



Hinge Road Local Structure Plan

Shire of Harvey

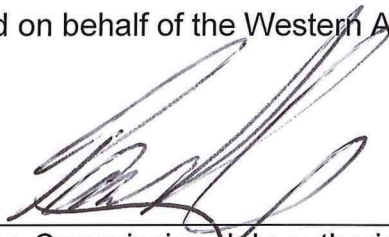
September 2016





IT IS CERTIFIED THAT AMENDMENT NO. 1 TO HINGE ROAD LOCAL  
STRUCTURE PLAN WAS APPROVED BY RESOLUTION OF THE  
WESTERN AUSTRALIAN PLANNING COMMISSION ON: **16**  
**September 2016**

Signed for and on behalf of the Western Australian Planning Commission



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an officer of the Commission duly authorised by the Commission pursuant  
to Section 16 of *the Planning and Development Act 2005* for that purpose.

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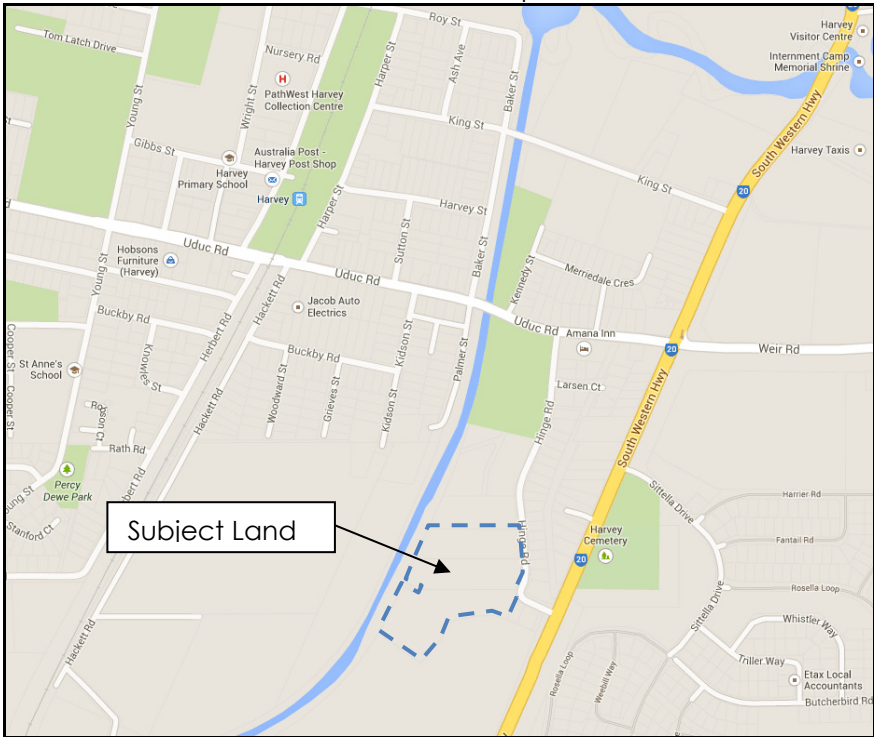
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# Executive Summary

The structure plan area is located approximately 1.5 kilometres southeast of the Post Office in Harvey. The structure plan area is generally bounded by the Harvey Diversion Drain to the west, Hinge Road to the east and intense farming land to the south (refer to **Figure 1**).

Figure 1  
Location Map



Source: Google Maps ([www.maps.google.com.au](http://www.maps.google.com.au))

The Local Structure Plan has been formulated using the *Structure Plan Preparation Guidelines* as released by the Western Australian Planning Commission in August 2012.

Once developed, the Structure Plan is estimated to be capable of supporting approximately 52 dwellings and an overall population of 156 people.

The Structure Plan embraces the principles of the WAPC's Liveable Neighbourhoods and seeks to:

- provide a walkable and permeable structure;
- foster a strong sense of community and identity;
- provide an inter-connected network of streets to provide for safe and efficient walking, cycling and driving experiences;
- ensure active street/land use interfaces maximising surveillance opportunities;
- provide a wide variety of lot sizes and housing types to cater for a range in housing choice and lifestyle opportunities;
- provide an integrated approach to the design of open space and urban water management; and
- promote opportunities for affordable housing.

Table 1  
Structure Plan Summary Table

Item	
Total Area covered by the Structure Plan	5.3155
Area of each land use proposed:	
R15	3.6557
POS (including upgraded existing drainage reserve)	0.5312
Roads/Pedestrian Access Ways	1.1689
Estimated Lot Yield	52
Estimated No of Dwellings	52
Estimated residential site density (dwellings per ha)	10.0
Estimated Population	156

- Notes:
1. Estimated population based on 3.0 persons / dwelling for R15
  2. Estimated lot yields and numbers of dwellings subject to detailed design and survey.

# Part One – Statutory Section

## 1.1 Structure Plan Area

The boundaries of the structure plan area include that portion of the Local Government district of the Shire of Harvey shown on **Figure 2** – Hinge Road Local Structure Plan Area.

The Harvey River Diversion Drain defines the western boundary of the structure plan area with Hinge Road to the west, and intensive farmland immediately to the south.

The structure plan area is contained within the inner edge of the broken line shown on the structure plan map. The lots included in the structure plan and the approximate lot areas are included in **Table 2** below.

The Structure Plan (refer to **Figure 3**) incorporates 0.4912ha of Public Open Space (POS) and a 0.0400ha drainage reserve which will be developed conjointly with the 0.4912 hectares of open space.

Once developed, the Structure Plan is estimated to be capable of supporting approximately 52 dwellings and an overall estimated population of 156 people.

Table 2  
Lot Details

Lot	Road	Plan No.	Area (ha)
3	Hinge Rd	P53221	3.9883
802	Hinge Rd	P26281	1.3272
Total Area			5.3155

Source: [landgate.wa.gov.au](http://landgate.wa.gov.au)

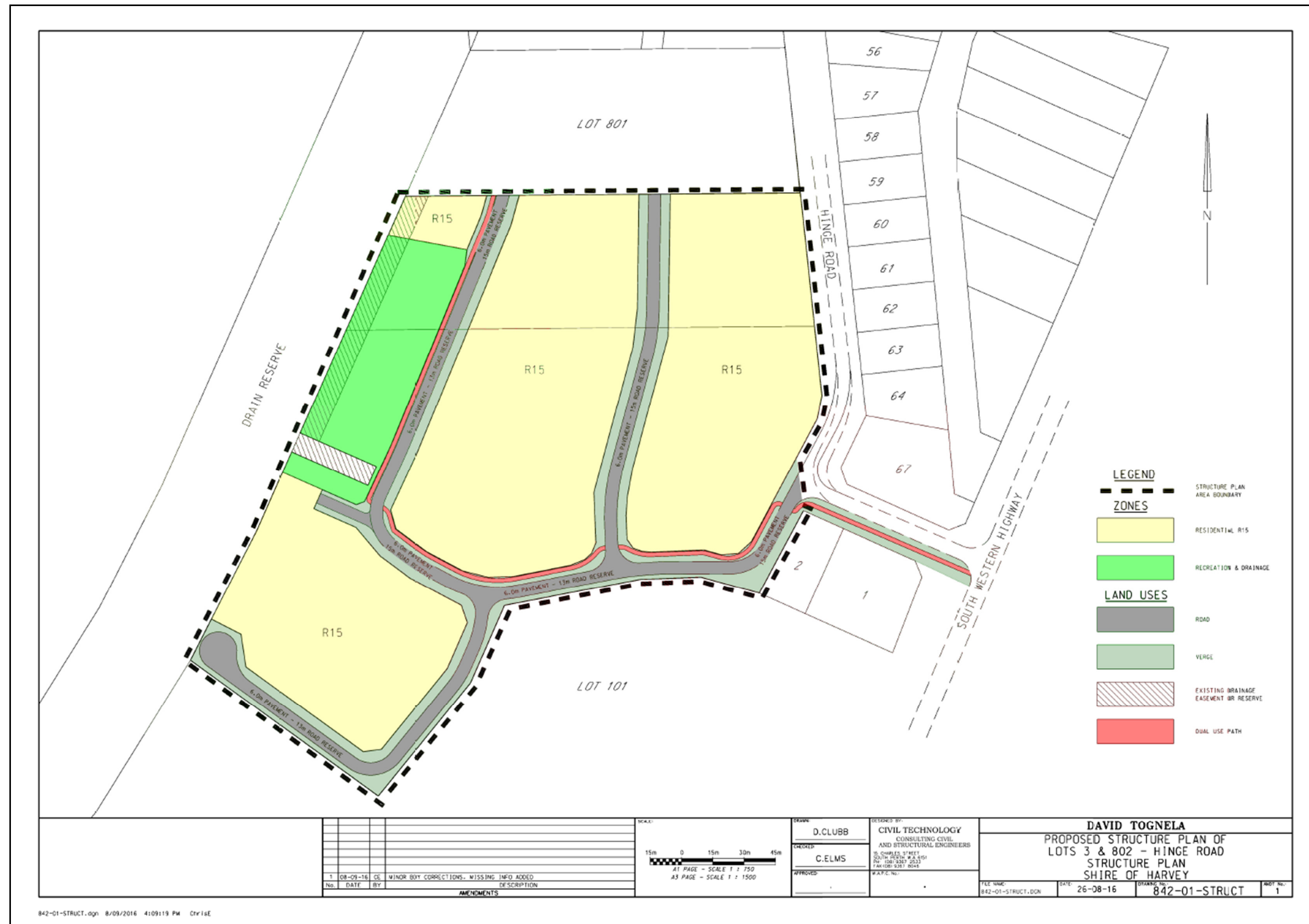
Figure 2  
Hinge Road Local Structure Plan Area



Source: [landgate.wa.gov.au](http://landgate.wa.gov.au)



**Figure 3**  
Hinge Road Local Structure Plan



## 1.2 Structure Plan Content

The Structure Plan comprises:

- Part One – Statutory Section;
- Part Two – Non-statutory (explanatory) section; and,
- Appendices – Technical reports and supporting plans and maps including:
  - o Hinge Road Local Structure Plan;
  - o Certificates of Title;
  - o Lots 3 & 802 Hinge Road *Precinct Local Water Management Strategy* and Addendum Report; and,
  - o Pre-Lodgement Consultation Summary.

Part One contains all information required to have statutory effect and includes the structure plan map and all the standards, requirements and prerequisites for subdivision and development within the structure plan area.

Part Two serves as a reference guide to explain and implement the statutory provisions in Part One.

## 1.3 Interpretations & Scheme Relationship

Unless otherwise specified in this part, the words and expressions used in this Structure Plan shall have the respective meanings given to them in:

- (a) the Shire of Harvey District Planning Scheme No 1 (the Scheme);
- (b) the Planning and Development Act, 2005; or if they are not defined in that Act –
  - i. the Dictionary of Defined Words and Expressions in Schedule 13 of the Shire of Harvey District Planning Scheme No. 1; or
  - ii. the Residential Design Codes; or
  - iii. the Building Code of Australia; or
  - iv. in a relevant Australian Standard,
 including any amendments gazetted thereto.

If there is a conflict between the meaning of a word or expression in the Structure Plan and the meaning of that word or expression in the Scheme, then the Scheme shall prevail.

The provisions of the Hinge Road Local Structure Plan comprises of the Structure Plan Text and Structure Plan Maps. The Structure Plan is to be read in conjunction with the Scheme.

The structure plan map (**Appendix 1**) outlines land use, zones and reserves applicable within the structure plan area. The zones and reserves designated under this structure plan apply to the land within it as if the zones and reserves were incorporated into the Scheme.

## 1.4 Operation Date

This structure plan shall come into operation on the day on which the WAPC approves the structure plan pursuant to clause 28 of Schedule 2 of Planning and Development (Local Planning Schemes) Regulations 2015.

## 1.5 Land Use & Subdivision Requirements

### 1.5.1 Residential Density Target

The Structure Plan establishes a residential site density target of 10.0 dwellings per hectare and approximately 52 dwellings within the structure plan area. Appendix 1 and Figure 14 define the residential densities that apply to specific areas within the Structure Plan.

### 1.5.2 Public Open Space

The provision of a minimum of 10 per cent public open space (POS) is to be achieved in accordance with the WAPC's Liveable Neighbourhoods. Public Open Space is to be provided generally in accordance with **Table 4** and **Figure 4** with an updated public open space schedule to be provided at the time of subdivision for determination by the WAPC, upon the advice of the Shire of Harvey.

The Structure Plan proposes a contribution of approximately 10% of the Gross Subdivisible Area as public open space.

### 1.5.3 Reports/Strategies Required Prior to Subdivision

Prior to the lodgement of subdivision applications to the WAPC, the following management plans are to be prepared, as applicable, to the satisfaction of the relevant authority and provided with the application for subdivision (approving authority in brackets):

- a) Local Water Management Strategy and Addendum Report (Department of Water).

### 1.5.4 Conditions of Subdivision Approval

At the time of subdivision the following conditions may be recommended, as applicable, requiring the preparation and/or implementation of the following strategies (approving authorities in brackets):

- i) Geotechnical Investigations Report (Shire of Harvey);
- ii) Urban Water Management Plan (Department of Water); and
- iii) Local Development Plans (Shire of Harvey).

At the time of subdivision the Shire of Harvey shall recommend to the WAPC the implementation of the following strategies which have been prepared and approved as part of the Structure Plan as conditions of subdivision:

- i) Local Water Management Strategy and Addendum Report.

At the time of subdivision and consistent with Schedule 19 Area 6 of the Shire of Harvey Town Planning Scheme No.1, the Shire of Harvey shall recommend the following conditions of subdivision approval:

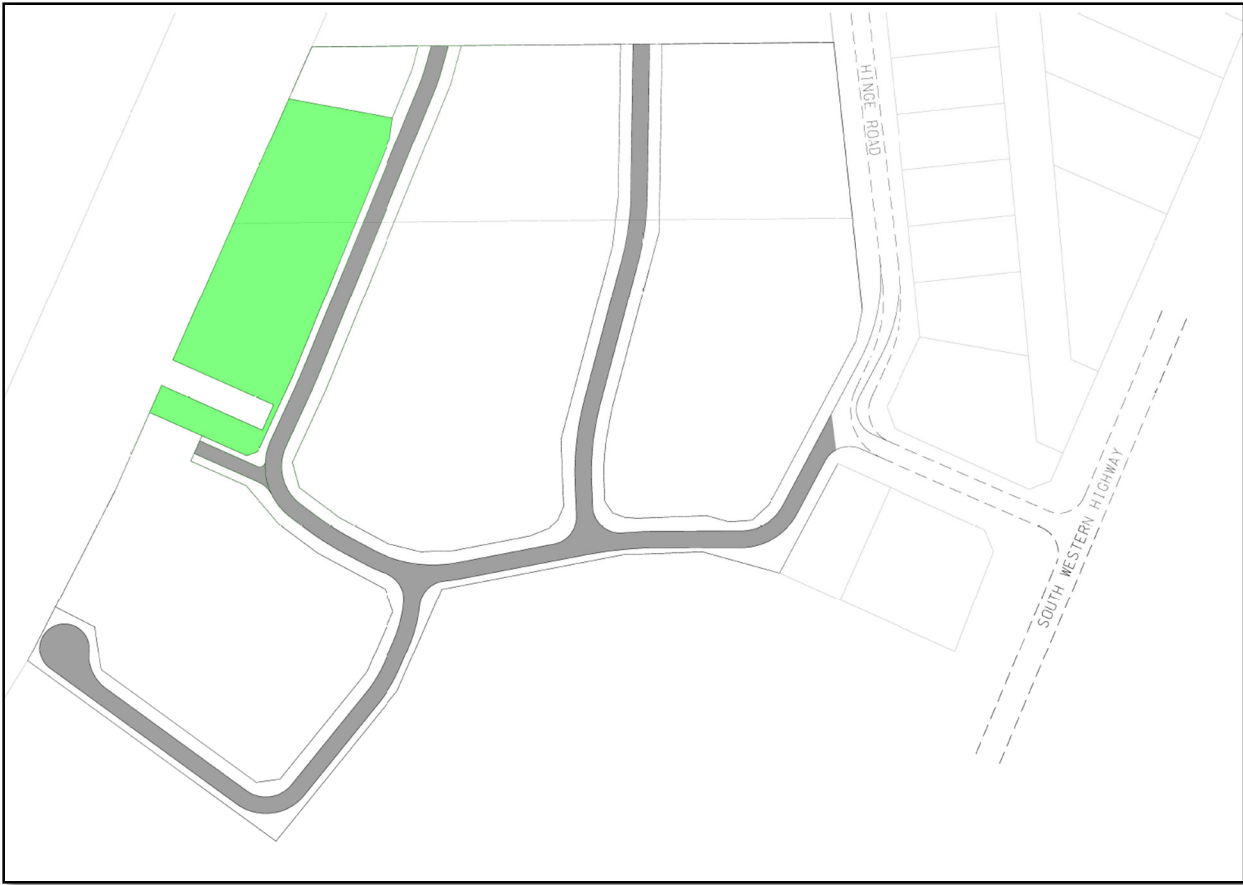
- i) At the time of Subdivision the Local Government will recommend to the WAPC that the subdivider place a notification on titles to notify purchasers that the subject land is located adjacent to rural land and rural activity may have a nuisance effect on amenity;
- ii) At the time of subdivision the Local Government will recommend to the WAPC that the subdivider contribute to the funding of the upgrading of Hinge Road.
- iii) A dual use path being designated between: the South Western Highway, along the central east-west road, linking to the POS area and extending along the eastern side of the POS area continuing up to the northern boundary of the site; and extending along the western side of Hinge Road up to the boundary of Lot 801.



**Table 3**  
Land Use Within The Structure Plan Area

Structure Plan Zonings & Reserves	Land Use within the Structure Plan Area
Areas designated as 'Residential (R15)'	i) All land uses permitted within the 'Residential Zone', in accordance with the Scheme and the Residential Design Codes, as amended.
Areas designated as 'Parks and Recreation' -	i) Public Open Space for passive and active recreational uses in accordance with Part 3 – Reserves under the Scheme. ii) May have a maximum of 2% of public open space used as restricted dual use function for drainage in accordance with Liveable Neighbourhoods.

**Figure 4**  
Open Space Plan



**Table 4**  
Calculation of Gross Subdivisible Area & Public Open Space Provision  
(refer to Figure 4)

	(ha)	(ha)
Site Area		5.3155
Less		
Deductions		
Drainage Areas	0.0400	
Gross Subdivisible Area		5.2755
Public Open Space @ 10%		0.5276
Unrestricted Public Open Space Sites		
Local parks	0.5312	
Public Open Space Provision		0.5312

**Note:** Gross subdivisible area includes house lots, access roads, and any land incidental to the subdivision. The gross subdivisible area does not include areas for schools, shopping centres, infrastructure (e.g. land required for sewer pump stations), dedicated drainage sites not having a recreational function and land set aside for arterial roads and other non-residential uses.

## 1.6 Development Requirements

The following development requirements have been identified by the WAPC –

- a) Uniform fencing is to be erected for all new residential lots abutting the POS. Such fence is not to be constructed of colorbond or fibre cement fencing and shall be constructed so as to be visually permeable (to enable passive surveillance of the POS).
- b) Uniform rural style fencing to be erected along the southern boundary of the Structure Plan area, abutting Lot 101.
- c) A Landscape Management Plan to be prepared, approved and implemented, which includes landscaping being provided along the southern boundary of the Structure Plan area (abutting Lot 101) and within the new road reserve area fronting adjoining Lot 2 Hinge Road.

## 1.7 Other Requirements

Prior to the commencement of subdivisional works, the landowner will be required to provide a pre-works geotechnical report certifying that the land is physically capable of development or advising how the land is to be remediated and compacted to ensure it is capable of development and, in the event that remediation works are required, the landowner will be required to provide a post geotechnical report certifying that all subdivisional works have been carried out in accordance with the pre-works geotechnical report.



## Part Two – Non-Statutory Section

### 1.0 Planning Background

#### 1.1 Introduction & Purpose

The purpose of the Structure Plan is to provide for the orderly and proper planning of the Hinge Road urban area in accordance with the State Planning Framework and the Shire of Harvey Local Planning Policy Framework.

The intent of this Structure Plan is to guide the subdivision, development and infrastructure servicing of the Hinge Road Local Structure Plan Area as a residential neighbourhood that is integrated with the Harvey townsite.

#### 1.2 Land Description

##### 1.2.1 Location

The structure plan area is located approximately 1.5 kilometres southeast of the Post Office in Harvey. The structure plan area is generally bounded by the Harvey Diversion Drain to the west, Hinge Road to the east and intense farming land to the south (refer to **Figure 5**).

##### 1.2.2 Area & Land Use

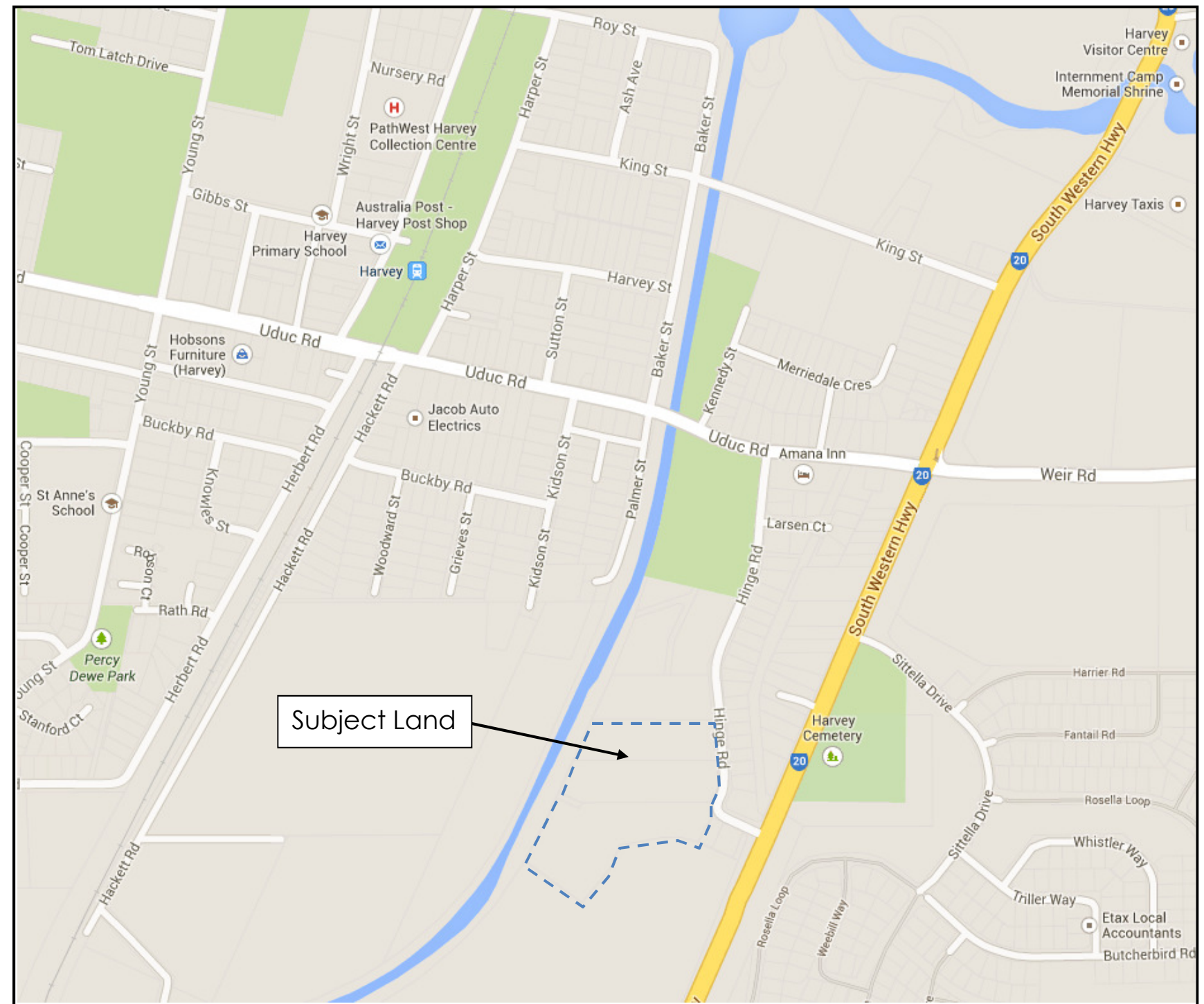
The structure plan area incorporates 2 lots as detailed in **Table 5** and **Figure 6**. The structure plan area comprises a total of 5.3155 hectares and has historically supported rural land use activities (primarily grazing and agistment) (refer to **Photos 1 & 2**).

The majority of the subject land, due to its previous rural use, is generally cleared with some vegetation present along the Hinge Road reserve. The land is otherwise vacant.

##### 1.2.3 Legal Description & Ownership

The legal descriptions and ownership details of lots within the structure plan area are summarised in **Table 6** and copies of the Certificates of Title are provided in **Appendix 2**.

**Figure 5**  
Location Plan





**Table 5**  
Land Ownership

Lot	Road	Plan No.	Area (ha)	
3	Hinge Rd	P53221	3.9883	D. & R. Tognela
802	Hinge Rd	P26281	1.3272	D. & R. Tognela
Total Area			5.3155	

Source: [landgate.wa.gov.au](http://landgate.wa.gov.au)

**Figure 6**  
Cadastral Boundaries



Source: [www.landgate.wa.gov.au](http://www.landgate.wa.gov.au)

**Photo 1**



**Photo 2**





**Figure 7**  
Aerial Photograph





1.3 Planning Framework

1.3.1 Zoning

Greater Bunbury Region Scheme (GBRS)

Under the terms of the Greater Bunbury Region Scheme (GBRS) the subject land is zoned 'Urban' – refer to **Figure 8**.

Shire of Harvey Town Planning Scheme No.1

The Hinge Road Local Structure Plan area is zoned 'Residential Development' within the Shire of Harvey Town Planning Scheme No 1 – refer **Figure 9**.

In accordance with clause 6.7.1, 'Residential Development' areas are to "be progressively developed for residential purposes.....". Clause 6.7.2 of Town Planning Scheme No 1 and Schedule 19 (Area 6), state that the Shire of Harvey requires a Structure Plan to be prepared and approved prior to any subdivision or development of the subject land.

1.3.2 Regional & Sub-Regional Structure Plans

Draft Greater Bunbury Strategy 2011-2031 and Beyond & the Draft Greater Bunbury Structure Plan 2011-2031

The Greater Bunbury Strategy 2011-2031 and Beyond and the Greater Bunbury Structure Plan 2011-2031 (refer **Figure 10**) have been prepared by the Department of Planning to guide urban and regional planning in the Greater Bunbury sub-region.

The Greater Bunbury Strategy incorporates the Greater Bunbury Structure Plan which is based on ensuring a 25 year supply of undeveloped land. The main purpose of the Structure Plan is to identify land ahead of the rezoning process and to stage the rezoning of that land in response to future growth trends.

The Strategy advocates that land that is already zoned, such as the subject area, should be encouraged and prioritised for development given the considerable supply of land that has already been deemed suitable, or potentially suitable, for new urban development and that has already been zoned accordingly under the Greater Bunbury Region Scheme.

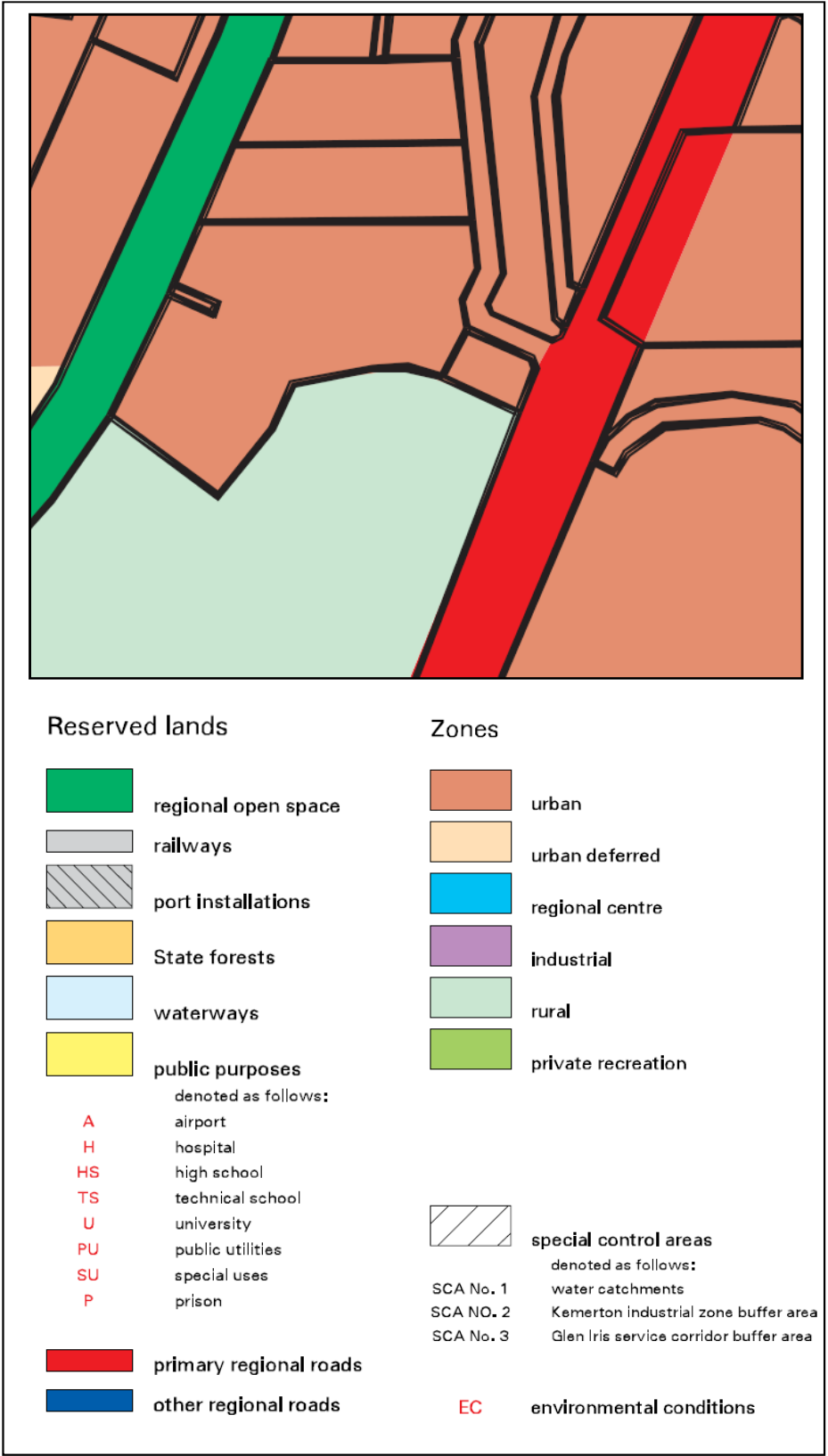
1.3.3 Policies

Liveable Neighbourhoods

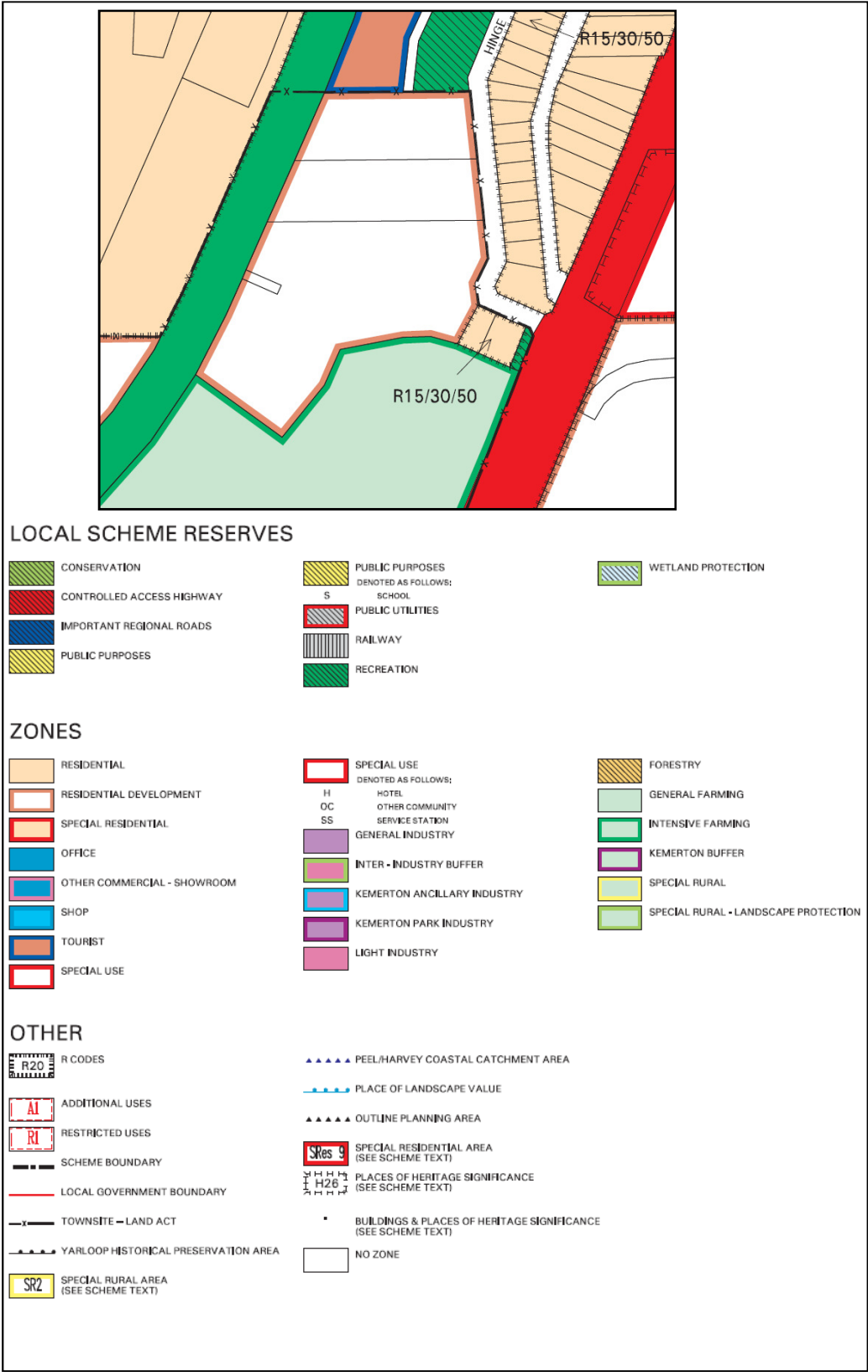
Liveable Neighbourhoods (2007) operates as a neighbourhood design code, intended to facilitate the development of sustainable communities. The policy has many aspects but fundamentally the principle idea is to promote walkable mixed-use neighbourhoods.

The Hinge Road Local Structure Plan has been formulated to comply with the objectives and intentions of Liveable Neighbourhoods.

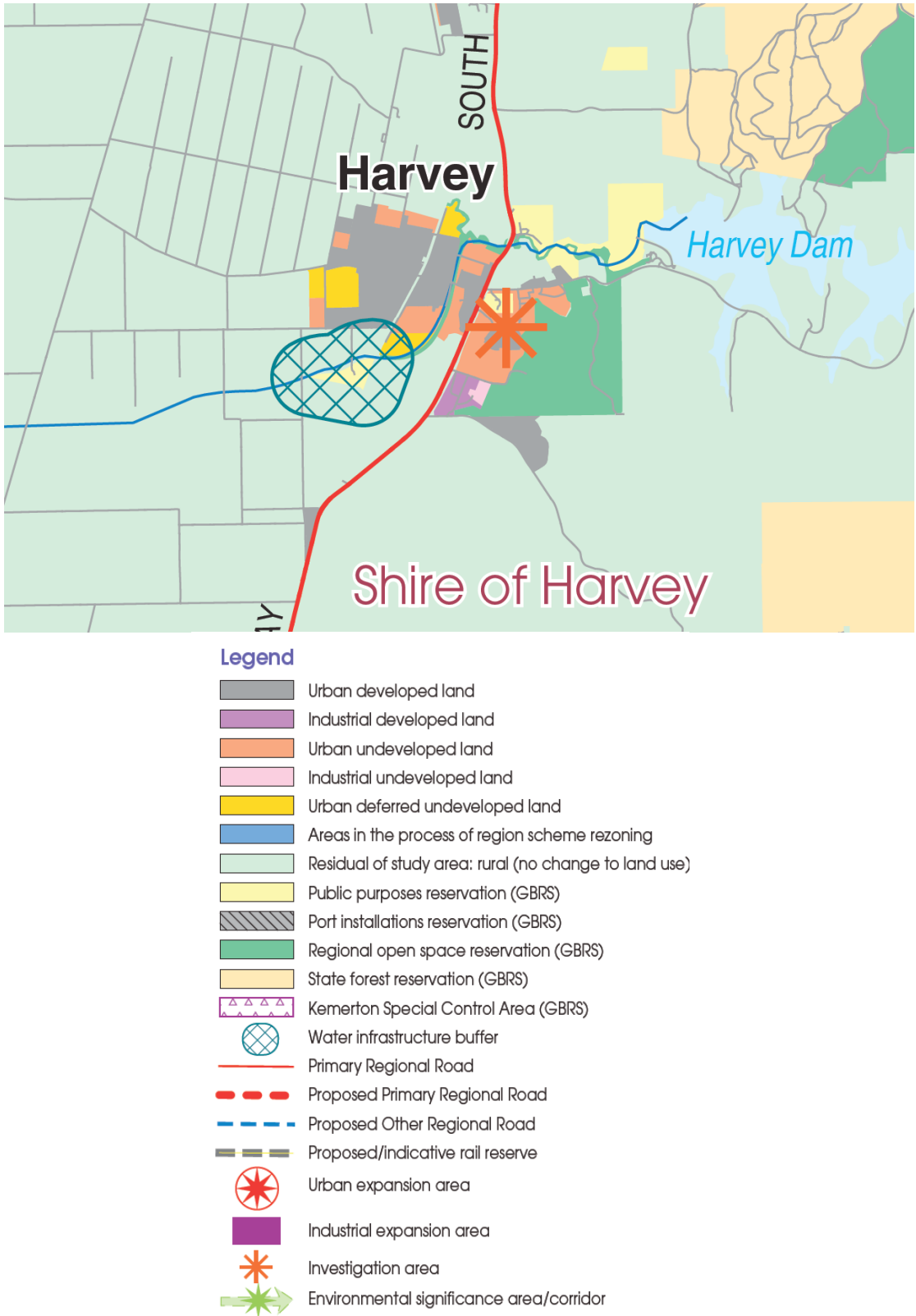
**Figure 8**  
Extract from Greater Bunbury Region Scheme



**Figure 9**  
Extract from Shire of Harvey TPS No 1 Scheme Map



**Figure 10**  
Extract from Greater Bunbury Structure Plan 2011-2013+





## 2.0 Site Conditions & Environment

### 2.1 Landform & Soils

#### 2.1.1 Soil Type

The soils consist of thin clay soil over Guildford Formation clay (MJB Payne Consultants, 2008).

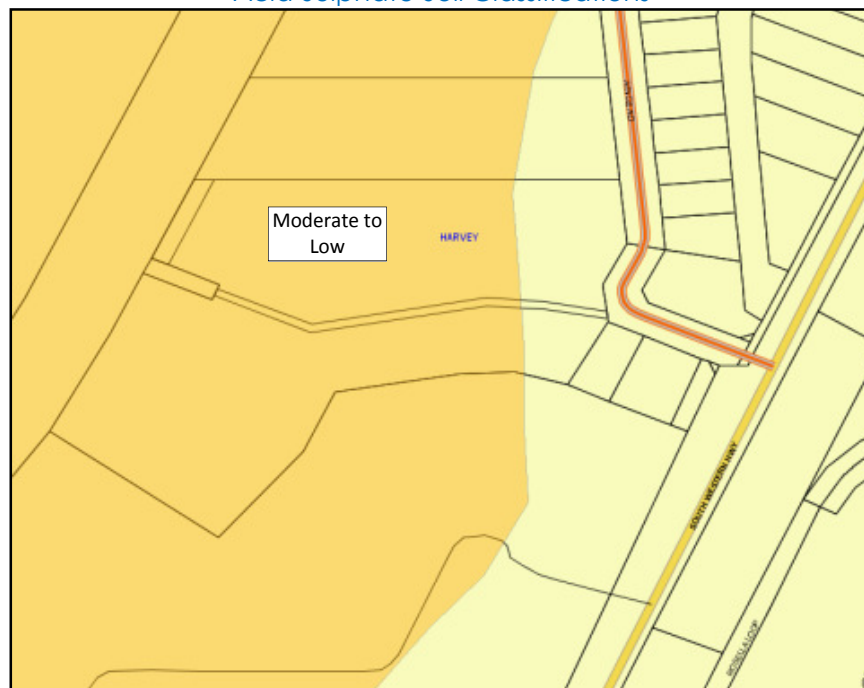
#### 2.1.2 Topography

The structure plan area is considered to be gently sloping and generally ranges from 38.5m AHD in the east to 35m AHD towards the south west. The majority of the site is between 35m AHD and 36.5m AHD.

#### 2.1.3 Acid Sulfate Soils (ASS)

The Department of Environment and Conservation has compiled a series of maps indicating ASS risk areas. The maps indicate that the land generally has a moderate to low risk of ASS occurring within 3m of natural soil surface (refer to **Figure 11**).

**Figure 11**  
Acid Sulphate Soil Classifications



### 2.2 Surface Water & Groundwater

Generally the site slopes gently towards the Harvey River Diversion Drain to the west, with a marginal fall to the south western corner. The site has a thin veneer of sandy material overlaying sandy clay or clayey sand, and a high groundwater table.

#### 2.2.1 Local Surface Water Hydrology

The development site itself is characterised by 3 open swale drains that would surface water to an existing drainage inlet pit that is approximately centrally located on the western boundary of the site. This drainage inlet pit provides a pipe outlet from the site to the Harvey River Diversion Drain (HRDD).

#### 2.2.2 Groundwater

Groundwater level monitoring took place for a 2 year period collecting the maximum ground water levels through the 2012 and 2013 winters.

Groundwater levels are relatively shallow and the flow direction is to the west by south west, which correlates to the fall on the drain (towards the south west) (Stass Environmental, 2014).

#### 2.2.3 Wetlands

The Geomorphic Wetlands Dataset displays the location, boundary, geomorphic classification and management category of wetlands on the Swan Coastal Plain. The dataset indicates that the majority of the structure plan area (as well as the majority of the South West Region) is classified as a Multiple Use Wetland (refer to **Figure 12**). This classification is not expected to impact upon subdivision and development.

**Figure 12**  
Wetland Classifications



Source: [www.landgate.wa.gov.au](http://www.landgate.wa.gov.au) (WA Atlas)

### 2.3 Bushfire Hazard

The road layout enables safe vehicular and pedestrian access/egress in the event of a fire emergency. The main entry road connects to Hinge Road, two roads provide for future links to land to the north, and the structure plan provides for 3 future connections to the land to the south.

Reticulated water is also proposed to service the development which enables a source of water for fire fighting purposes. Hydrant locations will be detailed at detailed engineering design stage.

### 2.4 Heritage

A search of the Department of Aboriginal Affairs Aboriginal Heritage Inquiry System returned no Aboriginal Sites or Heritage Areas within the search area.

### 2.5 Context & Other Land Use Constraints

#### 2.5.1 Regional & Local Context

The structure plan area is located within the townsite of Harvey and is approximately 1.5km (by road) southeast of the Harvey Post Office.

A range of community facilities are within close proximity to the site including:

- Harvey Swimming Pool;
- Harvey Community Resource Centre;
- Harvey Hospital;
- WA College of Agriculture
- Harvey Recreation and Cultural Centre;
- Primary schools; and,
- Harvey Senior High School;

The Structure Plan site is situated on Hinge Road, providing excellent connectivity to the town centre.

The major roads surrounding the site include South Western Highway, being a Primary Distributor and Uduc Road, the town's main street.

Within the structure plan area there are no existing internal roads or pedestrian networks. There is a footpath on the western side of Hinge Road from the Harvey Pool north to Uduc Road.

There are no existing public transport facilities within the structure plan area. Transwa operates the rail service 'The Australind' connecting Perth and Bunbury operating twice daily.

### 3.0 Land Use & Subdivision Requirements

#### 3.1 Land Use

The Hinge Road Local Structure Plan is generally regarded as a self-contained greenfields site that will ultimately connect to further development of land to the north and south. The Hinge Road Local Structure Plan has regard to existing residential development on Hinge Road as well as future development of adjoining land.

The Hinge Road Local Structure Plan proposes a number of land uses; Residential R15 in addition to a drainage reserve and public open space.

As per the Structure Plan Summary Table contained in the Executive Summary, the Structure Plan incorporates 0.4912 hectares of local public open space and a 0.0400 hectare drainage reserve which will be developed conjointly with the 0.4912 hectares of open space. Once developed, the Structure Plan is estimated to be capable of supporting approximately 52 dwellings and an overall population of 156 people.

The structure plan has been formulated to inter-connect with adjoining existing, and future, residential areas. It is based on a permeable road network providing for ease of access as well as a variety of areas having different outlook opportunities.

#### 3.2 Open Space

Public Open Space is a central feature of the Hinge Road Local Structure Plan. The public open space area is illustrated in **Figure 13** and summarised in **Table 6**.

The location and provision of public open space and parkland areas has been determined based on both the physical attributes of the structure plan area as well as the guiding principles embodied in Liveable Neighbourhoods.

The public open space area is specifically targeted at active use. The area has been located central to residential areas to provide:

- 1. a focal point for local neighbourhoods;
- 2. for ease of access; and,
- 3. high levels of surveillance.

The location of open space areas also assists in the creation of a "Sense of Place" consistent with Liveable Neighbourhood objectives. The objective of meeting the needs of a broad range of users is achieved within the structure plan.

The open space area is located so as to achieve clear sightlines from nearby buildings and so as to be safe and conveniently located to serve the majority of future structure plan area residents.

Figure 13  
Public Open Space Plan

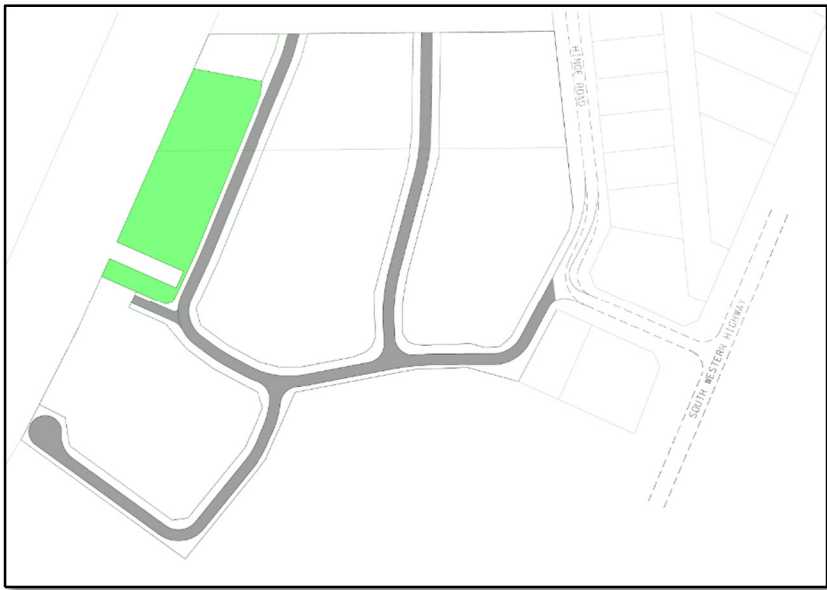


Table 6  
Calculation of Gross Subdivisible Area & Public Open Space Provision

	(ha)	(ha)
Site Area		5.3155
Less Deductions		
Drainage Areas	0.0400	
Gross Subdivisible Area		5.2755
Public Open Space Required @ 10%		0.5276
Local open space area set aside in structure plan (including upgraded existing drainage reserve)	0.5312	
Deduct restricted open space for drainage as per LWMS and Addendum Report (see Clause 6.3, paragraph 5)		0.0589
Unrestricted Public Open Space Provision		0.4723

- Note:**
- 1. The gross open space provided is nominally in excess of the 10% required.
  - 2. The percentage of restricted open space in the structure plan is 11% of the total open space provided.
  - 3. The open space calculation assumes that the existing 0.04 ha drainage reserve that intrudes eastward into the proposed open space area is improved as open space, albeit restricted.
  - 4. Gross subdivisible area includes house lots, access roads, and any land incidental to the subdivision. The gross subdivisible area does not include areas for schools, shopping centres, infrastructure (e.g. land required for sewer pump stations), dedicated drainage sites not having a recreational function and land set aside for arterial roads and other non-residential uses.

### 3.3 Residential

The Structure Plan has been formulated to meet the requirements of Liveable Neighbourhoods. The Residential Design Codes, administered by the Shire of Harvey, will provide a comprehensive basis for the control of residential development within the structure plan area. The R-Codes will "outline the 'rules' which apply to residential development". (R Codes)

The R15 sites provide for single residential housing. The structure plan proposes the development of this land consistent with the average 666m<sup>2</sup> applicable to R15 coded land.

Consistent with the 'General Objectives' of the R-Codes, the Hinge Road Local Structure Plan:

- a) provides for local variations in neighbourhood character;
- b) ensures, as far as possible, high levels of local amenity;
- c) seeks to protect and enhance the amenity of adjoining residential areas; and,

The Structure Plan layout seeks to maximise the outlook opportunities for residential development taking advantage of the area of public open space. The grid road pattern seeks to maximise opportunities for solar orientation of housing and provide for high levels of permeability, equity and accessibility. The road layout provides for diversity and interest in the local street environments to assist in the development of local character and a sense of place consistent with Liveable Neighbourhood objectives.

### 3.4 Movement Networks

The internal road layout has been designed to achieve a high level of permeability as well as to provide safe and efficient access to facilities for vehicles, pedestrians and cyclists.

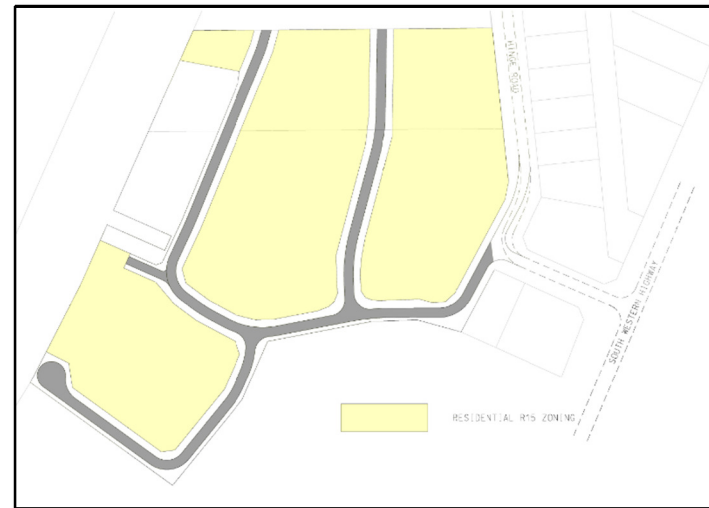
The layout has been designed with a strong east-west link from Hinge Road to connect with future development of land west of the Harvey Diversion Drain. The layout also provides for integration with the future development areas to the north and south.

The proposed road reserve widths generally range from 15m for the major connector to 13m for the minor access streets (reduced to 13m where abutting POS or farmland) and 10m wide for a minor 25m long access place next to the POS. These widths are consistent with the range stated in *Liveable Neighbourhoods* (WAPC 2009).

As per the requirements for built up areas, the proposed speed limit is 50km/h.

The proposed internal road network will result in the creation of one new intersections with the external road network being Hinge Road.

**Figure 14**  
Density Code Plan



### 3.5 Water Management

A Local Water Management Strategy (LWMS) and Addendum Report has been prepared to support the Structure Plan, which is attached as **Appendix 3**.

#### 3.5.1 Stormwater Management

In accordance with Water Sensitive Urban Design (WSUD) principles, stormwater management principles for the Hinge Road Local Structure Plan area will include:

- Standard soak well, infiltration disposal for lot drainage or lot detention dependant on subsurface conditions.
- Collection and transfer of storm events up to 1 in 5 year ARI within a standard pit and pipe system.
- Treatment for the 1 in 1 year 1 hour storm event within biofiltration basin.
- Detention of the 5 year major storm event within a basin with outflow rate set in accordance with Water Corporations requirements for the HRDD.
- Detention of the 100 year extreme storm event within a basin and POS, with outflow rate set in accordance with the Water Corporations requirements for the HRDD.

#### 3.5.2 Groundwater Management

Development levels in the site will be largely dominated by fill requirements to achieve adequate separation to groundwater.

A network of subsoil pipe work will also be installed to manage the groundwater levels and any potential groundwater rise due to development. The strategy's core principle is to maintain the

existing groundwater regime inclusive of the existing passage of groundwater to the HRDD.

#### 3.5.3 Water Efficiency Measures

Consistent with the Water Corporation's "Waterwise" land development criteria, measures will be introduced to reduce scheme water consumption within the development, including:

- promotion of waterwise practices including water efficient fixtures and fittings;
- all houses to be built to 5 star building standards;
- use of native plants in POS areas;
- use of groundwater bores for irrigation of POS and common areas;
- where practicable, maximising on site retention of stormwater;
- use of rainwater tanks for non-potable water.

### 3.6 Infrastructure Coordination, Servicing & Staging

The staging of the development will be subject to market conditions and will progress from the east at Hinge Road towards the west.

#### 3.6.1 Roads

All streets will be developed by the land owners/developers and will be standard kerb with asphalt seal. Detailed road design will be undertaken as part of the planning of subdivision.

Generally the proposed movement network hierarchy will consist of a 17.5m entry road and 15m residential streets incorporating footpaths and landscaping.



It is envisaged road widths will comprise 6m carriageways within the road reserves.

### 3.6.2 Site Works

Site works will include earthworks (i.e. cutting and filling as required), with earthwork areas to be stabilised during construction.

Fill will be provided at sufficient depth above the existing water table on the site to allow disposal of roof stormwater by soakage on the lots in conjunction with a sub soil drainage system within the road reserves, and in order to achieve a minimum separation of 1.5m between lot level and groundwater level.

Roads may be constructed lower than the lots to reduce fill volumes and provide overland flow paths for local storm events. Detailed earthwork specifications will be investigated during the detailed design of subdivision.

### 3.6.3 Sewer

The Water Corporation is the current ERA licensed service provider for sewerage services for the Structure Plan area. The existing Water Corporation sewer is located in Hinge Road.

### 3.6.4 Water

The Water Corporation is the current ERA licensed service provider for provision of water supply to this site.

A 150 mm water main is located along the eastern side of the Hinge Road reserve.

Standard water reticulation mains will be provided to each relevant part of the development to provide a potable drinking water supply to each lot. The extent of any external upgrades that may be required would be determined at the time of development and is subject to staging.

### 3.6.5 Non Potable Water Supply

There are currently no ERA licensed service providers in this area providing non potable water supplies.

### 3.6.6 Power

Initial indications are that Western Power is able to service the structure plan area however the full extent of any external upgrades of network capacity would not be fully known until the development proceeds and then is determined by what reserve capacity remains in the system at that time.

### 3.6.7 Gas

Atco Gas Australia has existing gas reticulation infrastructure in the area. The extent of any external upgrades that may be required

would be determined at the time of development and is subject to staging.

### 3.6.8 Drainage

Currently there are 3 open drains that convey surface water to an outlet into the Harvey River Diversion Drain. The Harvey River Diversion Drain flows west to the ocean.

The stormwater collection and disposal within the Structure Plan area will be designed in accordance with the Local Water Management Strategy (LWMS) and Addendum Report included at Appendix 3. The LWMS and Addendum Report provides the strategy for the implementation of best management practises and principles of water sensitive urban design to ensure that total water cycle management is achieved within the LSP and its development.

*Key elements of the stormwater management system include:*

- *Proposed soakwells, or lot detention, for individual lot drainage.*
- *Standard drainage pit and pipe system to collect and transfer stormwater to a biofiltration basin (located at existing outlet of the Harvey River Diversion Drain) for treatment.*
- *Detention of large storm events within a biofiltration basin*
- *Detention of extreme storm events within a biofiltration basin and Public Open Space.*

Final details of the proposed stormwater drainage system are to be detailed in the Urban Water Management Plan for the subdivision.

## 3.7 Developer Contribution Arrangements

Given that the Hinge Road Local Structure Plan Area is in the ownership of one developer it is not considered necessary to enter into any Developer Contribution arrangements. Contributions may be a condition of subdivision approval and will become due and payable as part of the subdivision clearance process.

The development contributions may include common infrastructure works such as roads (upgrade of Hinge Road), drainage, sewer and water.

## 3.8 Other Requirements

Once approved, the Hinge Road Local Structure Plan forms the statutory framework to guide subdivision and development within the structure plan area. As the development progresses it may be necessary to vary aspects of the Structure Plan and as such the plan is intended to be adaptable subject to suitable justification.

Various detailed investigations will need to be undertaken in order to support the eventual subdivision of the site. These may include where appropriate:

- Local Development Plans;
- Urban Water Management Plan;

The responsibility for formulation of these strategies, plans, guidelines etc will rest with the land owner/developer.