to the 'typical designs' for streets in Figures 3-3 - 3-7. Control 4 enables alternative street designs to the 'typical designs' illustrated in the DCP if the functional objectives and requirements are maintained.<br><br>This Development Application is proposing streets under a merit-based assessment and further detailed explanation on the assessment for alternative street designs is outlined in Section 7.2.2 of this SEE. This includes demonstration on how the functional objectives and requirements for the alternative street designs are satisfactorily achieved. | Proposed streets are different to 'typical designs' for streets in Figures 3-3 – 3.7. However, complies with requirements of Control 4 for alternative streets designs. (Refer to Section 7.2.2 of this report) |

| DCP Control | Proposal | Compliance |
|---|---|---|
| All identified bus routes are to have at least 3.5m travel lane. | Catherine Park Drive includes a dedicated lane for bus use during peak hours with a width of 3.5 metres, and all travel lanes within this transit boulevard are 3.5 metres.<br><br>The collector streets identified as a 'bus route' also have 3.5 metre travel lanes. Other bus capable routes have been designed with a carriageway width of 10.6 metres including two travel lanes of 3.2 metres. As bus capable routes will used less frequently, if at all, this is considered to be appropriate. It is also acknowledged that the 3.2 metre travel lanes is consistent with the desirable width for bus lanes as identified by the State Transit Authority. | Yes |
| Alternative street designs for local streets and access ways may be permitted on a case by case basis if they preserve the functional objectives and requirements of the design standards. | This development proposal provides alternative street designs as a merit-based assessment, which achieve the functional objectives and requirements. The proposed merit-based streets are supported by various assessments, including a comprehensive analysis of residential streets (Appendix 1), a Traffic Impact Review enclosed with the application, and an independent study by industry leaders in transport and design (Appendix 2). is provided with this SEE that demonstrates how the functional objectives and requirements can be achieved.<br><br>Importantly, the modified street designs, with alternative carriageway widths, encourage slower traffic speeds and improves residential amenity and pedestrian safety. Ultimately this enhances the residential character for the community and provides a more liveable residential environment. Alternative designs to the 'typical' street cross sections in the DCP are further discussed in Section 7.2.2 of this report. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| Roads are to be constructed generally in accordance with Figure 2-11 of the Precinct Schedule. | The proposed street network and design incorporates a regular grid based street layout that is generally in accordance with Figure 2-11 of the Precinct Schedule and the ILP.<br><br>The proposed grid street layout provides regular interconnections to minimise travel distances and provide a choice of exits and access routes. | Yes |
| Variations permitted to precinct road hierarchy if DCP requirements are satisfied. | The proposed street network is consistent with the Precinct street hierarchy. In particular, collector streets are provided in accordance with the hierarchy plan and local streets generally follow the layout. | Yes |
| For changes to the proposed road system which Council considers major, Council may require a formal application for amendment to the DCP map before determining the application. | The street hierarchy proposed in this application is generally consistent with the layout within the ILP and street hierarchy of the DCP. No amendment to the DCP is therefore necessary. | Yes |
| Verge widths may be reduced to 1m where adjoining open space, drainage, or major roads. | Where the verge adjoins open space, drainage or major roads a reduction to 1m has been accommodated. | Yes |
| Intersections are to be designed in accordance with Council's Engineering Specifications. | All internal intersections will be designed to accommodate turning movements of a Camden Council Garbage Truck, which is demonstrated by the garbage circulation plans enclosed in the application. A minimum kerb return radius will be adopted in accordance Camden Council Engineering Design Specification. Additionally, careful consideration has been given to likely bus turning movements associated with bus routes through the subdivision planned to serve the existing school. | Yes |
| Street trees are required for all streets and are to be provided at a minimum of 1 tree per residential lot or 1 tree every 10 metres.<br><br>Street tree species are included in Appendix C. | A Landscape Master Plan is provided with this Development Application. Street trees are to be planted at the rate identified in the DCP. | Yes |
| Signage and street lights are to be identified on the Landscape Plan and engineering plans submitted with the application. | Street signage and street lights will be provided in accordance with relevant Australian Standards. A line marking plan identifying signage and street light locations will be provided to Council prior to the issue of the Construction Certificate. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| Access Streets are to be designed in accordance with Figure 3-7 and serve a maximum of 10 dwellings. | As outlined above, merit-based street designs are provided to supplement the 'typical street' design standards in the DCP. The alternative designs are to be considered under a merit-based assessment in accordance with the allowances for alternative designs, which is discussed in detail in Section 7.2.2 of this report. | Proposed streets are different to 'typical designs' for streets in Figure 3.7. However, complies with requirements of Control 4 for alternative streets designs. (Refer to Section 7.2.2 of this report) |
| The carriageway width of an access street may be reduced to a minimum of 6.5 metres subject to consideration of traffic volumes and road safety issues. | Access streets are proposed to have a minimum carriageway width of 5.5 metres under a merit-based assessment. | Proposal does not adopt these allowances. However, complies with requirements of Control 4 for alternative streets designs. (Refer to Section 7.2.2 of this report) |
| 3.2.4 Pedestrian and cycle network | | |
| Pedestrian and cycle routes are to be generally in accordance with Figure 2-12 of the Precinct Schedule. | Pathways within street verges maintain the principles of Figure 2-12 by promoting pedestrian and cycling activity throughout the site. | Yes |
| The minimum width of a share path is 2.5 metres. | All share paths have been designed with a width of 2.5m to accommodate pedestrian and cycling movements. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| Pedestrian and cycle routes are to be consistent with Planning Guidelines for Walking and Cycling, prepared by the DPI and RMS and Council's Engineering Specifications. | Pedestrian pathways and share paths have been designed in accordance with Council's Engineering Specifications. Details of all pathways are provided on the Engineering Plans prepared by Brown Consulting and submitted with this development application. | Yes |
| **3.2.7 Lot dimensions for residential subdivision** | | |
| Lots are to have a minimum frontage of 10 metres. | The minimum lot frontage as defined in the DCP for the proposed development is 13m at the main front building line. | Yes |
| A mix of lot frontage widths are to be provided. | Lot frontages in the proposed subdivision design vary and range in size from 13m to over 20m. | Yes |
| No more than 3 lots in a row of the same frontage is permitted. | The subdivision design does not include any more than three lots in a row with the same frontage width. | Yes |
| Minimum lot sizes are to be in accordance with Table 3-1. | All residential allotments satisfy the minimum frontage and lot size requirements. Lots provided on corners are a minimum 15m in width and are equal or above 450m$^2$ in size (including the area for truncation) | Yes |
| **3.2.9 Corner lots** | | |
| Corner lots are to be designed in accordance with AS2890 and Council's Engineering Specifications. | Corner lots typically have splays of 4m x 4m. These splays satisfactorily accommodate all turning, stormwater and servicing requirements, and are therefore considered appropriate for the subdivision. | All traffic, servicing and stormwater management requirements are achieved. |
| **6.6.2 Signage and Lighting** | | |
| Signage is to relate to the use occurring on the respective property, and should identify the relevant business name. | Proposed billboard signage relates to the progressive subdivision of Catherine Park and marketing of residential lots. The location of the signage is shown in Figure 18 with three separate locations along Oran Park Drive. Signage will be located within the site boundary and identify the business name, contact details and sale information relevant to the development. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| Business identification signage should be attached to the wall of the main building and be designed to complement the architectural style of the building. Free standing signs will only be permitted where signs are integrated with the landscaping and visual character of the site and surrounding area. | Free standing billboard signage is proposed. These signs will be provided at key locations only along Oran Park Drive as shown in Figure 18. The design of the signage, including the proposed locations achieves an appropriate balance between integration into the surrounding landscape and the need for easy identification. | Yes |
| Details of all signage, including free standing, fascia, and wall signs must accompany Development Applications. | Three billboard signs are proposed within the development site in the location identified in Figure 18.<br>The signs will have a maximum area of 32m$^2$ and dimensions of 8m by 4m.<br>The height above ground of the signs will be less than 8m.<br>The facia of the signs will be updated as necessary to ensure that they remain in good condition and relevant to the Catherine Park development. | Yes |
| The design and lux of any internal or spot lighting shall be designed to avoid off-site or traffic safety impacts. | The proposed bill board signs will be illuminated in a similar manner to existing billboard signs in close proximity to the subject land. Illumination will be controlled to ensure minimal light spill, and therefore, there will be no adverse impacts on safety or residential amenity. | Yes |
| No form of moving or flashing signage or lighting is permitted. | No moving or flashing signage is proposed. | Yes |
| Signage is not to have a detrimental impact on the visual character of the site or surrounding area. | Signs have been located to reduce any potential impacts on the visual character of the site or surrounding area. The locations of the signs are not within the immediate vicinity of Oran Park House and therefore there are no visual impacts on the outlook from or to the heritage property. | Yes |
| All lighting must comply with AS 1158 – Lighting for Roads and Public Spaces and AS 4282 – Control of the obtrusive effects of outdoor lighting. | Lighting will be provided in accordance with these requirements. | Yes |

Table 11 – Compliance with Schedule 4

| DCP Control | Proposal | Compliance |
|---|---|---|
| **2.3 Rickard Road extension Transit Boulevard** | | |
| Rickard Road extension Transit Boulevard, within the Precinct, is to be designed in accordance with Figure 2-14 Indicative Rickard Road Transit Boulevard section and the following objective:<br>*To provide a safe and convenient public transport route that incorporates a shared pedestrian /cycleway and promotes a future public transport connection to the Leppington Major Centre.* | The proposal is generally consistent with the 'indicative' section in Figure 2-14 with a minor reduction to the width of the median from 4.2m to 4m. | Proposed median width is adequate for landscaping and its function to separate the north and south bound carriageways. |
| **2.4 Public transport** | | |
| Roads identified as Bus Routes and Bus Capable Roads in Figure 2-13 are to accommodate bus movements. | In addition, to the Catherine Park Drive transit boulevard, all 'Bus Routes' and 'Bus Capable Roads' in Figure 2-13 are identified as collector streets and have been designed to accommodate buses. | Yes |
| **2.5 Open Space and Recreation Network** | | |
| Local sporting fields, neighbourhood parks, recreation activity nodes and other passive open space areas (i.e. environmental conservation and riparian corridors) are to be provided generally in accordance with **Figure 2-16** and **Table 2-2**. | The proposal provides the Neighbourhood Park designated in the DCP as "LP3" generally consistent with the location and size criteria. The park is approximately 3,322m$^2$ and will be suitably embellished with facilities suitable for a local neighbourhood park. In addition, Riparian Corridors are provided as shown in Schedule 4. | Yes |
| The minimum provision of open space and facilities including embellishment is to be consistent with the *Catherine Fields (Part) Precinct Section 94 Contributions Plan*. | The proposal complies with this requirement through the provision and embellishment of the local neighbour park identified as LP3. | Yes |
| Neighbourhood parks are to have a minimum area of 3,000m$^2$ and associated principles. | The area identified as public open space for a local park has an area of 3,322m$^2$. It is therefore consistent with this DCP requirement and the subdivision design also ensures that dwellings are within 400m of open space. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| The detailed design of local sporting fields, neighbourhood parks, recreation activity nodes and other passive open space areas is to be generally in accordance with the *Catherine Fields (Part) Precinct Public Domain and Landscape Strategy* (AECOM, October 2013) and *Catherine Fields (Part) Precinct Cultural Heritage Interpretation Strategy.* | LP3 has been designed in accordance with the DCP and relevant strategic plans. The accompanying landscape plans show a mix of plantings, including native vegetation within neighbourhood parks to promote an attractive aesthetic and character, and to ensure adequate shade is provided in summer and solar access in winter. | Yes. |
| **4.1 Development surrounding Oran Park House** | | |
| Applications for subdivision and development within the Oran Park House State Heritage Register curtilage (as proposed) shown in **Figure 4-1** will require consent from the Heritage Council of NSW and shall address the requirements of the *NSW Heritage Act 1977.* | Oran Park House is a locally listed item in Appendix 9 Schedule 5 (Item 18) of the Growth Centres SEPP.<br><br>There is no Interim Heritage Order for Oran Park House. Accordingly, as Oran Park House is a locally listed heritage item, there is no requirement for referral to the Heritage Council for assessment as Integrated Development.<br><br>Notwithstanding the above, the proposal elevates the status of Oran Park House and grounds within the landscape and is accordingly consistent with the heritage curtilage requirements of the DCP. | Yes |
| Applications for subdivision and development within Areas of Historical Archaeological Potential shown in **Figure 2-6** shall be accompanied by a report prepared by a suitably qualified heritage consultant detailing the results of archaeological investigations undertaken to confirm the presence of archaeological material relating to Oran Park House and Garden. Where archaeological material is identified, the proposal is to address the requirements of the *NSW Heritage Act 1977.* | A report has been prepared by Tropman and Tropman Architects and is submitted with this application which satisfies these DCP requirements.<br><br>The report has concluded that the proposed subdivision has a low to moderate potential of uncovering archaeological material. Further, should any archaeological remains be uncovered, appropriate standard management measures will be implemented to enable them to be investigated, monitored and recorded. | Yes |
| The historic Dawson-Damer driveway shall be retained as a pedestrian/cycleway within the road reserve of the proposed Dawson-Damer Drive and consistent with one of the three options illustrated in **Figure 4-6**. The existing trees along the heritage driveway are to be retained as far as practicable. | The historic Robbins Lane (formerly Dawson-Damer Drive) will be retained as a linear park containing a pedestrian/cycle pathway along its entire length. The proposal includes a more generous width for the former driveway and generally adopts the Options detailed in Figure 4-6. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| New street trees are to be provided in accordance with **Figure 4-6**. The trees shall be up to 6m in height and 5m in width at maturity and contrast with the existing line of eucalypts along the eastern side of the historic driveway. | Street trees are provided in accordance with Figure 4-6 and will provide an attractive green corridor along Robbins Lane. The selected tree species along Robbins Lane is *Pyrus ussuriensis*. Given the soil characteristics and environmental conditions within the site, this tree is unlikely to achieve its full growth potential. Notwithstanding the above, the height and width of trees can be contained by incorporating measures such as root barriers at planting. | Compliant with DCP objectives. |
| The Moore's Prospect driveway is to be generally consistent with **Figure 4-7**. | The proposed design for Graham's Drive is generally consistent with Figure 4-7. The driveway will be retained as a shared off-street pedestrian and cycle path as envisioned in the ILP, and Pedestrian and Cycle Network Plan of Schedule 4. | Yes |
| Street tree plantings along the view lines identified in **Figure 4-1** are to be limited to trees up to 5m in height at maturity and that contrast with plantings associated with Oran Park House. | Street trees along southern side of Graham's Drive are proposed to be *Angophora floribunda.* Whilst a different street tree is foreshadowed within the curtilage area, this is considered to be appropriate in this instance as:<br>• It creates consistency with the wider street tree plantings along Graham's Drive. Introducing new street trees would fragment and provide an inconsistent streetscape, thus detracting from the view corridor.<br>• The width of Graham's Drive along with the adjacent riparian corridor and Graham's walk provides an unimpeded view corridor.<br>• Landscaping within Graham's Drive on the northern side of pathway can be provided in accordance with the DCP requirements.<br>The proposed street tree plantings will therefore have no detrimental impact on the view corridor from Oran Park House along Graham's Drive. | Compliant with DCP objectives. |

| DCP Control | Proposal | Compliance |
|---|---|---|
| **4.4 Australasian Bittern habitat protection** | | |
| The design and construction of development, including drainage, sewerage and flood mitigation works, on land zoned E2 Environmental Conservation along South Creek is to be generally consistent with the *Catherine Fields (Part) Precinct: Australasian Bittern Habitat* paper (EcoLogical Australia, October 2013). | EcoLogical Australia (ELA) has prepared a Flora and Fauna report and VMP for the subject site. Both plans are provided with this Development Application. All drainage plans submitted with this application and prepared by Brown Consulting are consistent with these requirements.<br><br>ELA confirm that the proposal will not impose a detrimental impact on the Australasian Bittern habitat. | Yes |
| Applications for subdivision and development within and/or adjacent land zoned E2 Environmental Conservation along South Creek, as shown on the Indicative Layout Plan (refer to **Figure 2-1**), shall be accompanied by a Flora and Fauna Assessment prepared by suitably qualified ecologist addressing potential impacts on the Australasian Bittern and its habitat, including a 7-Part Test of Significance under the *Threatened Species Conservation Act 1995* and Assessment of Significance under the *Environmental Protection and Biodiversity Conservation Act 1999*. This assessment must include a survey meeting the requirements of the SEWPaC SPRAT Database (Species Profiles and Threats Database) and the *Catherine Fields (Part) Precinct: Australasian Bittern Habitat* paper (EcoLogical Australia, October 2013), including being conducted during the Summer/Spring breeding season. | ELA has prepared a Flora and Fauna report for the subject site in accordance with the requirements of this requirement. | Yes |
| The first application for subdivision within and/or adjacent to land zoned E2 Environmental Conservation shall be accompanied by a Vegetation Management Plan prepared by a suitably qualified ecologist. The Plan shall address all works proposed within and adjacent the E2 Environmental Conservation land and specifically, the protection, enhancement and creation of Australasian Bittern habitat. | ELA has prepared a VMP for the subject site and is provided with this Development Application. The VMP provides specific detail to ensure protection of the Australasian Bittern habitat. | Yes |

| DCP Control | Proposal | Compliance |
|---|---|---|
| The design of the Riparian Corridor and E2 Environmental Conservation land is to identify and assess opportunities for protection, enhancement and creation of Australasian Bittern habitat (i.e. existing in-stream (on-line) dams and wetlands). A minimum of two habitat areas shall be identified, including the existing "Southern Wetland" habitat area identified in Figure 2-3. | ELA has prepared a VMP for the subject site which includes the two habitat areas for the Australasian Bittern. | Yes |
| The design of habitat areas, including the "Southern Wetland" habitat area identified in Figure 2-3, shall be generally consistent with the indicative cross-section for in-stream Australasian Bittern habitat (refer to Figure 4-10) and shall consider fish passage. | The VMP provides detailed design requirements for the Australasian Bittern habitat and the provision of a continuous creek to allow fish passage. | Yes |

## 7.3 'Merit-Based' Assessment and DCP Standards and Objectives

The Development Application proposes design outcomes that are different to some standards in the Camden Growth Centre Precincts DCP, in particular with the residential street designs. Notwithstanding, there are various allowances that enable a responsible authority to consider alternative development solutions to the prescribed DCP requirements in the planning legislation and within the DCP itself.

This proposal seeks to adopt best practice design outcomes under a 'merit-based' assessment basis as the proposed street standards are different to the 'typical' and 'indicative' requirements outlined in the DCP. Despite the differences in the standards, the proposed outcomes comply with the capacities for a responsible approval authority to consider variations to the DCP which are supported with detailed information to justify the proposed outcomes. Accordingly, Council's support for a 'merit-based' assessment with regard to the differences to the DCP is sought based on the information below.

### 7.3.1 Policy Context for Considering 'Merit-Based' Variations to DCPs

The *Environmental Planning and Assessment Act 1979* (EPAA 1979) provides flexibility in the application of controls in a DCP. In March 2013 the EPA&A 1979 was amended to enable councils to apply a DCP as a 'flexible guideline', which was explained in NSW Department of Planning and Infrastructure's Circular PS 13-003.

The amendment clarifies that DCP provisions are not mandatory, statutory requirements, and to apply DCP provisions in this manner is inconsistent with the intent and direction of the EPA&A 1979. Furthermore, the explanation in the Circular PS 13-003 states that Section 79C(3A) requires council to be flexible when applying DCP provisions and to allow alternative solutions.

Section 79C(3A) reads as follows:

> *(3A) Development control plans*
>
> *If a development control plan contains provisions that relate to the development that is the subject of a development application, the consent authority:*
>
> *(a) if those provisions set standards with respect to an aspect of the development and the development application complies with those standards—is not to require more onerous standards with respect to that aspect of the development, and*
>
> *(b) if those provisions set standards with respect to an aspect of the development and the development application does not comply with those standards—is to be flexible in applying those provisions and allow reasonable alternative solutions that achieve the objects of those standards for dealing with that aspect of the development, and*
>
> *(c) may consider those provisions only in connection with the assessment of that development application.*
>
> *In this subsection, **standards** include performance criteria.*

Subclause (b) clearly enables flexibility in the consideration of DCP standards and the ability to submit a Development Application with alternative standards to the DCP.

In addition to the allowances enabled under the Planning Act, Section 1.7.3 in the Camden Growth Centre Precincts DCP titled 'Variations to Development Controls and DCP Amendments' outlines that variations to the DCP are possible providing the variations are justified in writing by demonstrating how the development will meet the objectives of the relevant control.

In addition to the general allowances in the DCP to vary standards, Control 4 under Section 3.2.3 in the Camden Growth Centre Precincts DCP titled 'Street network and design' is explicit that alternative street designs can be permitted.

Control 4 reads as follows:

> "Alternative street designs for local streets and access ways may be permitted on a case by case basis if they preserve the functional objectives and requirements of the design standards."

In light of the above, there are various allowances for variations to the DCP facilitated in the *Environmental Planning and Assessment Act 1979,* the general provisions of the Camden Growth Centre Precincts DCP, and the 'typical design' standards in Control 4 under Section 3.2.3 of the DCP. Accordingly, the variations proposed below are permissible and can be approved by the responsible consent authority under a merit-based assessment.

### 7.3.2 Compliance with Street Network Principles

As part of the merit-based assessment, it is first necessary to confirm that the proposal first and foremost satisfies the street network principles in the Camden Growth Centres DCP. Control 7 within Section 3.2.3 of the DCP provides a series of principles that must be met when variations to the established street network is proposed. The proposed design meets the principles included in the DCP, as outlined below.

Table 12 – Consistency with Street Network Principles

| Principle | How Principle is Satisfied | Consistency |
|---|---|---|
| *Create a permeable network that is based on a modified grid system* | The street network and design incorporates a regular grid-based street layout, providing regular interconnections to minimise travel distances and provide choice of access/exit routes throughout the site. | Yes |
| *Encourage walking and cycling* | The street network will encourage walking and cycling throughout the site through provision of pathways within the verge of local streets as well as open space links. Additionally, pedestrian footpaths and share paths are included within the verge of all proposed streets. | Yes |
| *Minimise travel distances for all modes of transport* | The permeable street and pedestrian network provides efficient access to major transport routes. Ultimately this contributes to more efficient trips with shortened travel times. | Yes |
| *Maximise connectivity between residential areas and community facilities, open space and centres* | The proposed layout will provide opportunities for connectivity to future residential development adjoining the site and will promote green pathway links with Oran Park House. | Yes |
| *Take account of topography and site drainage, and accommodate the retention of significant vegetation* | The land is generally flat, sloping gently to the east and does not incorporate significant vegetation. The street layout achieves a simple and legible network that responds to the site and its topography. | Yes |
| *Optimise solar access opportunities for dwellings* | The subdivision layout generally provides lots orientated north-south and east-west to maximise solar access. | Yes |
| *Provide frontage to and maximise surveillance of open space and drainage lands* | The subdivision layout will maximise passive surveillance over open space and riparian land through the provision of residential land, pathways and streets fronting these public spaces. | Yes |
| *Provide views and vistas to landscape features and visual connections to nodal points and centres* | The proposed subdivision layout will reinforce key site views and vistas to Oran Park House, riparian land and landscape features within the site. | Yes |

| Principle | How Principle is Satisfied | Consistency |
|---|---|---|
| *Maximise effectiveness of water sensitive urban design measures* | The street layout will not impact on the provision of water sensitive urban design. | Yes |
| *Ensure that noise impacts from major roads are considered and are able to be effectively mitigated without the use of noise walls* | There are no noise walls or acoustic measures proposed as part of the development. | Yes |
| *Minimise the use of cul-de-sacs* | The proposed street network has been designed to keep cul-de-sacs to a minimum. | Yes |
| *Comply with requirements for PBFP 2006* | The proposed street network complies with all requirements included in PBFP 2006. | Yes |

The review provided above demonstrates that the proposed street network and layout is consistent and achieves compliance with the design principles established under Section 3.2.3, Control 7 of the Camden Growth Centres DCP.

Control 8 permits variations to the locations and alignments of streets shown on the relevant Precinct street hierarchy plan subject to satisfying Council that a series of principles are satisfied. Consistency with principles of Control 8 is provided below.

Table 13 – Consistency with Control 8 Principles

| Principle | How Principle is Satisfied | Consistency |
|---|---|---|
| *Will not detrimentally impact on access to adjoining properties* | The proposal provides a connected grid network with local streets providing direct connections to collector streets. This is consistent with the principles of the ILP and street hierarchy plan. | Yes |
| *Provides for the management of stormwater to drain to Council's trunk drainage network, without negative impacts on other properties,* | The proposal provides stormwater infrastructure, consistent with council requirements. | Yes |
| *Will not impede the orderly development of adjoining properties in accordance with the relevant Precinct Plan and this Development Control Plan,* | The development application is the first stage of a wider development program for Catherine Park. Consistency with the overall street network envisioned within the DCP is achieved. This proposal makes minor modifications to the indicative layout of streets within Stage 1, 2 and 3 of Catherine Park, and accordingly will not impact on adjoining future developments. | Yes |
| *Does not restrict the ability to provide water, sewer, electricity and other essential services to the development or to development on adjoining properties.* | Proposed street modifications do not restrict the ability to provide essential services within the site or to adjoining properties. | Yes |

The proposed residential street network is generally consistent with the ILP and the street hierarchy within Schedule 4 of the DCP. Collector streets have been applied in the subdivision layout as defined in the ILP and have been designed to accommodate their potential for bus services. The residential street network is designed to enable traffic to easily be distributed to collector streets and then on to the broader regional road network. Importantly, it proposed layout encourages pedestrian and bicycle movement in a safe environment, in particular with Robbins Lane, and provides convenient pedestrian access throughout the subdivision.

Given the above, the proposal satisfies the DCP principles and objectives for the street network.

### 7.3.3 Residential Street and Carriageway Functional Principles and Requirements

Important to the merit-based assessment of the proposal is understanding and demonstrating that the proposed streets will achieve the functional objectives and requirements for residential streets.

Detailed analysis of the design and function relationship for residential streets has been undertaken to inform and support the proposed streets in this proposal. The detailed analysis is included in the document titled 'Catherine Park Residential Streets Review' in Appendix 1. In addition, an independent study on residential streets by TTM Consulting, which includes specific detail on street function, is in Appendix 2.

The Catherine Park Residential Streets Review establishes there are four key design principles for providing streets in residential areas. Importantly, residential streets are multifunctional and are not solely for conveying vehicular traffic. More detail is outlined in the enclosed report and the four key principles are summarised as follows:

*Principle 1: Increased functionality*

- Residential streets should be designed to serve a variety of uses and purposes, including:
    - Access to properties
    - Movement
    - Parking
    - Place-making
    - Utilities and services
    - Biodiversity
- Best practice urban design promotes the residential street as an integral part of public space in the residential neighbourhood and not solely a movement corridor for vehicles.
- Residential streets need to accommodate a range of functional requirements to create quality residential neighbourhoods.
- The carriageway of a street is critical to ensuring proper function in movement, access and parking. The carriageway also has a functional role in ensuring residential streets are safe places for pedestrians, cyclists and motorists, and streets provide inviting spaces for all forms of transport.
- The carriageway will affect how people want to use the street, and therefore, directly related with amenity, public safety, and social interaction and community development.

*Principle 2: Improved amenity and aesthetics*

- Human-scale streets provide higher levels of residential amenity.
- More attractive and are more inviting streets are not dominated by large expanses of concrete and asphalt.
- A better mirco-climate is achieved in streets that do not have large expanses of concrete and asphalt.

*Principle 3: Improved safety*

- Vehicles travel at slower speeds where the trafficable space is more contained.
- Vehicles travel at unsafe speeds in residential areas in wide residential streets with large trafficable spaces and low traffic volumes.

*Cars travel at unsafe speeds in wide residential streets. Larger distances between obstacles will promote drivers to travel at faster speeds which reduces safety in residential streets.*

- Appropriate carriageway design based on traffic volumes and parking loads will improve safety in residential streets.

*Principle 4: Encourage greater use by a wider range of users*

- Human-scale streets will encourage more people to use the street for non-vehicle trips, such as walking and cycling.
- Safer streets make streets more accessible for people of all ages and encourage a greater number of people to use them, which means less vehicle trips.
- More people using streets encourages more interaction between neighbours and a stronger sense of community.

In addition to the broader principles above, the functional requirements of the carriageway in a residential street need to be understood. TTM Consulting's specialist explanation of how to determine carriageway widths by understanding the 'basic building blocks' provides a clear approach to confirming the functional requirements of the carriageway. As discussed in Section 4 of this report, TTM explain that a slow moving truck requires 3.2 metres, a moving car requires 2.5 metres and a parked car requires 2 metres.

These building block modules therefore form a robust basis for determining carriageway width in a residential street, and therefore, achieving the functional requirements and objectives of a residential street.

### 7.3.4 Residential Street Standards in DCP and 'Merit-Based' Approach

Control 1 in Section 3.2.3 of the DCP requires that street designs in Catherine Park are to be generally in accordance with the 'typical designs' for streets depicted in Figures 3-3 to 3-7.

Despite the requirements of Control 1, Control 4 provides for 'alternative street designs' that can be considered 'on a case by case basis if they preserve the functional objectives and requirements of the design standards'. The proposed street cross sections for Stages 1-3 for Collector Streets, Local Streets and Access Streets are not consistent with the 'typical' designs in the DCP, and therefore, a variation to the typical designs is being sought for Catherine Park. Table 14 below provides a comparison of the proposed street designs with the typical designs included in the DCP.

Table 14 – Proposed Variations to DCP Typical Designs for Streets

| | DCP Typical Street Designs | | | Proposed Street Designs | | |
|---|---|---|---|---|---|---|
| | Verge | Carriageway | Verge | Verge | Carriageway | Verge |
| Collector Streets | 4.5m | 11m | 4.5m | 3.5m | 10.6m / 11.2m | 3.5m |
| | **20m** | | | **17.6m / 18.2m** | | |
| Local Streets | 3.5m | 9m | 3.5m | 3.5m | 7.2m | 3.5m |
| | **16m** | | | **14.2m** | | |
| Access Streets | 3.5m | 8m | 1.5m | 3.5m | 5.5m | 3.5m |
| | **13m** | | | **12.5m** | | |
| Laneways | Not specified | | | 6.4m | | |
| | | | | **6.4m** | | |

The key difference between the DCP standards and the streets in this merit-based proposal is the carriageway widths, in particular for local streets and access streets. The proposed carriageway for a local street is 7.2 metres as opposed to 9 metres in the DCP. In an access street the proposed carriageway is 5.5 metres where it is 8 metres in the DCP. In regard to collector streets, the carriageways are slightly below or above the DCP standards and the standard verge widths for collector streets are 1 metre less in width.

*Collector Streets*

Below are examples of collector streets with standards consistent with Table 14 above. The DCP street type on the left has an 11m carriageway and the collector street on the right has a 7m carriageway with indented parking.

*DCP 'Typical' Standards Street*

*Proposed Merit-Based Street*

The merit-based street on the right is proposed as it is a superior design outcome for residential neighbourhoods. The street has a dedicated trafficable area with capacity for buses and appropriately located indented parking bays, which enables traffic to move freely within the street. In addition, there is less pavement between the verges, especially where there are no indented parking areas, so people will feel substantially more comfortable crossing the street. There is also a pedestrian pathway on the residential side of the street and a shared path on the side with open space. The proposed street is significantly more attractive as it is less dominated by asphalt and concrete and there is more area for soft landscaping, which enables a significantly better urban design outcome. This street is representative of best practice design in residential streets.

*Local Streets*

Below are examples of local streets standards consistent with Table 14 above. The DCP street type on the left has a 9m carriageway and the local street on the right has a 7.2m carriageway with informal parking on either side of the street.

*DCP 'Typical' Standards Street*

*Proposed Merit-Based Street*

The merit-based street on the right is proposed as it is a superior design outcome for residential neighbourhoods. The trafficable area in the street will change depending on the number of parked cars as informal parking is available on both sides of the street. Two cars can be parked on either side of the street and an appropriate distance between the parked cars allows traffic to flow in either direction. The distance between the parked cars naturally reduces traffic speeds in the local street, which creates a more friendly space for pedestrians and other non-vehicular forms of transport.

As there is less pavement between the verges, people will feel more comfortable crossing the street. The proposed street is more human-scale and more proportionate for a local street. The proposed street is more inviting for people to use and therefore more people will be encouraged to walk to nearby parks, shops and schools. Furthermore, due to lower traffic speeds people of all ages will feel more comfortable using the street, which increases accessibility of the street to local residents.

From an urban design standpoint, the street is more attractive as it is less dominated by asphalt and concrete, and a higher proportion of soft landscaping is achieved that what the DCP typical standard achieves. This therefore results in a significantly better urban design outcome and positive impact on residential amenity. The proposed merit-based street embraces the best practice principles for street design.

*Access Streets*

Below are examples of access streets standards consistent with Table 14 above. The DCP street type on the left has an 8m carriageway and the local street on the right has a 5.5m carriageway with informal parking on either side of the street. There is open space on one side of the street in both examples.

*DCP 'Typical' Standards Street*

*Proposed Merit-Based Street*

The merit-based street on the right is proposed as it is a superior design outcome for residential neighbourhoods. The trafficable area in the street will typically be on the open space side of the street as the residential side will have a higher demand for parking. A car can be parked on one side of the street which leaves a suitable distance between the parked car and opposite kerb for traffic flow in either direction. This street type is applied to shorter streets with low numbers of dwellings and therefore very low traffic volumes. Due to the low traffic volumes (<360vpd), most of the time there will be no more than one vehicle using the street at one time, and in the instance there is two cars on the same street approaching from opposite directions, one driver will pull to one side to let the other driver comfortably pass. Furthermore, the parked cars naturally reduce traffic speeds in the access street, which creates a more friendly space for pedestrians and other non-vehicular forms of transport.

Again less pavement between the verges means people will feel more comfortable crossing the street. The proposed street is more human-scale and more proportionate for a access street, particularly where parking demands are low and additional carriageway width is not necessary, as is evident in the DCP example above. The proposed street is more inviting for people to use and is subject to lower traffic speeds.

The street is more attractive as it is less dominated by asphalt and concrete and higher proportion of soft landscaping that what the DCP typical standard can achieve. In addition, in the instance where open space is on one side of the street, the dwelling is closer and more visually connected to the open space. This therefore results in a significantly better urban design outcome and positive impact on residential amenity, and represents a best practice design outcome for residential streets.

### 7.3.5 'Merit-Based' Assessment on Residential Streets

The proposal seeks a 'merit-based' assessment for the residential street hierarchy and street design at Catherine Park. Assessment considerations to support the merit-based assessment have been devised and are summarised as follows:

- Best Practice Street Design and Function
- Traffic Function
- Safety in Residential Streets
- Parking
- Environmentally Sustainable Development
- Affordability and Housing
- Consistency with Camden Growth Centres DCP Objectives

Assessment under each of the above considerations is discussed in detail below.

*Best Practice Street Design and Function:*

This proposal adopts 'best practice' standards for residential streets in the residential subdivision. As stated in the TTM Consulting report, best practice in 'residential street design should seek to appropriately balance out the needs of all of the users of the street so that they are functional for vehicles and safe and amenable for other users'. Furthermore, 'best practice residential street design objectives also include sustainability related aspects such as minimizing paved surfaces, non-renewable materials and embodied energy in construction materials and processes, and providing an appropriate response to urban density objectives' (p3).

The best practice residential street designs are proposed in place of the DCP typical streets standards as significantly better urban design and community outcomes can be achieved. The proposed human-scale streets will be significantly more inviting and attractive for all users. In addition, traffic function will be more proportionate with the street type and achieve best practice street design standards for carriageway widths, which is discussed in greater detail in the section below. This will ensure that the provision of residential streets is more balanced with the full functional requirements in additional to vehicle usage, such as pedestrian movement, residential amenity, place-making and landscaping.

Give the improved functionally of the residential streets in this proposal, the proposed streets are significantly more likely to achieve the following:

- encourage people to get out of their house to walk or cycle to nearby shops and parks, and enjoy their neighbourhood, which will improve health and well-being,

- make the local neighbourhood more accessible for people of all ages and levels of mobility,
- create more inviting streetscapes for pedestrians and motorists,
- encourage slower vehicle speeds throughout residential areas, and
- provide quality residential spaces that are separated from traffic.

In light of the above, the proposed best practice residential streets in Catherine Park are going to achieve the full functional requirements and objectives of streets at significantly higher levels than the typical standards in the DCP. Accordingly, on a merit assessment the proposed residential streets will deliver significantly better urban design outcome for the residential subdivision at Catherine Park.

*Traffic Function:*

In addition to providing access for vehicles streets need to fulfil a range of functions, as is discussed above. The traffic function of a residential will vary dependent of the type of street and its role in the street hierarchy. It is important that streets facilitate the safe movement of vehicles within the subdivision from a car to a garbage truck, and buses on the higher order collector streets. Also each street needs to meet the functional requirements demanded by the traffic volumes and traffic speeds, and demands for parking created by the adjoining residential development.

Table 15 below provides a summarised analysis on how each proposed street meets the traffic function requirements in the proposed street hierarchy.

Table 15 – Traffic Function Analysis of Proposed 'Merit-Based' Residential Street Hierarchy

| Proposed Street Type | Traffic Volumes | Traffic Speed | Trafficable Space | Service Buses | Service Trucks | Parking | Garbage Collection |
|---|---|---|---|---|---|---|---|
| Collector Street – Bus Route (11.2m) | >3000vpd | 50km/h | 2 x dedicated 3.5m travel lanes | Yes | Yes | Yes, indented parking bays | Yes |
| Collector Street – Bus Capable (10.6m) | >3000vpd | 50km/h | 2 x dedicated 3.2m travel lanes | Yes | Yes | Yes, indented parking bays | Yes |
| Local Street (7.2m) | 1000vpd - 3000vpd | 40km/h | Minimum 3.2m with car parked on either side of street | N/A | Yes | Yes, on both sides of street | Yes |
| Access Street (5.5) | <1000vpd | 40km/h | Minimum 3.4m with car parked on one side of street | N/A | Yes | Yes, on one side of street in staggered formation | Yes |
| Laneways (6.4m) | <100vpd | 20km/h | Minimum 3m at Laneway entry and 6.4m in Laneway | N/A | Yes, but very infrequent use expected | No parking intended in Laneways | No garbage collection intended in Laneways |

The appropriate traffic function requirements required for each street type in the proposed subdivision are satisfactorily achieved as detailed in the above table, which is confirmed in detail in the TTM Consulting study in Appendix 2. Accordingly, the proposed residential streets will adequately service all traffic requirements needed for the residential subdivision.

*Safety in Residential Streets:*

Included in the Catherine Park Streets Review in Appendix 1 is a study prepared by Brown Consulting on the relationship between street width and traffic speeds, and safety. In comparing a 7.4m and 9m carriageway width, it was found that the wider streets significantly reduce street safety in residential areas. The Brown's report also notes that 'The Streets Where We Live: A Manual for the Design of Safer Residential Estates' found that 9m carriageways had an average increased traffic speed of 10km/h compared to a street with a 7m carriageway.

The Brown's report calculated hypothetical statistics for predicting accidents occurring in Catherine Park every year that are based on statistics compiled using data from the Department of Infrastructure, Transport, Regional Development and Local Government and established formulas. The report derived several negative safety impacts as a result of wider carriageways, including the following:

- A statistical increase in accidents of 38%
- A statistical total of 227 more accidents within the Catherine Park area over a 10 year period
- Accident severity is significantly increased with at least double the amount of fatal and hospital related injuries (see table below).
- Increased pedestrian movement difficulty by impeding street crossing ability.
- Increased risk of vehicles existing driveways and entering intersections.

The report concludes that there is a significant reduction to street safety by providing a 9m street carriageway compared to a narrower 7.4m carriageway. Notwithstanding the safety benefits of a reduced carriageway, a 7.4m carriageway also reduces traffic noise and increases the amenity of residential areas.

*Parking:*

The Catherine Park Residential Parking Study (Refer to Appendix 5) was undertaken to closely examine residential areas within the Camden Local Government Area (Oran Park, Gregory Hills and Mount Annan) that were identified by Council to experience pressure for on-street parking, in particular at night time. The Study also considers innovative options for providing and managing on-street and off-street parking within the Catherine Park residential development.

The Study found that there were very few streets in the investigation areas that were subject to parking pressure issues. However, in the areas where parking was a problem, the main cause of parking pressure was due to the night time parking of heavy vehicles (semi-trailers) in residential streets, with single garages also contributing to parking issues in these areas due to reduced off-street parking opportunities. It is noted that Gregory Hills, which includes streets with the same design standards as proposed in this application, did not show any on-street parking issues in the investigation. Therefore, it was apparent that these constructed streets adequately served the parking function requirements of the street.

Notwithstanding the above, the Study incorporates innovative measures to ensure that the proposed streets will suitably meet the all the proper parking function requirements. This mainly relates to the self-imposed requirement for every single residential allotment to provide four (4) off-street parking spaces, with two (2) in the garage and two (2) between the garage door and the front boundary.

The Study has investigated parking provision and street function in residential streets. Despite parking in residential streets functioning appropriately where heavy vehicles were not present, innovative measures are being proposed to ensure the function objectives are satisfied.

*Environmentally Sustainable Development*

A study undertaken by GHD within the Catherine Park Streets Review confirms that carriageways with less pavement are significantly more environmentally sustainable than wider streets, both during and post construction. The GHD report assessed the difference in providing carriageways at 7.4m and 9m widths at Catherine Park. The comparisons confirmed that a street carriageway of 7.4m was significantly more sustainable in all categories assessed as part of the investigation.

The impacts of the wider carriageways streets were as follows:

- During the street construction phase there is an increase of:
    - 3,377 tonnes of carbon dioxide emitted which equates to 1,133 cars operating for 1 year
    - 140,671kL in water use
    - 5,420,230kg of solid waste (this incorporates waste generated during the manufacture of construction materials i.e. gravel, bitumen and diesel)
    - 0.21ha more land used in the production of the materials
- A land area difference is 6.7ha
- Potential to increase heat island effects
- Potential to increase stormwater runoff volumes

*Affordability and Housing:*

The Catherine Park Streets Review (Refer to Appendix 1) also includes analysis of the impact on costs to deliver land for new housing with regard to providing local streets with 7.4m and 9m carriageways. Brown Consulting completed a cost analysis to understand the cost implication between carriageway widths of 9m and 7.4m for a local street in the Catherine Field Part Precinct. The analysis considered the following cost considerations:

- Construction costs – materials, drainage, earthworks and installation.
- Development costs – land, servicing and estate facilities
- Project costs – land holding, interest, estate and development margin

In regard to the Catherine Fields Part Precinct, the difference between a 7.4m and 9m carriageway for local streets will reduce the per lot cost by approximately $10,000 as a consequence of having a lesser pavement. This is a significant reduction in costs and a carriageway of 7.4m will enable the delivery of lower cost housing for Sydney, which is a key objective of the NSW Government.

*Consistency with Camden Growth Centres DCP Objectives*

The proposal meets the objectives of the DCP. An assessment against the objectives for street network under Section 3.2.1 has been undertaken to demonstrate consistency with the DCP.

Table 16 – Response to Street Network Objectives

| Street Network Objectives | How Objective is Satisfied | Consistency |
|---|---|---|
| *To establish a hierarchy of interconnected streets that give safe, convenient and clear access within and beyond the Precinct* | The proposed street network has been designed as a grid-based pattern, creating a legible street hierarchy and permeable street network that offers a range of clear travelling options and convenient access points on appropriately designed carriageways. In addition, the proposed carriageways will provide significantly increased safety conditions for vehicles and non-vehicular users. | Yes |
| *To assist in managing the environmental impacts of urban development including soil salinity, micro-climate effects and stormwater* | The proposed street designs contribute to minimising urban heat island effects by reducing the amount of bitumen that absorbs heat, which creates a more pleasant micro climate for residents. Furthermore, the proposed street designs will have reduced impacts on stormwater and enable more efficient management measures. | Yes |
| *To facilitate energy efficient lot and building orientation* | Residential lots are generally rectangular in shape and are located in a north-south or east-west orientation, maximising solar access. | Yes |
| *To contribute to the creation of an interesting and attractive streetscape* | The proposed streets will be more inviting with increased residential amenity and aesthetics by reduced traffic speeds and increased safety, and less noise and concrete pavement. Furthermore, the proposed carriageways will assist in creating a human-scale residential neighbourhood that encourages community interaction. This is more likely to encourage and foster a sense of community, encourage walking and creating a quality residential environment. | Yes |
| *Provide a safe and convenient public transport, pedestrian and cycleway network* | The proposed street carriageways will provide significantly safer streets than provided by the typical designs in the DCP. Increased safety will encourage non-vehicular forms of transport, including walking and cycling, and make travel to bus stops more appealing. | Yes |

As demonstrated above, the proposal implements best practice for street design and has the potential to alleviate a range of negative impacts to the urban environment. In addition, the proposed street design meets the objectives of Section 3.2.3 of the Growth Centres DCP. Accordingly, the proposal satisfies the necessary requirements of the Growth Centres DCP and allows the provision of the proposed street widths in Stages 1, 2 and 3.

*Conclusions on 'Merit-Based' Assessment on Proposed Best Practice Streets*

There are numerous benefits with regard to the proposed best practice street design outcomes under which is evident in the merit-based assessment above. The key reasons to support the merit-based residential streets proposed in this application include:

- Delivery of 'best practice' street design and functional for vehicles and people in residential neighbourhoods.
- Achievement of high quality urban design outcomes in residential development and creating more inviting streetscapes for pedestrians and motorists.
- Promoting a high standard of safety in residential streets and encouraging slower vehicle speeds throughout residential areas.
- Provision of full traffic and service function requirements in all streets, including movement, access and parking.
- Creating public spaces and streets that encourage people to get out of their house to walk or cycle to nearby shops and parks, and enjoy their neighbourhood, which will improve health and well-being.
- Maximising accessibility in streets for people of all ages and levels of mobility.
- Promoting 'Environmentally Sustainable Development' principles and improving mirco-climate and energy efficiency.
- Promoting greater affordability in new housing.
- The merit-based streets are consistent with Camden Growth Centres DCP Objectives

### 7.3.6 Rickard Road Extension Transit Boulevard

The DCP design requirement and proposed transit boulevard design is summarised in the table below.

**Table 17 – Proposed Variations to DCP Typical Designs for Rickard Road Extension**

| | DCP Typical Street Design | | | | | Proposed Street Design | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Verge | Carriage-way | Median - optional | Carriage-way | Verge | Verge | Carriage-way | Median - optional | Carriage-way | Verge |
| **Transit Boulevard** | 4.5m | 7m | 4.2m | 7m | 4.5m | 4.5m | 7m | 4m | 7m | 4.5m |
| | **27.2m** | | | | | **27m** | | | | |

The proposed road section for the transit boulevard has a minor variation to the DCP standards with a 4 metre wide median instead of 4.2 metres.

The objective of the transit boulevard in the DCP is:

- *To provide a safe and convenient public transport route that incorporates a shared pedestrian/ cycleway and promotes a future public transport connection to the Leppington Major Centre*

The 200mm reduction in the width of the median is appropriate as it will be landscaped with no pedestrian or cycle functionality. In addition, the median will not require indented right hand turning bays and the slightly reduced width of the median will not be visually apparent.

In light of the above, the proposed design for Catherine Park Drive is considered to be consistent with the function objectives of the transit boulevard, which is to provide a safe and convenient public transport route with a shared pedestrian/ cycleway.

## 7.4 Planning Assessment on Impacts of Development

### 7.4.1 Flora and Fauna

Eco Logical Australia Pty Ltd (ELA) has prepared a flora and fauna assessment for the proposed development. This report is provided with this development application.

The ELA report has determined that approximately 5.4 ha of poor to moderate quality foraging habitat within "non-certified lands" will be modified as part of this development application. Of this, 1.1 ha will be enhanced to create suitable Bittern nesting and foraging habitat. With the exception of two dams on South Creek, all farm dams will be removed. The two dams on South Creek will be retained for the purpose of protecting and creating Bittern habitat, with their new designs to incorporate tiered benches to allow for inundation and foraging at various flow heights; dense and wide reed/rush habitat for nesting; and dense riparian plantings to screen the adjacent urban activity.

No (Swamp Oak Floodplain Forest) SOFF will be cleared within the "non-certified land". All works within and around the SOFF will be guided by a Vegetation Management Plan (VMP) that aims to establish a resilient ecosystem. The VMP is discussed in Section 4.3.2 of this report. The threat of foxes poses a problem to conservation efforts in the area due to their stealth and predatory nature and if uncontrolled, only deep water and/or a very wide stand of reeds would provide safe refuge for nesting Bitterns. The foxes appear to den in the riparian forest, with many burrows observed under the roots of *Casuarina* trees. They were also observed running across paddocks. With the urban development removing much of the foxes hunting ground, it is almost certain they will be confined to a narrow riparian corridor along South Creek and Oran Park precinct to the north. This concentrated fox territory will put additional pressure on the Bittern and other fauna.

As part of the Flora and Fauna Assessment, a seven part test was undertaken. This has concluded that:

- For the Australasian Bittern, the urban development at Catherine Park will not have a significant impact on this species. This survey shows there is currently no suitable nesting habitat on site. However, the Bittern may nest nearby and use the site for foraging.
- For the SOFF, the urban development at Catherine Park will not have a significant impact on this community; for the reason that the riparian areas will be enhanced by implementing bush regeneration works under a VMP.

No threatened species protected under the *Fisheries Management Act 1994* are considered to have the potential to occur on the site. Additionally, stream-works have specifically been designed to provide for fish passage through the site and there will be no blockages to fish passage as a result of this development. Consequently further assessment under the *Fisheries Management Act 1994* is not required.

The proposed development over the subject site will not constitute a significant impact on Australasian Bittern. Although no Bitterns were detected during the survey period, suitable foraging habitat occurs on site around shallow margins of dams and floodplains. Some of this habitat will be modified due to the development, with two dams to be restored as Bittern habitat. During the survey dense reed beds were rare and insufficient in size to provide the nesting isolation Bitterns require. Although a significant impact is unlikely, habitat creation, fox control, and a Bittern habitat management plan are highly recommended to maintain and enhance remaining habitat and lessen the pressures on this endangered bird.

The SOFF present in the study area will not be cleared as part of this Development Application, with any impacts being positive through the implementation of a VMP that aims to establish a resilient ecosystem.

### 7.4.2 Waterways

A vegetation management plan (VMP) has been prepared for South Creek and its tributary within Catherine Park by Eco Logical Australia Pty Ltd. The VMP is provided with this SEE.

The vegetation along the riparian corridor is a mixture of cleared land which is predominantly exotic pasture, and stands of Alluvial Woodland (AW) dominated by *Casuarina glauca* and *Eucalyptus amplifolia.* Much of the understorey of the Alluvial Woodland is comprised of exotic grasses, with occasional swathes of *Themeda australis* (Kangaroo Grass), *Microleana stipoides* (Weeping Meadow Grass) and *Juncus usitatus* (Common Rush). The dominance of introduced species, especially grasses clearly demonstrates the disturbed nature of the study site. Five plant species identified within the study area are listed as noxious weeds within the Camden Local Government Area, these are: African Boxthorn (*Lycium ferocissimum*), Blackberry (*Rubus fruticosus* aggregate), Bridal creeper (*Asparagus asparagoides*), Broad-leaved Privet (*Ligustrum lucidum*) and Narrow-leaved Privet (*Ligustrum sinense*).

This application proposes to enhance the natural values of the riparian corridor and establish a resilient ecosystem. This will be achieved by stabilising the watercourse, rehabilitating the riparian corridor so that it is representative of native vegetation communities in the area. In addition to providing habitat for the threatened Australian Bittern, this also ensures that there is habitat for other native fauna.

The purpose of the VMP is to guide the restoration and stabilisation of South Creek. It aims to achieve this outcome by:

- slowing the water speed in the creek line and stabilise the bed and banks,
- reduce the abundance and distribution of weed species, and
- provide for the establishment of ecological communities through a combination of natural and assisted bush regeneration and revegetation techniques.

The VMP covers a minimum period of 5 years, or until the objectives and performance criteria outlined in the VMP are satisfied. Management objectives and approaches of the VMP are summarised in the table over page.

Table 18 – VMP Management Objectives

| Objectives | Approach |
|---|---|
| • Improve the quality of plant communities by removing and controlling invasive weed species | • Remove and control environmental weeds<br>• Maintenance weed removal and control |
| • Improve ecological resilience by revegetating with native species | • Revegetate the terrestrial, creek, riparian and wetland areas using local provenance native species consistent with the natural vegetation communities found in the locality<br>• Maintain plants until established |
| • Stabilise creek bed and banks | • Minimise impacts of construction activities<br>• Increase native plant cover<br>• Utilise native vegetation planting to assist in stabilisation<br>• In high erosion areas construct rock-rip raps, drop structures or undertake bank armouring |
| • Protect, enhance and create fauna habitat | • Protect, enhance and create terrestrial and aquatic habitat, notably for the Australasian Bittern habitat<br>• Establish a viable habitat corridor for terrestrial and aquatic native fauna<br>• Facilitate fish passage<br>• Ensure that impacts associated with nearby urban land use do not have a significant impact on fauna, notably the Australasian Bittern |

The vegetation works proposed as part of this development application will ensure that there is an improved riparian environment.

### 7.4.3 Stormwater and Water Quality Management

Brown Consulting has prepared a detailed Stormwater Management Strategy for the overall development Catherine Park, which is included in this Development Application. The Stormwater Management Strategy models the potential impacts of the development and details mitigation measures and water quality facilities to ensure the necessary standards are achieved.

This application proposes the construction of two drainage basins (Basin 3 and 12a) which will have a total capacity of 26,090m$^3$ (including the area of basin 12b) in order to adequately service the subdivision. Each basin will include a water quality component (bio-retention) in a dry basin that typically extends 1-1.5m above the basin floor. Plantings will assist the bio-retention method.

The provision of basins and water quality mitigation measures will ensure any potential impacts on flooding are adequately addressed.

### 7.4.4 Contamination

Contamination within the development area has been investigated at various stages. A Land Contamination and Salinity Assessment to assess land capability and the presence of contamination was conducted as part of the ILP study process for rezoning of the site. This was undertaken by WSP Environmental Pty Ltd. The resultant report concluded:

- the site was suitable for future urban development; and
- that further investigation was required in Level 1 and Level 2 areas of environmental concern.

A Limited Density Phase 2 Contamination Assessment was prepared by Douglas Partners Pty Ltd to further assess the contamination and suitability of the site for residential development with associated open space, which is enclosed with this proposal. This report has concluded that:

- the majority of the site is suitable for residential use. The report considered that
- development outside of the areas identified as requiring further investigation can proceed.

The report by Douglas Partners has identified seven areas of environmental concern (AEC). Of these seven areas, none are within the area that makes up the Stage 1 subdivision area. There is one area however, AEC4, which is located close to the riparian corridor that will be revegetated and regenerated. Within AEC4 mercury has been detected. Though the mercury is anticipated to be a localised contamination, the report recommends that additional testing occur within this location. This testing can be undertaken following approval of the development application. Though no asbestos containing material was detected during the site investigations, the report recommends that as the site will be used for residential development, an Unexpected Finds Protocol is prepared. This will ensure that if asbestos is found, it can be managed in an appropriate manner.

### 7.4.5 Salinity

A combined Salinity Assessment and Soil Management Plan have been prepared and are enclosed with this development application. Investigations have determined that the site ranges from slightly saline to very saline, with a mild to moderate aggressiveness to steel and non aggressive to mildly aggressive to concrete. Though the site is affected by salinity, it is apparent from the report that the site can be developed for urban land uses, including residential. Management practices are included in the Salinity Assessment and Soil Management Plan which will be implemented in conjunction with construction works.

### 7.4.6 Traffic

A detailed traffic study has been prepared for the site and is enclosed with this development application. The traffic assessment report has concluded that the street hierarchy and network proposed for Stages 1-3 is satisfactory and meets traffic management principles. The assessment also confirms that the proposed street and intersection layout will address internal and external traffic demands and will not have any significant adverse effects on external road systems. The Traffic Impact Review has concluded the following:

1. The Stages 1-3 Subdivision Plan for Catherine Park has been planned from the broader road network planning undertaken by AECOM as set out in their Catherine Field (part) Precinct – Post Exhibition Transport and Access Review (Addendum). The road network and hierarchical classification has been followed.

2. A main consideration in the planning of this subdivision is the widths of roads. A detailed review was undertaken by Development Planning Strategies, resulting in the recommendation for revised carriageway and road reserve widths. These revised widths are concurred with.

3. An analysis has been undertaken to see if the projected traffic flows fit into the road hierarchy volume ranges for specific street types. They all do, generally being at the lower end of the volume range, for the traffic situation with just the residential development. School traffic has also been taken into account, and the projected future daily flows remain well within the road hierarchy limits.

4. The analysis has taken into account the future connection of the Catholic schools precinct. The proposed priority-controlled junction at the northern school entrance will provide adequate capacity for all movements, with appropriate "No Stopping" restrictions. The intersection on Graham's Drive and the north-south link road from the schools roundabout will have priority control. The traffic analysis found that priority control at this intersection will provide adequate capacity, with appropriate "No Stopping" restrictions.

5. Finally, the proposed roundabout intersection at the junction of Catherine Park Drive and Graham's Drive has been reviewed for the year 2036 traffic flows. A one-lane roundabout will provide ample capacity.

6. In conclusion, the traffic implications of the proposed Stages 1-3 subdivisions are satisfactory.

### 7.4.7 Noise Impact Assessment

The potential noise impacts of development have been considered utilising the NSW Planning & Infrastructure guideline titled *Development Near Rail Corridors and Busy Roads – Interim Guideline* (Interim Guideline) (Refer to Appendix 10). The Interim Guideline assists in reducing impacts of noise emissions from busy roads has been prepared to ensure that adjacent development achieves an appropriate acoustic amenity by meeting the internal noise criteria specified in the Infrastructure SEPP.

Clause 102 in the Infrastructure SEPP titled 'Impact of road noise or vibration on non-road development' states that development (including 'a building for residential use') adjacent to roads with a daily volume in excess of 40,000 vehicles per day is to consider any guidelines issued by the Director-General 'for the purpose of this clause'. The Interim Guideline is therefore the NSW Government policy for attenuating noise in residential buildings from emissions generated by traffic on busy roads. With regard to development of a building for residential use, Clause 102 states that appropriate measures need to be employed to ensure that the following LAeq levels are not exceeded:

*(a) in any bedroom in the building—35 dB(A) at any time between 10 pm and 7 am,*

*(b) anywhere else in the building (other than a garage, kitchen, bathroom or hallway)—40 dB(A) at any time.*

The acoustic standards above are enforced by the Infrastructure SEPP and the Interim Guideline provides detailed acoustic measures required to achieve these standards. Furthermore, given the acoustic measures will achieve the Infrastructure SEPP standards for a busy road (>40,000vpd), the application of these acoustic measures to roads and streets of significantly lower traffic volumes will unquestionably achieve the necessary acoustic levels for residential development within Catherine Park.

The graph in Figure 23 below is an excerpt from the Interim Guideline in Appendix 10. It determines the level of standard acoustic treatment measures required for a single residential building depending on traffic volume and distance from the road for a 60/70kmh road. The standard acoustic measures are defined in six categories with Category 1 areas those likely to have low road traffic noise and Category 6 areas are likely to have the highest road traffic noise.

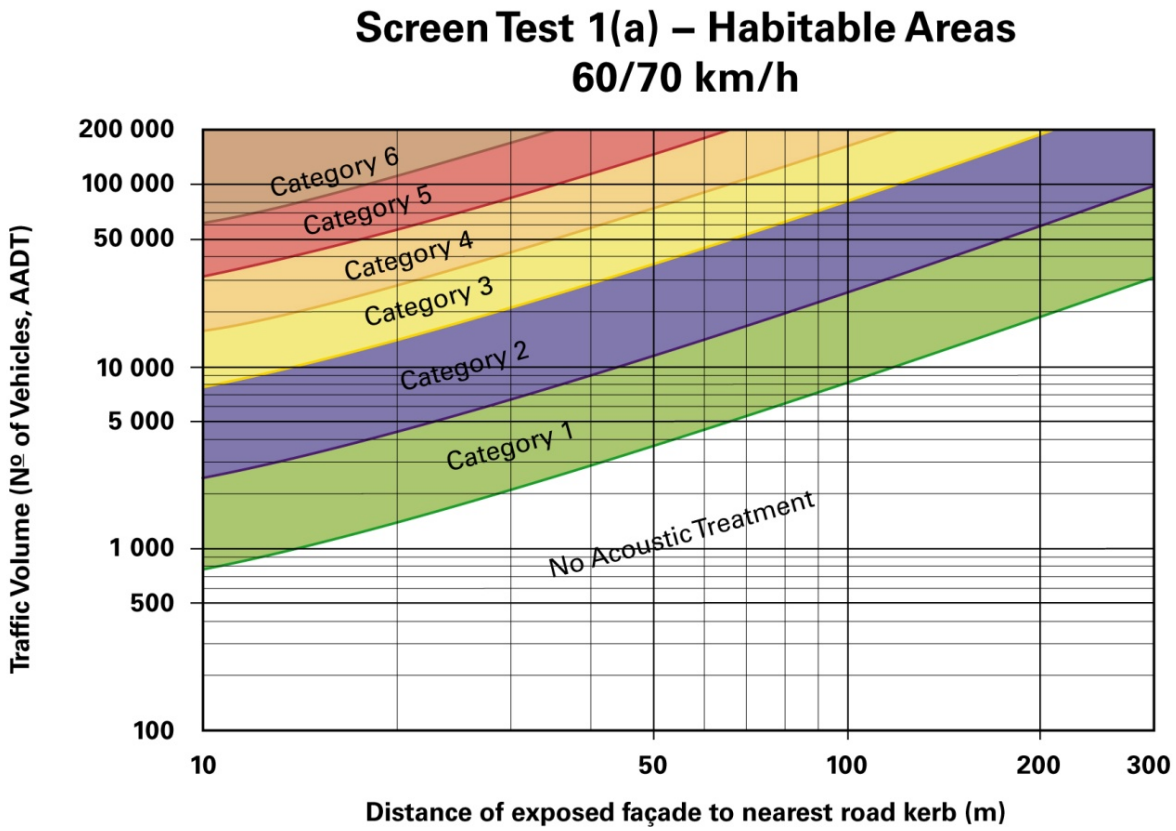



Figure 23 – Standard Noise Control Treatment Levels by Category (Refer to Interim Guideline in Appendix 10)

The graph defines the level of standard noise treatment for a residential building depending on traffic volume and distance from the kerb of the road. For example, a building facade that is located 20 metres from the kerb on a road with an average annual daily traffic 10,000 vehicles would need to adopt the Category 2 standard acoustic treatment measures.

The standard acoustic treatment measures are divided into building elements which have been assessed to determine their respective Weighted Sound Reduction Index values in each category. The building elements include:

- Windows/sliding doors
- Frontage facades
- Roofs
- Entry doors
- Floors

The Interim Guideline provides a table of construction standards for each Category (1-6) and building element that needs to be incorporated into the residential building to achieve the necessary acoustic levels. An example of the Category 2 building construction standards is in Figure 24 below.

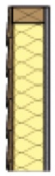
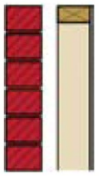
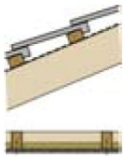
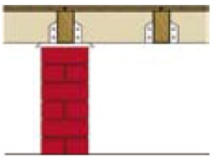
| Category No. | Building Element | Standard Constructions | sample |
|---|---|---|---|
| 2 | **Windows/Sliding Doors** | Openable with minimum 6mm monolithic glass and full perimeter acoustic seals |  |
| | **Frontage Facade** | **Timber Frame or Cladding Construction:** 6mm fibre cement sheeting or weatherboards or plank cladding externally, 90mm deep timber stud or 92mm metal stud, 13mm standard plasterboard internally with R2 insulation in wall cavity. |  |
| | | **Brick Veneer Construction:** 110mm brick, 90mm timber stud frame or 92mm metal stud, minimum 50mm clearance between masonry and stud frame, 10mm standard plasterboard internally. |  |
| | | **Double Brick Cavity Construction:** 2 leaves of 110mm brickwork separated by 50mm gap |  |
| | **Roof** | Pitched concrete or terracotta tile or metal sheet roof with sarking, 10mm plasterboard ceiling fixed to ceiling joists, R2 insulation batts in roof cavity. |  |
| | **Entry Door** | 40mm solid core timber door fitted with full perimeter acoustic seals |  |
| | **Floor** | 1 layer of 19mm structural floor boards, timber joist on piers |  |
| | | Concrete slab floor on ground |  |

Figure 24 – Category 2 Construction Standards (Refer to Interim Guideline in Appendix 10)

The proposal is subject to higher order roads and streets of Oran Park Drive, Catherine Park Drive and two collector streets identified as Road No.1 (collector street – bus capable) and Road No. 2 (collector street – bus route) respectively. To determine noise impacts, the traffic volumes along these streets have been derived from *Figure 7: Catherine Field (part) Precinct Proposed Road Hierarchy and Mid-Block Flows* in the 'Catherine Field (part) Precinct – Post Exhibition Transport and Access Review (Addendum)' dated 24 October 2013 by AECOM.

The construction standards Category to achieve the required and appropriate noise attenuation levels for adjacent residential buildings in respect to each relevant existing or proposed road or street in the proposal is summarised in the table below.

Table 19 – Standard Construction Categories Required to Achieve Acoustic Attenuation Levels

| Road or Street | Traffic Volumes (Max.) | Distance from Kerb (Min.) | Standard Construction Standard |
|---|---|---|---|
| Oran Park Drive | 15,500vpd | 20m | Category 3 |
| Catherine Park Drive | 6,500vpd | 10m | Category 2 |
| Road No.1 | 3,000vpd | 10m | Category 2 |
| Road No.2 | 3,500vpd | 10m | Category 2 |

It is noted that the above construction standards are based on traffic speeds of 60/70kmh and that speeds on the collector streets will be 50kmh, so the above standards will over-achieve the standards.

Category 2 treatments represent typical standard residential building standards (i.e. 6mm glazing and 40mm solid front door). Category 3 will require a higher level of construction standards such as 6.38mm laminated glass and full perimeter acoustic seals, minimum 45mm solid core timber doors and concrete slab on ground floors.

### 7.4.8 Bushfire risk management

The NSW Rural Fire Service's *Planning for Bush Fire Protection 2006* (PBFP) outlines the planning framework for development close to land likely to be affected by bushfires. It is also applicable to the subdivision of land for residential purposes. PBFP outlines legislative provisions and performance criteria, together with other options to achieve compliance with the policy when building in bushfire prone areas. The general principles underlying PBFP are:

- Protection measures are governed by the degree of threat posed to a development,
- A minimum setback from a hazard is also required, i.e. a defendable space,
- The greater the setback from the hazard, the lower the subsequent bushfire protection construction standards required,
- The smaller the interface a development has fronting the bushfire threat, the less the opportunity for bushfire to threaten the development,
- Bushfire protection measures are contained within the 'overall' development and not on adjoining lands, other than in exceptional circumstances, and
- No development in a bushfire prone area can be guaranteed to be entirely safe from bushfires.

The proposal consists of a new subdivision located in close proximity to a riparian corridor. The development will be able to satisfy the aim and objectives of PBFP for subdivision. The following recommendations have been made within the Bushfire Protection Assessment Report:

- Asset protection zones are to be provided to the proposed development as listed in Table 1 of the Bushfire Assessment and shown in Figure 25 below.

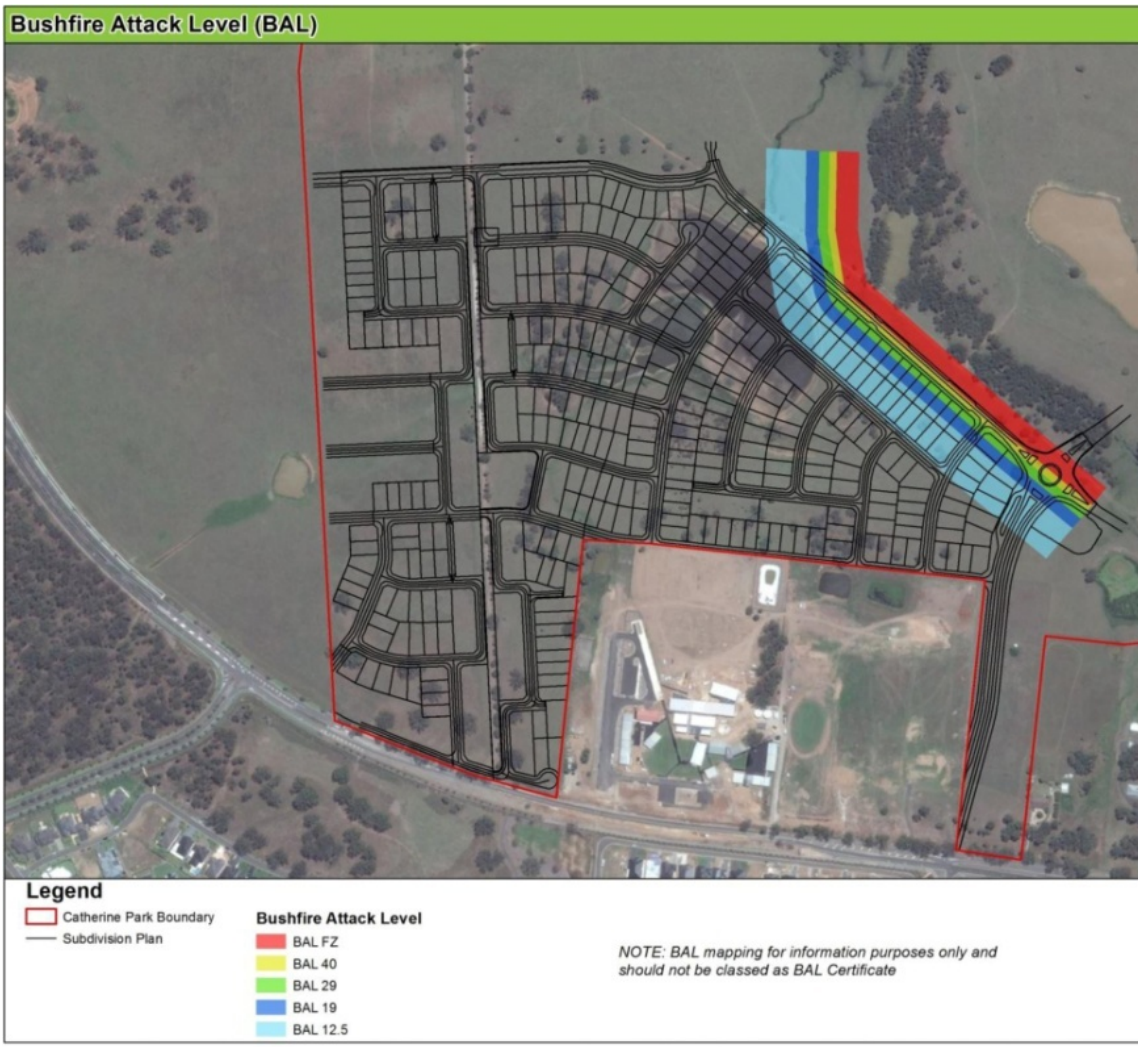



Figure 25 – APZ and BAL Requirements by Eco Logical Australia

- Water supply is to be installed in accordance with the requirements outlined below:
  - Reticulated water supply to urban subdivisions uses a ring main system for areas with perimeter roads.
  - Hydrants are not located within any road carriageway.
  - All above ground water and gas service pipes external to the building are metal, including and up to any taps.
  - The PBP provisions of parking on public roads are met.
- Electrical services should be underground.
- Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2008.
- Public roads are to comply with the requirements of *Planning for Bush Fire Protection 2006*.

Eco Logical Australia consider that the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the proposed development, a standard that is consistent with *Planning for Bush Fire Protection 2006* and appropriate for the issue of a Bush Fire Safety Authority.

### 7.4.9 Signage

The proposed billboard signage is consistent with all relevant planning controls within SEPP 64 and the DCP. The signage is required to identify the Catherine Park subdivision and exhibition village. As the estate develops, signage will be removed as it will no longer be required. This ensures that there will be no long term impacts from signage within the area. Signage is therefore considered appropriate as it will not to have any significant impact on the surrounding environment.

## 7.5 Social and Economic

There are positive social and economic effects and no detrimental impacts resulting from the Development Application. The proposal will provide more housing for South West Sydney and increase housing diversity within the region. Furthermore, the development of Catherine Park is facilitating the delivery of new Council owned sports parks, a leisure centre, library facilities and community infrastructure.

The economic benefits are also important as the additional supply in housing will assist in promoting housing affordability, which means cheaper housing options for new families and first home buyers, which is supports the NSW Government's strategies for Sydney. In addition, there will be greater economic and employment growth in the locality as a consequence of construction, which will also stimulate support services in the Camden LGA.

## 7.6 Site Suitability

The site is suitable for urban development as proposed. The development complies with all State, regional and local Environmental Planning Instruments relevant to the site and also complies with the NSW Government's and Camden Council's planning policies.

The site is appropriately zoned and the development area achieves the land use principles established under the Catherine Fields (Part) Precinct ILP through the provision of a variety of housing options, public open space and a safe and permeable street network.

Numerous environmental, economic and social studies and assessments have been conducted across the site as part of the Precinct Planning Process for rezoning and more detailed site investigations as part of this Development Application. The result of the studies and assessments demonstrate that the site is suitable and highly capable of being developed as promoted by this application.

The development is responsive to the various environmental factors pertaining to the site, and land contamination testing and reporting has confirmed the extent of contamination within the subject land. With appropriate testing and remediation measures (if required) the land will be suitable for the intended residential use.

The traffic impact assessment demonstrates that the land can be developed as proposed. Upgrading for specific areas on the local street network, in particular Cobbitty Road/Camden Valley Way intersection, will provide appropriate traffic and transport requirements commensurate with the traffic generation estimates for the development.

## 7.7 Public Interest

The proposed development meets the public interest. The subject site is within the Sydney's South West Growth Centre which has been comprehensively planned to accommodate the majority of urban growth and new housing in Greenfield areas.

Sydney has been experiencing high housing costs for many years which is mainly attributed to housing shortages caused by a shortfall in land for new housing. The proposal will expand the supply of housing in Sydney which will have a positive impact on housing affordability, and therefore, make home ownership more achievable for Sydney's residents.

The development will facilitate the upgrade to Oran Park Drive between Forestgrove Drive and Harrington Parkway, which is currently in poor condition for a sub-arterial road. In addition, the development will provide new public reserves, facilities and passive and active recreation opportunities and will contribute to the regional pathway connections between the Oran Park Precinct and Turner Road Precinct. The development will also contribute to the provision of local community and recreation facilities within the Precinct. Further, the development will make contributions to district level facilities outside the Precinct comprising sports parks, a leisure centre, a recreation and youth centre, and a branch library within the Oran Park Town Centre area.

The proposal will facilitate the relocation of the main entry for the Catholic schools from Oran Park Drive to the northern boundary of the school site within Catherine Park. This will therefore eliminate an additional set of traffic signals on Oran Park Drive and alleviate the existing traffic congestion issues that are present during drop-off and pick-up times associated with students.

The proposed development will restore areas of high environmental significance within South Creek, which will form a high quality environmental public asset. South Creek is currently degraded and requires extensive works to restore its environmental values, which will be achieved through the development of Catherine Park.

The development of the subject land in the manner proposed will result in major portions of the site being retained and restored to its natural state. This includes revegetation and restoration of degraded riparian corridors, removal of noxious weeds, and the retention of significant vegetation and habitat.

The proposal forms part of a large development that will make substantial contributions to improvements to the environment, increasing the number of public recreation and open space assets in the locality, and the generation of employment and economic growth for Camden.

# 8 CONCLUSION

This Development Application seeks to undertake the residential subdivision of Stages 1-3 of the Catherine Fields (Part) Precinct. The site is currently utilised for grazing and agricultural activities. The subdivision of the residential development area will enable the creation of a high quality affordable development for future residents which includes the provision of open space and a high level of pedestrian accessibility, with a commitment to developing a strong community focus.

The proposal will create 339 residential allotments, 18 integrated housing sites (superlots), a public neighbourhood park and drainage facilities. In addition, the proposal seeks approval for:

- construction of new public roads including upgrading works to Oran Park Drive,
- provision of services, infrastructure and street landscaping,
- the creation of signage relating to the new residential development, and
- extensive riparian regeneration works within the southern bank of South Creek.

The proposal includes residential streets that have different carriageway widths from the 'Typical' street designs outlined in the Camden Growth Centres Precincts Development Control Plan. Notwithstanding, this proposal utilises the allowances in the DCP for alternative street designs and presents a fully integrated approach between street design, lot design, and off/on street parking to ensure the proper street function objectives and requirements are adequately achieved.

The integrated approach adopts residential streets that easily accommodate the low traffic volumes projected by the traffic modelling with self imposed requirements for the following:

- all detached dwellings to have a minimum lot width of 13m with a double garage and driveway,
- every detached dwelling having four (4) off-street parking spaces (double garage with two spaces between garage and lot boundary), and
- the provision of 'passing areas' within the lowest order residential streets that enable approaching vehicles to safely pass each other with minimal inconvenience.

With a focus on achieving 'best practice' street design and creation, a comprehensive analysis of residential street function, in particular safety and parking, has been undertaken to understand and determine appropriate residential street design for this proposal. This has included numerous specialist investigations and studies to support the proposed street designs, which also includes the environmental and economic benefits for delivering new housing in NSW. This information has been prepared and provided to demonstrate that different design standards for streets are appropriate and justified.

The subdivision design and associated stormwater management system and open space areas have been designed to minimise impacts on the natural features and environmental qualities of the site, minimise the removal of existing trees and match the existing natural contours. The proposal complies with all State and local Environmental Planning Instruments and generally complies with local development policies. The proposal is consistent with the planning and design objectives of the Catherine Fields (Part) Precinct.