

PART TWO
(EXPLANATORY)

2. Introduction

This report provides the planning rationale for the Lot 1 Fifty Road Local Structure Plan prepared for Lot 1 Fifty Road (herein referred as the “Structure Plan”).

A structure plan is generally required to be prepared and approved prior to subdivision and development of the land in a ‘Development’ zone under TPS 2 and in accordance with the *Planning & Development (Local Planning Schemes) Regulations 2015*.

The Structure Plan has been prepared taking into consideration the relevant planning framework and previous structure planning for urban development to the west and south of the Structure Plan area. The proposed Structure Plan integrates with the planned urban development to the west and south and provides for appropriate connection to Fifty Road and interface with Baldivis Road. This is consistent with the approved Baldivis North District Structure Plan (DSP).

To inform the Structure Plan design and requirements, preliminary discussions have been held with key stakeholders, including the local authority. In addition, various technical investigations have been completed which are attached with the Structure Plan and forms part of the explanatory report.

Refer to Appendix 1 - Pre-Lodgement Consultations

3. Land Description

3.1 Location & Description

Lot 1 Fifty Road, Baldivis (“the subject site”) is situated approximately 40km south of Perth CBD and 6km east of Rockingham Regional Centre.

Refer to Figure 1 – Location Plan

The area of the subject site is approximately 4.04 hectares and is privately owned under single landownership. Table 1 sets out the ownership and land description.

Table 1 ownership details

Lot No.	Address	Certificate of Title	Owner	Area (Ha)
1	Fifty Road, Baldivis	2129/899	Eg Culliver	4.04

The legal description and details of the landownership is provided in a copy of the Certificate of Title contained in this report.

Refer to Appendix 8 – Certificate of Title

3.2 Existing Use and Surrounding Land Use

The subject site has been historically cleared for rural use with a dwelling and outbuilding being developed in the central area of the property. Access is via a crossover onto Baldivis Road. The subject site is located within a future urban development area (Baldivis North) and is bound by Fifty Road to the north, rural lifestyle properties to the west and south and Baldivis Road to the east.

Refer to Figure 2 – Site Plan

Directly to the north on the opposite side of Fifty Road is Baldivis Reserve which includes a small oval, tennis courts, recreation centre and bushland. Approximately 250m to the north-west on the opposite side of Fifty Road is the Baldivis Primary School.

To the east on the other side of Baldivis Road is *greenfield* urban development of which has been recently constructed and is undergoing further construction of residential lots.

Neighbouring to the south on Lot 3 Baldivis Road is the Baldivis Layertech Services Poultry Farm, which is a relatively small poultry farm that includes an egg layer and hatchery facility. Further south and south-west of the poultry farm is *greenfield* urban development of which has been recently constructed and is undergoing construction.

Neighbouring to the west on Lot 2 Fifty Road (corner Everest Way) is a similar sized parkland cleared rural property that is currently vacant and earmarked for future urban development. The Baldivis District Centre is located on Safety Bay Road approximately 2kms south of the subject site.

Refer to Figure 3 – Context Plan

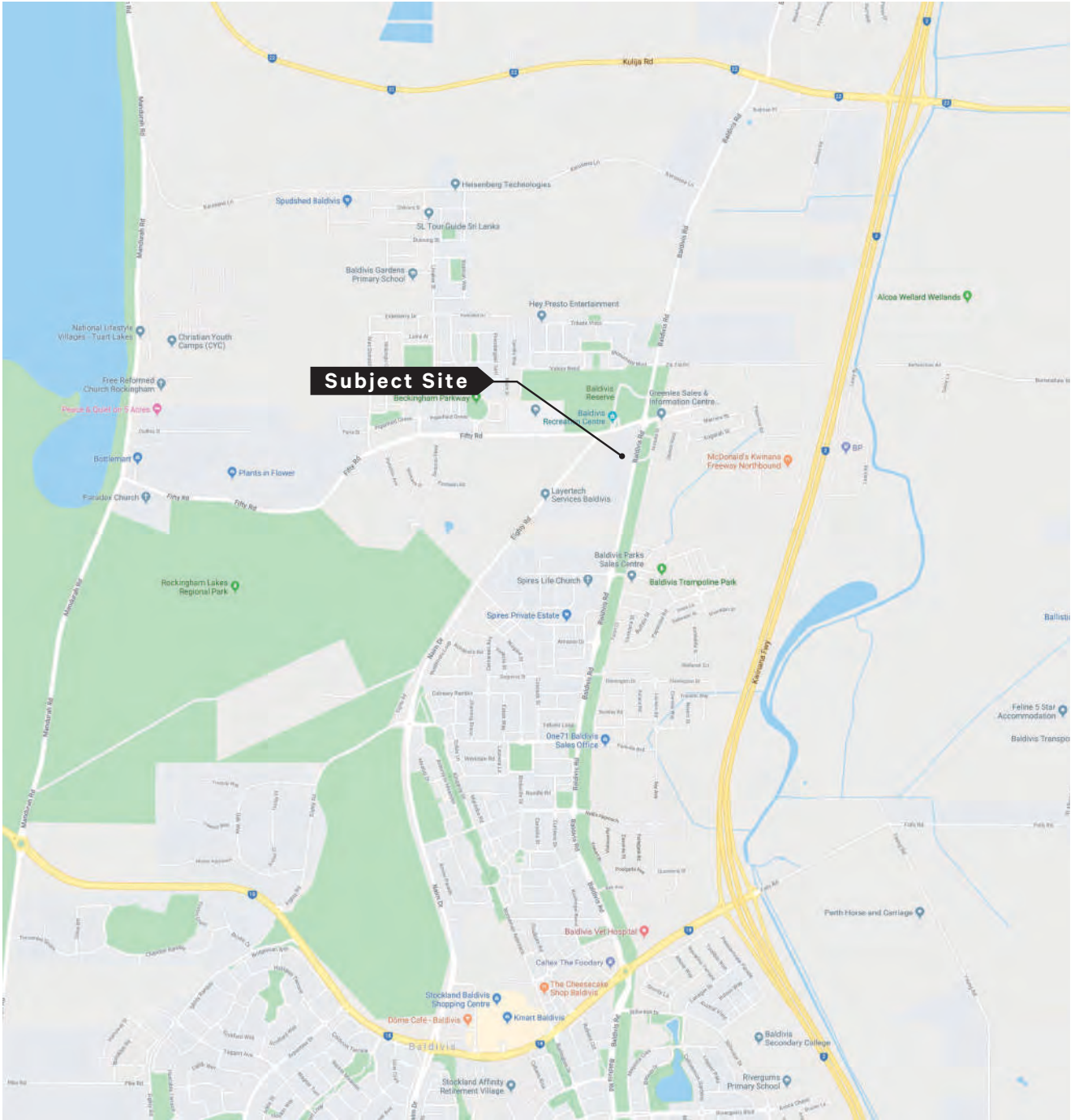



Figure 1. Location Plan




 Subject Site


source: speakfish

Figure 2. Site Plan



 Subject Site



source: spokfish

Figure 3. Context Plan

4. Site Description

The following site description includes technical information provided in the Environmental Assessment Report (EAR) (**Appendix 2**), Servicing Report (**Appendix 3**) and Bushfire Management Plan (BMP) (**Appendix 4**).

More detailed information and references pertaining to each sub-heading below can be found in the appendices. The following is a general overview of site characteristics and assessment relating to the potential for urban development under the Structure Plan.

Refer to Appendix 2 – Environmental Assessment Report

Refer to Appendix 3 – Servicing Report

Refer to Appendix 4 – Bushfire Management Plan

4.1 Topography, Landform & Soils

The subject site lies within the Spearwood System of the Swan Coastal Plain. The Spearwood System contains sand dunes and plains and deposits of Aeolian sand and limestone over sedimentary rocks.

The predominant soil type for the subject site is:

- Within the western portion of the subject site Spearwood 2a Phase (211Sp_2a) comprising moderately deep siliceous yellow-brown sands or pale sales with yellow-brown subsoils and minor limestone outcrops.
- Within the eastern portion of the subject site Spearwood S4a Phase (211Sp_S4a) comprising deep, pale and sometimes bleached sands with yellow-brown subsoils.

The topography of the subject site almost presents as flat, with a mild slope from approximately 7.0m AHD in the south-west down to 6.0m AHD in the north-east.

The topography and soils of the subject site present no significant constraints to urban development that need to be addressed in the Structure Plan.

4.2 Vegetation and Flora

The subject site has previously been parkland cleared for rural use. Native vegetation on the subject site consists of native trees over cleared understorey.

In the EAR, the vegetation is described as an Open Woodland of *Corymbia calophylla* (Marri) and *Eucalyptus marginata* (Jarrah) over weeds.

In classifying the existing vegetation condition using Keighery (1993), the vegetation within the subject site is classified as being 'Completely Degraded'.

Vegetation condition has been assessed to the following criteria (Keighery, 1993):

Classification	Vegetation Condition
Pristine	Pristine or nearly so, no obvious signs of disturbance
Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species
Very Good	Vegetation structure altered, obvious signs of disturbance
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbance. Retains basic vegetation structure or ability to regenerate to it

Classification	Vegetation Condition
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as being 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs

Keighery, B (1994) Bushland Plant Survey, Guide to Community Survey for Community

The subject site has been parkland cleared for many decades (based on historical aerial imagery) and no native vegetation community remains intact. The vegetation is considered too degraded to determine a Floristic Community Type (FCT).

Accordingly the vegetation presently standing on the subject site is not representative of a Threatened or Priority Ecological Community. Furthermore, it is highly unlikely that any threatened or priority flora species occur on the site.

The subject site does not contain any significant environmental vegetation communities or flora that would constrain urban development. There are native trees present on the subject site which could be considered for retention in future urban development of the site, particularly within public open space, where existing natural ground levels are not expected to be significantly altered.

4.3 Significant Trees

A significant tree survey was undertaken as part of the EAR, which recorded a total of 84 trees that had a diameter at breast height >500mm, all of which species are native and endemic to the area. The majority of the significant trees identified in the survey were Marri and Jarrah trees.

The condition of the existing significant trees surveyed was mostly in 'Fair' condition. Consideration of retention of significant trees wherever possible will be undertaken as part of the detailed subdivision design. As shown in Figure 4, some trees can be potentially be retained in public open space and road reserves, following preliminary engineering investigations and consideration of final development levels post earthworks. The Landscaping Concept Plans show how existing significant trees can be potentially contained within the local parks in the subdivision concept plan. Along with the surveyed significant trees, other trees that also could be retained are to be investigated for potential retention as part of detailed subdivision design. Particular emphasis should be given to retaining trees that have potential Black Cockatoo habitat value, including trees along Baldivis Road and Fifty Road.

Refer to Figure 4 – Significant Tree Survey

Refer to Appendix 7 – Landscaping Concept Plans

4.4 Hydrology

There are no surface water expressions or features found on the subject site. The subject site is not impacted by any wetland mapping. Sheet drainage generally occurs from south-west to north-east, with infiltration generally at source due to filtration of the relatively sandy soils.

The groundwater table beneath the subject site is generally at 4.6m AHD at the north-east corner and 2.6m AHD in the south western corner. The groundwater table averages 8 metres below the natural surface of the site.

Preliminary engineering investigations indicate that sufficient clearance (i.e. minimum 1.2m above the highest groundwater level) can be achieved by urban development to the groundwater table. In general, the lowest finished lot level will be at 6.4m AHD and this will be more than adequate separation to groundwater.

As such there are no significant hydrological constraints present on the subject site that would impact urban development.



Figure 4. Significant Tree Survey

4.5 Fauna

The fauna habitat is described in the EAR as being Open Woodland Habitat. Following a site inspection, the Open Woodland Habitat is considered to have limited fauna habitat value. The parkland cleared vegetation the subject site contains little connectivity and is categorised as 'Completely Degraded', therefore is considered to be 'Highly Degraded Fauna Habitat'.

The existing trees on the subject site would provide some value for birdlife (i.e. Black Cockatoos) and bats. Feral fauna, such as foxes, rabbits, rats and mice are likely to occur on the subject site. The biodiversity value of the subject site as fauna habitat is considered very low.

Black Cockatoo Habitat Assessment

The three Black Cockatoo species (i.e. Carnaby's Black Cockatoo, Baudin's Black Cockatoo and Forest Red-tailed Black Cockatoo) could potentially utilise the existing trees on the subject site. The EAR contains a Black Cockatoo Habitat Assessment (BCHA) that was carried out on 6 July 2018.

There is approximately 1.2 hectares of foraging habitat and 46 potential breeding trees for Black Cockatoos. Retention of significant trees will be considered wherever possible at the detailed subdivision design stage.

4.6 Acid Sulfate Soils

A desk top review indicates that generally the subject site has a 'Moderate to Low' risk of Acid Sulfate Soils (ASS) being encountered within 3 metres of the natural surface. Accordingly, there are no significant ASS constraints impacting urban development of the subject site.

4.7 Site Contamination

A search of the Department of Water and Environment Regulation 'Contaminated Sites Database' indicates that there are no recorded contaminated sites for the subject site.

4.8 Servicing

A preliminary engineering Servicing Report has been prepared which indicates that the subject site is suitable for urban development and can readily be connected to the necessary services to support urban development. Subdivision and/or development for urban use would be subject to consultation with service providers and the necessary upgrades to existing infrastructure to support development.

Refer to Appendix 3 – Servicing Report

4.8.1 Water and Sewer Services

The subject site is not presently connected to sewer or water. There is capability for sewer connection to the subject site and there is sufficient water supply in the area to service the proposed urban development.

There is an existing deep gravity reticulated sewer located within the road reserve of Baldivis Road, to which the development proposes to connect. A pressure main is located within Fifty Road, however this cannot be connected with the proposed development.

The connection of the subject site to the reticulated sewer in Baldivis Road will allow for future extensions to adjoining neighbouring properties.

4.8.2 Power & Gas

There is sufficient power supply existing in the area to service the proposed urban development. There are high and low voltage overhead cables within the eastern verge of Baldivis Road and northern verge of Fifty Road. Underground power is also available at the intersection of Baldivis Road and Fifty Road.

Reticulated gas supply can be provided to the proposed urban development. There is an existing 160mm high pressure gas main located within the southern verge of Fifty Road and another gas main in Baldivis Road.

4.8.3 Telecommunications

The proposed urban development can be serviced by telecommunications Telstra underground infrastructure in both Baldivis Road and Fifty Road. Fibre Optic cabling is located in this area and provision for NBN service can be made for the proposed development.

4.9 Access

The site has direct frontage and is readily accessible via Fifty Road and Baldivis Road, both of which are bitumen sealed roads. However, direct vehicular access from Baldivis Road is to be restricted in future for the proposed urban development, with the primary access to the development to be from Fifty Road.

Future planning for provision of roads and connections to service the urban development will be discussed in further detail in this report. There are no access constraints to the subject site. Development of the subject site for urban will ultimately provide for future road connections to adjoining neighbouring properties.

4.10 Indigenous and European Heritage

A search of the Department of Planning, Lands and Heritage (Aboriginal Heritage Inquiry System) indicates that no listed Aboriginal Heritage sites exist on the land and no mapped Heritage Places.

There are no places or sites of cultural significance within the subject site under the City of Rockingham Municipal Heritage Inventory and State Heritage Register.

4.11 Bushfire Management

The site has been declared bushfire prone by the Commissioner for Fire and Emergency Services. This is the primary trigger for the application of State Planning Policy 3.7: Planning in Bushfire Areas, which does not support more intensive development of bushfire prone land, unless the bushfire risk can be suitably mitigated. A bushfire management plan has been prepared for the structure plan.

The bushfire report demonstrates that the subject site is capable of supporting urban development, whereby the threat of bushfire from internal and neighbouring vegetation can be adequately addressed and managed.

The bushfire report demonstrates that potentially, proposed urban development for residential lots could achieve BAL ratings not exceeding BAL – 29, however some future residential lots abutting the western boundary of the subject site can only be subdivided once the bushfire hazards are removed (or modified) on the neighbouring western property. This is outlined in the bushfire report.

There are no issues with provision of secondary emergency access (in a different direction) as future internal structure plan road connections can be provided to neighbouring properties west and south, in addition to the current direct frontage to Fifty Road to the north and Baldivis Road to the east. In this regard at the time of subdivision and/or development, a temporary secondary access may be required for the structure plan area, which is discussed in the Bushfire Management Plan.

Accordingly there are no significant bushfire hazards or risks that cannot be adequately managed as part of the Structure Plan to accommodate future urban development of the subject site.

Refer to Appendix 4 – Bushfire Management Plan

4.12 Proximity to Poultry Farm

EPA *Guidance Statement No. 3: Separation Distances between Industrial and Sensitive Land Uses* provides generic buffer separation distances required for different industrial land uses. Residential development is categorised as a *sensitive land use* and poultry farms, market gardens and extractive industry (sand mining) are considered *industrial land use* requiring a separation buffer distance from sensitive land use. EPA *Guidance Statement No. 3* recommends a generic 300m – 1,000m odour buffer distance.

Odour modelling for the *Spires Estate Local Structure Plan* has previously been undertaken for the existing poultry farm on the neighbouring property to the south. The recommended odour buffer for this poultry farm is shown in the Opportunities and Constraints Plan. Consultation with the owner of the poultry farm indicates there has been no change to the operational intensity of the poultry farm since the odour study was completed in 2010. The owner also indicates that there are no expansion plans proposed for the poultry farm – which would require a development approval from the local authority.

Subsequently the existing poultry farm operation and odour buffer is a significant constraint on the timing for urban development in the southern portion of the subject site. It is anticipated that the poultry farm operations will eventually cease in future, given the poultry farm is a non-conforming use in this urban greenfield area.

In the interim, the portion of the subject site affected by the current odour buffer is constrained from being developed for residential use. Staging of development (taking into consideration the poultry farm constraint and odour buffer) is further discussed in this report.

Refer to Figure 5 – Opportunities and Constraints

Refer to Appendix 9 – Odour Impact Assessment and Dispersion Modelling Study

4.13 Transport Noise

Baldvis Road is not identified as a major distributor road and does not trigger the requirements for a noise assessment under State Planning Policy 5.4 'Road and Rail Noise'.

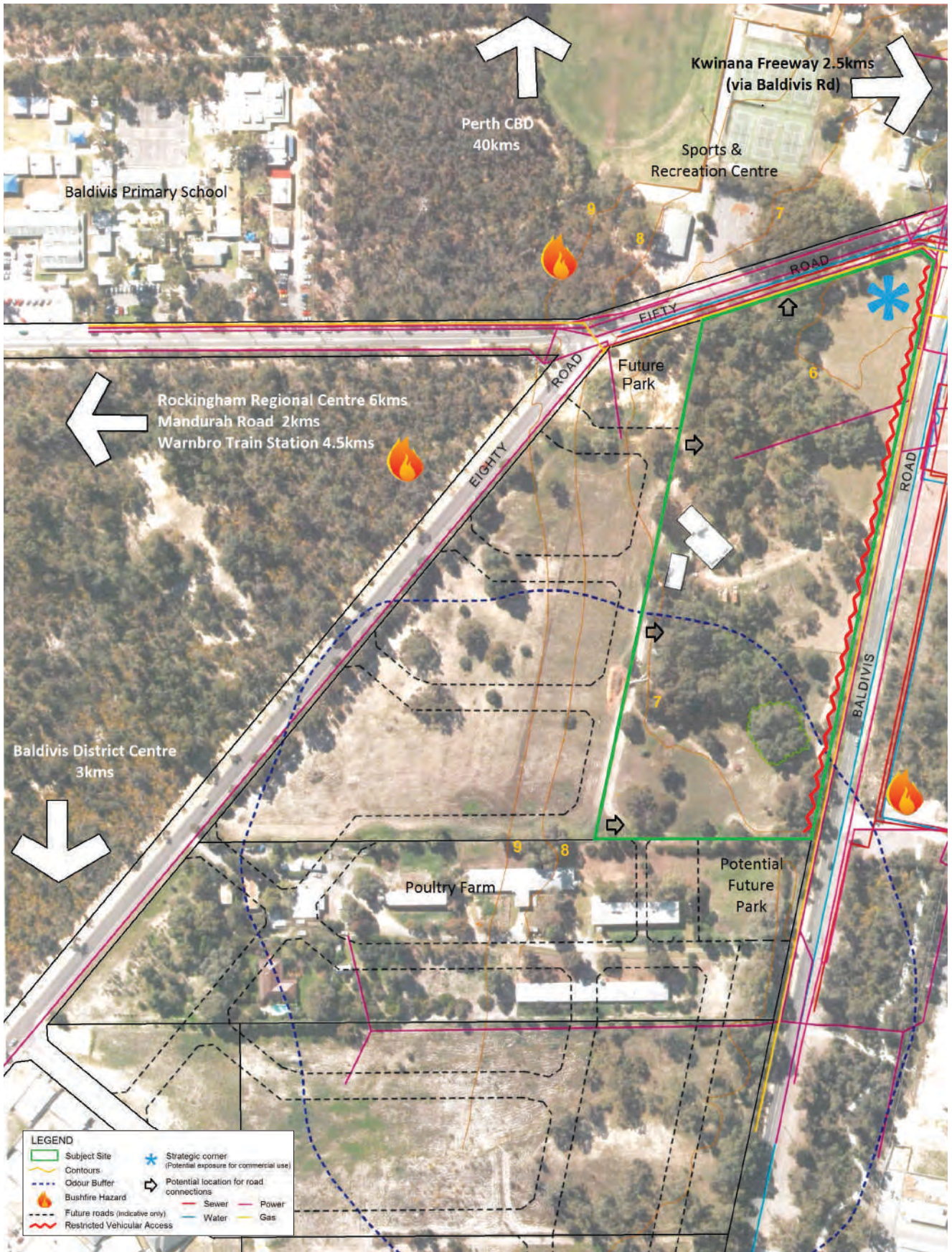


Figure 5. Opportunities and Constraints Plan

5. Planning Framework

Regional Context

5.1 Perth and Peel@3.5million

The Perth and Peel @ 3.5 million provides strategic land use planning documents to facilitate accommodation of a forecast population growth of 3.5 million for Perth and Peel regions by 2050. Within the context of this document, the subject site is located within the *South Metropolitan Peel Sub-Regional Planning Framework*.

The ***South Metropolitan Peel Sub-Regional Planning Framework*** provides a framework for delivering the objectives of Directions 2031 and Beyond. The subject site (and the wider area of Baldivis) is identified in the Framework as 'Urban' forming part of the future urban footprint in the Perth Metropolitan south west area.

Land identified as 'Urban' in the Framework is generally given higher priority for short – medium term urban development than 'Urban Expansion' and 'Urban Investigation' areas identified in the Framework. The subject site is proposed for urban development in the short term by the landowner.

It is noted that the Framework does not identify any specific district or regional planning infrastructure for the subject site.

5.2 Directions 2031 and beyond

Directions 2031 and beyond: Spatial Policy for Perth and Peel provides strategic direction for the future growth of the Perth and Peel regions. Directions 2031 is an important strategic land use planning document for the Perth and Peel and provides a framework for the detailed planning and delivery of housing, infrastructure and services necessary to accommodate growth up until 2031.

The Directions 2031 ***Draft Outer Metropolitan Perth and Peel Sub-Regional Strategy*** identifies the Structure Plan area as part of the "BA1" precinct with an estimated potential for future 3,900+ dwellings. The Structure Plan area will thus contribute to the overall 'BA1' expected dwelling yield in the metropolitan urban expansion strategy.

5.3 Metropolitan Region Scheme

The subject site is zoned 'Urban' under the Metropolitan Region Scheme. The surrounding land and neighbouring properties are also zoned Urban under the MRS. Both Baldivis Road and Fifty Road are not reserved roads under the MRS.

5.4 Liveable Neighbourhoods

Liveable Neighbourhoods (LN) has been prepared to guide the sustainable development of communities. It addresses both strategic and operational aspects of structure planning and subdivision for both greenfield' and urban infill sites.

The Structure Plan has been designed in accordance with the principles of Liveable Neighbourhoods, in particular, the layout of roads and Public Open Space (POS). Consistent with LN, the Structure Plan provides a high level of connectivity with good external linkages to existing and planned road, cycle and pedestrian transport networks.

The road design in the Structure Plan is legible and reduces car travel distances by creating alternative routes. These aspects are further addressed in the report when referring to the indicative subdivision concept plan for the subject site.

LN encourages walkable access to POS. Within the Structure Plan, all lots are within 400 metres walking distance from POS areas. This provides residents with opportunities for active lifestyle and recreation within five minutes walking distance from residences.

Consistent with LN, it is important for the Structure Plan design to respond to site characteristics and site context. The Structure Plan design has taken into consideration the natural topography, surrounding land uses, solar orientation and existing developments. Proposed lots can achieve a reasonable E-W or N-S orientation, which provides good opportunity for solar orientation for dwelling design and outdoor living areas.

Within the Structure Plan, lots that face parkland increase opportunity for passive surveillance and interaction with public spaces. Lots that potentially abut POS area can be designed to appropriately interface and orientate towards the POS, of which development can be guided by an approved Local Development Plan.

Lot shape and proportion of width to depth is considered important and the lots in the Structure Plan have been designed to be rectangular in shape with a greater depth than width wherever possible. This ensures the ability to develop the lots with high quality housing and built form and conformity with the Residential Design Codes of Western Australia. Other aspects of LN principles, such as local water management and target residential density are addressed further in this report.

5.5 State Planning Policy 3.7 'Planning in Bushfire Prone Areas'

The subject site has been identified and designated by the Fire and Emergency Services Commissioner under the Fire and Emergency Services Act 1998 as a bushfire prone area. As such SPP 3.7 and its accompanying WAPC *Guidelines for Planning in Bushfire Prone Areas*, apply to urbanisation of the subject land.

In accordance with the requirements of SPP 3.7 a Bushfire Management Plan has been prepared and its findings indicate there are no significant bushfire constraints that cannot be adequately managed to enable the subject site to be developed for urban use.

5.6 State Planning Policy 4.1 'State Industrial Buffer Policy'

SPP 4.1 provides guidance for considering proposals to rezone land for sensitive uses in the vicinity of, amongst other industry types, poultry farm, market garden and extractive industry. The EPA *Guidance Statement No. 3 – Separation Distances Between Industrial Sensitive Landuses* is incorporated into SPP 4.1 as a planning consideration.

The Structure Plan addresses the odour buffer distance for the existing poultry farm to the south in accordance with EPA Guidance Statement No. 3, as outlined in Section 4.12 above in this report. The subject site can be developed for sensitive residential land use, despite the existing operating poultry farm on the neighbouring property to the south, as the northern portion of the subject site is outside of the odour buffer. Sensitive land uses will be staged until the odour buffer is modified or removed as outlined in Part One Clause 3.

5.7 State Planning Policy 5.4 'Road and Rail Noise'

The primary purpose of SPP 5.4 is to minimise the adverse impact of transport noise in land use planning, to ensure where sensitive development is proposed in proximity to transport noise that appropriate mitigation measures are implemented, without adding unreasonable cost to transport infrastructure.

Baldvis Road is not identified as a major distributor road and does not trigger the requirements for a noise assessment under State Planning Policy 5.4 'Road and Rail Noise'.

5.8 City of Rockingham Town Planning Scheme No. 2

Under the City of Rockingham Town Planning Scheme No. 2 (TPS 2), the subject site is zoned 'Development' zone within 'Development Area No. 22'. The site is also within 'Development Contribution Area No. 2'.

5.9 Baldivis North District Structure Plan

The Baldivis North District Structure Plan (DSP) was adopted by the WAPC in August 2000. The DSP sets out the broad strategic land use and transport network for the northern portion of Baldivis. The DSP is used to inform and guide the preparation and approval of structure plans at a local level.

The Structure Plan is consistent with the objectives of the DSP. It is noted that there are no specific transport, educational or community infrastructure requirements identified for the subject site. The DSP identifies the future use of the subject site for residential.

5.10 City of Rockingham Urban Growth Programme

The City of Rockingham Urban Growth Programme was adopted by the City in 2009. The Programme sets out the likely pattern of urban growth in line with Directions 2031. The subject site is identified as being part of the Baldivis North urban growth cell and therefore the Structure Plan is consistent with the Programme.

5.11 City of Rockingham (Approved) Structure Plans

Other structure plans for land in Baldivis North have already been approved, including more recently the Spires Estate Local Structure Plan Phase 2 (SESP). The SESP has set out planning for the local neighbourhood, including formal structure planning for neighbouring Lot 2 to the west of the subject site.

An indicative pattern of development has been shown in the SESP for the subject site, to illustrate how development can potentially tie into the SESP. However, this is conceptual only and the Proponent has undertaken further detailed site analysis and investigations to determine a more optimal development outcome.

The relationship between the SESP and this Structure Plan is shown in Figure 6. The Structure Plan provides for an appropriate interface to allow for the structure planning of the neighbouring poultry farm site to the south as potentially shown, whilst also maintaining the transport linkages and public open space connections with the land to the west.

The Structure Plan design and integration with neighbouring land to the west and south will be further discussed in this report, particularly in regards to the road layout and provision for suitable road connections.

Refer to Figure 6 – Structure Plan Context

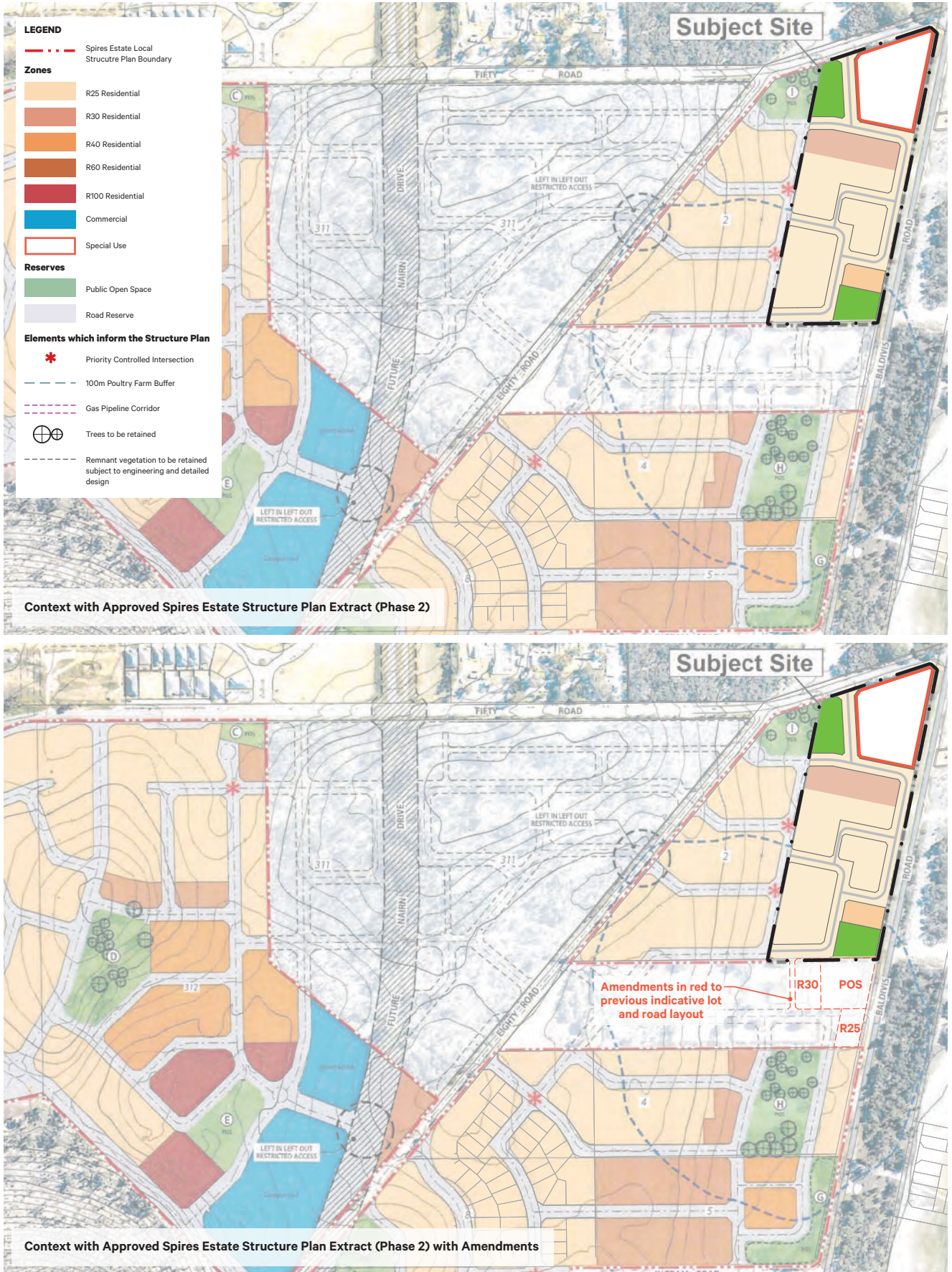


Figure 6. Structure Plan Context

6. Structure Plan

6.1 Intent and Rationale for Land Uses

The Structure Plan Map outlines the Zones and Reserves applicable within the Structure Plan Area which will guide future subdivision and development of the land. Two main land use zones under TPS 2 are proposed being Residential and Special Use.

RESIDENTIAL

Single dwellings will form the predominant land use in the structure plan. This is consistent with the planning framework. The lot typology is as follows in Table 2 based on the subdivision concept plan:

Table 2. Lot typology based on subdivision concept plan design

Density	Typical lot dimensions	Typical lot area	Structure Plan Yield
R40	15m x 26m	415m ²	3
R30	12.5m / 15m x 30m	270m ² - 450m ²	8
R25	10m / 15m x 30m	300m ² - 450m ²	19
R25	Varies	300m ² – 500m ²	8
R25	Homestead Lot (Existing dwelling retained)	2,140m ²	1
Total			39

SPECIAL USE

The north-east corner of the subject site at the intersection of Fifty Road and Baldivis Road provides an excellent opportunity for special use development, because of its strategic accessible location and exposure to traffic. The structure plan provides for special use at this location whereby all commercial uses shall be located within the Special Use zone. The Special Use zone is relatively small in size and will not impact the Baldivis North Neighbourhood Centre by virtue of the development limitations outlined in Part One Clause 4.1 (Table 1) relating to restrictions on floor space and land uses. Although not identified in the City's Local Planning Strategy, the special use development is considered to provide a benefit to the community. It will have a low impact on the existing and planned commercial activity centres in the Strategy.

TPS 2 provides for a range of commercial uses, but in particular the following uses have been initially identified in Table 3 as compatible uses with the development and taking advantage of the location:

Table 3. Lot typology based on subdivision concept plan design

Use	Gross Floor Area	Retail Nett Lettable Area	Estimated No. employees
Shop	595m ²	540m ²	5
Service Station/Convenience Store	285m ²	160m ²	3
Fast Food Outlet.	400m ²	382m ²	8
Total	1,280m²	1,082m²	16

The proposed total retail nett lettable area (NLA) of 1,082m² is below the threshold of a local centre and therefore a retail sustainability assessment is not required for the proposed low scale special use development. The small nature of the development will provide for convenience retail needs for local residents, while the service station and fast food uses will attract district users along Baldivis Road. The local destinations of the Baldivis Primary School and Baldivis Reserve recreation centre will also attract users for

the special use from the wider catchment potentially beyond the local neighbourhood. A total nett lettable area of 1,300m² of land use activities included in the Planning Land Use Category 5 'shop/retail' as defined by the WAPC Perth and Peel Land Use and Employment Survey will apply.

Refer to Appendix 15 - Extract from WAPC Perth and Peel Land Use and Employment Survey

Upgrades to Baldvis Road will be necessary to provide for adequate access/egress to the special use via Baldvis Road. It is proposed that an access/egress point be provided at the southern end of the special use site. This will provide for convenient access to the special use.

Upgrades to Baldvis Road include a right-turn pocket for southbound traffic in the median strip. Also a break in the median strip will allow for right-turn movement from the special use site for southbound traffic. The roundabout at the corner of Baldvis Road and Fifty Road will serve to provide adequate breaks in traffic flow to enable safe right turn movements from the site onto Baldvis Road. The upgrades to Baldvis Road will be further discussed in this report.

6.2 Residential Density and Yield

The Subdivision Concept Plan (SCP) contained in Appendix 13 provides one option for the urban development of the subject site based on the Structure Plan. The SCP indicatively has potential for up to 39 residential lots. The dwelling yield takes into consideration the retention of the existing substantial size dwelling, which the landowner wants to retain/reside in the long term. The SCP reflects a mix of front-loaded lot sizes with a residential density predominantly R25. A higher lot yield could be achieved if:

- R40 density lots are proposed abutting public open space through potentially medium density strata housing.
- The existing dwelling were removed and redeveloped
- Smaller lots were created, in lieu of 450m² (15m x 30m) lots.

The final lot yield and design would be subject to market demand and expectations, in the context of the subject site being part of the wider urban front where a range of lot typologies and housing accommodation is being delivered.

The SCP could potentially accommodate up to 101 people, based on a dwelling yield of 39 and an average household of 2.6 persons (2016 Consensus data) at the upper lot yield specified above. The final lot yield and design would be determined as part of detailed subdivision at later stages of planning.

Table 4 provides a snapshot of development statistics based on the SCP in terms of the potential to meet the target densities under Directions 2031 and Liveable Neighbourhoods.

Although the SCP is indicative only at this Structure Plan level of planning (and not the subject of subdivision approval), the Structure Plan technical reports have been based on the SCP to support the Structure Plan. These technical investigations and preliminary designing could therefore provide the basis for future subdivision of the subject site.

Table 4 shows that the Structure Plan can potentially deliver approximately 19 dwellings per *site hectare*, which meets the Liveable Neighbourhoods density expectations for the site's locational context. The SCP deliver 10 dwellings per gross urban hectare, which does not initially meet the target density of 15 dwellings per gross urban hectare under Directions 2031. However this can be attributed to the following factors:

- 20% of the subject site is set aside for special use, given the strategic exposure and spatial location at the corner of Baldvis Road and Fifty Road.
- Retention of the existing substantial dwelling on a large 'homestead' lot which reflects a density of R5.

Notwithstanding there is potential in the future to redevelop the homestead lot for medium density housing. This would likely be long term once the local neighbourhood area is established and matures.

Table 4 Development Statistics (based on Subdivision Concept Plan)

	Site Outcomes	Target Density
Total Structure Plan Area	40,432m ²	-
Area set aside for special use, roads, drainage & POS	19,883m ²	-
Balance area for residential development	20,549m ²	-
Estimate ultimate number of dwellings	39 dwellings ³	-

	Site Outcomes	Target Density
Estimated number dwellings per <i>site hectare</i> ¹	19 dwellings/site hectare	Liveable Neighbourhoods 12 – 20 dwellings per site hectare for standard lot layouts; or
Structure Plan target density per <i>gross urban hectare</i> ²	10 dwellings/hectare	Directions 2031 15 dwellings per gross urban hectare

¹ Liveable Neighbourhoods definition of *site hectare* is the area available for residential development excluding roads, non-residential uses, public open space and drainage areas.

² Directions 2031 definition of *gross urban hectare* is the gross area available for urban development.

6.3 Proposed Movement Network

A Transport Assessment has been prepared which outlines the overall transport strategy for the structure plan and demonstrates that there are no significant transport issues or impacts affecting the structure plan. This includes the proposed direct access to the commercial site from Baldivis Road.

Refer to Appendix 6 – Transport Assessment

6.3.1 Existing roads

Baldivis Road is constructed as a single carriageway, two-way rural road with a posted speed limit of 70km/hr, however approximately 500m north of the subject site the speed limit increases to 80km/hr. Baldivis Road provides a major north-south access through the locality of Baldivis for connections to the Kwinana Freeway at Mundijong Road, Safety Bay Road and Karnup Road. Baldivis Road is under the care and control of the local authority and is classified as a *Regional Distributor* road by MRWA.

Baldivis Road is planned to be upgraded in future to support urbanisation in Baldivis. The portion of Baldivis Road south of Ingram Road, approximately 400m south of the subject site, has been upgraded to a boulevard style road comprising 12m wide pavement seal between kerbs including two 1.5m bicycle lanes, two 3.5m single lanes in each direction and a 2m painted median with intermittent raised traffic islands.

Currently the existing dwelling access is from a crossover onto Baldivis Road. Once subdivision occurs and the internal access road network is created, this crossover will be redundant and will be removed, with the existing dwelling taking access from a new internal road.

Fifty Road is classified by MRWA as a *Local Distributor* road providing a main east-west connection from Baldivis Road to Mandurah Road to the west with a posted speed limit of 60km/hr (excluding the 40km/hr school zone). The section of Fifty Road abutting the subject site is currently constructed as a rural road (no kerbs on southern side) with single lanes in each direction. However, further to the west as part of recent urbanisation in Baldivis North, Fifty Road has been upgraded to a kerbed two-lane boulevard style road with a 1.5m painted median strip. A 2.2m road widening is proposed along the northern boundary of the structure plan area to accommodate the upgrading of Fifty Road to urban standard. The road widening will provide for appropriate construction of road pavement, kerbing and a pathway on the southern side.

Long term road network planning within the Baldivis urban growth corridor includes the future extension of Nairn Drive as the main north-south District Distributor road through Baldivis and Karnup. This will include a four-way intersection at Amazon Drive and a four-way intersection at Fifty Road near the primary school. The Fifty Road/Nairn Drive intersection will provide the subject site with convenient access to the regional road network.

A roundabout intersection treatment is proposed at Fifty Road and Baldivis Road, which is identified in the Transport Assessment. The roundabout can be accommodated within the existing road reserves and does not require any road widening from the subject site.

6.3.2 Proposed Roads

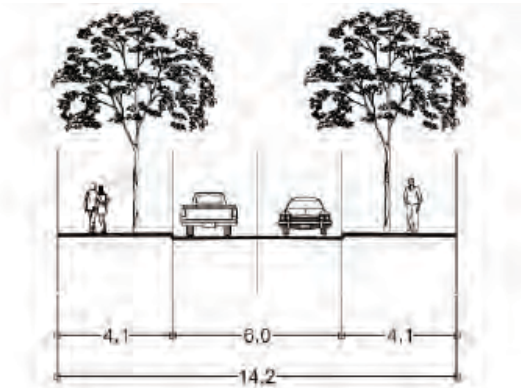
The Structure Plan forms part of the Baldivis North District Structure Plan and in the context of the existing and planned road network, only local access roads are proposed (and considered necessary) in the Structure Plan.

The Structure Plan road layout provides an appropriate responsive design to the existing natural topography and landform to accommodate servicing of lots and stormwater drainage. All road reserve widths and temporary turning circles are subject to detailed design and approval by the local government at the time of subdivision

Road Hierarchy

Based on the proposed urban development as shown in the subdivision concept plan, the internal proposed roads are classified as ‘Access Street D’ roads (refer to Plate 1). These access roads will connect with future road network (containing similar classified local access roads) when the neighbouring properties subdivide, subject to future structure planning.

Where the ‘Access Street D’ road is adjacent to public open space, typically the road reserve may be reduced (by reducing the verge width) to reflect urban development being on one-side. This makes more efficient use of urban zoned land for residential development.



Access Street D - narrow yield (or give way) street target speed 30 km/h (<1,000 vpd)

Figure 7. Typical ‘Access Street D’ indicative cross section noting reduced road reserves is typical for urban development on one-side of road (i.e. lots opposite public open space). (Source: WAPC Draft Liveable Neighbourhoods, 2015)

Connection with Existing and Planned Road Network

The proposed local access roads in the Structure Plan will provide for adequate circulation for traffic and waste services. No changes are proposed to the existing road network other than upgrading of roads where necessary and to provide for the future ‘T’ intersection of the proposed internal road with Fifty Road. The ‘T’ intersection with Fifty Road is proposed to be full movement and is appropriately located approximately 90m west of Baldivis Road/Fifty Road intersection.

The only vehicular access proposed onto Baldivis Road will be from the special use site, which is necessary for the vitality and sustainability of the special use. In accordance with Liveable Neighbourhoods, a ‘slip road’ is proposed abutting Baldivis Road to enable residential lots to front Baldivis Road. The ‘slip road’ extends between the commercial site and the R40 residential abutting the public open space within the Structure Plan.

The proposed design layout interfacing with the southern and western boundary of the Structure Plan will provide adequate opportunity for landowners to the west and south to provide a seamless connection with the Structure Plan. A temporary secondary (emergency) access will be provided from the structure plan to Baldivis Road to enable residential development to occur. The temporary access could be retained or removed once other road connections are provided to neighbouring properties. This will be further investigated with the local authority in future.

Baldivis Road upgrade for access to special use

Upgrades to Baldivis Road will be necessary to provide for adequate access/egress to the special use via Baldivis Road. It is proposed that an access/egress point be provided at the southern end of the special use site. This will provide for convenient access to the special use and is shown in Plate 2. Where direct access is proposed onto Baldivis Road, there will be no direct access from Fifty Road.

As part of the upgrading of Baldivis Road, a review of access to the structure plan will occur, including the access arrangements for the secondary emergency access. Restricted access may be required, which will be subject to further investigation by the local authority in future.

Refer to Figure 8 - Developer upgrades to Baldivis Road to provide for adequate access/egress via Baldivis Road to Special Use site.

Refer to Appendix 10 – Street Tree Master Plan

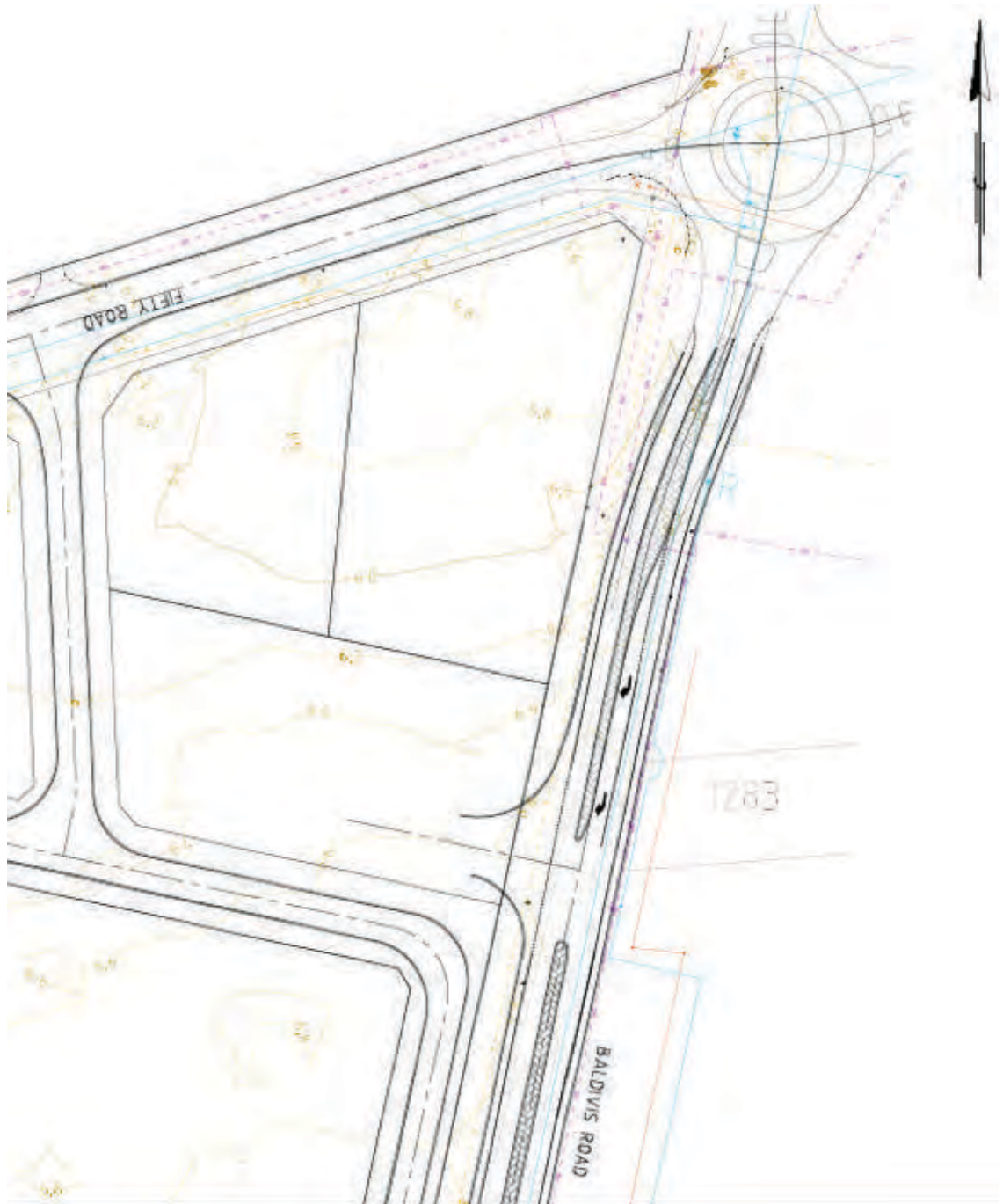


Figure 8. Developer upgrades to Balddivis Road to provide for adequate access/egress via Balddivis Road to special use site.

6.3.3 Pathways

There is an existing dual use (2.0m wide) pathway on the northern side of Fifty Road. There are no existing pathways or cycle facilities on Baldvis Road in the vicinity of the subject site. However, with upgrades to Fifty Road and Baldvis Road as part of urbanisation in Baldvis North, ultimately there will be good pedestrian and cyclist pathway connections to the neighbourhood and wider community from the subject site.

The Structure Plan design allows for provision of pathways at detailed subdivision stage on proposed local access roads within the subject site, which will connect into the wider existing and planned pathway network. Pathways would be provided for within proposed local access roads and would link in with the surrounding pathway network.

The exact location of pathways will be determined in liaison with the local authority at the subdivision stage once a more specific form of development for the subject site is proposed. In general, pathways are proposed to be provided on all streets in accordance with the requirements of Liveable Neighbourhoods.

Refer to Figure 9 – Public Open Space and Pathways

6.3.4 Public Transport

Currently there is no direct public transport service for the subject site and immediate surrounding area. The nearest public transport bus service operated by Transperth is Bus Service (No. 568) from Warnbro Train Station, which currently terminates at Nairn Drive/Kingaroy Drive approximately 1.3m south of the subject site.

It is noted however that a route deviation directly to Baldvis Primary School along Fifty Road is available to school pupils in peak morning and afternoon school times. As further urbanisation in Baldvis progresses, ultimately public transport will directly service the area as outlined in the Baldvis North District Structure Plan.

The Perth to Mandurah rail line is located approximately 4.5km west of the subject site and the nearest transit station (with Park 'n Ride facility) is Warnbro Station at the junction of Safety Bay Road and Ennis Avenue. Bus Service (No. 568) currently provides a service to Warnbro Transit Station, with more bus services planned in future for the Baldvis North area.

6.4 Public Open Space

The Structure Plan makes provision for the required minimum 10% Public Open Space (POS) contained within the subject site. Table 5 is the Structure Plan POS Schedule provision based on the SCP. Two local parks are proposed in the north-west and south-east areas of the subject site. The locations of these parks are based on the following planning considerations:

- Topographical low areas in the subject site to accommodate drainage infrastructure, providing a multi-use function for the public open space.
- Potential to retain significant trees and vegetation within park land.
- Existing trees provide immediate assets for parkland (i.e. established trees for shade and amenity) both for public recreation and fauna (e.g. Black Cockatoos).
- Potential to merge with future neighbouring POS to create larger parks, in lieu of multiple smaller parks which increase maintenance costs and limit functionality.
- Underground storage cells for containment of stormwater within the public open space areas.

Landscaping Concept Plans have been prepared which show how the public open space could be developed with a multiple-use recreation and drainage function. The landscaping plan shows the drainage basin as a potential *artificial wetland*, which would create an attractive feature and add amenity and interest to the park. Local parks would be developed to provide a mix of turf areas, native landscaping gardens, bio-retention basin and seating areas to provide for an interesting and usable park for local residents.

All residents within the Structure Plan will have access to public open space within a 400m walking distance via a local pathway network in accordance with Liveable Neighbourhoods.

Refer to Appendix 7 – Landscaping Concept Plans

6.4.1 Subdivisions WAPC 159811 and WAPC 159827 - updated POS Schedule

More recently subdivision applications have been lodged since the assessment of the structure plan. An updated Local Water Management Plan (March 2021) and updated Public Open Space Schedule (refer to Table 6) are provided which accounts for a minor realignment to the main entry road abutting the northern POS. The updated Table 6 POS Schedule confirms the 10% minimum POS requirement can be achieved - which will be further refined at UWMP and detailed design approval and survey stages.



Figure 9. Public Open Space and Pathways

Local Park No. 1 (north)

This park is proposed to incorporate as many of the existing trees (i.e. >500mm diameter a breast height significant trees and other trees >100mm trees), given the number of existing trees in this part of the site. The natural topography will be retained as much as possible, except for the proposed multiple use drainage bio-retention basin which will require some excavation. The basin will accommodate stormwater generated from the local roads in the development. The retaining wall around the basin adjacent to turfed areas can be used for sitting and contemplation.

This park will provide an attractive entry statement into the development and will compliment the proposed POS to be developed in future on the neighbouring western property in accordance with the Spires structure plan.

Figure 10 is an illustrative conceptual plan showing how this park could be developed. This park would likely be delivered when the central residential lots (outside the odour buffer) are created.



Figure 10. Concept plan for north-west park

Local Park No. 2 (south)

This park will have a similar design as Local Park No.1, except that there will be fewer existing established trees as the land in this area of the subject site has been cleared to a greater extent. Figure 11 is an indicative illustration of how this park could be developed.

In future this park could be incorporated into a larger park created when the neighbouring property to the south (poultry farm) is subdivided. Any playground equipment proposed within the park, as part of detailed design, shall be located as far away as possible from residential boundaries to reduce any noise impact. The location of playground equipment will be determined in consultation and to the satisfaction of the local authority.



Figure 11. Concept plan for south-east park

Table 5. Public Open Space Schedule based on Concept Plan

Calculation of Required POS Provision		
	Lot 1 Fifty Road	4.043
	Total Site Area (ha)	4.043
Deductions		
Special Use		0.808
Dedicated Drainage 1:1yr bio-retention north basin (Local Park No. 1)		0.022
Dedicated Drainage 1:1yr bio-retention south basin (Local Park No. 2)		0.022
	Total Deductions	0.852
Gross Subdivisible area (total area minus deductions)		3.191
	Required POS (10%)	0.319
Breakdown of POS Provided		
May comprise:		
• Minimum 80 per cent unrestricted POS		0.255
• Maximum 20 per cent restricted use POS		0.064
Restricted Public Open Space		
1:5yr drainage grassed swale for both Local Park No. 1 & Local Park No. 2		0.035
	Total Restricted POS Credited to a maximum of 20%	0.035
Unrestricted Public Open Space : by function		
Local Park		
Local Park No. 1 (north)		0.181
Local Park No. 2 (south)		0.123
	Total Unrestricted POS	0.304
Public open space provision provided		0.339
POS Provision as Percentage of Gross Subdivisible Area		(10.6%)

Notes:

1) Final POS calculations will be subject to detailed subdivision & survey and approved Urban Water Management Plan.

Table 6. Public Open Space based on updated LWMS (March 2021) and Subdivision Applications

Calculation of Required POS Provision		
	Lot 1 Fifty Road	4.043
	Total Site Area (ha)	4.043
Deductions		
	Special Use (WAPC 159811)	0.839
	Dedicated Drainage 1:1yr bio-retention north basin (Local Park No. 1)	0.023
	Dedicated Drainage 1:1yr bio-retention south basin (Local Park No. 2)	0.023
	Total Deductions	0.885
	Gross Subdivisible area (total area minus deductions)	3.158
	Required POS (10%)	0.316
Breakdown of POS Provided		
May comprise:		
	• Minimum 80 per cent unrestricted POS	0.255
	• Maximum 20 per cent restricted use POS	0.064
Restricted Public Open Space		
	1:5yr drainage grassed swale for both Local Park No. 1 & Local Park No. 2	0.028
	Total Restricted POS Credited to a maximum of 20%	0.028
Unrestricted Public Open Space : by function		
Local Park		
	Local Park No. 1 (north)	0.134
	Local Park No. 2 (south)	0.175
	Total Unrestricted POS	0.309
	Public open space provision provided	0.337
	POS Provision as Percentage of Gross Subdivisible Area	(10.6%)

Notes:

1) Final POS calculations will be subject to detailed subdivision & survey and approved Urban Water Management Plan.

6.5 Stormwater Management

A Local Water Management Strategy has been prepared for the Structure Plan which outlines the overall strategy for the capture and treatment of stormwater management, in accordance with industry best practice for urban water management.

Stormwater generated from the Structure Plan development will be wholly contained within the subject site. The POS area in the south eastern portion of the Structure Plan will provide a multiple use recreation and drainage function. Stormwater drainage infrastructure will be located in the POS and this will primarily be used to for the detention and management of stormwater from roads.

In general stormwater for the Structure Plan development will be managed via the following measures outlined in Table 6. The LWMS will be used as a future reference for the preparation and approval of an Urban Water Management Plan at the subdivision approval stage.

Refer to Appendix 5 – Local Water Management Strategy

Table 7 1yr & 5yr & 100yr ARI stormwater management

ARI Event	Stormwater Water Management Principles
1 Year	Stormwater runoff from new subdivision roads will be diverted to the drainage basin in the public open space in the south-east portion of the site via piped drainage. Stormwater from development will be contained within each lot prior to discharge/infiltration to groundwater via conventional methods including soakwells.
5 Year	Stormwater runoff from new subdivision roads in excess of the 1:1 year storm event will be diverted and detained within the drainage basins in both public open space parks to the north and south.
100 Year	Stormwater is proposed to be contained within the gently contoured grassed areas of both public open space parks to the north and south.

6.6 Earthworks

Preliminary civil engineering investigations indicate the anticipated minimum finished development level is 6.2m AHD, with most finished lot levels around 6.47m – 7.21m AHD to provide for serviced lots. Fill will be required in the northern portion of the site to provide for the special use site and appropriate interface with Fifty Road and the entry road. Site works will be required to create level, free draining lots for dwelling construction and provision of roads and services. Level sites that are terraced reflect the ideal building site to reduce housing cost and create more affordable housing.

Retaining walls will be used to provide terraced lots and absorb level differences. Wherever possible, the height of retaining walls will be kept to a minimum and may vary due to natural ground level differences. In most areas retaining walls need only be up to 1.0m in height in order to provide for servicing and absorb level differences.

The pre-development and post-development levels are provided in the Infrastructure and Servicing Plan, which demonstrates that there will be minimal earthworks required.

All retaining walls will be constructed to the satisfaction of the local authority. Earthworks on site will generally involve removal of topsoil, cut and fill and possible importation of sand fill to provide the necessary finished levels.

Refer to Appendix 11 – Infrastructure and Servicing Plan

It should be noted that the Infrastructure and Servicing Plan is preliminary and will be required to be updated and submitted with subdivision, including existing and future surface contours in context with the significant tree survey.

6.7 Staging & Site Clearing

Development in accordance with the Structure Plan is anticipated to occur in three stages. The first stage would be the development of the northern portion of the structure plan area to create the special use site and main entry road from Fifty Road. The special use site would have access to Baldivis Road and the new main entry road, but not Fifty Road.

The second stage of development would be for the central portion of the Structure Plan not impacted by the poultry farm odour buffer constraint. The upgrading of Fifty Road and Baldivis Road is proposed to be generally undertaken in stages (as shown in the Staging Plan). A secondary (emergency) access connection with Baldivis Road is proposed as part of Stage 2 to enable development of residential lots and to address bushfire management.

The third and final stage of development would be for the southern portion of the Structure Plan that is impacted by the odour buffer constraint. Land that is contained within the odour buffer would most likely not be developed in accordance with the Structure Plan until the odour buffer constraint is modified or removed to allow for development to occur consistent with the Structure Plan.

Refer to Figure 12 – Staging Plan

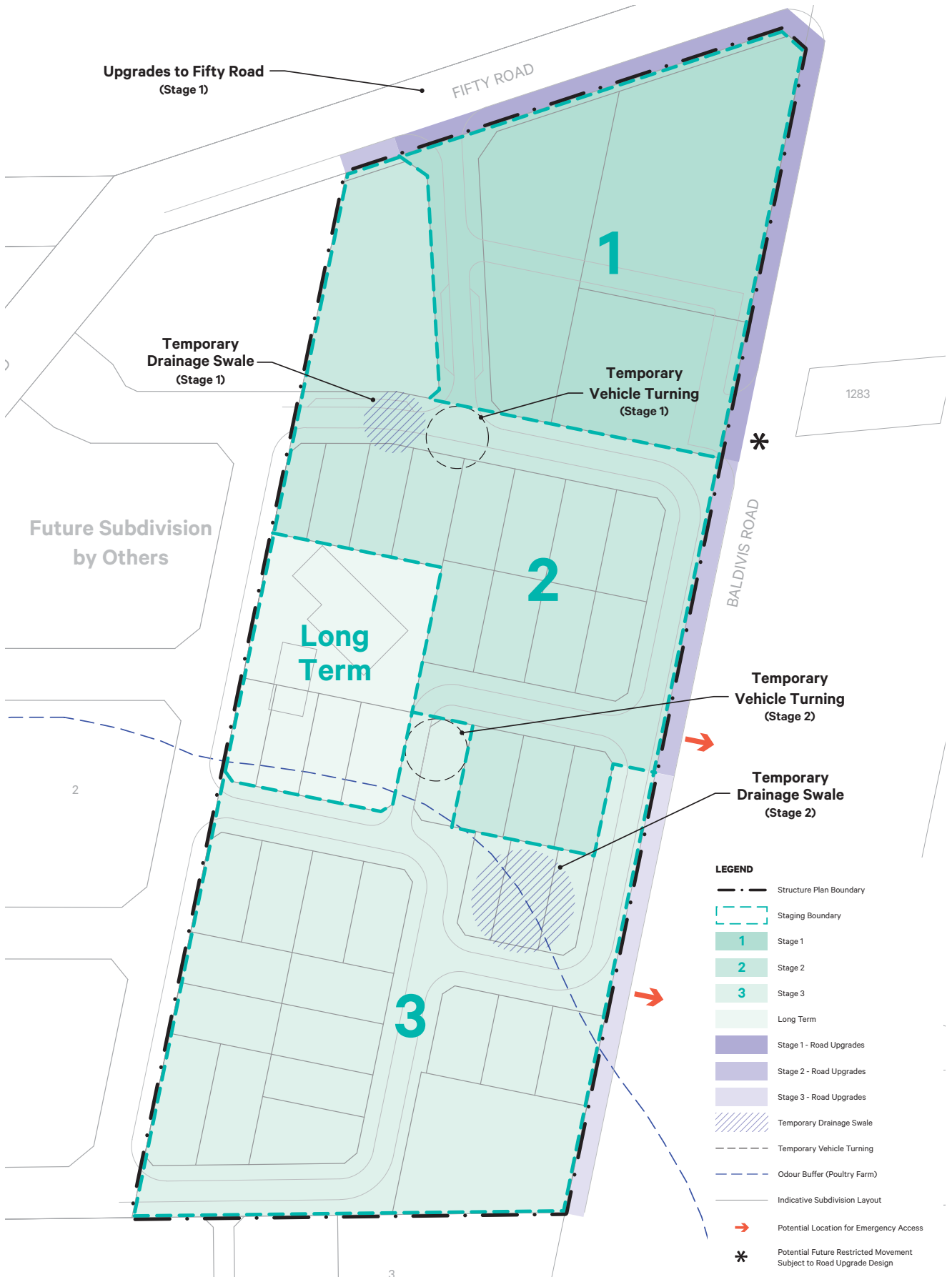


Figure 12. Staging Plan

Clearing of the site will be generally staged in Table 7 as follows:

Table 8. Proposed site clearing

Stage	Extent Of Clearing	Specific Vegetation Retention
1 – Special Use	<p>The special use site will be fully cleared of existing vegetation as a result of earthworks (filling) to create the main entry road and special use site. Clearing will also be required for the main entry road. Clearing will be necessary to provide for a temporary drainage swale and vehicle turning circle at the southern end of the main entry road, as part of Stage 1.</p>	<p>Identification and retention of existing trees in the Fifty Road and Baldavis Road road reserves (verges abutting subject site) will be undertaken to the satisfaction of the local authority.</p> <p>As identified in Figure 4 (Tree Retention plan) potentially two significant trees will be retained in the western verge of the main entry road.</p>
2 – Residential Central	<p>The area outlined in Stage 2 as shown in Figure 8 would be fully cleared of existing vegetation as a result of earthworks (filling) to create new subdivision roads and residential lots. Clearing will be necessary to provide for a temporary drainage swale and vehicle turning circle at the southern boundary of the Stage 2 area.</p> <p>The northern Local Park No.1 vegetation would be parkland cleared underneath existing trees to be retained and where necessary to provide for parkland landscaping.</p>	<p>Retention of existing trees is proposed in the northern Local Park No.1 as shown in Figure 4 and the conceptual landscaping plans. There are a couple of significant trees that could also be potentially retained in the proposed road reserves, subject to detailed engineering design – which will aim to try and accommodate the existing trees.</p> <p>Selective clearing (i.e. parkland clearing and tree canopy pruning) would be required within the northern portion of the future Stage 3 area and ‘Long Term’ homestead lot, for bushfire hazard reduction for the central residential lots in Stage 2.</p> <p>Identification and retention of existing trees in the Baldavis Road road reserve (western verge abutting subject site) will be undertaken to the satisfaction of the local authority.</p>
3 – Residential Southern	<p>Subject to the removal of the poultry farm odour buffer constraint, the area outlined in Stage 3 as shown in Figure 8 would be fully cleared of existing vegetation as a result of earthworks (filling) to create new subdivision roads and residential lots. The southern Local Park No.2 vegetation would be parkland cleared underneath existing trees to be retained and where necessary to provide for parkland landscaping.</p>	<p>Identification and retention of existing trees in the Baldavis Road road reserve (western verge abutting subject site) will be undertaken to the satisfaction of the local authority. Retention of existing trees is proposed in the southern Local Park No.2 as shown in Figure 4 and the conceptual landscaping plans. There are some significant trees that could also be potentially retained in the proposed road reserves, subject to detailed engineering design – which will aim to try and accommodate the existing trees.</p>
4 – Homestead Lot (Long Term)	<p>The area shown as ‘Long Term’ in Figure 8 is proposed to be retained by the landowner as a lifestyle lot. No significant clearing is proposed other than for bushfire management.</p>	<p>Existing vegetation retained except as required for bushfire management and subdivision works related to Stage 2 and Stage 3.</p>

7. Conclusion

The Structure Plan is consistent with the relevant state planning framework for greenfield urban development in the Baldivis North area. The subject site is appropriately zoned 'Development' zone under City of Rockingham TPS 2 and 'Urban' under the MRS. There are no access or servicing constraints that would preclude the subject site from urban development.

The subject site is not significantly constrained by any biophysical characteristics, except for the existing operating poultry farm on the neighbouring southern property. A portion of the southern part of the subject site is impacted by a poultry farm odour buffer and land within the buffer cannot be developed for sensitive land use until the odour buffer is modified or removed. Notwithstanding, the Structure Plan provides for future land use and road layout within the buffer, which can guide future subdivision following the modification/removal of the odour buffer constraint.

The Structure Plan provides guidance for future subdivision of development of the subject site, whereby appropriate interface and connectivity is identified in the Structure Plan to allow for a seamless integration with the adjoining properties (i.e. the approved Spires Estate Local Structure Plan).

The Structure Plan provides for a mix of land uses, including residential and special use which will add diversity to the neighbourhood and benefit to the community. The potential development from the Structure Plan will positively contribute to urban growth in Baldivis North and is the planning framework for this area of Baldivis.

