
Caversham

Structure Plan

Part A - Explanatory Report

Part B - Structure Plan

(Includes amendments to ODP-150 – A (Cell 2), B (Cell 3), E & F (Cell 4) and C (Cell 5))

December 2024



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ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Swan
Local Planning Scheme No.17

IT IS CERTIFIED THAT THIS STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE
WESTERN AUSTRALIAN PLANNING COMMISSION ON:

01 November 2011

In accordance with Schedule 2, Part 4, Clause 28 (2) and refer to Part 1, 2. (b) of the *Planning and Development (Local Planning Schemes) Regulations 2015*.

Date of Expiry: **19 October 2030**

Local Government Ref.	Amendment No.	Description of Amendment	Endorsed by Council	Endorsed by WAPC
ODP-150 I	7	Amendment to Cell 3 – Density and DAP requirements. Removal of Provision 10.	-	06 December 2024
ODP-150 G	6	Amendment to Cell 4 – Density and Land Uses modifications.	-	03 October 2017
ODP-150 F	5	Amendment to Cell 4 – Density and Land Use changes.	-	22 February 2016
ODP-150 C	4	Burgess Design Group – Amendment C to Cell 5: Consolidation of POS and Up-Coding of Residential density	24 July 2013	17 February 2014
ODP-150 E	3	Minor variations to R-Codes in Cell 4 that relate to Subdivision WAPC No. 147049	14 May 2013	13 June 2013
ODP-150 B	2	Layout, density and POS in Cell 3, and Plan 3 of the TLMP.	27 February 2013	-
ODP-150 A	1	Deletion of a mushroom farm buffer lot layout, density and POS in Cell 2.	12 June 2013	-

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Part B

Caversham Structure Plan

1.0 THE LOCAL STRUCTURE PLAN

1.1 DESIGN PHILOSOPHY

The design of the Caversham Local Structure Plan has sought to follow New Urbanist principles of walkability and sustainability. Key elements of this approach have included co-location of the primary school and Caversham Neighbourhood Centre to ensure a more vibrant and viable local centre. In turn the allocation of open space and residential density has been increased in proximity to these uses. An initial “Concept” was produced for review in 2005 prior to this final plan (Refer *Figure 14* and *Figure 15 – Loose A2 Plan attached*).

The proposed Caversham Structure Plan is based on a Traditional Neighbourhood Design (TND) philosophy. The principle of this design philosophy is a walkable urban village to minimise car use with a mixed use village centre at its core. The vision for Caversham is to create a self contained urban village with good access to facilities within the Structure Plan area as well as the facilities and attractions of the region. Integration of the plan with the adjoining (existing) residential area to the west has been a key consideration.

Creating an environment where people have the potential to live and work in the immediate area offers smaller and more efficient commuting times, with more time to spend with family and friends, increasing the vibrancy of the community and reducing the impact on the environment. This project will offer a limited number of employment opportunities for its residents, but just as importantly, it is well located to offer an alternative lifestyle option to people working in the Swan Valley region. Home based business is also encouraged around the Neighbourhood Centre to provide a diversity of professions and skills within the community.

The project will protect and enhance the existing natural environmental features that currently exist within the project area as well as minimising impact on the adjacent land uses and resources.

- The LSP minimises “urban sprawl” by creating a compact urban village with increased density around the Neighbourhood centre and parklands;
- The Plan will establish a variety of accommodation types giving residents a range of housing options regardless of their age or housing preference and thereby providing a varied population creating a greater sense of community; and
- The LSP will create a range of land uses from residential to commercial, education and open space.

The residential areas of the masterplan have been designed to maximise passive solar opportunities as well as internal and external view-lines. It is also intended that detailed site design of dwellings and buildings be encouraged to give due consideration of solar access, local cooling breezes, views and existing vegetation retention.

The design philosophy is also influenced by the development principles contained in Swan Sub Regional Structure Plan

1.2 SUSTAINABLE URBAN DESIGN

An analysis of the solar orientation of all residential lots within the Caversham LSP has been produced (Refer *Figure 16*). The solar orientation analysis clearly shows that almost 100% of all future lots produced will be on an optimal orientation for temperate zones in Western Australia as documented in *Liveable Neighbourhoods – Element 3*, on the basis of either direct north-south or east-west orientation.



FIGURE 14 Structure Plan ‘Preliminary Concept’ (2005)

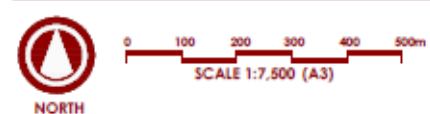
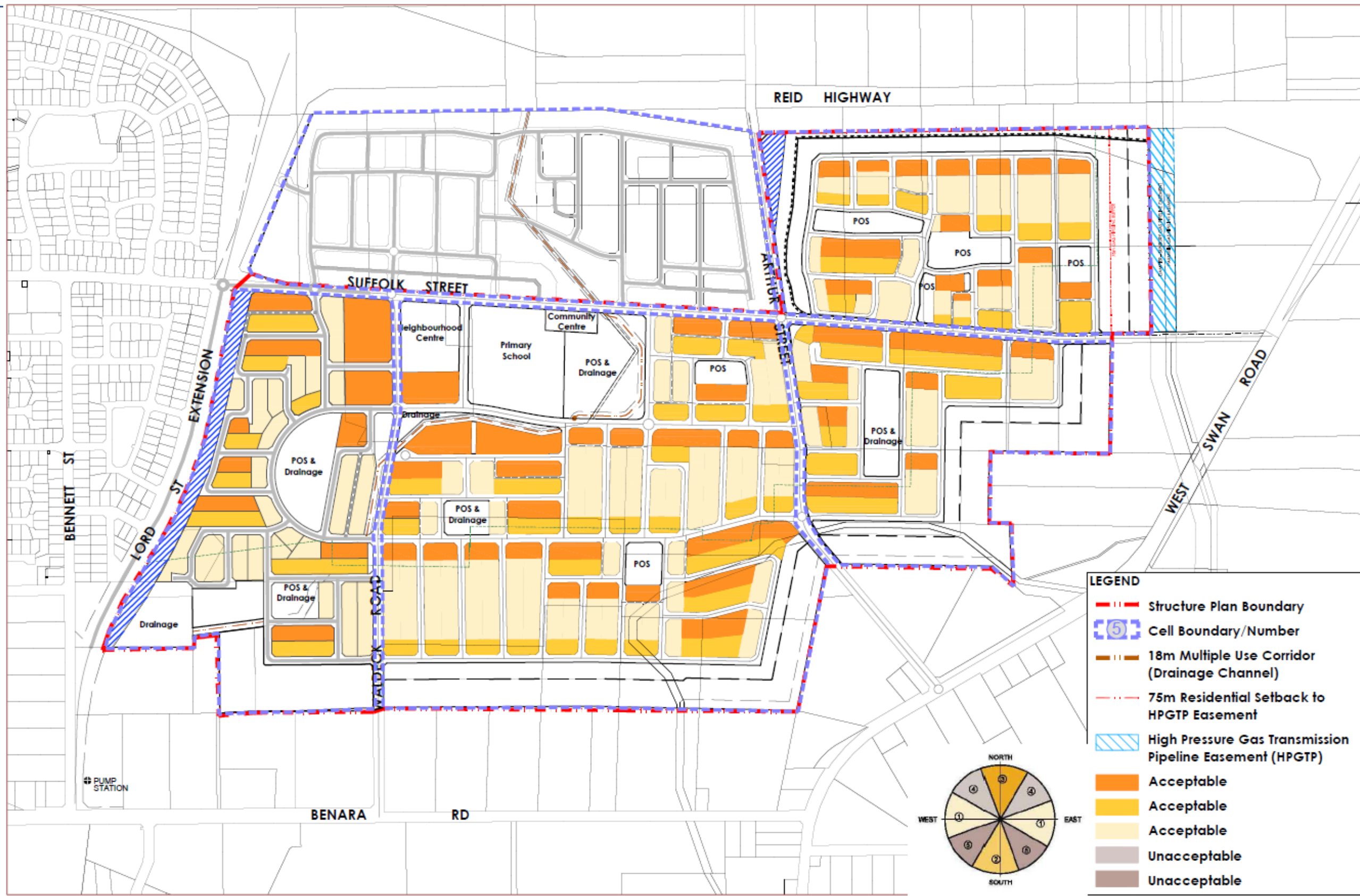


FIGURE 16 Solar Orientation Plan

1.3 LAND USE

The Caversham LSP provides for the creation of an estimated 1691 dwellings, serviced with areas of quality local open space, a primary school site, a community site, a Mixed Use site and a Neighbourhood Centre.

The LSP is summarised as follows:

Total Cell Areas		137.31Ha
Net Area		137.31ha
Gross Subdividable Area*		106.77ha
Public Open Space		10.81ha
Unrestricted	9.94ha	
Restricted	0.86ha	
Primary School		3.50ha
Community Centre		0.40ha
Neighbourhood Centre		1.50ha

* As determined for calculating POS

Dwelling Unit Yield

Residential R20		279du
Residential R25		675du
Residential R30		324du
Residential R35		29du
Residential R40		137du
Residential R60		120du
Mixed Use (Residential R80)*		64du
Total Dwelling Units		1628du

Net Developable Area		62.56ha
Dwellings per Hectare		26.023du
Transition Lot Dwellings		82du

* Yield for Mixed Use site based on a base coding of R80 in addition to allowance for non-residential uses.

A review of the individual cells of the LSP will provide a more detailed schedule of dwelling density allocation and land use. Ultimate lot yields will naturally vary depending on detailed design and individual developer's own design variations and lot size selection.

Alternative housing designs that allow for share-housing and co-housing options are to be explored. This will improve affordability and create a truly diverse community.

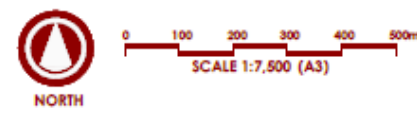
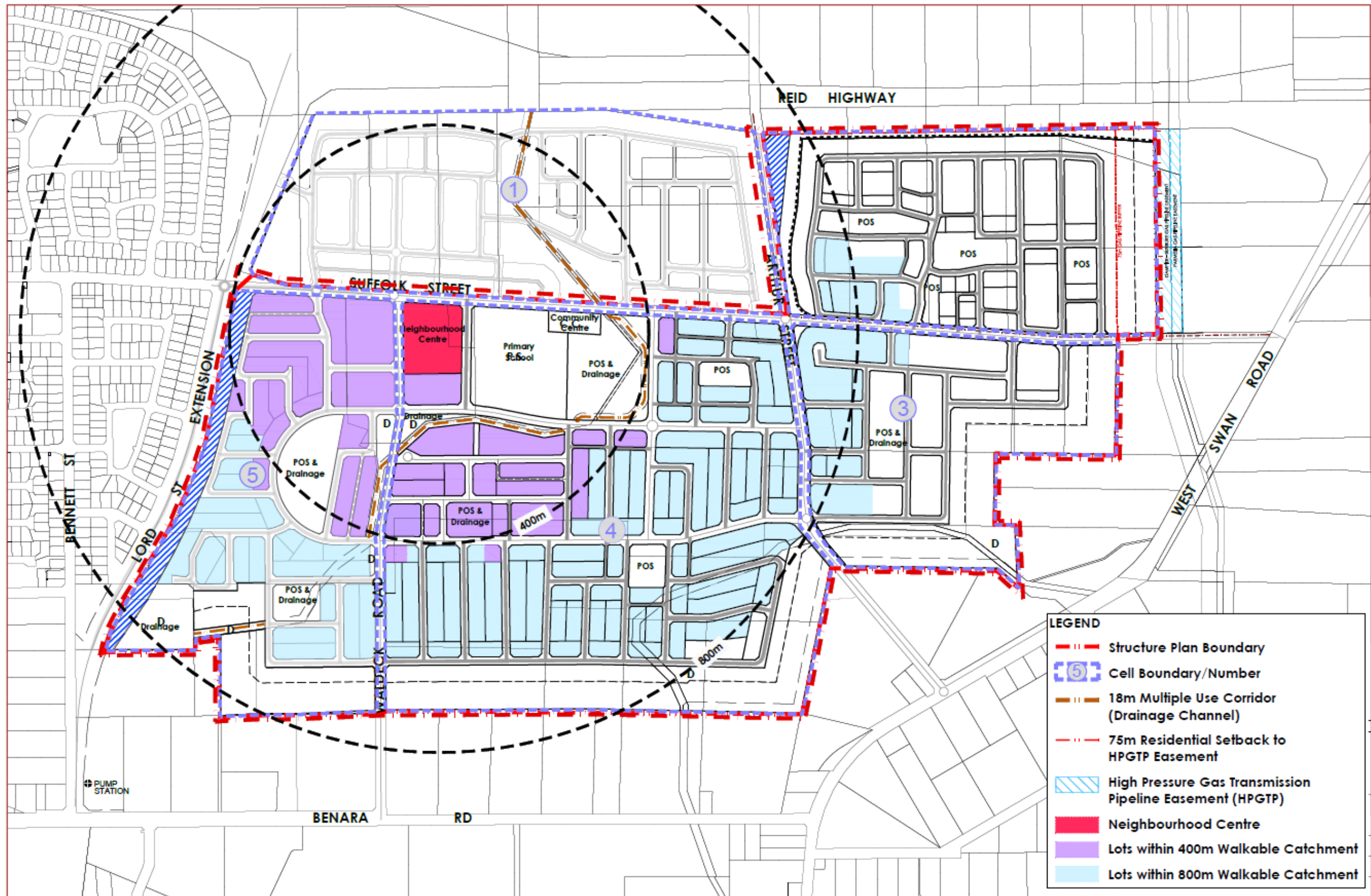


FIGURE 17 Neighbourhood Centre Catchment Analysis

1.3.1 Additional Land Uses

The following land uses are classified as ‘D’ uses in the Residential zone:

Display Home Centre: A group of two or more dwellings and incidental car parking which are intended to be open for public inspection as examples of dwelling design.

Residential Sales Office: A building of either a temporary or permanent nature, and incidental car parking, used directly in relation to the sale of land and dwellings in new residential estates.

The following Additional Use requirements apply as per the Structure Plan:

No	Description of Land	Additional Use	Conditions/Notes
AU1	All land zones ‘Residential’ within the Structure Plan	D – Display Home Centre – Residential Sales Office	The applicable land use definitions are provided in Section 1.3.1 – Part B
AU2	Land depicted in “A2” only	P – Car Park – Consulting Rooms – Lunch Bar – Medical Centre – Office – Shop – Showroom D – Convenience Store – Fast Food Outlet – Recreation – Private – Restaurant – Storage – Trade Display – Veterinary Centre A – Tavern	With exception of ‘Car Park’, the floor space of the Additional Uses are collectively limited to a maximum of 850sqm NLA

1.3.2 Neighbourhood Centre

An important element of the Structure Plan design is the Neighbourhood Centre, situated on the intersection of two important connector streets to gain maximum exposure to the future movement economy. This will incorporate a main shopping centre with accompanying specialty shops, and a Residential R80 site with non-residential ground floor commercial/office/medical centre uses.

The intent of the LSP is to create a centrally located Shopping Centre site and adjoining Mixed Use site, which will provide a mixed use hub for the community focused on a traditional design with an obvious defined core and easy walking distances. Buildings which address the street with active street fronts on the ground floor shall be mandatory and potential shop-top housing will be explored. Co-located with the adjacent Primary School, the Neighbour Centre will establish a sense of arrival in Caversham and will become the centre for community activity.

The Shopping Centre and adjoining Mixed Use site will be the subject of a Detailed Area Plan (DAP) as part of any future Subdivision approval. The DAP is intended to document things such as:

- Vehicle access and parking;
- Pedestrian amenity;
- Building height and scale;
- Intended land uses; and
- Integration with surrounding uses

A walkable catchment analysis (Ped-shed) has been produced to document and calculate the “walkability” of the Neighbourhood Centre (Refer *Figure 17*). The ped-shed analysis clearly highlights that almost all future residents of the entire Structure Plan area are within a 10 minute walk to the Neighbourhood Centre.

1.3.3 Education / Community Purpose

Given the forecasted lot yield for the LSP, discussions with the Department of Education and Training (DET) confirmed the need to allocate a local primary school site within the Structure Plan. Subsequent site reviews and DET discussions have resulted in the general acceptance of a proposed location, and the completion of further detailed site planning to assist with progression of the DET site (Refer *Figure 18*). The DET has confirmed the primary school students would ultimately feed into either the existing high school to the west or more likely to the north (new), depending on the timing of this cell’s development and that of those in West Swan and Albion.

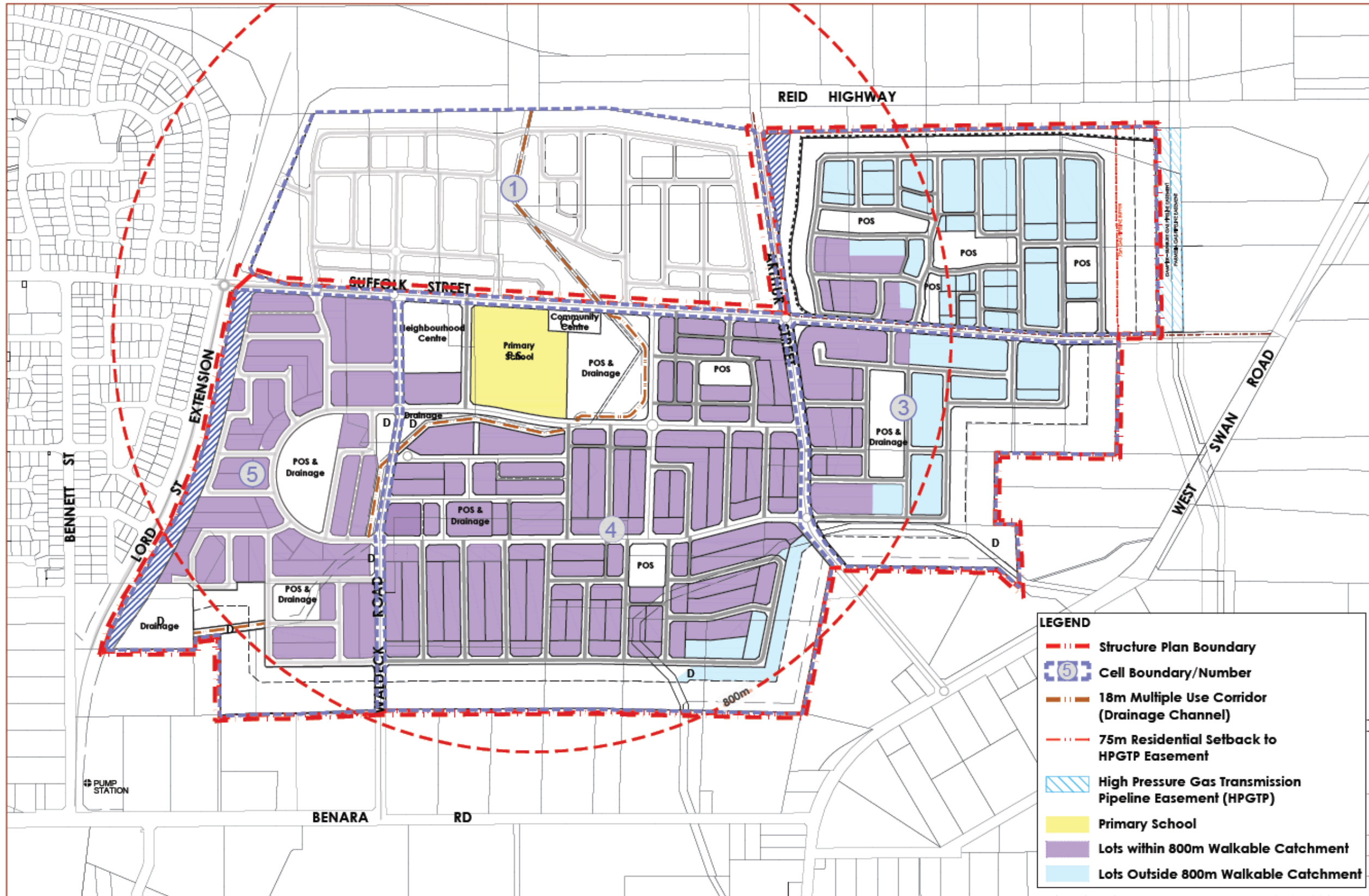
The co-location of the Primary School site adjacent to the Neighbourhood Centre and the Community Site will help reduce vehicle trips by allowing not only parents but the whole community to engage in multiple activities in a single trip. The viability of the Neighbourhood Centre will also be enhanced by the increased exposure to passing consumers.

The primary School site is also located adjacent to an area of Public Open Space suitable for incorporating a junior sized sports oval and change rooms / pavilion as requested by the City of Swan. A draft Concept Plan for the co-located site has been prepared (Refer *Figure 18*). The Concept Plan clearly shows the realignment of the existing shallow drain towards the eastern boundary of the area of Public Open Space, allowing sufficient space to accommodate the required active recreation facilities. The final landscape treatment will provide a safe and fun environment for children to play.

A walkable catchment analysis (Ped-shed) has been produced to document and calculate the “walkability” of the Primary School site (Refer *Figure 19*). The ped-shed analysis clearly highlights that almost all future residents of the entire Structure Plan area are within a 10 minute walk to the future Primary School.



FIGURE 18 Indicative Concept Plan Suffolk Street Primary School



- LEGEND**
- - - Structure Plan Boundary
 - 5 Cell Boundary/Number
 - 18m Multiple Use Corridor (Drainage Channel)
 - 75m Residential Setback to HPGTP Easement
 - High Pressure Gas Transmission Pipeline Easement (HPGTP)
 - Primary School
 - Lots within 800m Walkable Catchment
 - Lots Outside 800m Walkable Catchment

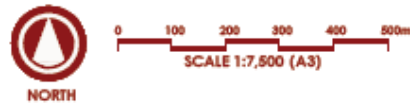


FIGURE 19 Primary School Catchment Analysis

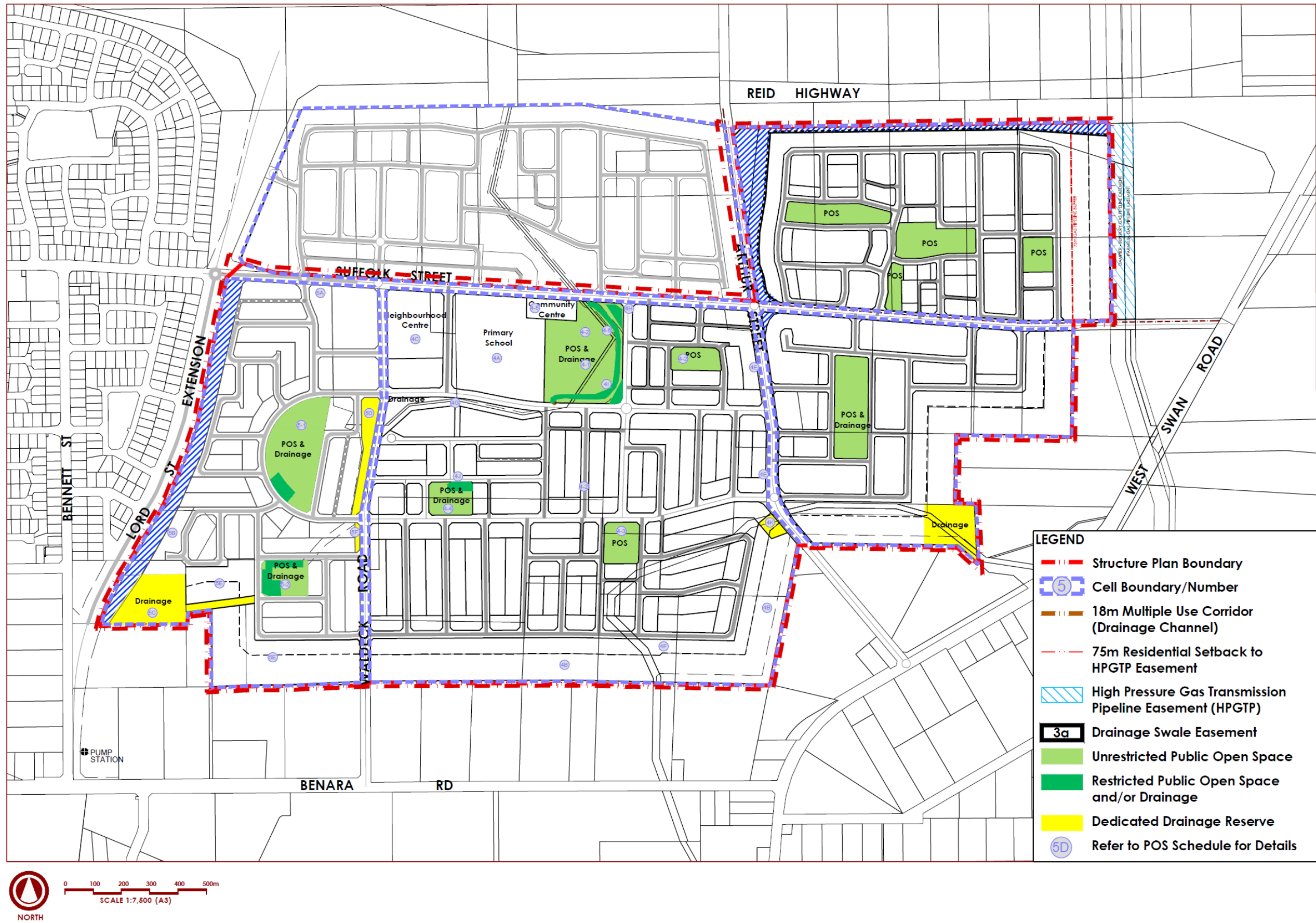


FIGURE 20 Public Open Space Concept

1.3.5 Public Open Space

The Structure plan proposes a series of landscaped parkland settings to meet both passive and active recreation needs. Connected by a series of pedestrian and cycle ways, these parks are well connected and easily accessible by the whole community. A considerable portion of the Caversham Structure Plan area has been as a buffer to existing viticulture uses and also protects Benara Road as an entry to the Swan Valley.

The proposed areas of Public Open Space are intended to produce high quality usable open space outcomes, offering a full range of active and passive recreation options ranging from formal and informal sport to walk trails (Refer *Figure 20*). Public Open Space allocation has been made based on the provision of 10% “gross subdivisible” land area as per the requirements of Liveable Neighbourhoods – Element 4:

- Providing a mixture of sizes and distribution – with an active and passive mix;
- Providing integration with activity nodes; improving pedestrian accessibility; and importantly; and
- Giving due regard to drainage requirements and functionality.

A walkable catchment analysis (Ped-shed) has been produced to document and calculate the “walkability” of the local parks (Refer *Figure 21* on *Page 44*). The ped-shed analysis clearly highlights that almost all future residents of the entire Structure Plan area are within a 5 minute walk to the various local parks.

Cell 2 - Public Open Space (POS) Schedule

SITE AREA	26.5280ha
LESS:	
N/A	0.00ha
TOTAL	0.00ha
NET SITE AREA	26.5280ha
DEDUCTIONS	
2A Other Regional Roads Reservation	1.6118ha
2B 75m Residential Setback to Gas Pipeline	2.7727ha
TOTAL	4.3845ha
GROSS SUBDIVISIBLE AREA (G.S.A.)	22.1435ha
Public Open Space @ 10%	2.2143ha
Public Open Space Contribution May Comprise:	
Minimum 80% Unrestricted P.O.S.	1.7714ha
Maximum 20% Restricted (1/5)	0.4429ha
Unrestricted P.O.S. Sites (minus 1 in 5 drainage basin)	
Area A	0.7904ha
Area B	0.1600ha
Area C	0.9580ha
Area D	0.4202ha
TOTAL UNRESTRICTED P.O.S.	2.3286ha
Restricted Use POS Sites	
Area B	0.0885ha
TOTAL RESTRICTED USE P.O.S.	0.0885ha
PUBLIC OPEN SPACE PROVISION	2.4171ha
Percentage of Gross Subdivisible Area	10.9%
Public Open Space Provision (Gross)	2.4411ha
(Amendment ODP - 150A)	

Cell 3 - Public Open Space (POS) Schedule

SITE AREA	21.20ha
LESS:	
N/A	0.00ha
TOTAL	0.00ha
NET SITE AREA	21.20ha
DEDUCTIONS	
Transition Lot Buffer	4.69ha
Dedicated Drainage Reserve (proposed)	0.65ha
Dedicated Drainage Reserve (existing)	0.1055ha
Arthur Street Road Widening	0.12ha
Suffolk Street Road Widening	0.05ha
1 in 1 Year Retention Basin	0.1300ha
Arthur Street/ Suffolk Street Intersection Widening	0.0514ha
TOTAL	5.80ha
GROSS SUBDIVISIBLE AREA (G.S.A.)	15.40ha
Public Open Space @10%	1.54ha
Public Open Space Contribution May Comprise:	
Minimum 80% Unrestricted P.O.S.	1.2320ha
Maximum 20% Restricted (1/5)	0.3080ha
Unrestricted P.O.S. Sites	
Area A (minus 1 in 5 drainage basin)	1.2197ha
TOTAL UNRESTRICTED P.O.S.	1.2197ha
Restricted Use P.O.S. Sites	
Area A	0.0400ha
TOTAL RESTRICTED USE P.O.S.	0.0400ha
PUBLIC OPEN SPACE PROVISION	1.2597ha
Percentage of Gross Subdivisible Area	8.2%
Public Open Space Provision (Gross)	1.38ha
(Amendment ODP - 150B)	

Cell 4 - Public Open Space (POS) Schedule

SITE AREA	59.81ha
LESS:	
N/A	0.00ha
TOTAL	0.00ha
Net Site Area	59.81ha
DEDUCTIONS	
4A Primary School	3.50ha
4B Transition Lot Buffer	5.73ha
4C Neighbourhood Centre	1.50ha
4D Suffolk Street Widening	0.06ha
4E Arthur Street Widening	0.12ha
4F Dedicated Drainage Reserve	0.16ha
4G Dedicated Drainage Reserve	0.76ha
4H 1 in 1 year Retention Basin	0.07ha
4I 1 in 1 year Retention Basin	0.06ha
4J 1 in 1 year Retention Basin	0.08ha
4K Dedicated Drainage Reserve	0.16ha
TOTAL	12.20ha
GROSS SUBDIVISIBLE AREA (G.S.A.)	47.61ha
Public Open Space @ 10%	4.76ha
Public Open Space Contribution May Comprise:	
Minimum 80% Unrestricted P.O.S.	3.82ha
Maximum 20% Restricted (1/5)	0.96ha
Unrestricted P.O.S. Sites	
Area 4-1	2.42ha
Area 4-2	0.45ha
Area 4-3	0.65ha
Area 4-4	0.49ha
Area 4-5 (Community Site)	0.40ha
TOTAL UNRESTRICTED P.O.S.	4.41ha
Restricted Use P.O.S. Sites	
Area 4-6	0.37ha
TOTAL RESTRICTED USE P.O.S.	0.37ha
PUBLIC OPEN SPACE PROVISION	4.78ha
Percentage of Gross Subdivisible Area	10.04%

Cell 5 - Public Open Space (POS) Schedule

SITE AREA	29.34ha
LESS:	
N/A	0.00ha
TOTAL	0.00ha
Net Site Area	29.34ha
DEDUCTIONS	
5A Suffolk Street Widening	0.03ha
5B Lord Street MRS Road Widening	1.9413ha
5C Dedicated Drainage Reserve (Proposed)	1.3859ha
5C Dedicated Drainage (Pt existing R7983)	0.2049ha
5D Dedicated Drainage Reserve	0.5041ha
5E Transition Lot Buffer	2.5378ha
5F Dedicated Drainage Reserve (proposed)	0.0564ha
Northern POS 1:1 year Retention Basin	0.1134ha
Southern POS 1:1 year Retention Basin	0.0742ha
NewDW3 1:1 year Conveyance	0.1232ha
TOTAL	7.64ha
GROSS SUBDIVISIBLE AREA (G.S.A.)	21.70ha
Public Open Space @10%	2.17ha
Public Open Space Contribution May Comprise:	
Minimum 80% Unrestricted POS	1.74ha
Maximum 20% Restricted (1:5)	0.43ha
Unrestricted POS Sites	
Area 5-1	1.78ha
Area 5-2	0.40ha
TOTAL UNRESTRICTED POS	2.18ha
Restricted Use P.O.S. Sites	
Area 5-1	0.044ha
Area 5-2	0.038ha
TOTAL RESTRICTED USE POS	0.082ha
PUBLIC OPEN SPACE PROVISION	2.26ha
Percentage of Gross Subdivisible Area	10.42 %
(Amendment ODP 150 –C)	

The areas of POS are summarised as follows:

P.O.S.	DESCRIPTION	EMBELLISHMENT (Indicative)
2.1	Local	Paths shade seating & play spaces
3.1	Local	Paths shade seating & play spaces
4.1	Neighbourhood Active	Shared use oval and sports court
4.2	Local	Paths shade seating & play spaces
4.3	Local	Paths shade seating & play spaces
4.4	Local	Grassed non equipment play opportunities
4.5	Community Centre	Local Community Centre (refer section 3.4) & CEDP
5.1	Local	Paths, shade seating & play spaces
5.2	Local	Grassed, non equipment play opportunities

All the parks will be enhanced / embellished in accordance with the standards set out in the City of Swan’s ‘Landscape Guidelines for Streetscape and Public Open Space’ & the ‘City of Swan / Play Space Strategy’.

None of the public open space areas will contain artificial lakes or other unsustainable wetland features. All POS will be landscaped with drought tolerant species in accordance the City’s guidelines.

The LSP makes provision for restricted open space as defined by Liveable Neighbourhoods. Areas of restricted open space include:

- Drainage infrastructure: retention / detention basins designed to accommodate stormwater events 0 -5 years;
- Multiple use drainage corridors;
- Open space that is unsuitable for active use for reasons of size (less than 3000 sqm) shape or disposition.

It acknowledged that the City’s policy enables in some circumstances drainage infrastructure designed for 0-5 year events to be credited as unrestricted POS.

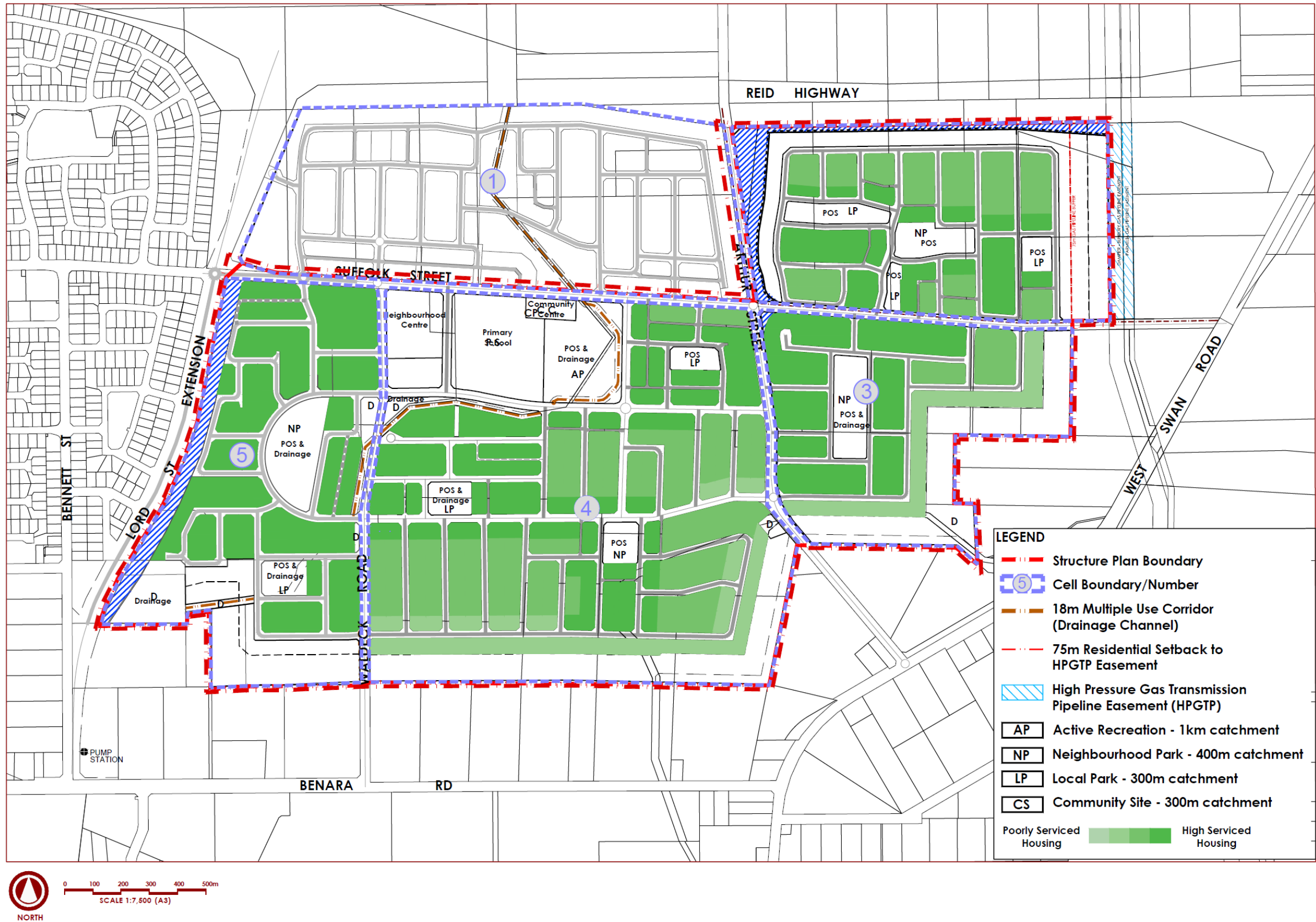


FIGURE 21 Public Open Space Catchment Analysis

1.4 LOCAL STRUCTURE PLAN CELLS

The Caversham LSP has been designed with five “cells” which generally reflect existing physical divisions of the land, landownership, and most importantly the internal structure of LSP itself.

The discussion in this section details dwelling unit yields for individual Cells. The yields have been calculated as per the City’s policy ‘Pol-C-103 Neighbourhood Planning Policy’. Yields are expressed as the number of dwelling units per net hectare. Net density is defined as: *net residential areas not including roads, public open spaces, community facility sites and so forth*. The dwelling unit yields expressed below are exclusive of the transition lot areas.

1.4.1 Cell 1

Cell 1 is subject to a separate LSP currently being assessed by the City.

1.4.2 Cell 2

Cell 2 comprises land predominantly owned by the Lester Group, three lots are owned by other private landowners not participating (non-participating/non-objectors). The cell provides for a logical pattern of residential subdivision. Larger Transition lots are located along the eastern edge of the cell, providing vegetated buffers to both the Dampier-Bunbury Gas Pipeline Easement and the adjacent Swan Valley uses fronting West Swan Road.

The Land Use Schedule for Cell 2 follows:

Total Cell Area	26.53ha
Gross Subdivisible Area*	22.14ha
Public Open Space	2.4ha/10.9%
	<i>Unrestricted 2.33ha/10.5%</i>
	<i>Restricted 0.07ha/0.4%</i>

* As determined for calculating POS

Dwelling Unit Yield

Residential R20	57du
Residential R25	137du
Residential R30	73du
Residential R40	26du
Total Dwelling Units	293du
Net Developable Area	13.89ha
Dwellings per Hectare	21.74du/ha
Transition Lot Dwellings	9du
Total Dwellings	302du

(Amendment ODP - 150A)

1.4.3 Cell 3

Cell 3 comprises land owned by Messrs Bauk, Erceg and Zaknich, with two lots owned by other private landowners not participating (non-participating/non-objectors). The cell provides for a logical residential subdivision layout providing central POS which will incorporate the retention of vegetation. A vegetated buffer to the adjoining Rural B properties fronting West Swan Road has been provided at the rear of the transition lots abutting the Swan Valley uses fronting West Swan Road.

The Land Use Schedule for Cell 3 follows:

Total Cell Area	21.20ha
Gross Subdivisible Area*	15.3994ha
Public Open Space	1.2597ha/8.2%
	<i>Unrestricted 1.2197ha</i>
	<i>Restricted 0.0400ha</i>

* As determined for calculating POS

Dwelling Unit Yield

Residential R20	6du
Residential R25	134du
Residential R30	37du
Total Dwelling Units	177du
Net Developable Area	7.28ha
Dwellings per Hectare	24.18du/ha
Transition Lot Dwellings	25du
Total Dwellings	202du

(Amendment ODP- 150B)

1.4.4 Cell 4

Cell 4 comprises land predominantly owned by syndicates of Western Corporate, with several smaller single residential lots fronting Patricia and Arthur Streets who are not participating (non-participating/non-objectors).

This cell is the largest within the Structure Plan Area and provides for the Neighbourhood Centre, primary school and community site as well as the continuation of drainage and open space link between Cells 1 and 5. Cell 4 includes the allocation of increased residential densities, reflecting its position within the Structure Plan area and focus around the main village core.

The Land Use Schedule for Cell 4 follows:

Total Cell Area	59.81ha
Gross Subdivisible Area*	47.61ha
Public Open Space	4.78ha / 10.04%
<i>Unrestricted</i>	<i>4.41ha / 9.20%</i>
<i>Restricted</i>	<i>0.37ha / 0.84%</i>
Primary School	3.50ha
Neighbourhood Centre	1.5ha
Community Site	0.40ha

* As determined for calculating POS

Dwelling Unit Yield

Residential R20	216du
Residential R25	167du
Residential R30	214du
Residential R40	75du
Residential R60	84du
Total Dwelling Units	756du

Net Developable Area	28.65ha
Dwellings per Hectare	26.38du/ha
Transition Lot Dwellings	31du

(Amendment ODP- 150G)

1.4.5 Cell 5

Cell 5 comprises land predominantly owned by Little Consulting Group, with land adjoining Waldeck Road owned by syndicates of Western Corporate.

Cell 5 includes a higher percentage of increased residential density, reflecting its position within the Structure Plan area and focus around the main village core. POS within the cell continue the existing drainage line.

The Land Use Schedule for Cell 5 follows:

Total Cell Area	29.34ha
Gross Subdivisible Area*	21.70ha
Public Open Space	2.26ha / 10.42%
<i>Unrestricted</i>	<i>2.18ha / 10.05%</i>
<i>Restricted</i>	<i>0.0819ha / 0.37%</i>

* As determined for calculating POS

Dwelling Unit Yield

Residential R25	237du
Residential R35	29du
Residential R40	36du
Residential R60	36du
Residential R80	64du
Total Dwelling Units	402du
Net Developable Area	13.13ha
Dwellings per Hectare	30.62du/ha
Transition Lot Dwellings	17du

(Amendment ODP- 150F)

1.4.6 Implementation Principles'

The following implementation principles apply to public open space in the Caversham Local Structure Plan:

- i. There will be no less than 8.48ha of Unrestricted POS in Caversham Local Structure Plan area, as required by the Liveable Neighbourhoods.
- ii. In order to achieve principle "i" there will be no less than 8% Unrestricted POS (as defined in Liveable Neighbourhoods) in each cell.
- iii. A maximum of 2.118ha (2%) Restricted POS may be credited in Caversham Local Structure Plan area, as per the Liveable Neighbourhoods.
- iv. Should the WAPC and City of Swan give written in-principle support to an applicant's request to credit Restricted POS that exceeds what is in the Local Structure Plan's POS Schedules, the applicant is required to amend the structure plan, as per the provisions of Local Planning Scheme No.17.
- v. The accreditation of a particular open space is subject to design and landscape concept plans, demonstrating its function and usability for recreational purposes to the satisfaction of the City of Swan. Such concept plans are to be prepared to the satisfaction of the City of Swan and WAPC prior to subdivision.
- vi. Where residential lot abuts public open space, a footpath (or an alternative that encourages casual surveillance) is to be provided reasonably near the common boundary on the POS to the satisfaction of City of Swan officers.
- vii. Developers will be responsible for maintaining public open spaces in accordance with Council policies (currently for a five year period) and rectify any design faults during this time. A period less than that specified in Council policy (but to a minimum of two years) may be negotiated by the City and developers subject to developers being able to demonstrate to the City that the public open space is adequately established and can be maintained to the City's standards.

2.0 CAVERSHAM INFRASTRUCTURE

2.1 MOVEMENT NETWORK

The Caversham Structure Plan's preparation has been guided by the work of Transcore traffic consultants in the preparation of their traffic report and in an ongoing capacity. The following is a brief summary of work comprising part of Part C to the Structure Plan.

The future movement network is expected to cater to:

- Traffic volumes in the order of 25,000vpd are forecast for the proposed Lord Street extension;
- Volumes of 20,000 vpd are forecast for West Swan Road;
- Volumes in the order of 5,000vpd are forecast for Suffolk Street to the west and 3,000vpd to the east towards the intersection with West Swan Road;
- Volumes in the order of 3,500vpd are forecast for Waldeck Road; and
- Volumes in the order of 8,000vpd - 10,000vpd are forecast for Arthur Street.

In addition to the above the following elements are noted:

- The Arthur Street flyover is acknowledged;
- It will be necessary for the Lord Street extension from Reid Highway to Benara Road to be constructed as a single stage to avoid unacceptable traffic impact on Bennett Street with the first carriageway funded through the Development Contribution Plan;
- Pedestrian connectivity provides direct and legible access to key land uses, with on street cycle lanes provided on Suffolk Street and Arthur Street to provide connectivity to external networks; and
- Access to public transport in Caversham is presently low with the expected future bus route to operate along the extension of Suffolk Street towards West Swan Road.

In summary, the Structure Plan's movement network acknowledges the existing surrounding regional / district road network and the presence of existing roads (Patricia, Arthur and Waldeck) within the Structure Plan area. These three internal roads form the basis for internal precincts and therefore internal structure to the movement network.

2.1.1 Road & Intersection Upgrades

In summary the following road upgrades are envisaged by the Structure Plan to be funded by the Developer Contribution Plan DCP:

Road	Upgrading	Trigger (Dwelling Units)
Lord Street	Construction of single carriageway and full earthworks including light controlled intersection at Benara Road	1660
Suffolk Street	East of Arthur to West Swan Road Road Upgrade	106
	Completion of Suffolk Street to roundabout intersection with Bennett Street Road Upgrade	250
Arthur Street	Integrator B	1660
Waldeck Road	Neighbourhood Connector B	1120

The following intersection upgrades are envisaged:

Intersection	Upgrading	Trigger (Dwelling Units)
Lord Street	Reid Lights	1660
	Benara Lights	1660
Suffolk Street	Lord (Bennett) Roundabout	*
	West Swan Right turn pocket	106
Arthur Street	West Swan Roundabout or Lights	570
Waldeck Road	Benara Channelised	1450

* As a part of the construction of the Lord Street extension

All triggers relate to the development of the Caversham Development Contribution Area, which includes the Caversham Local Structure Plan (1,769 dwelling units) and Caversham North Local Structure Plan (449 dwelling units). The completion of these upgrades will be constructed before or at subdivision clearance of deposited plan that generates the lot (unit of equivalent demand) that meets or exceeds the triggers specified in the tables above. Landowners will be required to contribute to development of these upgrades and to secure these payments a deed of agreement shall be entered into by landowners prior to application for subdivision in order to satisfy Clause 5A.2.7.3 of LPS17 in the absence of an approved Development Contribution Plan.

The above upgrades are a guide only and will be reviewed upon completion of advertising and receipt of agency feedback. The construction of DCP items will also be guided by the Capital Expenditure Plan within the endorsed DCP (as per SPP3.6), which will give due regard to the triggers in the endorsed Traffic Report and availability of funds. It is likely that the Capital Expenditure Plan will specify a trigger earlier than that is given in the Traffic Report (currently Section 9.3) as its recommendations are based upon when the road should be constructed by; not when construction should commence.

2.2 URBAN WATER MANAGEMENT (DRAINAGE INFRASTRUCTURE)

The development of a Local Water Management Strategy (LWMS) is the appropriate mechanism to establish the broad-level designs and management measures for flood mitigation and effective stormwater management at the structure planning stage. Cardno BSD prepared the Caversham LWMS forming part of Part D to the Structure Plan. The following is a brief summation of that document.

LWMS investigations conducted indicated that:

- Elevation of the site is generally undulating and varies from 18mAHD in the northeast to 8mAHD in the southwest;
- Soils underlying the site are varying in depths of sand over clay, much of the study area consists of plastic clays at shallow depths and would require the import of significant amounts of fill to allow onsite infiltration methods at the lot level (ie soakwells);
- Based on field investigations (and confirmed by geotech reports independently), the risk of Acid Sulfate Soils at depths of up to 3m below surface is determined to be low;
- Groundwater levels are generally 1-2m below ground level across the majority of the study area, except for the northeast corner, where it is closer to 4m below; and
- Two existing surface drainage systems pass through the area and receive flows from upstream of/beyond the structure plan area.

The LWMS envisages that major stormwater pathways would be provided by open channel, with sections piped under roads where required with the channel then providing onsite compensation storage such that the ultimate discharge could be accommodated by the downstream system. Drainage of road reserves would be achieved through conventional piped drainage having regard to road location and soil type. Where infiltration is considered possible subsoil drainage would be provided for.

The preferred strategy to maintain groundwater levels throughout the study area will be through localised recharge from drainage infrastructure that encourages lot scale infiltration (where soils permit), coupled with subsurface drainage at the clay/sand interface.

The LWMS provides a framework that future landowners / developers can follow to assist in establishing stormwater methods that have been based on site specific investigations.

The Local Structure Plan proposes the land exchange for portion of Lot 17 on Diagram 31115 for the freehold of the States Reserve 46992. This concept has in-principle support from the Department of Regional Development and Lands and City of Swan, provided:

- 1.1. Valuation Services provide advice on the values of each parcel of land to be exchanged;
- 1.2. That all costs associated with the proposal be borne by the proponent;
- 1.3. a management order for the replacement drainage reserve being granted to the City, and;
- 1.4. the new basin being fully constructed to the satisfaction of the City of Swan prior to the land exchange taking place with the State of WA.

2.3 COMMUNITY INFRASTRUCTURE

A Community and Economic Development Plan (CEDP) has been prepared to inform the structure planning process and guide future provision of services and facilities. The CEDP made the following key recommendations which have influenced the development of the LSP:

- Provision of a 4000m² community site co-located with primary school and area of active neighbourhood public open space;
- A local multipurpose community centre;
- Walking and cycle paths;
- Recommendations relating to the embellishment of public open space;
- Commercial and economic facilities – including a neighbourhood shopping centre, retirement village, health and medical centre and child care facility; and
- Broadband internet access

Consistent with the Community and Economic Development Plan, it is proposed to construct the multipurpose community centre and oval at the completion of 30% of the total Caversham Cell or equivalent demand of 637 dwellings. The completion of these community facilities will be constructed before or at subdivision clearance of deposited plan that generates the 637th lot (unit of equivalent demand) within the Caversham Development Contribution Area (DCA). The DCA includes this proposal (1,769 dwelling units) and Caversham North Local Structure Plan (449 dwelling units). Landowners will be required to contribute to development of these upgrades and to secure these payments a deed of agreement shall be entered into by landowners prior to application for subdivision in order to satisfy Cl 5A.2.7.3 of LPS17 in the absence of an approved Development Contribution Plan.

The MLG is also seeking to establish a community development fund to facilitate community activation and development. This is discussed in greater detail in the Community and Economic Development Plan attached at Part D.

3.0 CONSULTATION

The Caversham Structure Plan has been the subject of extensive consultation, both within the landowner group and with stakeholder agencies:

3.1 STRUCTURE PLAN LANDOWNERS

The Caversham Main Landowners Group (MLG) was formed by the four main landowners / developers comprising Western Corporate, Estates Development Company, QUBE Property Group (formerly the Dibstone Group) and Lester Group. Subsequent correspondence and discussion resulted in the three other larger landowners, Messrs Bauk, Erceg and Zacknich also participating. Thereafter all landowners were written to advising of the plan and its formulation.

The survey outcomes which were undertaken in April 2008 are summarised as:

- Of the 10 surveys sent to non-MLG landowners within the Structure Plan area, 4 completed surveys were received and one landowner was spoken to; and
- All 5 of the respondents advised that they support the urban development of the Structure Plan area.

Qube Property Group has since withdrawn from the MLG.

3.2 FRINGING LANDOWNERS

All of the abutting landowners, fronting Bennett Street, Benara Road, Arthur Street and West Swan Road were advised of the process being undertaken to prepare an urban Structure Plan and were provided with a survey. The survey was sent to the owners of all of the landholdings that are wholly or partially outside the Structure Plan area.

The intention of the survey was to obtain information regarding the current and future use of the properties and the landowner's attitude to the urban development of the Structure Plan area. The outcomes of the survey are summarised as:

- Of the 24 surveys sent to the landowners, 8 completed surveys were received (2 of the landowners were also spoken to) and 3 surveys were "returned to sender";
- of the 8 respondents advised that they support the development of the Caversham Cell for urban development;
- 2 of the 8 respondents did not answer the question regarding the urban development of the land; and
- 1 respondent (Pinelli Wines) objected to the urban development of the Structure Plan area on the basis that the urban development of the land has the potential to cause conflict between the rural enterprise and the future urban area.

3.3 CITY OF SWAN

Meetings with the City of Swan's Statutory Planning, Strategic Planning and Technical Services staff have taken place at the commencement and during the preparation of technical reports and this Structure Plan. This has included release of the Concept Plan prior to formulation of this main report.

3.4 DEPARTMENT OF PLANNING

Two meetings have been held with the Metropolitan North Statutory Implementation team at the Department of Planning during the plan's preparation to discuss key issues such as the buffering / land use interface to Swan Valley Area B land uses. The Department of Planning staff have been supportive of this process and are aware of the plan's progression.

In May 2010 the Department of Planning formally issued its support for the Structure Plan to be advertised.

3.5 DEPARTMENT OF EDUCATION AND TRAINING

Several meetings have been held with the school site planning staff of the Department of Education and Training to provide the new primary school within the project area.

The DET confirmed that the development of the project area warranted the provision of a new primary school site and they were very supportive of the proposal to co-locate the school site with the village centre and higher density residential development. A primary school concept plan illustrating an indicative site layout (Refer to *Figure 18*) has already been provided to the DET to demonstrate that the proposed 3.5ha site, and adjoining public open space, would meet DET requirements.

3.6 ENVIRONMENTAL PROTECTION AUTHORITY

Conducted by RPS Koltasz Smith and RPS Environmental, meetings were held with both the staff of the EPA and also the City of Swan to discuss any potential areas of interest or concern. During the initial 2006 LSP's preparation, EPA staff raised no major issues although it is recognised that full documentation of all opportunities and constraints is required.

Discussion did take place in detail on the potential of Acid Sulfate Soils and also on drainage requirements. Both issues were documented and will be detailed in accompanying management plans were required. More recent detailed discussions are continuing on the Transition Lot (Buffer) Management Plan, it's associated modelling and implementation.

4.0 IMPLEMENTATION

4.1 STRUCTURE PLAN ADOPTION

The Caversham Structure Plan has been prepared for ultimate adoption by the WAPC and City of Swan under LPS No. 17.

4.2 MANAGEMENT PLANS

The Structure Plan has been prepared acknowledging that the City of Swan will require accompanying management plans. The following management plans have been progressed concurrently as appendices to the Structure Plan:

Community and Economic Development Plan	Creating Communities
Local Water Management Plan	Cardno
Transition Lot Management Plan	RPS, Lloyd George Acoustics & CEE
Developer Contribution Plan	Integran Infrastructure Consultants
Fire Management Plan	Fireplan
Financial Assessment Report	RPS with assistance from Estates Development Company
Cell 5 Urban Water Management Strategy	Emerge Associates

In addition the following management plans will be progressed prior to subdivision:

- Urban Water Management Plan (as per the WAPC BUWM guidelines)
- Landscape Management Plan
- Acid Sulfate Soils (ASS) Site Assessment Management Plan, in accordance with WAPC's Planning Bulletin No.64 and successors (as recommended by the LWMS)
- Quantitative Risk Assessment (see Section 4.7.4 of Part A for when it is applicable)
- Preliminary Site Investigation (in accordance with the DEC's Contaminated Site Management Series Guidelines)
- Supplementary Acoustic Investigations for the Reid Highway and Lord Street extension (as per Terry George Acoustics' proposed modifications to Noise Impact Assessment via an addendum)

4.3 DETAILED AREA PLANS & DESIGN GUIDELINES

The Structure Plan provides for a range of land use interfaces and lot size allocations. It is intended that individual developers prepare Detailed Area Plans (DAP's) or Design Guidelines to address such matters in accordance with the requirements of LPS No. 17.

The objectives of the various DAP's outlined as follows:

Neighbourhood Centre and Mixed Use

- Active street frontages:** Development designed to have a minimal or no setback from the street, with building facades incorporating glazing and openings which enable direct contact (visual and physical) between the street and the interior of the adjoining building;
- Pedestrian amenity:** Building awnings over footpaths to provide all weather protection;
- Pedestrian scale development:** As outlined above building heights limited to 2 to three storeys in order to not "overwhelm" or excessively overshadow adjoining public spaces;
- Passive surveillance:** Encourage 'shop top' housing; and **Vehicle parking areas:** "tucked in" or located behind buildings which are not primarily visible from the adjoining streets.

Medium Density Housing

- Passive surveillance:** Habitable areas orientated to overlook POS; and
- Streetscape:** Where appropriate rear or laneway access to parking areas.

Primary School Site

- Integration:** Optimum integration of facilities to benefit the community;
- Passive surveillance:** Orientation of activity areas to benefit from adjoining surveillance opportunities;

4.4 STAGING

The Caversham LSP includes a staging plan for future subdivision (Refer Figure 22). Areas adjoining agricultural operations to the south and east are designated as stages 3A & 4A. The LSP outlines the following provision:

- In relation to stages 3A & 4A on the staging plan, subdivision as envisaged by the LSP, shall not proceed until a management plan is prepared and implemented to the satisfaction of Council and the Western Australian Planning Commission.*

The stages provide separation of 200 metres to 400 metres between adjoining operations and future residential subdivision. For instance, Stage 4a provides for approximately 400 metres separation from Pinelli's winery (south west corner) to future residential. In this regard greater separation is provided given the intensity of the operation (the only commercial vineyard) and prevailing wind patterns as discussed in the CEE report.

There is a number of existing viticulture activities on Lots partially and/ or fully within the LSP area, and the staging of subdivision needs to consider their existence. Sensitive uses shall not be permitted within 150m of these operations (measured from the property boundary) until:

- The nonconforming use rights of these operations have been extinguished by the landowner, or;
- Mitigation measures to ameliorate spray-drift, dust and noise are implemented to the satisfaction of the WAPC and Local Government.

The Interim Viticulture Buffer shown on the Plan considers these operations and the mitigation measures are discussed in the Transitional Lot Management Plan.

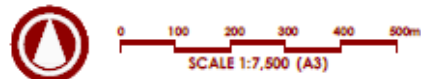
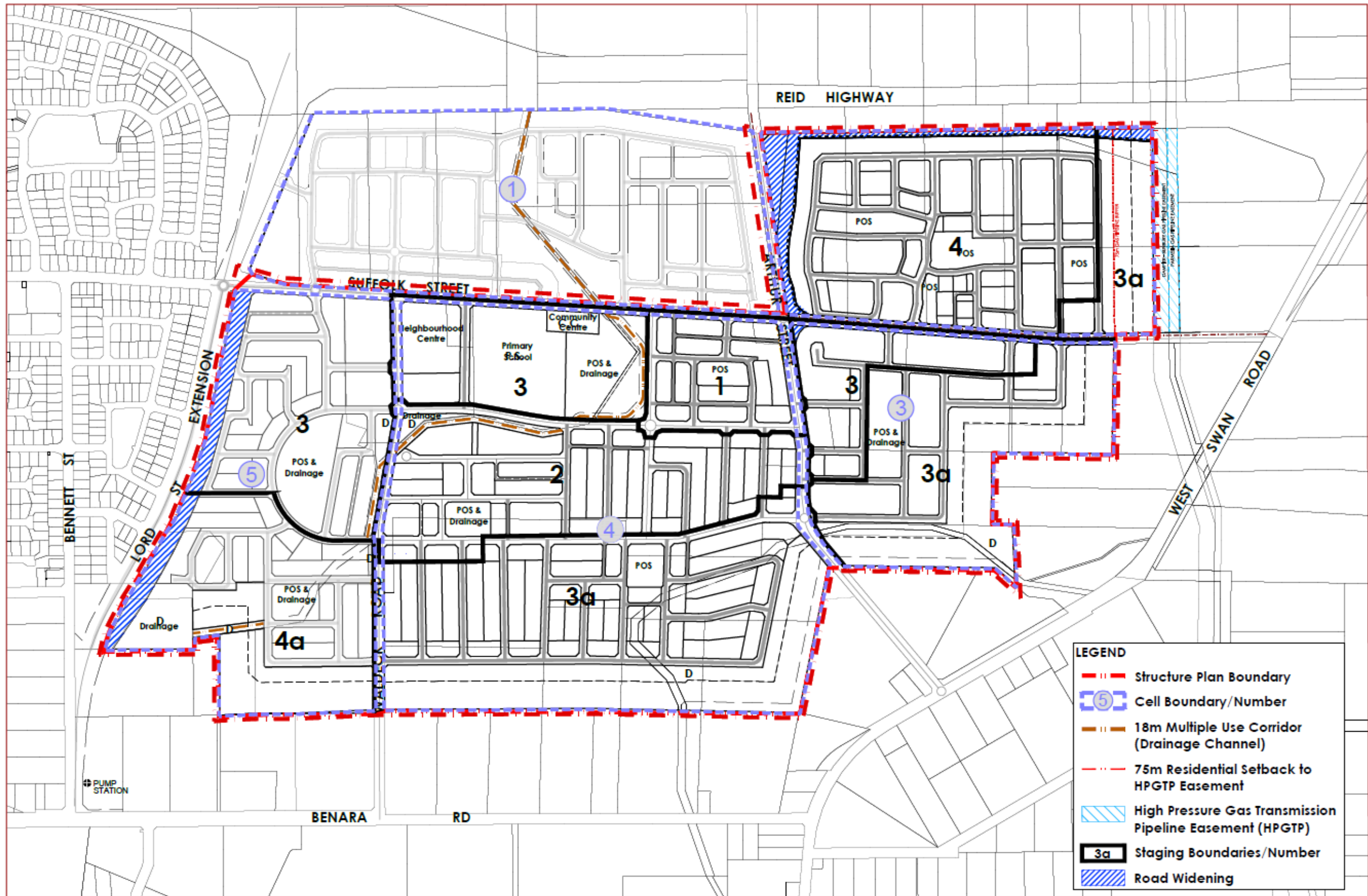


FIGURE 22 Staging Plan

CAVERSHAM STRUCTURE PLAN MAP

CAVERSHAM LOCAL STRUCTURE PLAN

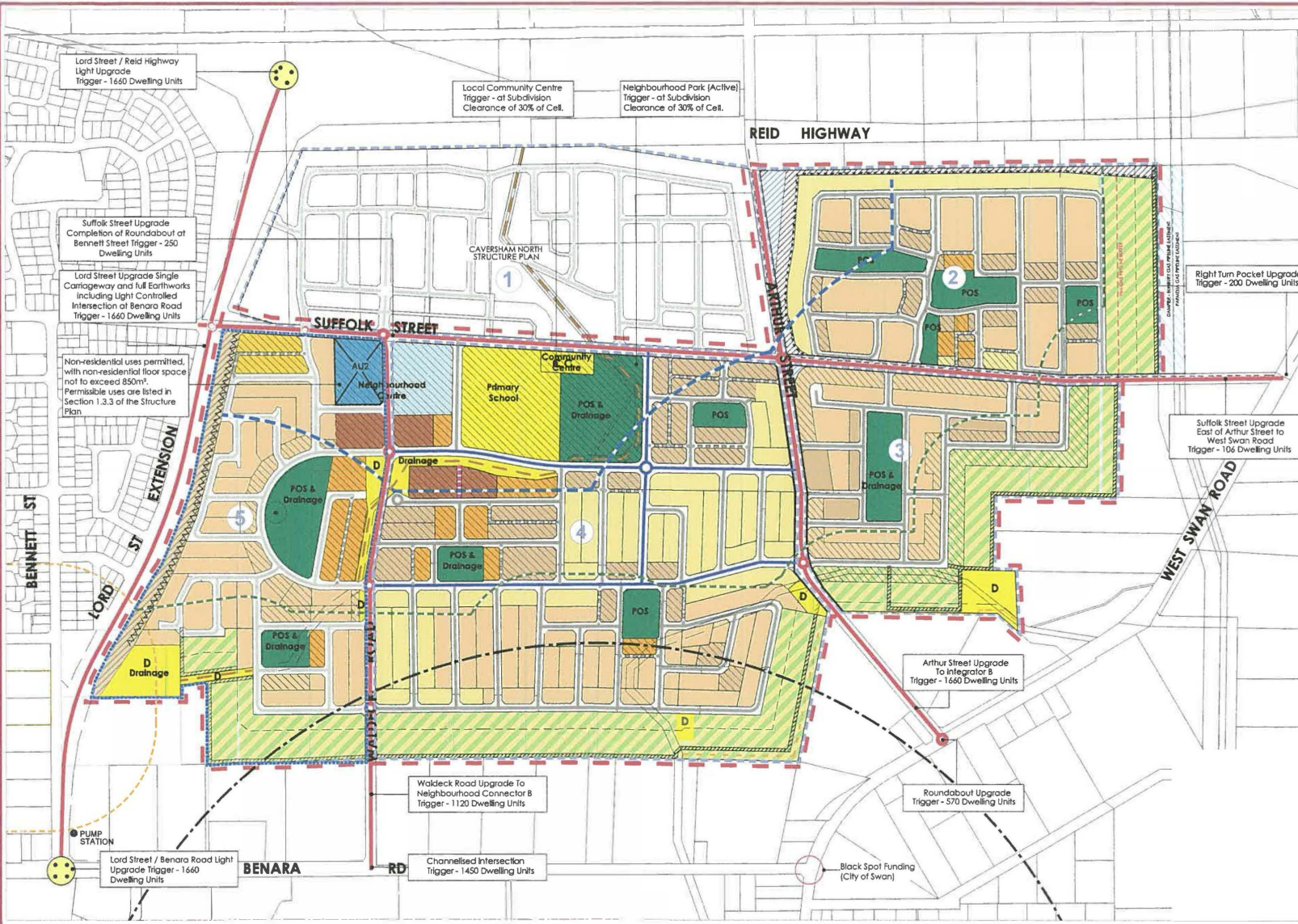
- General**
- The City of Swan Local Planning Scheme No. 17, Council policies and Residential Design Codes apply except where they are specifically varied by the Local Structure Plan (LSP) as detailed below. All development, including subdivision shall generally be in accordance with this LSP.
 - The road layout is subject to final design at subdivision.
 - In relation to the subdivision of residential lots directly abutting open space, at subdivision stage the applicant is to liaise with the City of Swan to ensure provision of adequate visitor parking on adjoining streets to the specifications of the City of Swan.

- Buffers**
- Residential lots created within the '500m Agricultural Notification Area' require a notification to be placed on the Certificate of Title. The notification is to state: "This lot is in proximity to the rural zoned land and may be adversely affected by noise, dust and odour from existing and future agricultural land uses in the Swan Valley".
 - Sensitive Uses (as per the definition in the State Planning Policy 4.1) shall not be permitted within the 200m poultry farm buffer as prescribed in the TPAT decision (TPAT 20 of 1992) until:
 - (a) The poultry farm ceases operation and its use rights have been voluntarily extinguished.
 - Residential lots created within the '1,000m Brickworks Notification Area' require a notification to be placed on the Certificate of Title. The notification is to state: "This lot is in proximity to a Brickwork operation at 25 Harper Street Caversham and may have their amenity affected by dust emissions from that land use".

- Staging of Subdivision**
- Subdivision, as envisaged by the LSP, shall generally be in accordance with the staging plan accompanying the LSP.
 - Subdivision for Sensitive Land Uses (as per the definition in the State Planning Policy 4.1) shall not be permitted within the 150m Interim Agriculture Buffer until mitigation measures proposed in the Transitional Lot Management Plan (TLMP) are implemented to the satisfaction of the Local Government and WAPC. Clearance of subdivision within 150m of lots containing viticulture (Lots 101, 103, 4 and 9 Benara Road, Caversham) within the Caversham Local Structure Plan area will not be finalised (Deposited Plan), until the vineyards are removed. Subdivision and development of the Transitional Area / RS shall be in accordance with the provisions of the Transitional Lot Management Plan.
 - If in future the area of the transition lots that is outside the 30 metre building envelope becomes available for development, then a POS contribution will be required for this area of land.

- Detailed Area Plans**
- Deleted.
 - Prior to subdivision, a DAP shall be prepared for the Neighbourhood Centre which encourages future development to address the following:
 - (a) Active street frontages
 - (b) Pedestrian amenity
 - (c) Building heights
 - (d) Passive surveillance of primary school
 - (e) Access and vehicle parking
 - Within the four hundred metre catchment of the neighbourhood centre, provision shall be made for the establishment of home businesses. The requirement only applies to DAP areas with frontage to Patricia Street and Waldeck Road. The provisions shall address the following:
 - (a) Building design
 - (b) Car parking
 - (c) Plot ratio and density bonuses
 - (d) Use permissibility
 - (e) Notification on title
 - Prior to subdivision within the transition lot management area, a DAP shall be prepared and implemented which satisfactorily converts potential emissions from adjoining agricultural activities.

- Additional Uses**
- All land zoned Residential is subject to Additional Use 1 for Display Home Centre and Residential Sales office. Refer to 5.1.3.1 of Caversham Local Structure Plan report
 - Conditions relating to Additional Use 2 requirements are outlined in Part 3.1.1 of the Caversham Structure Plan report.



LEGEND

- Caversham Structure Plan Cell Boundary / Number
- 18m Multiple Use Corridor (Drainage Channel)
- Drainage Swale Easement
- 75m Residential Setback to H.P.G.T.P. Easement
- Gas Pipeline Easement
- Existing 132kV Power Line
- Access Street B (18m)
- Access Streets (15m)
- Laneway (8m)
- 1000m Brickworks Notification Area
- 150m Interim Agriculture Buffer
- 200m Poultry Farm Buffer
- 500m Agricultural Notification Area
- 30m Deep Transition Lot Building Envelope as per T.L.M.P.
- Proposed MRWA Road Widening
- Detailed Area Plan Required Prior to Subdivision
- 6m Wide (4m Track) Fire Access Easement and Drainage
- Pedestrian Access Way
- Noise Attenuation Wall (Refer Lloyd George Acoustics Report Feb 2013)
- Noise Attenuation (Refer Clause 4.4.7)

- Residential R5 (Transition Lots)
- Residential R20
- Residential R25
- Residential R30
- Residential R35
- Residential R40
- Residential R60
- Residential R80
- General Commercial
- Recreation (Refer Figure 20)
- Additional Use
- PUBLIC PURPOSES**
- C.C. - Civic And Cultural
- P.S. - Primary School
- D - Drainage (Refer L.W.M.S.)

- Road and Intersection to be Upgraded / Widened (Refer to D.C.P. and Traffic Strategy and Clause 2.1.1)
- Pump Station
- Proposed Light Controlled Intersection (Refer Clause 2.1.1)
- Aboriginal Heritage Site (DIA ref: 3744)

- Structure Plans:**
- Cell 1 - Cube
 - Cell 2 - Roberts Day Group
 - Cells 3 & 4 - RFS
 - Cell 5 - Burgess Design Group
- 0 125 250 375 500 metres