





**Camberwarra ~~Primary School Site~~
Local Structure Plan**

'Track Changes' Draft for consideration by the City of Joondalup Council
December 2013

STRUCTURE PLAN N^o. ~~(TBC)~~16

This Structure Plan is prepared under the provisions of Part 9 of the City of Joondalup *District
Planning Scheme No. 2.*

DOCUMENT HISTORY AND STATUS

Camberwarra Primary School Site <u>Local</u> Structure Plan (10/065)		Revision	Date Issued
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		1	04.05.13
		2	27.06.13
		3	24.07.13
		<u>4</u>	<u>15.11.13</u>

TABLE OF MODIFICATIONS

Modification Reference Number	Date of Endorsement	Modification Section Number	Modification Description

**CERTIFICATION OF AGREED STRUCTURE PLAN
(CLAUSE 9.6 - SCHEDULE 8)**

CERTIFIED THAT AGREED STRUCTURE PLAN N^o. ~~Xx~~16/2013 (CAMBERWARRA ~~PRIMARY SCHOOL SITE LOCAL~~ STRUCTURE PLAN), WAS ADOPTED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

.....

AND BY

RESOLUTION OF THE COUNCIL OF THE CITY OF JOONDALUP, ON ~~DATE~~ 2013, AND THE SEAL OF THE MUNICIPALITY WAS PURSUANT TO THE COUNCIL'S RESOLUTION HEREUNTO AFFIXED IN THE PRESENCE OF:

.....

Mayor, City of Joondalup

.....

Chief Executive Officer, City of Joondalup

EXECUTIVE SUMMARY

This structure plan is intended to be the primary document that will guide subdivision and development of the former Camberwarra Primary School Site, which is located at Lot 12811 (34) Currajong Crescent, Craigie (The Subject Site).

The structure plan has been prepared in accordance with the provisions of Part 9 of *District Planning Scheme No. 2* and the WAPC's *Structure Plan Preparation Guidelines*. Upon approval by the City of Joondalup and the Western Australian Planning Commission the structure plan will supplement the provisions of *District Planning Scheme No. 2* in consideration of all subdivision and development within the structure planning area.

The structure planning area is intended to be developed for the purpose of infill residential development and the provision of public open space in accordance with **Plan 1**. The relevant specifications of the proposed development are outlined within as follows:

ITEM	DATA	SECTION NUMBER REFERENCED WITHIN THE STRUCTURE PLAN REPORT
Total area covered by the Structure Plan	3.0519 hectares	Part 1: Section 1 and Plan 1
Total Area proposed to be used for: <ul style="list-style-type: none">Residential (NDA)Public Open Space (11.48% of NSA)	2.1154 hectares 0.3441 hectares	Part 1 Section 6 and Part 2 Section 8.2
Estimated Lot Yield	40 lots	Part 2 Section 8.2.1
Estimated number of dwellings	60 dwellings	Part 2 Section 8.2.1
Estimated Dwellings per site hectare.	28 dwellings	Part 2 Section 8.2.1
Estimated Population (2.8 persons per dwelling)	168 persons	Part 2 Section 8.2.1
Estimated Number and % of Public Open Space	1 POS Area of 3,441m ² (11.48%)	Part 2 Section 8.2.2

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PART ONE – STATUTORY PLANNING

1 THE STRUCTURE PLAN AREA

This Structure Plan shall apply to Lot 12811 Currajong Crescent, Craigie, being the land contained within the inner edge of the line denoting the Structure Plan boundary on the Structure Plan Map (**Plan 1**).

2 STRUCTURE PLAN CONTENT

The Structure Plan comprises:

- a) Statutory Section (Part 1)
- b) Explanatory Report (Part 2)
- c) Appendices – Detailed Technical Reports

3 INTERPRETATION AND SCHEME RELATIONSHIP

Unless otherwise specified in this part, the words and expressions used in this Structure Plan shall have the respective meanings given to them in the City of Joondalup *District Planning Scheme No. 2* (the Scheme) including any amendments gazetted thereto.

The structure plan area is zoned ‘Urban Development’ under the provisions of the Scheme which under clause 3.12.2 of the Scheme requires that a structure plan be prepared and adopted prior to subdivision or other development being commenced or carried out with the subject area. This document has been prepared to satisfy the requirements of clause 3.12.2 and Part 9 of the Scheme, in order to facilitate subdivision and development of the structure plan area.

Pursuant to clause 9.8 of the Scheme:

- a) The provisions, standards and requirements specified under Part 1 of this Structure Plan shall have the same force and effect as if it were a provision, standard or requirement of the Scheme. In the event of there being any variations or conflict between the provisions, standards or requirements of the Scheme and the provisions, standards or requirements of this Structure Plan, then the provisions, standards or requirements of this Structure Plan shall prevail;
- b) Any other provisions, standard or requirement of Part 1 of the Structure Plan that is not otherwise contained in the Scheme, shall apply to the land as though it is incorporated into the Scheme, and shall be binding and enforceable to the same extent as if part of the Scheme; and
- c) Part 2 of this Structure Plan and the Appendices – Technical Reports are to be used as a reference only to clarify and guide interpretation and implementation of Part 1.

4 OPERATION

An Agreed Structure Plan shall come into operation on the date it is adopted by the Commission pursuant to subclause 9.6.3.

5 LAND USE AND SUBDIVISION

The Structure Plan Map (**Plan 1**) outlines land use zones, reserves and the Residential Design Code density ranges applicable within the Structure Plan area. The zones, reserves and Residential Design Code density ranges designated under this Structure Plan apply to the land within it as if the zones, reserves and Residential Design Code density ranges were incorporated into the Scheme.

The specific Residential Design Code densities applicable to the subject land are to be determined at subdivision stage via the submission and approval of a Residential Design Code Density Plan by the Western Australian Planning Commission. The specific coding applied to individual lots is to be within the range allocated to the particular area, as outlined within **Plan 1**.

5.1 OBJECTIVES

The objectives for the Structure Plan Area are:

- To provide for housing diversity through a variety of single and grouped housing lot sizes at density ranges indicated on the Structure Plan;
- To provide residential lots with a high quality of built form design, including correct solar orientation to facilitate passive solar access, construction of energy efficient dwellings, activation and presentation toward streetscape and public open space areas and the creation of usable private open space areas;
- To provide a high quality public realm which maintains a high level of pedestrian connectivity, amenity and safety and encourages the retention of native vegetation where feasible.

5.2 LAND USE PERMISSIBILITY

Land use permissibility within the Structure Plan areas shall be in accordance with the corresponding zone or reserve under the Scheme.

5.3 RESIDENTIAL DESIGN CODE DENSITY ALLOCATION

The Residential Design Code density range for the structure plan area zoned 'Residential' are outlined in **Plan 1**.

5.3.1 DWELLING TARGETS

Residential development within the subject area is to provide for a minimum of 60 dwellings via subdivision and/or development.

Subdivision and/or development is to achieve a minimum site density of 19.5 dwellings per gross hectare, which equates to a minimum net density of 28 dwellings per site hectare.

5.3.2 RESIDENTIAL DENSITY

Residential Design Code density ranges have been applied based on an assessment of the surrounding density patterns and an understanding of the Department of Planning and City of Joondalup expectations with respect to density targets in infill developments. In order to facilitate the optimal use of space, whilst providing flexibility to meet the market demand, a density code range of between R25 and R40 has been applied across the majority of the site, with a higher density coding of R30 to R60 being allocated to rear-loaded lots adjacent to the public open space.

- a) Plan 1 defines the broad Residential Design Code density ranges that apply to specific areas within the Structure Plan. Lot specific Residential Design Code densities, within the defined Residential Design Code density ranges, are to be subsequently assigned in accordance with a Residential Design Code Density Plan approved by the WAPC.
- b) A Residential Design Code Density Plan is to be submitted at the time of subdivision to the WAPC and shall indicate the R-Code applicable to each lot within the subdivision and shall be consistent with the Structure Plan, and the Residential Design Code density ranges identified on Plan 1.
- c) The Residential Design Code Density Plan is to include a summary of the proposed dwelling yield of the subdivision.
- d) Approval of the Residential Design Code Density Plan shall be undertaken at the time of determination of the subdivision application by the WAPC. Once approved by the WAPC, the Residential Density Code Plan shall form part of Part 1 of the Structure Plan and shall be used for the determination of future development applications.
- e) Variations to the Residential Design Code Density Plan will require further approval of the WAPC, with a revised Residential Design Code Density Plan submitted generally consistent with the approved plan of subdivision issued by the WAPC. The revised Residential Design Code Density Plan shall be consistent with Residential Design Code density ranges identified on Plan 1.
- f) A revised Residential Design Code Density plan, consistent with Clause 5.3.2 (e) will replace, wholly or partially, the previously approved Residential Design Code Density Plan and shall form part of Part 1 of the Structure Plan.
- g) Residential Design Code Density Plans are not required if the WAPC considers that the subdivision is for one or more of the following:
 - i) the amalgamation of lots;
 - ii) consolidation of land for “superlot” purposes to facilitate land assembly for future development;
 - iii) the purposes of facilitating the provision of access, services or infrastructure; or
 - iv) land which by virtue of its zoning or reservation under the Structure Plan cannot be developed for residential purposes.

5.4 PUBLIC OPEN SPACE

The provision of a minimum of 10% public open space being provided in accordance with the WAPC’s *Liveable Neighbourhoods*. Public open space is to be provided generally in accordance with **Plan 1**.

6 DEVELOPMENT REQUIREMENTS

The following structure plan provisions are required in addition to ~~replace~~ the 'design principles' and 'deemed to comply' requirements of the R-Codes, unless it is specifically stated that the provision replaces or modifies a specific 'design principle' or 'deemed to comply' standard. All provisions of the R-Codes not mentioned below are deemed to apply. The City's Height and Scale of Buildings within a Residential Area Policy shall not apply to development within the structure plan area.

6.1 GENERAL DEVELOPMENT REQUIREMENTS

6.1.1 ORIENTATION

- a) The following replaces the 'design principles' and the 'deemed-to-comply' requirements of clause 5.2.3 (Street Surveillance) and 6.2.1 (Street Surveillance) of the R-Codes: ~~Dwellings must address nominated street/s and/or public open space in terms of main entry, major openings, articulation, materials and detailing.~~

The primary facade of D~~wellings~~ directly abutting public reserve shall orientate as follows:

- Where a lot directly abuts a public open space ~~if and the~~ vehicle access is via a laneway - the public reserve is considered as the primary façade.
- If vehicle access is via a street, this shall be considered the primary façade, however the secondary façade overlooking the public open space must be articulated and include at least one major opening.

Dwellings must address nominated street/s and/or public open space in terms of major openings, articulation, materials and detailing. Definable entry points visible and accessed from the street and/or public open space shall be provided.

- b) The following replaces 'Deemed to Comply' requirement C1.1, dot point 2, of clause 5.3.1 (Outdoor Living Areas) in the case of north facing lots:

n~~North~~-facing lots are permitted to locate outdoor living areas within the front setback area to take advantage of the northern aspect of the site and shall be constructed to maintain surveillance and activation of the adjoining streetscape.

6.1.2 CORNER LOTS

Dwellings located on corner lots shall address both streets through their design by extending the primary elevation features onto the secondary street elevation where forward of a return fence. Exposed secondary street façades must incorporate major openings.

6.1.3 LOTS ABUTTING PUBLIC OPEN SPACE

Dwellings on lots abutting public open space shall be orientated such that they offer passive surveillance over the open space by way of major opening(s) and/or outdoor living area(s).

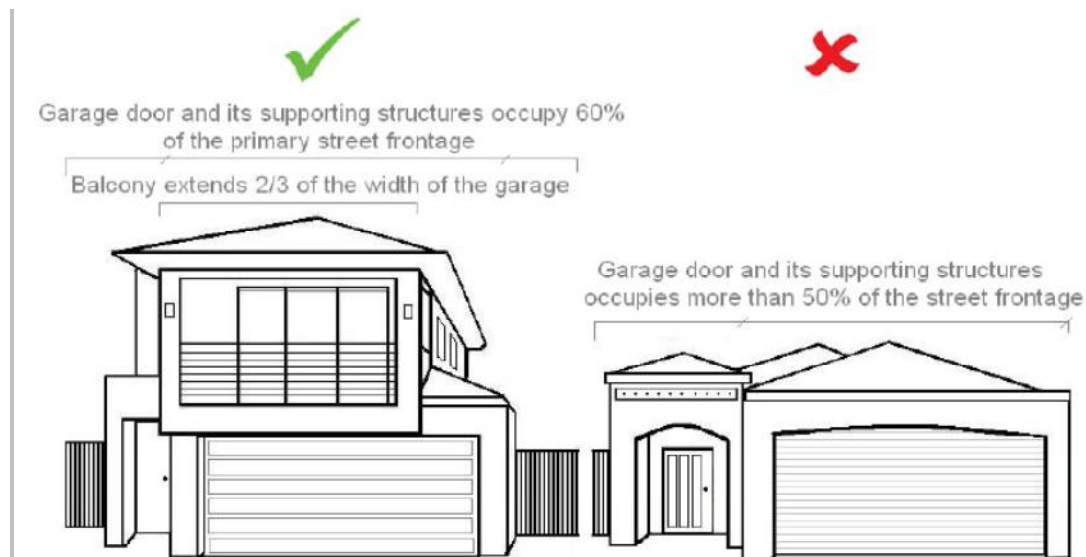
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6.1.4 ROOFS

With the exception south facing walls, eaves or window overhangs to a minimum dimension of 400mm are required to all major openings.

6.1.5 GARAGES/CARPORTS

- a) The roof and design features [of garages and carports](#) shall be consistent with the form and materials of the remainder of the dwelling.
- b) Garages shall be positioned to the boundary nominated for the location of the boundary wall, as specified under clause 6.2.1.2 (for R25 to R40 lots), or clause 6.3.1.2 (for R30 to R60 lots). A nil side setback to the garage is not mandatory.
- c) [For garages on corner lots, 'deemed to comply' requirement C3.2 of clause 5.1.3 \(Lot Boundary Setback\) of the R-Codes is replaced with the following:](#) Garages ~~on corner lots may be permitted~~ on the northern or eastern side boundaries [\(excluding street boundaries\) of corner lots](#) for a maximum depth of 9 metres, and to a maximum height of 3.2 metres from natural ground level.
- d) [The 'deemed to comply' requirement C2 of Clause 5.2.2 \(Garage Width\) of the Residential Design Codes is replaced with the following:](#) A garage door and its supporting structures shall not occupy more than 50% of the primary street frontage at the setback line [as viewed from the street](#). This may be varied to 60% where a balcony or upper floor with major openings extends 2/3 of the width of the garage (refer below figure).



Source: City of Joondalup's Draft Dual Density Code Policy (2010)

6.1.6 BOUNDARY FENCING

[The 'Deemed to Comply' requirements of clauses 5.2.4 \(Street walls and fences\), 5.2.5 \(Sight Lines\), 6.2.2 \(Street walls and fences\) and 6.2.3 \(Sight Lines\) of the R-Codes are replaced with the following:](#)

- a) Fencing to a secondary street must be set back at least 4 metres from the corner truncation.

- b) Any fencing forward of the maximum front setback as specified under clause 6.2.1.1 (for R25 – R40 lots), or clause 6.3.1.1 (for R30 – R60 lots) shall be visually permeable 1.2 metres above natural ground level.
- c) Walls and fences shall be truncated or reduced to no higher than 0.75 metres within 1.5 metres of where vehicle access points meet a street.
- d) For lots abutting Public Open Space, where the developer has constructed fencing, the fencing shall be maintained.

6.1.7 OUTBUILDINGS

- a) Outbuildings that are visible from the public domain (such as from public open space) shall complement the design and materials of the dwelling or be suitably screened from view, to the satisfaction of the City of Joondalup.
- b) Outbuildings shall not be positioned such that they obscure surveillance of public open space from a dwelling.

6.2 R25 TO R40 PROVISIONS

The following provisions apply to the areas coded Residential R25-40 on Plan 1.

6.2.1 BOUNDARY SETBACK REQUIREMENTS

6.2.1.1 FRONT SETBACKS

- a) The following replaces ‘deemed-to-comply’ requirements C2.1 and C2.4 of clause 5.1.2 (Street setback) of the R-Codes:

A 3.0 metre minimum to a 5.0 metre maximum dwelling front setback is required to the primary street, exclusive of carports and garages (no average applies).

- b) The following replaces ‘deemed-to-comply’ requirement C3.1 of clause 5.1.3 (Lot Boundary Setback) of the R-Codes where the primary facade of lots is to public open space:

Where the primary facade is to the public open space in accordance with clause 6.1.1, the minimum setback to the public open space shall be 3.0 metres.

- c) The following replaces the ‘deemed-to-comply’ requirements C1.1, C1.2 and C1.5 of clause 5.2.1 (Setbacks of Garages and Carports) of the R-Codes:

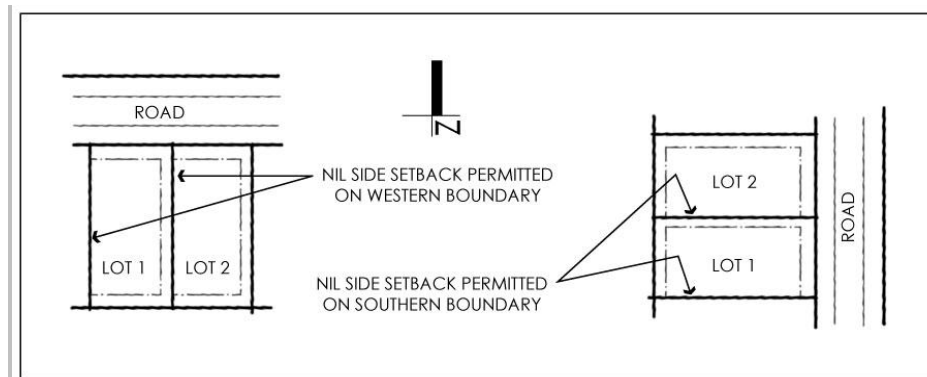
Garages and carports shall be setback a minimum of 4.5 metres from the primary street or 0.5 metres behind dwelling frontage (face of building).

6.2.1.2 SIDE SETBACKS

- a) The ‘deemed-to-comply’ requirement C3.2 of clauses 5.1.3 (Lot Boundary Setback), and C4.2 clause 6.1.4 (Lot Boundary Setback), for the purposes of boundary walls, of the R-Codes is replaced with the following:

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- a) ji. Boundary walls to nominated side boundaries are permitted. For north/south oriented lots the nominated side boundary shall be the western boundary and for east/west oriented lots the nominated side boundary shall be the southern boundary (excluding to street and public open space boundaries).
- b) ji. Boundary walls shall be to a maximum height of 3.2 metres from natural ground level, for a total length of 9 metres, and be setback a minimum of 1.5 metres behind the dwelling frontage (face of the building).



- b) The following replaces the 'deemed-to-comply' requirement C3.1 of clauses 5.1.3 (Lot Boundary Setback), and C4.1 clause 6.1.4 (Lot Boundary Setback), where a side boundary abuts public open space:

A 2.0 metre minimum dwelling side setback is required to a side boundary abutting public open space.

6.2.2 BUILDING HEIGHT REQUIREMENTS

The 'Deemed to Comply' requirement C6 of clause 5.1.6 (Building Height) and C2 of clause 6.1.2 (Building Height) of the R-Codes are replaced with the following:

- a) Dwellings shall be constructed to a maximum height of two storeys, with loft areas wholly contained within the roof space permitted.
- b) The maximum building height measured from natural ground level shall be:
- Maximum wall height (with pitched roof) - 7 metres
 - Maximum total height to roof ridge - 10 metres
 - Maximum wall and total height (parapet wall with concealed roof) - 8 metres

6.3 R30 TO R60 PROVISIONS

The following provisions apply to the areas coded Residential R30-60 on Plan 1.

6.3.1 BOUNDARY SETBACK REQUIREMENTS

6.3.1.1 FRONT SETBACKS

- a) The following replaces 'deemed-to-comply' requirements C2.1 and C2.4 of clause 5.1.2 (Street setback) of the R-Codes:

A 3.0 metre minimum to a 5.0 metre maximum dwelling front setback is required to the primary street, exclusive of carports and garages (no average applies).

- b) [The following replaces 'deemed-to-comply' requirement C3.1 of clause 5.1.3 \(Lot Boundary Setback\) of the R-Codes where the primary facade of lots is to public open space:](#)

Where the primary facade is to the public open space in accordance with clause 6.1.1, the minimum setback to the public open space shall be 3.0 metres.

- c) [The following replaces the 'deemed-to-comply' requirements C1.1, C1.2 and C1.5 of clause 5.2.1 \(Setbacks of Garages and Carports\) of the R-Codes:](#)

Garages and carports shall be setback a minimum of 4.5 metres from the primary street or 0.5 metres behind dwelling frontage (face of building).

6.3.1.2 SIDE SETBACKS

- a) [The 'deemed-to-comply' requirement C3.2 of clauses 5.1.3 \(Lot Boundary Setback\), and C4.2 clause 6.1.4 \(Lot Boundary Setback\), for the purposes of boundary walls, of the R-Codes is replaced with the following:](#)

i. boundary wall is to a nominated side boundary being for north/south oriented lots the western boundary and for east/west oriented lots the southern boundary (excluding to street and public open space boundaries).

ii. Boundary walls shall be to a maximum height of 3.2 metres from natural ground level, for a maximum of two-thirds the length of the balance of the boundary 1.5 metres behind the dwelling frontage (face of building).

- b) [The following replaces the 'deemed-to-comply' requirement C3.1 of clauses 5.1.3 \(Lot Boundary Setback\), and C4.1 clause 6.1.4 \(Lot Boundary Setback\), where a side boundary abuts public open space:](#)

~~b)~~ A 2.0m minimum dwelling side setback is required to a side boundary abutting public open space.

6.3.1.3 SETBACKS TO LANEWAYS REAR/GARAGE/STORE SETBACKS

[The following replaces the 'deemed-to-comply' requirements of C2.2 of clause 5.1.2 \(Street Setback\) and C3.1 of clause 6.1.3 \(Street Setback\) of the R-Codes as it relates to development adjoining a laneways:](#)

- a) A 1.5 metre minimum setback shall be provided to the ground floor level of the dwelling (inclusive of garages and carports)
- b) Where a store is not located within 1.5 metres of where a vehicle access point(s) meets the laneway boundary, a minimum setback of 0.5 metres is permitted.
- c) A nil dwelling setback is permitted to the dwelling upper floor balcony on a laneway boundary.

6.3.2 BUILDING HEIGHT REQUIREMENTS

[The 'Deemed to Comply' requirement C6 of clause 5.1.6 \(Building Height\) and C2 of clause 6.1.2 \(Building Height\) of the R-Codes are replaced with the following:](#)

- a) The maximum building height for multiple dwellings within an R60 coded area shall be three storeys, and measured from natural ground level shall be:

Camberwarra ~~Primary School Site~~ Local Structure Plan

- Maximum wall height (with pitched roof) - 10 metres
 - Maximum total height to roof ridge - 13 metres
 - Maximum wall and total height (parapet wall with concealed roof) - 11 metres
- b) The maximum building height for single or grouped dwellings, or multiple dwellings coded less than R60, shall be two storeys, and measured from natural ground level shall be:
- Maximum wall height (with pitched roof) - 7 metres
 - Maximum total height to roof ridge – 10 metres
 - Maximum wall and total height (parapet wall with concealed roof) - 8 metres

7 OTHER REQUIREMENTS

7.1.1 RETAINED TREES

- a) A plan indicating the trees to be retained shall be submitted with the plan of subdivision. Once approved, trees indicated on this plan are to be retained unless deemed to be a safety hazard by an approved arboriculture expert to the satisfaction of the City of Joondalup.
- b) Crossovers are to be located to avoid impact on existing verge trees. Approval from the City of Joondalup is required prior to the removal of a verge tree.

7.1.2 DEVELOPER WORKS

As part of the subdivision process a plan shall be submitted and agreed to by the City of Joondalup indicating the location of the pedestrian path along the boundary of properties abutting the public open space, retaining walls and fencing. The pedestrian path, retaining walls and fencing shall be constructed by the developer/applicant in accordance with the agreed plan prior to the issuing of the subdivision clearance by the City of Joondalup.

7.1.3 RETAINING WALLS

Retaining walls visible from the street or public space must be constructed of materials matching those constructed at the subdivision stage. Pre-cast concrete 'panel and post' retaining walls are not permitted.

A development application will be required for retaining walls, fill and/or excavation that does not meet the 'deemed to comply' standards of the R-Codes.

7.1.4 BIN PADS

All lots with vehicle access gained from a laneway shall provide a bin pad within the property that directly abuts the laneway, to enable bins to be stored and emptied without impacting on the function of the laneway.

7.1.5 LANEWAY LIGHTING

The provision of street lights within laneways must be accommodated through a 1.0 metre x 1.0 metre expansion of the laneway reserve, to accommodate a light pole.

8 VARIANCE FROM THE STRUCTURE PLAN

Subdivision and development shall generally be in accordance with the Structure Plan.

Any development that is the subject of an application for planning approval and does not comply with the standards of the Structure Plan shall be determined as specified under Clause 4.5 of the Scheme. Where determined appropriate by the City of Joondalup, local development plans shall be prepared and adopted in accordance with clause 9.12 of the Scheme prior to the City of Joondalup issuing the subdivision clearance.

PART TWO – EXPLANATORY REPORT

1 INTRODUCTION

This Structure Plan (refer **Plan 1** – Structure Plan) and report has been prepared on behalf of LandCorp by Taylor Burrell Barnett in collaboration with:

- JDSi (Engineering consultants);
- Ecoscape (Environmental Consultant); and
- Donald Veal Consultants (Traffic Consultant).

The Structure Plan will guide future subdivision and development within the former Camberwarra Primary School Site. It has been prepared with due regard to the requirements of the City of Joondalup *District Planning Scheme No. 2* and various City of Joondalup policy documents.

The Structure Plan is supported by a range of technical reports including traffic, servicing, landscape and environmental studies.

Part One, inclusive of sections 1-8, covers the Statutory Planning Report.

Part Two Covers the Explanatory Report. **Section 11** provides an introduction to the Structure Plan area. **Section 2** outlines the area over which the Structure Plan applies. **Section 3** outlines the key sustainability consideration and objectives, with **Section 4** of the report examines the statutory planning framework. The analysis of this context identifies key considerations and parameters for the Structure Plan. **Section 5** outlines the existing Craigie community. **Section 66** provides a detailed description of the existing environment. **Section 7** analyses the site identifying key considerations and parameters for the Local Structure Plan. **Section 88** describes the proposed Structure Plan. **Section 99** of the report outlines the implementation process for the Structure Plan in terms of the statutory framework which has been established for the area by the City of Joondalup. Compliance is identified, management plans explained and staging considered.

The intended development of the subject site is outlined within the Masterplan as shown in **Figure 1**.

1.1 PURPOSE

The Structure Plan and Report provides the rationale and framework to support future subdivision and development within the Structure Plan area.

The Structure Plan has been prepared in accordance with the City of Joondalup *District Planning Scheme No. 2* and the applicable requirements of Liveable Neighbourhoods.

1.2 BACKGROUND

In 2007 the Camberwarra Primary School was identified as surplus to Department of Education (DoE) requirements. The State Government approved the school closure and the facility ceased operations in 2008.

In 2011 the site was rezoned under the City of Joondalup’s *District Planning Scheme No. 2* to ‘Urban Development’ in order to facilitate residential development. Upon finalisation of the rezoning the Department of Education entered into an agreement with LandCorp to undertake project management and progress the structure plan approval on behalf of the Department. LandCorp intends to acquire the site once the structure plan for the site has been approved.

1.3 COMMUNITY CONSULTATION

LandCorp have developed a community engagement strategy for the development of the former Camberwarra Primary School site. This strategy includes the following:

- Consultation with key stakeholders, community and business to progress the local structure plan process;
- Encouraging local community support for proposal;
- Demonstrating a partnership approach with key stakeholders to ensure the local structure plan responds to the needs and expectations of the community; and
- Addressing potential issues during the local structure planning process and support City of Joondalup planning processes.

1.3.1 PROPOSED COMMUNITY CONSULTATION PROGRAM

Anticipated Timing	Milestone
January 2013	Project Website Creation
March 2013	Invitation letter re home visit Personal home visits conducted Media Statement Letter re information session invite E-shot re information session invite
April 2013	Community Information Session Open Day
April 2013	Post Event Media Release and Images

1.3.2 ADJOINING RESIDENT HOME VISIT

An invitation letter was mailed to adjacent property owners to discuss the opportunities for the site, the local structure planning process, community needs and possible design issues to consider. Feedback from the consultation was incorporated in the local structure plan report prior to lodgement with the City of Joondalup.

1.3.3 COMMUNITY INFORMATION SESSION

Community and stakeholders were invited to a Community Information Session to discuss with the project team the draft concept plan developed for the former Camberwarra Primary School Site.

The Community Information Session was held on 13 April 2013, during which the project team was available to answer any questions that the community and stakeholders had on the concept plan displayed.

Camberwarra ~~Primary School Site~~ Local Structure Plan

The consultation comments from this Community Information session were provided to Council for consideration.

2 THE SUBJECT LAND

2.1 LAND OWNERSHIP

The subject land (refer **Appendix 1** – Certificate of Titles) is a C Class Crown Reserve, vested with the Department of Education and Training (DoE) for educational purposes (refer **Figure 2** – Land Ownership). LandCorp entered into arrangements with DoE to acquire the Camberwarra Primary School site once the site has an approved structure plan.

Lots Details	Plan No.	Landowner	Area
Lot 12811	DP219691	Crown Reserve Vested with the Department of Education	3.0519 ha

2.2 LOCATION

The subject land is located on the former Camberwarra Primary School Site within the northern suburb of Craigie, located approximately 22 km north of the CBD. It is approximately 2.8 km east of the beach and 1 km north-east of the Whitfords Shopping Centre (refer **Figure 3** – Location Plan).

The subject land is bound by Currajong Crescent to the north, Camberwarra Drive to south, the rear of existing residential development to the east, and Argus Close and residential development to the west (refer Figure 4 – Local Context). The land covers an approximate area of 3.519ha.

2.3 EXISTING LAND USES

With all Camberwarra Primary School buildings demolished there is no remaining school infrastructure except for the unkempt remains to the school oval over the south-western portion of the site. It is sparsely vegetated with a mixture of native and imported trees.

2.4 SURROUNDING LAND USES

The subject land is immediately bounded on all sides by existing residential development. There are numerous areas of public open space within 600m of the site, including Barwon Park to the west and Cawarra Reserve and Otago Park to the south of the site. The site is also within 400m of commercial and retail development in the form of Craigie Plaza, which is located to the south-east of the site (refer **Figure 4** – Local Context).

At a greater context, Whitfords Shopping Centre, a secondary centre, is located 1.5km south-west of the site. Marmion Avenue, a major north-south District Distributor Type A, is located approximately 700m west of the subject site with the Mitchell Freeway leading into the CBD, located approximately 1.5km east of the site. Various Primary Schools, High Schools, a Retirement Village and a mixture of public open spaces are all found within a 2km radius of the site (refer **Figure 5** – District Context).

Insert figure 2 – Land Ownership

**Camberwarra ~~Primary School Site~~
Local Structure Plan**

Insert figure 3 – Location Plan

Insert figure 5 – District Context

3 SUSTAINABILITY

The vision for the development of the Camberwarra Primary School site is to create a development which is environmentally, economically and socially more sustainable.

3.1 OBJECTIVES AND INITIATIVES

The State Sustainability Strategy was released by the Government of Western Australia in September 2003. Sustainability is defined by the Strategy as meeting the needs of current and future generations through simultaneous environmental, social and economic improvement.

3.2 SOCIAL SUSTAINABILITY

The Camberwarra ~~Primary School~~-Structure Plan will facilitate for development that will accommodate a range of socio-demographic groups through the creation of a range of lot sizes to cater for a variety of housing products thus encouraging social diversity.

The Camberwarra ~~Primary School~~-Structure Plan has been designed to encourage social interaction and the development of a healthy community. The development will facilitate active lifestyles through the provision of safe, quality and attractive walking and cycling trails throughout the public open space and within the residential areas. Social interaction will be encouraged through the implementation of good urban design and development of community spaces and places.

The Camberwarra ~~Primary School~~-Structure Plan embraces many Liveable Neighbourhood principles such as 'walkability' and 'permeability' which contribute to reducing car use, creating a greater sense of community, better access to services and using land more efficiently.

The implementation of all of the above principles at [Camberwarra Primary School the subject site](#) will significantly contribute towards ensuring the socially sustainability of the project is maximised.

3.3 ENVIRONMENTAL SUSTAINABILITY

The Structure Plan will facilitate a residential settlement with a moderate ecological footprint, with approximately 11% of the site reserved for public open space. Selected vegetation within public open spaces and along Camberwarra Drive and Currajong Crescent will also be retained where possible and appropriate.

The site design encourages and facilitates walkability throughout the locality. This will assist in the reduction of the consumption of non-renewable resources and reducing air pollution and waste creation. Importantly, the site is in close proximity to bus services on Camberwarra Drive and railway services at Edgewater and Whitfords Stations.

3.4 ECONOMIC SUSTAINABILITY

The Camberwarra ~~Primary School~~-Structure Plan will facilitate development that will create numerous jobs during its planning, design, development and construction phase. Jobs in the local government will also be created for the maintenance of public open space, garbage collection and other local authority services.

The urban design incorporated in the Camberwarra ~~Primary School~~-Structure Plan focuses on minimising the length of road required, whilst still providing a permeable and connected residential area. This contributes to sustainable development by efficiently using resources.

Residential development at [Camberwarra Primary School](#), [the subject site](#) will introduce additional families to the area and will support existing infrastructure and community services, including the northern railway line and bus services in the area and the near-by Craigie Plaza. The development as proposed will be economically sustainable and represents an efficient use of resources and existing infrastructure.

In developing the structure plan the following key sustainability objectives and initiatives were applied:

Item	Objective
ENVIRONMENTAL LEADERSHIP	
Environmental Leadership	Leadership through the protection and management of natural systems, habitat and biodiversity, and innovation and efficient use and management of precious resources such as materials, water and energy.
WATER EFFICIENCY	
Recycling Water and Education	Water balance strategy and WSUD principles to be applied to landscaping in public domain, community park and drainage reserve. Ensure that these are integrated into the overall site water management plan and that they incorporate investigations of grey water/stormwater reuse system.
PASSIVE DESIGN	
Passive Design Features	<p>Lot orientation.</p> <p>Built form requirements to facilitate passive solar gain and natural ventilation.</p> <p>Consider retention and enhancement of mature native vegetation.</p> <p>Improved ambient temperature through retaining and enhancing trees, green shading and vegetation and through the use of locally sourced (reconstituted) light coloured paving material, thereby reducing the community cooling load.</p>
BUILT FORM	
Built Form Innovation	Promote quality built form and innovations
COMMUNITY WELLBEING	
Community Wellbeing	The redevelopment will create a community that is safe, healthy and an enjoyable place to live and work and the residence will have access to affordable and appropriate housing and foster active local citizenship.
SOCIAL NEEDS	
Social Needs	Improved vehicular, safety and accessibility through the provision of a dual-use pathway for both pedestrian and cyclists with improved passive surveillance and minimised vehicular impact through a human scale streetscape.
ECONOMIC HEALTH	
Economic	Efficient use of existing infrastructure.
Capital Growth	Promotion of revitalisation of Craigie to the immediate and greater area.

4 STATUTORY AND POLICY FRAMEWORK

4.1 STATUTORY PLANNING CONTEXT

4.1.1 METROPOLITAN REGION SCHEME

The subject land is currently zoned Urban under the Metropolitan Region Scheme (MRS).

4.1.2 CITY OF JOONDALUP DISTRICT PLANNING SCHEME NO. 2

The subject land is currently zoned 'Urban Development' under the City of Joondalup's Scheme (refer **Figure 6 – District Planning Scheme No. 2**).

4.2 STRATEGIC PLANNING CONTEXT

4.2.1 DIRECTIONS 2031 AND BEYOND

"Directions 2031 and beyond is a spatial framework; a high level strategic plan that establishes a vision for future growth of the Perth and Peel region, and provides a framework to guide the detailed planning and delivery of housing, infrastructure and services necessary to accommodate that growth." (Department of Planning, 2010; 1)
With the population expected to climb from 1.65 million currently to 2.2 million by 2031, Directions 2031 sets out a strategic framework for accommodating this expected growth.

"Having a more compact City" has been identified in Directions 2031 and beyond as a preferred growth scenario, which means, consolidating development in appropriate locations with an emphasis on infill development. The Camberwarra Primary School site is a perfect example of an appropriate location for infill development to support the growth strategies advocated by Directions 2031.

An initiative of Directions 2031 and beyond is to support housing strategies for Perth and Peel to deliver a responsive housing system that meets the changing needs, aspirations and choices of the residents of Perth and Peel taking into account affordability and equity.

Reference: Department of Planning 2010, Directions 2031 and beyond, Western Australian Planning Commission, Perth.

4.2.2 OTHER STATE PLANNING POLICIES

Liveable Neighbourhoods is an operational policy for the design and assessment of structure plans and subdivision for new urban areas in the metropolitan area and country centres.

Liveable Neighbourhoods is applied in the City in the design and approval of urban development, structure planning and subdivision for green field sites and for the redevelopment of large brown field and urban infill sites.

The design of the Local Structure Plan has been formulated using the Liveable Neighbourhoods planning approach to development.

Insert figure 6 – District Planning Scheme No. 2

4.2.3 LOCAL PLANNING STRATEGY

City of Joondalup's Local Planning Strategy (LPS), dated July 2008, is to enable Council and the community to determine the vision and strategic planning direction for the City of Joondalup for the next fifteen to twenty years.

Preparation of the LPS has included assessment of all relevant state, regional and council plans, policies and strategies. Community input into the strategy has been achieved through surveys on key planning strategies.

The strategy states, in relation to housing, that *"in strategically appropriate locations, planning will take into account the future housing needs of an aging population and changing household structures."* With this changing household structure, that is, household sizes decreasing, the City acknowledges the need for smaller lot sizes and consequently smaller houses to reflect changing lifestyles. The City realises Craigie, with ageing housing stock, is ready for regeneration. *"This is the natural process of housing renewal and presents excellent opportunities to provide more diverse housing types and at the same time, upgrade physical infrastructure and amenity."* An action of the LPS was to prepare a Local Housing Strategy aimed at identifying areas which are strategically located for infill or redevelopment. This is explained further below.

Together with housing, the environment is a key consideration, and the City plans to *"ensure that biodiversity and the natural environment values of the city are protected and preserved for the existing and future generations."*

4.2.4 CITY OF JOONDALUP DRAFT LOCAL HOUSING STRATEGY

At its meeting held on 16 April 2013 Council adopted the Draft Local Housing Strategy. The Strategy is currently being considered for final adoption by the Western Australian Planning Commission.

A Local Housing Strategy is a plan that identifies how future housing needs can be met within a local government area. A Strategy of this type is a requirement for local governments when preparing a new District Planning Scheme.

State government policies, in particular Directions 2031 and beyond (as previously covered), are encouraging this movement towards more efficient use of land and the City of Joondalup's draft Local Housing Strategy has been considered in this context. Research undertaken has shown that the combination of changes in household size to smaller households combined with an ageing population illustrates a need for a variety of housing options in the City of Joondalup.

Four principal objectives of the draft Local Housing Strategy, relevant to Craigie are to:

- Encourage residential development which protects amenity and ensures that growth in the City occurs in a sustainable way;
- Identify suitable areas for increased densities which are in need of private investment to make more effective use of existing community infrastructure;
- Ensure that a wide range of housing can be provided to meet the social and economic needs of the changing demographics of the City; and
- Identify mechanisms to ensure new infill development is based on good design principles thus improving the amenity of existing neighbourhoods.

As part of the Draft Local Housing Strategy, the City of Joondalup has identified 10 areas in the City as being suitable for higher residential densities. The subject land sits within Opportunity Area 5 where it is identified as an existing public school.

The general future direction for Housing Opportunity Area 5 is that it “presents excellent opportunities for more compact living and greater housing choices focussed around Whitfords Secondary Centre and the high frequency public transport services on Whitfords Avenue. There is an opportunity to revitalise older housing stock within these suburbs..”

An R20/R60 density code is recommended for residential properties close to Whitfords Centre and the public transport corridor for Whitfords Avenue. Elsewhere in the Housing Opportunity Area, and surrounding the former Craigie High School site, R20/40 is recommended for residential properties.

The former Camberwarra Primary School site is identified as ‘existing public use including schools’ The urban design directions for the Craigie High School Site, which are considered useful in guiding the development of Camberwarra Primary School, are:

- The focus will be on good design outcomes that will improve the area and respect the amenity of current and future residents.
- Enhancing/maintaining streetscapes and environmentally responsible housing designs..
- The expected increase in housing diversity will build on existing neighbourhood character and sense of place.

All of these urban design directions/principles have been key considerations in the design formulation of the proposed local structure plan.

The Residential Design Codes of Western Australia (R-Codes) are a regulatory and comprehensive tool for the control of built form and density of the residential development throughout WA and are supported by the Local Housing Strategy.

4.2.5 CITY OF JOONDALUP LANDSCAPE MASTER PLAN

The City of Joondalup contains a diverse range of public open space that includes: bush forever sites, conservation category wetlands, regional parks, areas of passive and active recreation, a wide range of purpose-built sporting grounds, and generous road verges and medians. In 2008, the City prepared a Water Conservation Plan to demonstrate a reduction in groundwater consumption for Public Open Space irrigation, in response to limitations imposed by the State Government in 2007. This process was a major catalyst for the production of the City of Joondalup Landscape Master Plan 2009-2019. The relevance of this document to the former Camberwarra Primary School site is discussed below.

4.2.5.1 LANDSCAPE VISION

The vision for landscape within the City of Joondalup “*will be innovative, distinctive, functional and appealing, and valued by residents and visitors and will evoke a sense of ownership and pride amongst its residents. This vision will be achieved through the application of sustainable principles that will underpin all landscaping practices, with a focus on environmental best practice and the preservation, enhancement and showcasing of local natural diversity.*”

Key elements of the City’s vision have been reflected in the Camberwarra ~~Primary School~~ Structure Plan which are described within the aims and principles listed below.

4.2.5.2 AIMS AND PRINCIPLES

The City’s vision is underpinned by several aims and principles. The following have been referenced due to their relevance to the Camberwarra Primary School site, and of the proposed landscape works:

- provide more opportunities for passive recreational pursuits in public open space and ‘natural’ bushland ecosystems;
- increase active and passive recreational opportunities within attractive and functional landscape incorporating expanses of irrigated turf, maintained native garden beds, and rehabilitating more natural bushland areas;
- provide an effective response to the issue of climate change through reducing overall water consumption patterns across the City where appropriate;
- provide attractive and functional streetscapes;
- ensure that the City’s Scheme and development plans for residential development reflect the principles of landscape master planning; and
- ensure community awareness and engagement occurs during planning and implementation.

4.2.6 OTHER LOCAL PLANNING POLICIES

4.2.6.1 HEIGHT AND SCALE OF BUILDINGS WITHIN RESIDENTIAL AREAS POLICY

Issued by the City of Joondalup in October 2005, the primary objective of the *Height and Scale of Buildings Within Residential Areas* policy is “to ensure that all development within a residential area of significant height and scale is given appropriate consideration with due regard to the protection and enhancement of the amenity and streetscape character of the surrounding area.” As part of this policy development applications must comply with a building threshold envelope.

4.2.6.2 SUBDIVISION AND DWELLING DEVELOPMENT ADJOINING AREAS OF PUBLIC SPACE POLICY

Issued by the City of Joondalup in October 2009, the primary objective of the *Subdivision and dwelling development adjoining areas of public space* policy is ‘to provide guidelines for the design of subdivisions and dwelling developments adjoining areas of public space to maximise the outlook onto and casual surveillance of these areas from adjoining properties and streets’. As part of this policy development and subdivision must meet prescribed standards, including uniform fencing and dwelling orientation requirements.

5 CRAIGIE COMMUNITY

5.1 DEMOGRAPHICS

In a total area of 4.6 km², current population for the suburb of Craigie (based on 2011 Census) is 5,588 making the population density 1,215 people per km². This population is accommodated within 2,310 dwellings with an average household size of 2.4 people. Craigie's median age is 35 with the number of people aged over 65 at 885, 16% of Craigie's total population. The median household income is \$69,904 per annum.

5.2 HOUSING

The general housing type surrounding the Camberwarra Primary School Site is single storey dwellings/houses on approximately 700m² lots, with approximate 18m frontages and 37m depths. 2,023 of 2,302 residential lots within the suburb of Craigie are between 600-900m².

5.3 FACILITIES

The facilities available within close proximity to the Camberwarra Primary School Site include Whitfords Catholic Primary School situated over Camberwarra Crescent to the west, Craigie Plaza (local centre) situated approximately 300m south-east of the site and Otago Park to the south of the site.

6 EXISTING SITE DESCRIPTION

6.1 LANDSCAPE CONTEXT

The site has operated as a school for many years and as such has been cleared of the majority of native vegetation and reconfigured to provide functional areas suited to the operation of a school. There are several existing mature trees on site that are further discussed in Section 8.6.

6.1.1 TOPOGRAPHY AND LANDFORM

The topography of the site is hilly with the surface level generally falling from a maximum of approximately RL 37.7 m AHD in the north-east of the site to RL 30 m AHD in the north-west and RL 23.9 m AHD in the south of the site, according to a survey plan produced by McMullen Nolan. Further information on landform and topography is included within Geotechnical Report outlined in **Appendix 5**.

6.1.2 SOILS AND GEOMORPHOLOGY

The Quindalup Dune System is comprised of three soil types, all of which are present within the site: limestone, limestone sand and calcareous sand. The limestone is a pale yellowish brown in colour, is weakly cemented, friable, medium grained, with sub-rounded quartz and shell debris of aeolian origin. The sand is pale and olive in colour, with medium to coarse grain, sub-angular to sub-rounded quartz, a trace of feldspar, and moderately sorted of residual origin. The calcareous sand is white in colour, fine to medium grained with sub-rounded quartz and shell debris of aeolian origin. These soils are free draining and are capable of supporting unique flora and fauna.

The Spearwood Dune System consists of calcareous deep sands and yellow sands, coastal aeolian sand over sedimentary rocks, coastal dunes with sand flats. There are two distinctly different landscapes, one that consists of shallow yellow brown sands and exposed limestone while the other has deep yellow brown sands. Further information on soils and geomorphology is included within Geotechnical Report outlined in **Appendix 5**.

6.1.3 FLORA AND VEGETATION

In August 2010 a Level 1 flora and vegetation survey was completed by RPS Environment and Planning for Lot 12811 (Reserve 36690), 34 Currajong Crescent, Craigie (**Appendix 2**). The vegetation surrounding the former primary school site would originally have supported representatives of the Cottesloe Vegetation Complex such as Rottnest Island Tea Tree (*Melaleuca lanceolata*), Tuarts (*Eucalyptus gomphocephala*) and Peppermint Trees (*Agonis flexuosa*).

A total of 18 flora species were recorded, within six vegetation types. The dominant family present was *Myrtaceae* (Eucalypts). The condition of the vegetation is mostly completely degraded consisting of remnant native trees with planted Eucalypts (previously terraced) exotic gardens and lawns.

No Threatened Ecological Communities (TEC's) were recorded within the survey area due to the completely degraded condition and lack of remnant vegetation types. The results of the study due to the state of its vegetation condition also places the Camberwarra Primary School site as neither a Regionally or Locally Significant Natural Area, nor does it contain any rare, priority, or flora of other significance.

Due to the potential to provide roosting and breeding sites for the endangered Carnaby's Black Cockatoo a select number of larger native trees (Tuarts) on the site may be considered significant for both ecological habitat provision and aesthetic reasons. These trees are situated on the west and southern fringe of the site from Argus Close and along Camberwarra Drive. Based on this survey data, the intention of the landscape strategy for this site is to re-establish key habitat species into the public open space and streetscapes as integrated habitat and public amenity.

6.1.4 FAUNA

Resultant of a desktop fauna study search by RPS Environment and Planning the following table produced results from the DEC Threatened and Priority Fauna, and the EPBC Act (1999) 'Protected Matters' database in showing species with potential to occur in the study area.

- BIRDS - *Calyptorhynchuslatirostris* (Carnaby's Black Cockatoo)
- *Calyptorhynchusbanksianaso* (Forest Red-tailed Black Cockatoo)
- INSECTS - *Synemongratiosa*(Graceful Sun Moth)
- REPTILES - *Neelapsalonotos*(Black-striped Snake)
- MAMMALS - *Dasyurusgeoffroi*(Chuditch)

With the observed vegetation condition and further disturbance by the demolition and clearing of buildings the Camberwarra Primary School site presents an unsuitable habitat for the Graceful Sun Moth, Black-striped Snake and the Chuditch. Due to the lack of grasses, woodland understorey, hollow logs and places to burrow it is highly unlikely that these species will occur within the site.

Due to the presence of appropriate and suitable nesting trees (Tuarts) there is potential for the Carnaby's Black Cockatoo and the Forest Red-tailed Black Cockatoo to inhabit and forage the site. Both species are known to inhabit remnant native eucalypt woodlands with hollows for breeding. Particular to the Carnaby's Black Cockatoo the site is within range of its migratory route to coastal areas when moving from the east and due to a significant decline in the species this poses a key significance in the support to maintain Tuarts of reasonable and suitable condition. This support will also be encouraged through additional habitat species integration in the planting rationale.

6.1.5 OPEN SPACE NETWORK

The site is located centrally to several public open spaces, and community gathering points, each of which are within walking distance. Bridgewater Reserve can be accessed via an under-pass beneath Marmion Avenue, Whitford Catholic Primary School is west of the site on Camberwarra Drive, Gradient and Barwon Park to the west, the Craigie Plaza and Warrandyte Reserve to the south-east, and both Otago Reserve and the Craigie Primary School to the south.

Most of the road network surrounding the site contains at least one footpath within the road verge, facilitating pedestrian movement between these public spaces.

6.2 MOVEMENT NETWORK

Within the proposed structure plan, the residential lots are the major traffic generating land use. The reserve for recreation located on the southwest corner of the structure plan is not expected to attract vehicular traffic as most trips to the reserve are expected to be by walking or cycling.

The majority of traffic generated by the proposed subdivision would be attracted east from the site, i.e. Mitchell Freeway (i.e. Perth CBD, Joondalup) for work. Other key attractors would be north towards schools (Beldon Senior High School) and local shopping centres i.e. to the southwest Whitfords Shopping Centre and again to the north Joondalup.

6.2.1 EXISTING ROAD INFRASTRUCTURE

The road network servicing the subject site is shown in **Figure 7** and further discussed within **Appendix 4**. Three existing roads directly abut the site, being Camberwarra Drive, Currajong Crescent and Argus Close.

CAMBERWARRA DRIVE

Camberwarra Drive is typically constructed to a kerbed, two lane divided (painted median) single carriageway road. The approximate pavement width is 9m comprising of 2 x 3.5m traffic lanes and a 2m painted median. Immediately adjacent to the site there are parking embayment's that previously would have been used to meet the associated parking demand during the operation of the Primary School.

There are existing footpaths on both sides of Camberwarra Drive. Typical widths are 1.2m however immediately adjacent to the site the footpath is widened locally to accommodate the increased pedestrian usage during the operation of the old school.

The built up area speed limit of 50km/h would apply past the site. Camberwarra Drive forms a continuous loop within the adjacent residential area with numerous road connections along its lengths.



Camberwarra Dr, looking west towards Fenellia Cres



Camberwarra Dr, looking east towards Fenellia Cres

CURRAJONG CRESCENT

Currajong Crescent is constructed to a kerbed, two lane undivided single carriageway road. The approximate pavement width is 7m (western and eastern legs) while the width alters adjacent to the site to approximately 8.5m, comprising of 3m lanes and a 2.5m wide on street parking embayment. These parking bays would have previously been used to meet the associated parking demand during the operation of the old Primary School.

There is an existing 2.0m wide footpath located on the southern side of Currajong Crescent adjacent to the site. Pedestrian links from Currajong Crescent connect through to Craigie Drive, Barwon Road and Allinga Crescent.

The built up area speed limit of 50km/h would apply past the site. Currajong Crescent forms a u-shaped road connecting with Camberwarra Drive and Bullara Road.



Currajong Cres, looking north from Camberwarra Dr



Currajong Cres looking east adjacent to old school site



Currajong Cres, looking south towards Bullara Dr



Pedestrian Link from Currajong Cres to Craigie Drive

Camberwarra ~~Primary School Site~~ Local Structure Plan

ARGUS CLOSE

Argus Close is constructed to a kerbed, two lane undivided single carriageway road. The approximate pavement width is 6.2m. There is an existing 1.2m wide footpath located on the eastern side of Argus Close adjacent to the site.

The built up area speed limit of 50km/h would apply past the site although the local conditions i.e. road length and cul-de-sac form would likely restrict speeds to less than this.



Argus Close, looking south towards cul-de-sac end



Pedestrian Link from Argus Close to Camberwarra Drive

6.2.2 ROAD HIERARCHY CLASSIFICATION

All the adjacent roads abutting the site, i.e. Camberwarra Drive, Currajong Crescent and Argus Close are classified as *Access Roads* under Main Roads WA's *Functional Road Hierarchy*. This classification is applied to roads which "provide access to abutting properties with safety aspects having priority over the vehicle movement function. In urban areas, these roads are bicycle and pedestrian friendly, with aesthetics and amenity also important".

The local distributor roads within the area which are expected to be used by local traffic include Craigie Drive, to the north of the site and Eddystone Avenue to the east of the site. The *local distributor* classification is applied to roads which: "discourage through traffic, only carries traffic belonging to or serving the area. Local distributors should accommodate buses but discourage trucks".

6.2.3 PEDESTRIANS & CYCLISTS

The pedestrian and cyclist movement network for the subject area is outlined within **Figure 8**. The walking distance from the new dwellings to the existing bus stops locations on Camberwarra Drive or Craigie Drive (route 463) and on Eddystone Avenue (route 464) is 400-500m. This is equivalent to a 5 minute walk.

6.2.4 PUBLIC TRANSPORT

The subject site has good access to public transport, as shown in **Figure 9**. The existing Transport bus route 463 and 464 travel along Camberwarra Drive, to the west of the structure plan and Eddystone Avenue, to the east of the structure plan respectively servicing the Whitfords and Joondalup Train Stations.

The existing Transperth bus route 463 in the vicinity of the site has stops on Camberwarra Drive, west of Barwon Road while bus route 464 has stops on Eddystone Avenue, south of Craigie Drive.

Figure 8: Pedestrian and Cyclist Movement Network

Camberwarra ~~Primary School Site~~
Local Structure Plan

Insert Figure 9 – Public Transport Network

6.3 SERVICE INFRASTRUCTURE

The site is located on a former primary school site that has been fully serviced. Demolition and clearing of the primary school site was carried out in 2011.

The main constraint for the site relates to the levels changes across the site, as there is over 12m fall across the site, special consideration will be required to minimize large walls (3m or larger) and ensure that proposed levels interface with existing residents and verges.

6.3.1 SEWERAGE SYSTEM

The Camberwarra Primary School site is well serviced by Water Corporation sewer assets with existing 150mm diameter sewers located adjacent to the development site. The entire site lies within the Barwon Road Pumping Station No. 78-09.

6.3.2 WATER SUPPLY

The Camberwarra Primary School site is well serviced by Water Corporation water assets with existing reticulation mains within the road reserves surrounding the proposed development including 220mm diameter mains in Camberwarra Drive and Bullara Road and 100mm diameter mains in remaining roads.

6.3.3 DRAINAGE

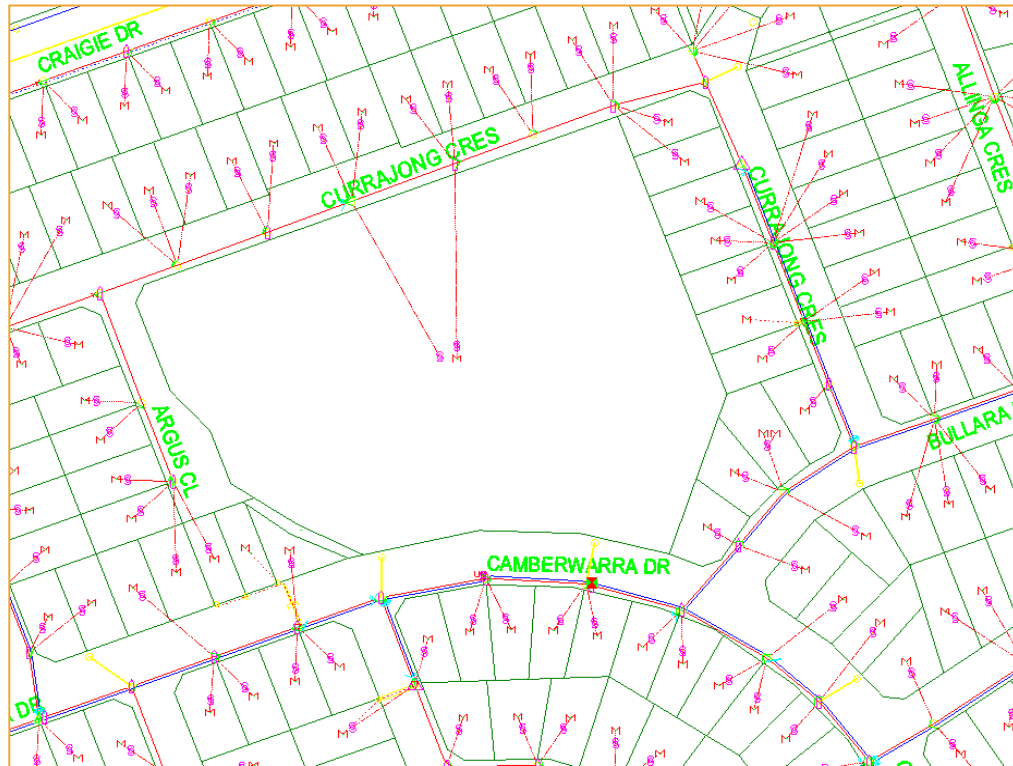
Stormwater drainage from the existing roads surrounding the site currently discharge via a pit and pipe network into the Barwon Road stormwater drainage basin.

Flood routing for large stormwater events are conveyed along the existing road network also to Barwon Road basin.



6.3.4 ELECTRICITY

There is a low voltage aerial power line along Currajong Crescent fronting the site and along Argus Close. The only high voltage network adjacent to the site is along Camberwarra Drive, which would be the likely connection point for the development. The existing aerial power lines along Currajong Crescent are located adjacent to the site.



6.3.5 GAS

The surrounding area is well reticulated with Gas infrastructure and the existing network will have the capacity to service the redevelopment of the site.

6.3.6 TELECOMMUNICATIONS

The general area is well serviced with Telstra Infrastructure with a major exchange building located at intersection of Coral Street and Marmion Avenue.

7 OPPORTUNITIES, CONSTRAINTS AND ISSUES

The site is characterised by a number of factors which are relevant in the formulation of the Structure Plan and should influence the design outcome. The outcomes of an opportunities and issues/considerations analysis of the site area is illustrated in **Figure 10** and discussed further below.

7.1 OPPORTUNITIES

7.1.1 LAND USE/SURROUNDING USES

The following land use/surrounding land use opportunities are evident in the Camberwarra Primary School Site:

- Optimise the aesthetic appearance of the development along the exposed external edges of Camberwarra Drive, Currajong Crescent and Argus Close through quality public realm, built form and retention of trees.
- Co-locate the public open space (POS) with the drainage at the lowest part of the site.
- Optimise the interface with the Public Open Space and beautify the drainage basin as a wetland feature.
- Optimise the aesthetic appearance of the side of the existing lot between Argus Close and Camberwarra Drive.
- Optimise the interface with the back/side of existing lots to the east.
- Potential green links through the site, through retention of trees in road reserves.

7.1.2 EXISTING VEGETATION

The following existing vegetation opportunities are evident in the Camberwarra Primary School Site:

- Consider the retention of significant native trees and other trees on site.
- Consider large trees that have formed hollows that have the potential to provide roosting and breeding sites for the Endangered Carnaby's Black-Cockatoo.

7.1.3 VEHICULAR AND PEDESTRIAN MOVEMENT

The following vehicular/pedestrian movement opportunities are evident in the Camberwarra Primary School Site:

- Potential linkages off existing pedestrian network.
- Potential pedestrian pathways providing legible walkability through the site.
- Opportunity to realign existing pedestrian access way (PAW) between Argus Close and Camberwarra Drive into the site/POS, improving the pedestrian movement and amenity.
- Capitalise on near-by bus route to facilitate and promote transit use.
- Camberwarra Drive provides an opportunity for access into the site due to good exposure and connectivity to the existing street network.
- Opportunity to provide direct north-south streets between Currajong Crescent and Camberwarra Drive maximising connectivity, providing legibility, optimising passive solar lot orientation and assisting drainage flow.

7.1.4 LANDFORM

The following landform opportunities are evident in the Camberwarra Primary School Site:

- The sloping topography of the site from north-east down to south-west provides potential for views, specifically long views southwards towards the Cawarra dune system and short views southwards down potential north-south streets.

7.2 CONSTRAINTS/ISSUES

7.2.1 MOVEMENT

The following movement constraints/issues are evident in the Camberwarra Primary School Site:

- Entry/Exit points onto Camberwarra Drive and Currajong Crescent to be considered.
- Treatment of potential pedestrian/vehicular connections into site to be considered.

7.2.2 INTERFACE

The following interface constraints/issues are evident in the Camberwarra Primary School Site:

- Connection to surrounding street network via Camberwarra Drive to the south, Currajong Crescent to the north and/or Argus Close to the west.
- Consider treatment of existing side lot interface between Argus Close and Camberwarra Drive.
- Consider treatment of existing back/side lot interface to the eastern boundary of the site.
- Consider treatment of proposed development interface with POS/Drainage.

7.2.3 EXISTING INFRASTRUCTURE

The following infrastructure constraints/issues are evident in the Camberwarra Primary School Site:

- All Primary School buildings demolished with pad sites remaining.
- Poor amenity provided by existing pedestrian access way (PAW) between Argus Close and Camberwarra Drive.

7.2.4 TOPOGRAPHY

The following topography constraints/issues are evident in the Camberwarra Primary School Site:

- Consider treatment of significant level change from Currajong Crescent down to Camberwarra Drive (from 37AHD down to 24AHD).
- Consider treatment of significant level change to corner of Currajong Crescent and Argus Close.
- General southwards drainage direction influencing location of onsite retention, street block orientation and solar access.
- Consider treatment of significant level change from existing PAW up to subject site level.

8 THE PLAN

8.1 DESIGN PHILOSOPHY & PRINCIPLES

The design vision of the Camberwarra development is to create a new and inspiring residential community that embraces natural landmarks, respects its urban context and uses site-specific creativity to accentuate natural landform.

Integral to the vision, is the integration of the adjacent existing residential development with the new Camberwarra Primary School development. This has been achieved through the creation of legible north south streets supporting passive solar traditional lot design, backing development onto an existing poor lot interface and the introduction of cottage product overlooking the high-amenity public open space area. The above urban structure creates communal open space areas, community focal points and promotes the site's sense of identity.

The design seeks to encourage a relaxed, healthy and social lifestyle, while complementing a new and emerging demographic through the provision of diverse housing product.

The Structure Plan embraces the following principles:

- Provide for a range of quality built form and housing product opportunities.
- Ensure a sensitive transition and integration between the existing and new development.
- Provide a legible movement network that enhances accessibility and way-finding.
- Integrate the drainage into the high-amenity public open space.
- Optimise the aesthetic appearance of the development along the exposed external edges.
- Optimise the aesthetic appearance of the lots directly fronting the high-amenity public open space.
- Laneway lot product introduced to respond to site topography, provide diversity of lot product and enable efficient use of land.
- North-south street structure supporting climate responsive and environmental design is to be incorporated into built form outcomes.
- Provide site response design that optimises climate and landform sensitive outcomes.
- Through well connected public realm and community facilities, the existing assets and sense of community are enhanced by integrating with the new development..

8.2 LAND USES

The Camberwarra ~~Primary School~~ Structure Plan (refer **Plan 1**) proposes the following mix of land uses over the subject land:

- Residential;
- Public Open Space; and
- Drainage.

The following sections describe the land uses proposed by the Structure Plan and provides a rationale for their location within the structure plan area.

8.2.1 RESIDENTIAL

The density within the Camberwarra ~~Primary School~~ Structure Plan has been considered within the context of the State Government’s *Directions 2031* and the City’s *Draft Local Housing Strategy*, which both encourage more efficient use of land.

To ensure that the subject land is developed to its optimal potential, a minimum density requirement has been imposed in Part 1 of 19.5 dwelling units per site hectare, or a total of 60 dwellings, which is to be imposed by regulatory authorities in subdivision and/or development applications.

This density target is higher than the surrounding subdivision density to reflect the strategic importance of a residential development site in an established residential area. The target is considered entirely appropriate to optimise built form outcomes, and is reflective of the recommended density targets for new urban development areas under *Directions 2031*, the *Outer Metropolitan Perth and Peel Sub Regional Strategy* and *Liveable Neighbourhoods*.

Areas of lower density have been provided where site-responsiveness has been a priority, particularly in relation to addressing the steep slope across the site, respecting the interface with the existing R20 residential areas and incorporating the existing grades within the lots.

Densities have generally been provided for by locating the lower densities on the periphery of the site to interface with the existing lower density residential, while the density intensifies towards the Public Open Space located in the south of the site.

Through the *Residential Design Codes*, together with the *Built Form Requirements* of this Structure Plan the site development encourages residential development to occur in a sustainable way.

The location, variety and orientation of the residential densities are in accordance with Element 3 – Liveable Neighbourhoods. The Structure Plan (refer **Plan 1** - Structure Plan) provides for the following density ranges:

- R25 – R40 Residential
- R30 – R60 Residential

Based on the densities proposed by the Local Structure Plan, a minimum of 60 dwellings will be achieved. It is important to recognise, however, that given the topography of the site and the nature of the future development, there will be a need to ensure that the design of single dwelling lots and grouped housing lots can be achieved in a flexible manner. This can only be undertaken at the detailed subdivision design stage.

Based on the residential area proposed by the Local Structure Plan, approximately 21,154m² of Net Developable Area (NDA) will be achieved. The table below provides an indicative R-Code Area breakdown for the Structure Plan area:

R-Code	NDA (m ²)	% of Area
R25 –R40	15,229m ²	72%
R30 – R60	5,925m ²	28%
Total	21,154m²	100%

8.2.1.1 R25-R40 RESIDENTIAL

The land proposed for residential development at R25-R40 has been generally located on eastern boundary of the subject land to provide a similar built form transition from the abutting R20 development to the more compact residential housing towards the north-west of the site. The Structure Plan provides for these peripheral R25-R40 zones in response to the existing residential R20 housing adjacent to the site.

8.2.1.2 R30 – R60 RESIDENTIAL

An area of R30 – R60 rear-loaded laneway product is strategically located along the north-western interface of the high amenity open space area. This location provides the opportunity for direct Public Open Space interface with rear laneway access. This R30–R60 residential zone promotes a more equitable urban structure and offers high accessibility to open space for smaller lots. This strategic allocation of density provides for increased accessibility and promotes a lively community nucleus by allowing for the population required to support these high amenity areas. The R30 – R60 Code allows for laneway lots generally between 160-350m², with some having direct access to the central open space.

8.2.2 PUBLIC OPEN SPACE

The public open space area shown in **Figure 11** represents approximately 3,991m² in the south-west precinct of the subject area. It should be noted that this POS Area is inclusive of a 550m² drainage swale for a 1:1 year rainfall event, resulting in a creditable POS are of 3441m². The selected POS location is considered to be optimal as it:

- Provides an area of accessible POS for both the new development and the existing surrounding development;
- Forms a natural low point in the topography, allowing the collocation of drainage and POS as per Liveable Neighbourhoods standards;
- Provides an attractive outlook for new lots immediately abutting the POS, in addition to the surrounding existing development; and
- Reflects the historic use of this portion of the site, which was the school oval, as open space for the benefit of the community.

PUBLIC OPEN SPACE SCHEDULE Camberwarra Structure Plan		
Gross Site Area (ha)		3.0519
Deductions		
Restricted Open Space - Drainage Basin (1:1 yr storm event)	0.0550	
Total Deductions		0.0550
Net Subdivisible Area		2.9969
Required Public Open Space (10%)		0.2997
Public Open Space Requirements		
Unrestricted public open space - minimum 80%	0.2398	
Restricted public open space - maximum 20%	0.0599	
Total		0.2997
PUBLIC OPEN SPACE PROVISION		
Credited Unrestricted Public Open Space		
Active and Passive Recreation (exclusive of drainage function)	0.1791	
Unrestricted Open Space - Drainage Basin (1:100 yr storm event) ¹	0.1550	

PUBLIC OPEN SPACE SCHEDULE Camberwarra Structure Plan		
Total Credited Unrestricted POS		0.3341
Restricted Public Open Space		
Drainage Basins (1:5 yr storm event) ¹	0.0100	
Total Restricted POS		0.0100
Total Restricted and Credited Unrestricted POS		0.3441
Percentage of Credited POS (Restricted and Credited Unrestricted POS Contribution)		11.48%

1. Detailed drainage calculations are subject to detailed calculation at the subdivision stage.

This POS is intended to be developed for active and passive open space purposes, and will accommodate the drainage requirements for the subject area. The POS Schedule for the subject site is provided above in accordance with the requirements of Liveable Neighbourhoods.

It is recognised that the City of Joondalup may choose to alter the existing Public Access Way abutting the POS area, as pedestrians may prefer to use the POS area as a thoroughfare between Argus Close and Camberwarra Drive.

8.3 LANDSCAPE MASTERPLAN

The Camberwarra Primary School site offers a unique opportunity to integrate new housing and recreation models into the existing urban fabric of Craigie, this supported by a locally sourced, provenance planting rationale will:

- Celebrate and respond to the natural biodiversity of the region;
- provide more opportunities for passive recreational pursuits in public open space and ‘natural’ bushland ecosystems;
- increase active and passive recreational opportunities within attractive and functional landscape incorporating an active recreation irrigated turf area, well-maintained native garden beds, and rehabilitating naturally occurring bushland areas into the urban fabric;
- provide an effective response to the issue of climate change through reducing overall water consumption patterns across the City where appropriate;
- provide attractive, low-maintenance and spatially functional streetscapes;
- promote the principals of natural play pursuits and exposure to vernacular ecologies;
- ensure community awareness and engagement occurs during planning and implementation.

The Landscape Masterplan is included within **Figure 11**.

8.4 BUILT FORM

In promoting a Structure Plan objective to facilitate quality built form and diverse housing, it is important that achieving the required outcomes is not restricted by the City's Policy 3.2 *Height and Scale of Buildings Within Residential Areas*. For this reason, Part 1 proposes a variation to this Policy to allow more development scope for the lots within the Structure Plan area.

The *Height and Scale of Buildings within Residential Areas* Policy effectively negates any two-storey development on lots less than 17-18m wide due to the wide 5m side setback on each side of a lot that creates the building envelope for the 8.5m height limit. The majority of the Structure Plan contains a density coding between R25-R40, giving those lots a frontage of under 17-18m. On these smaller R25-R40 lots, desirable two-storey development would not be allowed by the building threshold envelope limitations within the *Height and Scale of Buildings within Residential Areas* Policy.

Current building industry experience indicates that two-storey development is often higher than 8.5m, often close to 10m high at the ridge.

8.5 STREETScape

The streetscape is the interface between home, community and nature. Designed correctly, it provides the setting for social interaction and connection to nature. The key to this success is establishing human scale and preference for people over cars.

The broad street verges provide a good opportunity for people to interact in their daily activities. The major entry and dividing north/south road of the development will feature tall Tuarts (*Eucalyptus gomphocephala*) to provide continuity with the Tuarts retained in parts surrounding the site. The remaining minor roads will support smaller-scale Peppermint Trees (*Agonis flexuosa*) that will tie in with the neighbouring Craigie High School site development. Where existing street frontages are incorporated into the development, the street tree planting rationale will be reinstated to integrate seamlessly with the surrounding suburb.

It is noted that carriageway design, including street trees within the verge areas, is subject to Council approval as subdivision progresses.

8.6 SITE FEATURES

8.6.1 EXISTING TREES

A number of mature existing trees on the site provide valuable green infrastructure that have the inherent capacity to enhance and regenerate natural resources. Given the varied topography of the site, however, it is recognised that significant site works will need to occur prior to residential development being feasible. Due to the nature of the site works required to supply level homesites, it will be very difficult to retain the majority of the trees on-site.

An assessment of the vegetation by PGV Environmental has found that clearing is unlikely to have a significant impact on Carnaby's Black Cockatoos, and as a result referral to SEWPaC is not required. Further information on the results of the vegetation assessment are outlined in **Appendix 6**.

In preparation of the detailed subdivision and engineering plans the landowner will work with the City of Joondalup to optimise the retention of existing trees in accordance with the tree retention plan (**Figure 12**).

Many of the trees to be potentially retained on site are located in the grouped housing site along with some key specimens at site entry points and the lower lying drainage basin proposed to the southwest corner of the site.

Where trees proposed for possible retention are located in areas to be earth-worked, root zones will be identified, fenced-off and retained in their natural state for the duration of the project development phase. These existing trees provide:

- habitat for endangered species of native bird life
- improve air quality
- providing buffers and refuges in extreme weather events
- reduced green-house gas via carbon sequestration
- increased local distinctiveness that supports cultural identity
- enhanced biodiversity by providing connectivity, corridors and linkages
- adding value to water sensitive urban design through soil infiltration that reduces flooding and pollution from run-off.

The tree retention plan is outlined in **Figure 12** and further discussed in **Appendix 3**.

8.6.2 DRAINAGE, NUTRIENT AND WATER MANAGEMENT

Effective management of the storm water collection, filtration and distribution, will be demonstrated through the required management. These will be prepared in collaboration with project engineers to accommodate the following public landscape design principles:

- infiltrate stormwater to groundwater as close to point-source as possible
- integrate stormwater detention areas into natural topography where-ever possible
- accommodate occupational health and safety requirements
- promote natural ecologies
- provide effective vegetative stripping of nutrients before entering groundwater
- accommodate and minimise maintenance requirements in collaboration with local government.
- ensure plant species selection are appropriate for debris collection, erosion control, nutrient stripping and periodic submersion.

8.7 MOVEMENT NETWORK

8.7.1 PROPOSED ROAD NETWORK

The proposed road network is shown in **Figure 13** and further discussed within **Appendix 4**. As the proposed roads are yet to be named, the identifying names as per Road 1 and Road 2 have been adopted for use in this assessment. The two internal roads of the subdivision simply connect in a north-south orientation between Camberwarra Drive and Currajong Crescent. The nature of the road layout is such that minimal external traffic is likely to use the newly created roads with the exception being local traffic whose origin/destination is Currajong Crescent itself.



Figure 13: Proposed Movement Network

A number of residential properties abutting the public open space will not have direct street frontage. Detailed design will need to give consideration to garbage collection from these properties via rear the laneway. Turning movements into/out of the laneway on the garbage route needs to be considered at the detailed design stage of the lots to ensure appropriate truncations are allowed for.

8.7.2 ROAD RESERVATION WIDTH

The road reserve widths of Road 1 and Road 2 are typically 15m. This width is consistent with the range of 14.2m to 24m suggested in *Liveable Neighbourhoods* (WAPC 2009) as indicative reserve widths for access streets (those that accommodate shared pedestrian, bike and vehicle movements). The lower reserve width is generally for short, low volume, and low parking demand streets. The higher reserve width allows for a median and/or additional road features such as parking and paths to be incorporated. It is noted that the reserve width is reduced locally immediately adjacent to the public open space being 13m, with a 2.5m verge along the public open space. This is achievable through the reduced verge width allowance in *Liveable Neighbourhoods* for only 1m adjacent to parks.

The laneway is proposed to have a road reservation width of 6.1m which is also in line with the guidelines as suggested by in *Liveable Neighbourhoods* (WAPC 2009). It is recognised that the City of Joondalup will require dedicated reserve areas for street lighting along the northern side of the proposed laneway.

8.7.3 ROAD CROSS SECTIONS AND SPEED LIMITS

All roads within the structure plan are likely to carry less than 1,000 vehicles per day hence would be defined as access roads. It would therefore be considered appropriate to adopt a narrow yield access street cross section with typically a 6m wide pavement. **Figure 14** shows a sample cross section of an access road as outlined in *Liveable Neighbourhoods* (WAPC 2009) that would be suitable for a road reservation width of 14.2m similar to the roads within the Structure Plan.

Existing street parking along Currajong Crescent is to be maintained and reconfigured, and additional street parking is to be provided on the western side of Road 1 adjacent to proposed laneway lots and the public open space. This parking is intended to be used for visitors to laneway lots and the public open space.

The proposed speed limit is 50km/h, as per the requirement in built up areas. It should be noted however the target speed as defined by Liveable Neighbourhoods with respect to the cross sections is 40km/h.

8.7.4 INTERSECTION CONTROLS

The proposed internal road network results in the creation of one internal intersection within the subdivision. This being the laneway with Road 1. A priority T junction is the proposed form of control at this intersection. The structure plan will connect to the existing road network via five new locations:

- Currajong Crescent and Road 1;
- Currajong Crescent and Road 2;
- Camberwarra Drive and Road 1;
- Camberwarra Drive and Road 2; and
- Argus Close and laneway.

A priority T junction is the proposed form of control for each of these intersections with all vehicle movements being permitted.

Potential sight lines from the proposed intersection connections were observed on site. The sight lines are good and are appropriate within the residential environment.

insert figure 14

8.7.5 ROADS AND INTERSECTIONS

ROADS INTERNAL TO SUBDIVISION

The structure plan is expected to generate an average of approximately 416 vehicle trips per day. The indicative maximum volume of traffic suitable for an access street varies from 3,000 vehicles per day based on a pavement width of at least 7.2m and 1,000 vehicles per day based on a pavement width of 5.5-6m. (*Liveable Neighbourhoods*, WAPC 2009) The design traffic flows suggest that Road 1 and 2 will carry in the order of 104 and 120 vehicles per day. Currajong Crescent near Camberwarra Drive (west) will carry an additional 58 vehicles per day while the Currajong Crescent and Bullara Road intersection to the east will carry an additional 134 vehicles per day.

This traffic assessment confirms that all roads are expected to carry traffic volumes appropriate for roads as defined for access roads in accordance with the guidelines provided by *Liveable Neighbourhoods* (WAPC 2009).

The intersection of Camberwarra Drive with Road 1 and Road 2 will function as the main access/egress point to/from the proposed structure plan. Camberwarra Drive currently carries in the order of 1,865 vpd (AWT, May 2012) with corresponding maximum am and pm peak hour flows of 303/314 respectively. Road 1 and Road 2 are expected to carry in the order of 104/120 vehicles per day or 10-12 vehicles in the peak hour.

If Camberwarra Drive has a volume of 400 vehicles per hour during the peak period, the cross road Road 1 and Road 2 (i.e. road into/from the subdivision) can service a volume in the order of 250 before capacity analysis of the intersection is warranted. At an expected 10-12 vehicles, Road 1 and Road 2 is 96% below this level.

The Camberwarra Drive intersections will carry the most traffic in comparison to all other intersections (i.e. Currajong Crescent) within the structure plan. Accordingly, a capacity analysis is also not warranted for the other intersections. From this assessment, it is concluded the proposed intersections have adequate capacity to cater for the expected traffic flows.

CAMBERWARRA DRIVE

Camberwarra Drive, west of Barwon Road carries in the order of 1,865 vehicles per day (AWT, May 2012). Camberwarra Drive is constructed to a two lane single carriageway standard with a painted median. According to the Main Roads functional hierarchy Camberwarra Drive is classified as an Access Road. Camberwarra Drive is likely to be defined by *Liveable Neighbourhoods* as a Neighbourhood Connector due to its function connecting to numerous access roads as well as forming part of a bus route however volumes are in line with an Access Road.

Liveable Neighbourhoods (2009) suggests the indicative maximum volume for a Neighbourhood Connector ranges from 3,000 to 7,000 vehicles per day or for an Access Road 3,000vpd.. The existing volume on Camberwarra Drive, in the vicinity of Barwon Road is 1,865 vehicles per day approximately 38-73% below this level. Hence the estimated additional traffic of 125-157 vpd at various locations likely to use Camberwarra Drive can be accommodated within the spare capacity of the roadway and the resultant traffic volumes on Camberwarra Drive will remain in line with the road classification.

BULLARA ROAD

No existing volumes are available for Bullara Road however it is anticipated that they would be comparable to those along Camberwarra Drive in this vicinity. Similarly to Camberwarra Drive, in accordance with Main Roads functional hierarchy Bullara Road is classified as an Access Road while it is likely to be defined by *Liveable Neighbourhoods* as a Neighbourhood Connector or Access Road.

The additional trips estimated to be 291vpd can be catered for adequately within the additional spare capacity of the roadway and would also be in line with the road classification.

ARGUS CLOSE

The proposed laneway connection will result in some increase in traffic along Argus Close. There are 8 residential dwellings that will require access to their properties via the laneway. Assuming that 30% of traffic will typically be attracted to the west with the majority of 70% attracted to the east it is reasonable to assume that up to 30% of these residential trips may use Argus Close. This would equate to 19 vehicles per day or 2 trips in the peak hour. This is considered acceptable for the cul-de-sac road and is likely to be considerably less than that experienced within Argus Close during the operation of the Primary School.

8.8 SERVICING INFRASTRUCTURE

8.8.1 EARTHWORKS

The site varies from RL37m at Currajong Crescent to RL25m at Camberwarra Drive with the existing topography representing an upper terraced area for the where the original school buildings were and a lower terraced area of the playing fields.

As there is a 12m fall across the site, consideration will be required to ensure that proposed levels interface with existing residents, paths and verges. The overall site will be earthworked with the intent to achieve a cut to fill balance and to improve lot accessibility. Construction of retaining walls are required for lots (other than Group Housing Lots) to ensure level building sites with specific planning and engineering consideration required to minimise walls of significant height. Stair access will be provided to those lots fronting any POS.

It is recognised that retaining walls are likely to be required in order to adequately grade the site for residential development. In particular it is noted that the eastern boundary will need to be retained between the proposed lots and existing residential lots, with the key objective being to minimise the level difference between the site and existing properties. Retaining walls will be determined by factors including: the height difference between the site and existing lots; the levels required to retain existing trees; and, the width of new lots compared to existing lots. The developer will undertake consultation with affected landowner(s) prior to the lodgement of an application, and will work to minimise the level difference wherever possible. Such retaining walls are to be clearly outlined as a component of future subdivision and/or development applications.

8.8.2 STORMWATER MANAGEMENT

Drainage collection and conveyance system for all new roads will be designed to cater for the runoff from storms with up to a 1 in 5 year recurrence interval. An infiltration basin / swale located within the POS will be designed to store runoff from up to 1 in 10 year storms.

Based on the new subdivision layout, the new roads and stormwater drainage from Argus Close and a portion of the road overflow from Currajong Crescent (north) will be collected and stored within the infiltration basin / swale. First flush sediments (1 in 1 year ARI event) will be infiltrated into bio-retention swale immediately upstream of main storage areas within the POS.

The 1 in 100 year recurrence interval flood route will similarly be conveyed along Camberwarra Drive to the Barwon Road Basin due to existing road grades and catchments.

8.8.3 SEWER RETICULATION

The Water Corporation has advised that there is sufficient capacity within the existing pumping station for the proposed redevelopment.

Standard Water Corporation sewer headworks contributions will apply to the development.

8.8.4 WATER SUPPLY

The Water Corporation has advised that there is sufficient capacity within the existing water main infrastructure to supply the proposed redevelopment.

Standard Water Corporation water Headworks contributions will apply to the development.

8.8.5 POWER SUPPLY

The existing low voltage network fronting the site is not suitable to service the development site. A new high voltage switchgear and transformer is likely to be required and the location of this is proposed to be within the POS in close proximity to Camberwarra Drive and adjacent to the aerial high voltage network.

Being a residential development, significant costs for headworks are not envisaged as there is an existing high voltage network adjacent to the development site. This residential development will be part of the “system charge” policy which if the high voltage costs are within the economic tests, some of the high voltage headworks costs will be offset.

As the site is adjacent to the overhead power lines on Currajong Crescent, Western Power will require these power lines to be undergrounded for the frontage of the development as part of the proposed subdivision. As part of these works, existing power services for lots on the northern side of Currajong Crescent will need to be converted to underground.

8.8.6 GAS

New gas services will be installed to each lot as part of the subdivision works in liaison with ATCO Gas.

8.8.7 TELECOMMUNICATIONS

As a result of the Australian Government’s decision to roll out a National Broadband Network (NBN) the ownership issues of delivering the wholesale fibre to the home system have been transferred to the Government with a number of retail service providers likely to offer services over the network. The rollout is progressing, however, as the development is less than 100 lots, Telstra will be responsible for the design and installation of the pit and pipe system at full cost to the developer.

General communication services for the development will consist of the installation of a standard pit and pipe network in accordance with the current guidelines and standards.. There may be some land requirements for equipment sites, similar to current provisions which will be accommodated at the detailed design phase.

9 IMPLEMENTATION

9.1 ADOPTION OF LOCAL STRUCTURE PLAN

The Structure Plan should be formally adopted under Clause 9.6.1 of the City of Joondalup's Scheme. Once adopted, the Structure Plan will provide the basis for guiding subdivision and development within the former Camberwarra Primary School Site.

9.2 STAGING/SUBDIVISION

The proposed Structure Plan is to be approved by late 2013. Accordingly, subdivision of the subject land is expected to commence thereafter, with the subject site to be developed as a staged practical completion of works.

APPENDIX 1
CERTIFICATES OF TITLE

APPENDIX 2
FLORA AND VEGETATION SURVEY

APPENDIX 3
TREE ASSESSMENT SURVEY

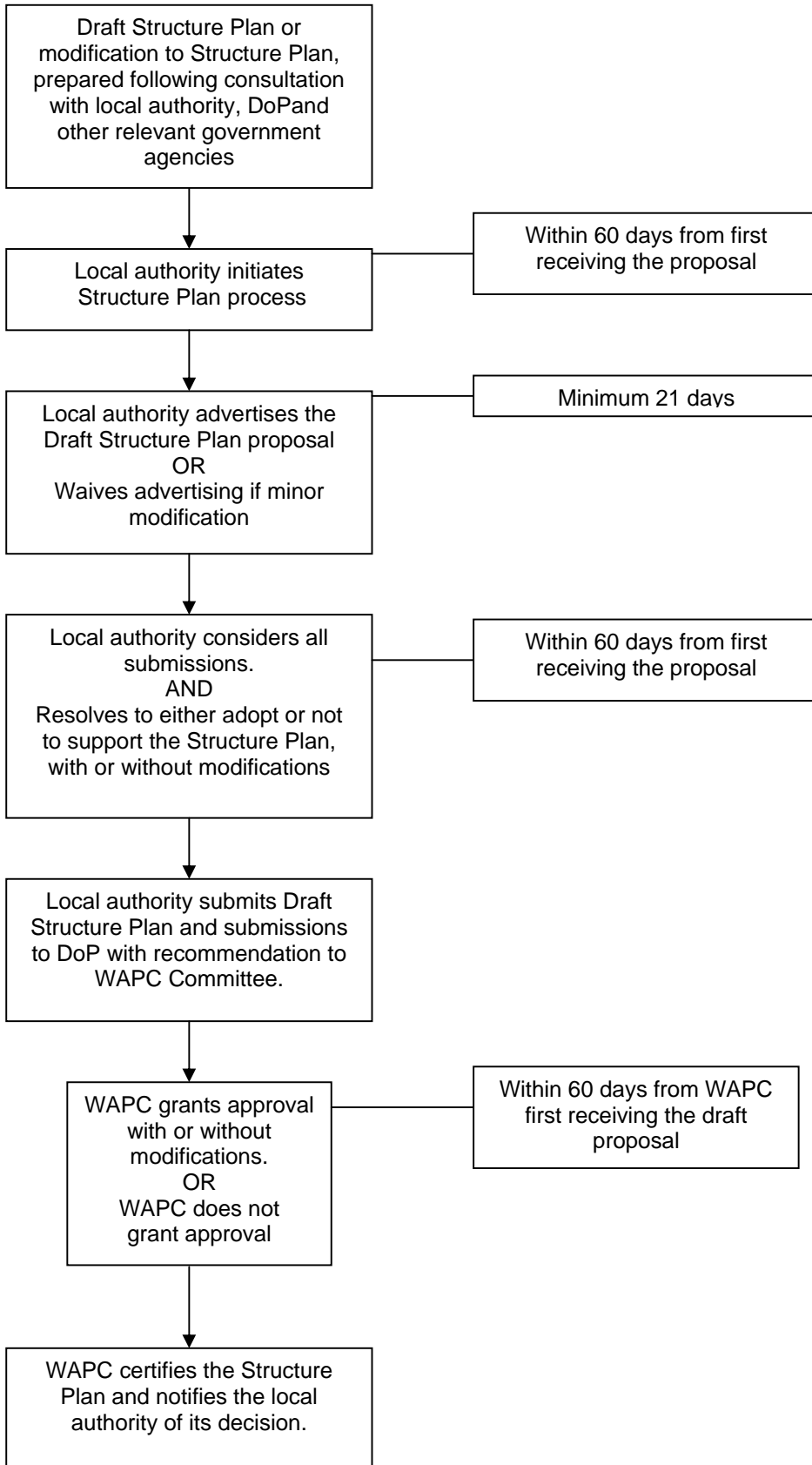
APPENDIX 4
TRAFFIC REPORT

APPENDIX 5
GEOTECHNICAL REPORT

APPENDIX 6
NATURAL ENVIRONMENTAL SIGNIFICANCE
ASSESSMENT

STRUCTURE PLAN PROCESS

ATTACHMENT 4



SCHEDULE OF SUBMISSIONS

ATTACHMENT 5

1	M Turner 12 Bullara Road Craigie WA 6025	12 Bullara Road Craigie WA 6025	<p>Comment.</p> <p>Lives on Bullara Road and is concerned about the lack of investigation of traffic impact on the road. The report indicates no data has been collected for Bullara Road.</p> <p>Understands that traffic will increase but under the current plan there will be no record of how much it has increased. Therefore the resulting impact on Bullara Road will not be defined.</p> <p>Unlike all other road/ new development access points there is a distinct rise halfway down Bullara Road which decreases visibility. It is common for people to speed down this road as they travel between Eddystone Avenue and Camberwarra Drive. These aspects combined with increased traffic will mean Bullara Road will become less safe for residents.</p> <p>Requests that data be gathered for the traffic along Bullara Road so that the impact to residents will be clearly defined and an assessment of Bullara Road against their comments regarding visibility and speeding with the inclusion of increased traffic. Including appropriate actions to be implemented prior to site development or once the impact is known.</p>	<p>Noted.</p> <p>A traffic report was submitted and forms part of the Part 2 of the structure plan which indicates that Bullara Road is an access road operating well within capacity.</p> <p>New traffic counts for Bullara Road and the surrounding network are scheduled to be undertaken in 2014. The traffic report submitted anticipates an increase of 125-127 vehicle movements per day for Camberwarra Drive. It is anticipated that this increase will be shared throughout the road network not just Bullara Road.</p> <p>It is acknowledged that there is a change in the vertical grade and horizontal alignment of Bullara Road however the intersection and general road sightlines are adequate and meet the relevant Main Roads WA and Australian standards.</p> <p>The City's records indicate that in relation to Bullara Road the City has not received any complaints from landowners about the safety of the road. The only complaint received was in 2002 and it related to poor driver behaviour which is a police matter.</p> <p>A review of the five year crash data to December 2012 indicated there have been no reported crashes on Bullara Road during this period.</p>
2	Western Power	Not applicable	Comment.	Noted.

	363 Wellington Street Perth WA 6000		<p>No specific comments to make at this time in regard to the proposal.</p> <p>Requests to be advised of any future development as there are overhead powerlines or underground cables adjacent to or traversing the property.</p> <p>All works must comply with Worksafe Regulations 3.64 - Guidelines for Work in the Vicinity of Overhead Power Lines.</p>	<p>Noted.</p> <p>Noted.</p> <p>Noted.</p>
3	Water Corporation PO Box 100 Leederville WA 6902	Not applicable	<p>Comment.</p> <p>The lot is already equipped with a water and sewer service and therefore the proposed development is able to be served.</p> <p>There is an existing 220mm water main in Camberwarra Crescent, and a 150mm sewer main that services the lot. However upgrading of reticulation mains (pipes under 300mm) to cater for the increased demand should be investigated in detail at subdivision stage. Upgrades are to be funded by the developer.</p>	<p>Noted.</p> <p>Noted.</p> <p>Noted.</p>
4	D Blackburn 15 Celina Crescent Kingsley WA 6026	Not applicable.	<p>Comment.</p> <p>The Tree Survey Assessment report indicates that of the 153 existing trees, with a diameter of 200mm or greater identified on the site the reality is that only 4 trees in the Public Open Space area have a good chance of actually being retained. The preservation of trees on the verges of the new Roads may be possible but it is unlikely that many will be preserved considering the overlay of the proposed internal road network on the location of the trees. The other trees are in the</p>	<p>Noted.</p> <p>Figure 12 in Part two of the structure plan indicate the retention value of the trees on the structure plan site and subsequently which trees will be considered for retention. At the subdivision stage those trees identified for retention will be considered however this will be influenced by factors such as the topography of the site and the extent and location of works required to be carried out.</p> <p>In accordance with the structure plan provisions,</p>

			<p>proposed residential lot areas and are unlikely to be retained. So only 4/153 have a good chance of retention = 2.6%. We should expect that the value of these large mature trees would be reflected in the design of the structure plan by the design preserving more than 4 mature trees. The loss of these mature trees and shrubs with their bird habitat provision will have an impact on neighbouring residents, as once clearing is undertaken the appearance of birds in residents' gardens and generally in the area will be diminished.</p>	<p>those trees approved for retention through the subdivision stage will be required to be retained, whether in public open space, road reserves or private property, unless deemed to be a safety hazard by an approved arboriculture expert to the satisfaction of the City.</p>
5	Name and address withheld	Not applicable.	<p>Objection.</p> <p>Indicate they make the objection on behalf of themselves as well as other concerned residents of Craigie. The objection is on the grounds of the location and size of the development, how it will function and its relationship with the immediate surroundings.</p> <p>Object to multi storey high density development as double and triple storey buildings have no place in Craigie. There are very few two storey homes in Craigie let alone development of the proposed size. Development of this type doesn't fit with the landscape of Craigie, would be unacceptable in terms of the visual impact, effect on the character of the neighbourhood due to their scale, noise and reduced privacy. They object to overdevelopment of this site.</p> <p>Concerned about how the existing</p>	<p>Noted.</p> <p>Noted.</p> <p>Although Craigie currently consists predominantly of single storey dwellings landowners can develop two storey dwellings. The area has been recognised as being in need of revitalisation and suitable for a density increase, with part of the suburb included in Housing Opportunity Area 5 in the City's Local Housing Strategy (LHS) which was approved by the Western Australian Planning Commission (WAPC) in November 2013. It is proposed that the density will increase from R20 to R20/40. With this density increase it is anticipated that two storey dwellings and potentially two to three storey multiple dwellings may be developed. This is consistent with the dwelling types proposed for the structure plan area.</p> <p>The traffic report submitted anticipates an increase</p>

			<p>infrastructure and roads will cope with additional people who will reside in the additional dwellings. Camberwarra Road and Eddystone Avenue are already busy during peak hours and one weekends. The residential streets surrounding the site such as Argyle Close and Currajong Crescent are not equipped to deal with additional volume of traffic.</p> <p>Concerned about the potential for State Housing as the structure plan does not state which residents will be state housing. Further consultation should be undertaken with the community so current residents can comment on potential future residents.</p> <p>The plan shows a significant loss of green space which will be devastating to local flora and fauna. Only 32 trees identified with high retention value with only five actually being retained. The community wants to see the majority of the green landscape retained. Planted street trees do not represent a like for like replacement for the community or the environment.</p> <p>Believes the environmental report omits reference to two species currently on the WA endangered list being the Carnaby's Black Cockatoo and the Graceful Sun Moth.</p>	<p>of 125-127 vehicle movements per day for Camberwarra Drive. It is anticipated that this increase will be shared throughout the road network not just Bullara Road. Refer to submissions 1, 2 and 3 above and the City's responses</p> <p>The potential for state housing to locate within the structure plan area is not a planning consideration. It is anticipated that as a result of the potential lot sizes a range of dwelling types can be facilitated which will accommodate various household types.</p> <p>The structure plan facilitates the provision of open space for 10% of the development site in accordance with State Government development control policies. The size and location of the open space is considered to be the appropriate configuration given the topography of the site and the need for more active open space given the surrounding parcels of public open space provided within Craigie. The vegetation on site has been assessed and allocated a retention value, with trees in private lots also proposed for retention and protection.</p> <p>Part two of the structure plan includes comments on the flora and fauna survey that was undertaken on behalf of the applicant and is contained as an attachment to the structure plan. The survey recognised that there is potential to provide roosting and breeding sites for endangered Carnaby's Cockatoos in a select number of the large native Tuart trees on the site. These trees are situated in the south west fringe of the site near Argus Close</p>
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			<p>They have undertaken a letter drop to fifty properties in the vicinity and the feedback received indicated local residents share their concerns. They bought their property in Craigie because of the peacefulness, tranquillity, numerous old trees and flourishing wildlife. The old Craigie High School site has already been raised to the ground by Landcorp and if this site suffers the same fate then an important aspect of Craigie as an established green suburb that the local community highly values will be further degraded.</p> <p>Requests that in the interest of the community and residents of Craigie that the structure plan be refused. Whilst not against development believes the plan should only include low density single or two storey town houses, no apartments, suitable road access, full community consultation about Homeswest residents and retention of a greater portion of mature trees with high retention value. When viewed in conjunction with the development at the former high school site the middle of Craigie is under severe and destructive over development. Do we really need more high density development in Craigie.</p>	<p>and Camberwarra Drive. The site is within range of the migratory route to coastal areas when the cockatoos move from the east.</p> <p>The site is considered to present an unsuitable habitat for the Graceful Sun Moth which is no longer on the protected species list for Western Australia.</p> <p>Noted.</p> <p>The structure plan provides for development at a range of densities with associated road networks and public open space (POS). The proposed densities, provision of POS and the structure plans provisions provide for a development area which will be in keeping with the existing character of the area as well as the intent of future development of the suburb overall through the LHS. Given the need for affordable housing in the metropolitan area and the demand for housing in close proximity to existing services and facilities the resulting development for the structure plan area will contribute to meeting this demand. The City has no involvement with determining who will reside in the dwellings in a development area as this is not a valid planning consideration.</p>
6	B Brushwood	25 Currajong Crescent	Objection.	Noted.

	<p>25 Currajong Crescent Craigie WA 6025</p>	<p>Craigie WA 6025</p>	<p>Lives across the road from the development site and is concerned about the proposed R60 density of living in that area and the three storey height allowances.</p> <p>The vast majority of density across Craigie and much of the City of Joondalup is R20 some small areas recently coded R40. The R40 coding was only introduced a few years ago near Craigie Plaza and more recently at the former Craigie High School site. They believe R40 should be the smallest size lots permitted in the City at this time and that the Camberwarra development should remain consistent with the other zoning in the area. Essentially the site should be limited to blocks no smaller than R40 – 220m². Request the City consider the new development site be coded R25-R40 entirely and therefore there would be no reason to increase the building heights to 13m.</p> <p>Believes the density is not in keeping with any other part of Craigie and not suitable for the area. Believes it is important to keep the basic character of the area and to encourage more professionals and young people into Craigie. They perceive that R60 blocks are extremely small and the only way to achieve suitable housing is to build smaller houses for only 1-2 people or build multi storey apartments or town houses which are completely out of character for Craigie. These types of dwellings have the potential to dwarf and overlook neighbouring single storey houses in the area.</p>	<p>Noted.</p> <p>Although the base residential density for most of the residential lots within the City of Joondalup is R20 the City's LHS which was approved by the WAPC in November 2013 proposes density increases to R40 and R60 for the identified Housing Opportunity Areas (HOAs). For Craigie, which forms part of HOA 5, the proposed density will be a dual coding of R20/40. Other parts of HOA5 are proposed to be coded R20/60. Given the proximity of this area to high frequency public transport and the Whitford shopping centre these densities are considered to be appropriate.</p> <p>Through the implementation of the recommendations of the LHS, which includes density increases, most of Craigie, particularly around the structure plan area, will be recoded to R20/40. As such the proposed densities for the structure plan site are considered to be consistent with what is proposed for the immediate area. The range of lots sizes will facilitate the development of a range of dwelling types and sizes to meet the needs of the community. This means people can downsize but remain in the area or first home owners can build in the area. Any development in the area will be assessed against the provisions of the structure plan and the Residential Design Codes (R-codes) which address elements such as building height and privacy setbacks.</p>
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