

PART TWO | EXPLANATORY SECTION

1. PLANNING BACKGROUND

1.1 INTRODUCTION AND PURPOSE

This LSP report has been prepared in accordance with the Western Australian Planning Commission (WAPC) *Structure Plan Framework* (August 2015). This LSP represents the logical extension of an existing Urban area to the north, and to that extent, the LSP abuts Agreed Structure Plan No.61 (ASP61) on its eastern boundary.

The LSP has been prepared in collaboration with a team of specialist consultants, who have provided technical input in relation to the following matters

- | | | |
|---|-------------------------------|--------------------------------------|
| ▪ | Bayley Environmental Services | Environmental Assessment |
| ▪ | VDM Group | Civil Engineering Services Report |
| ▪ | Transcore | Traffic Impact Statement |
| ▪ | Lloyd George Acoustics | Acoustic Report |
| ▪ | Shawmac | Local Water Management Strategy |
| ▪ | Coffey | Geotechnical and Drainage Assessment |
| ▪ | Lex Bastian | Karst Assessment |

It should also be noted that this LSP has been prepared in consultation with the Department of Planning, City of Wanneroo's Planning and Engineering Departments, Main Roads WA and the Department of Water.

1.2 LAND DESCRIPTION

1.2.1 Location

Lot 51 is located in the suburb of Carramar, immediately south east of the intersection of Flynn Drive and Wanneroo Road, approximately 35 kilometres north of the Perth CBD and 9 kilometres north-east of the Joondalup town centre. Refer to **Figure 1 – Location Plan**.

Carramar is characterised by large undeveloped landholdings, small rural residential landholdings to the east and south, and a golf course and existing urban development further to the south.

1.2.2 Area and Land Use

Lot 51 Flynn Drive, Carramar, comprises a total legal land area of 3.0290 hectares.

Lot 51 has previously been cleared to facilitate agricultural activities, though some mature vegetation remains. The subject land currently accommodates a single storey brick and tile dwelling and associated outbuildings (refer to **Figure 2 – Aerial Site Plan**).

1.2.3 Legal Description and Ownership

The subject land is registered in the ownership of Woodland Consortium Pty Ltd and is legally described as:

- Lot 51 on Diagram 63970, Volume 2192 Folio 899.

There are no restrictions or encumbrances registered on the Certificate of Title. A copy of the Certificate of Title can be found at **Appendix 2 – Certificates of Title and Survey Plans**.

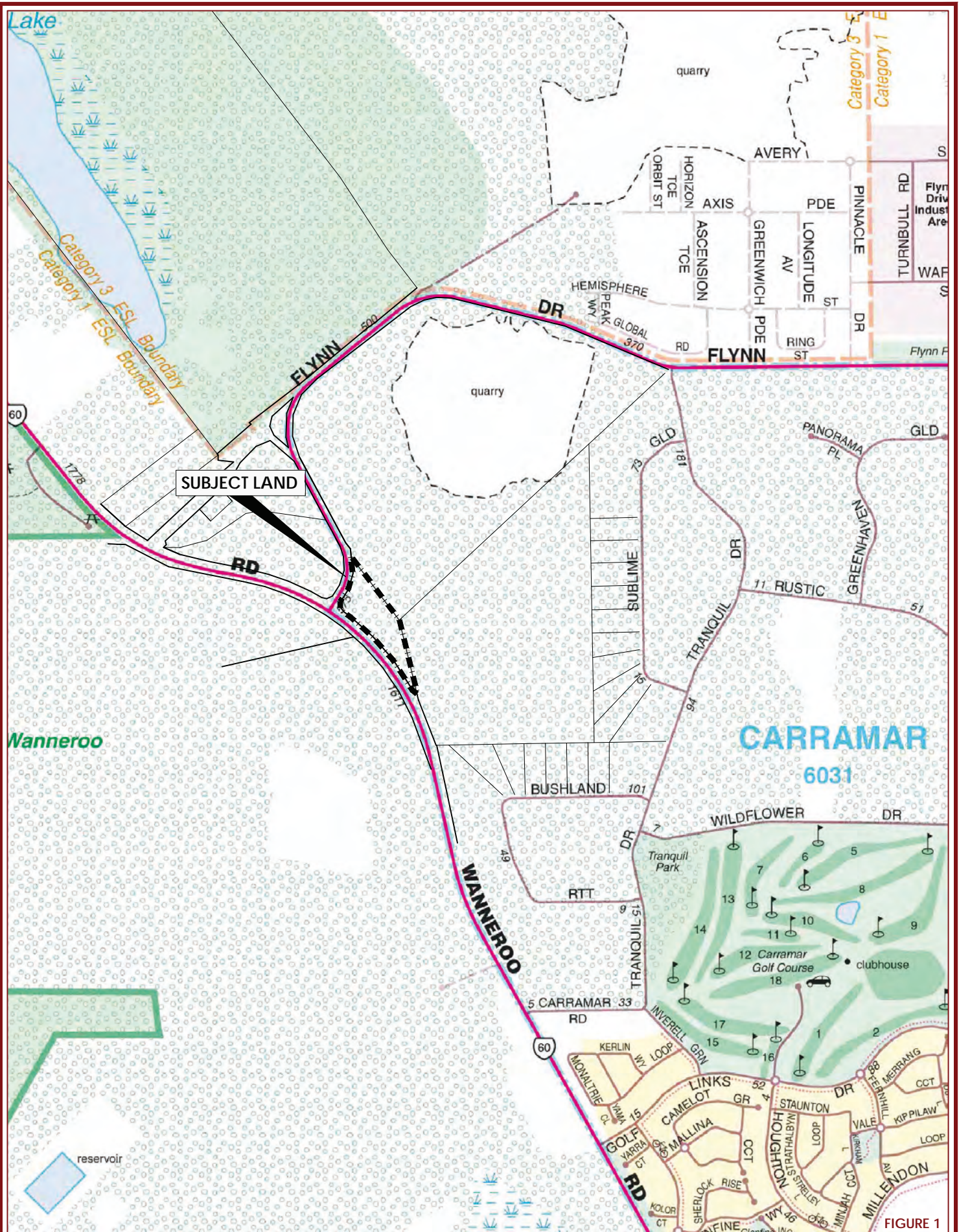


FIGURE 1



FIGURE 2



LEGEND



Subject Site



NORTH

Planner: KM

Client: LAKESHORE BUILDERS

AERIAL PHOTOGRAPH
LOT 51 FLYNN DRIVE
CARRAMAR

1.3 PLANNING FRAMEWORK

1.3.1 Zoning and Reservations

Metropolitan Region Scheme

The subject land is zoned 'Urban' under the Metropolitan Region Scheme (MRS), and abuts a 'Primary Regional Road' Reserve on its southern boundary (being Wanneroo Road).

City of Wanneroo District Planning Scheme No. 2

The subject site is zoned 'Urban Development' under DPS2.

This LSP has been prepared in accordance with both the generic Scheme provisions relating to the preparation of structure plans and also those pertaining to the 'Urban Development' zone. The objectives of the Urban Development Zone are detailed in **Table 4** below.

	Objectives of 'Urban Development' zone	LSP Achieves Objectives By
1.	Designate land for future urban development;	Site forms part of a growing urban development area;
2.	Provide for the orderly planning of large areas of land for residential and associated purposes through a comprehensive structure planning process;	The LSP designates suitable uses throughout the LSP area based upon a comprehensive range of technical inputs;
3.	Enable planning to be flexible and responsive to changing circumstances throughout the developmental stages of the area.	The LSP provides a comprehensive framework for future development without limiting the generality of evolving policies or practices.

1.3.2 Planning Strategies

Directions 2031

Directions 2031 recognises the benefits of a more consolidated city and sets realistic goals to promote housing affordability and sustainable urban growth. This LSP is considered compliant with the key objectives and themes of Directions 2031 and responds in the following manner:-

- The LSP forms part of a wider urban area experiencing significant growth and development that is serviced by a range of local and district level facilities. The area has been fully planned to comply with State policies, and represents an efficient use of urban zoned land;
- The proposed development seeks to improve the viability of district and regional centres whilst enhancing community and environmental health; and
- The LSP achieves a minimum 14 dwellings per gross urban zoned hectare. Though this is below the Directions 2031 minimum target of 15 dwellings per gross hectare of urban zoned land, it is considered sufficient given the site's design constraints (such as the tapering cadastral boundary, noise impacts, and bushfire risk considerations).

1.3.3 Planning Policies

Urban Growth and Settlement

This policy sets out the principles and considerations which apply to planning for urban growth and settlements throughout Western Australia. The objectives of this policy are:

- To promote a sustainable and well planned pattern of settlement across the State, with sufficient and suitable land to provide for a wide variety of housing, employment, recreation facilities and open space;
- To build on existing communities with established local and regional economies, concentrate investment in the improvement of services and infrastructure and enhance the quality of life in those communities;
- To manage the growth and development of urban areas in response to the social and economic needs of the community and in recognition of relevant climatic, environmental, heritage and community values and constraints;
- To promote the development of a sustainable and liveable neighbourhood form which reduces energy, water and travel demand while ensuring safe and convenient access to employment and services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community; and,
- To coordinate new development with the efficient, economic and timely provision of infrastructure and services.

The proposed Development will aid in achieving the above through the provision of additional land for urban growth in a location where access to normal urban facilities and services is readily available and where there is little or no negative impacts on the local environment, heritage and community values. The growth will be well planned and managed, with the result being a neighbourhood with a sense of place and variety of lot types.

Liveable Neighbourhoods:

Liveable Neighbourhoods is a state-wide development control policy that aims to facilitate the development of sustainable communities. It provides an integrated planning and assessment framework for the preparation of Structure Plans and subdivision designs and represents an alternative performance-based approach to conventional subdivision policies.

The LSP presented within this report adopts the principles of Liveable Neighbourhoods and has been developed to meet the objectives and requirements of each of the Liveable Neighbourhoods design elements.

2. SITE CONDITIONS AND CONSTRAINTS

A Context and Constraints Plan (refer Figure 3) has been prepared to illustrate the main issues discussed in this section of the LSP.

2.1 BIODIVERSITY AND NATURAL AREA ASSETS

The subject site contains scattered mature trees with limited understorey vegetation. It is noted that revegetation occurred during the 1980's, as is evidenced by the size and type of vegetation on the site.

The Department of Planning's Bush Forever mapping, sourced from Landgate's SLIP WA Atlas, does not show a Bush Forever site on the subject land.

The Environmental Assessment Reports, prepared by Bayley Environmental Services (March 2006 and December 2011) (refer **Appendix 3**), outline that:

- the vegetation of the property is considered 'degraded' to 'completely degraded' as a result of prolonged grazing by horses;
- there are some native species present (mostly trees and some shrubs) and many weed species;
- there are some reasonable to large-sized tuart and jarrah trees present, although these showed signs of degradation;
- one area near the centre of the property appears to have suffered less damage from horses, although it has been recently burnt in a fire. This area is largely contained within the Public Open Space shown on the LSP; and,

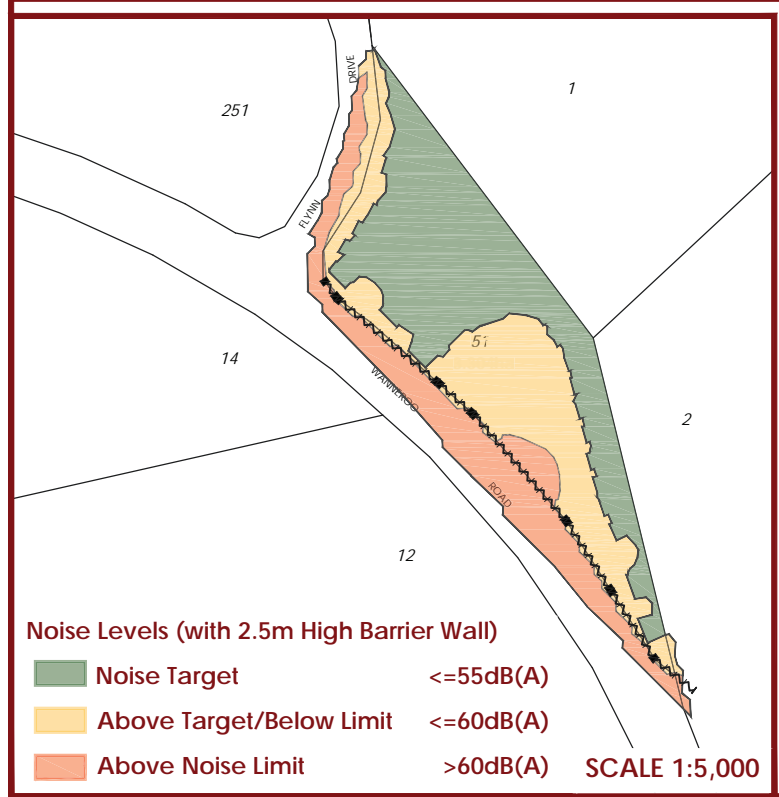
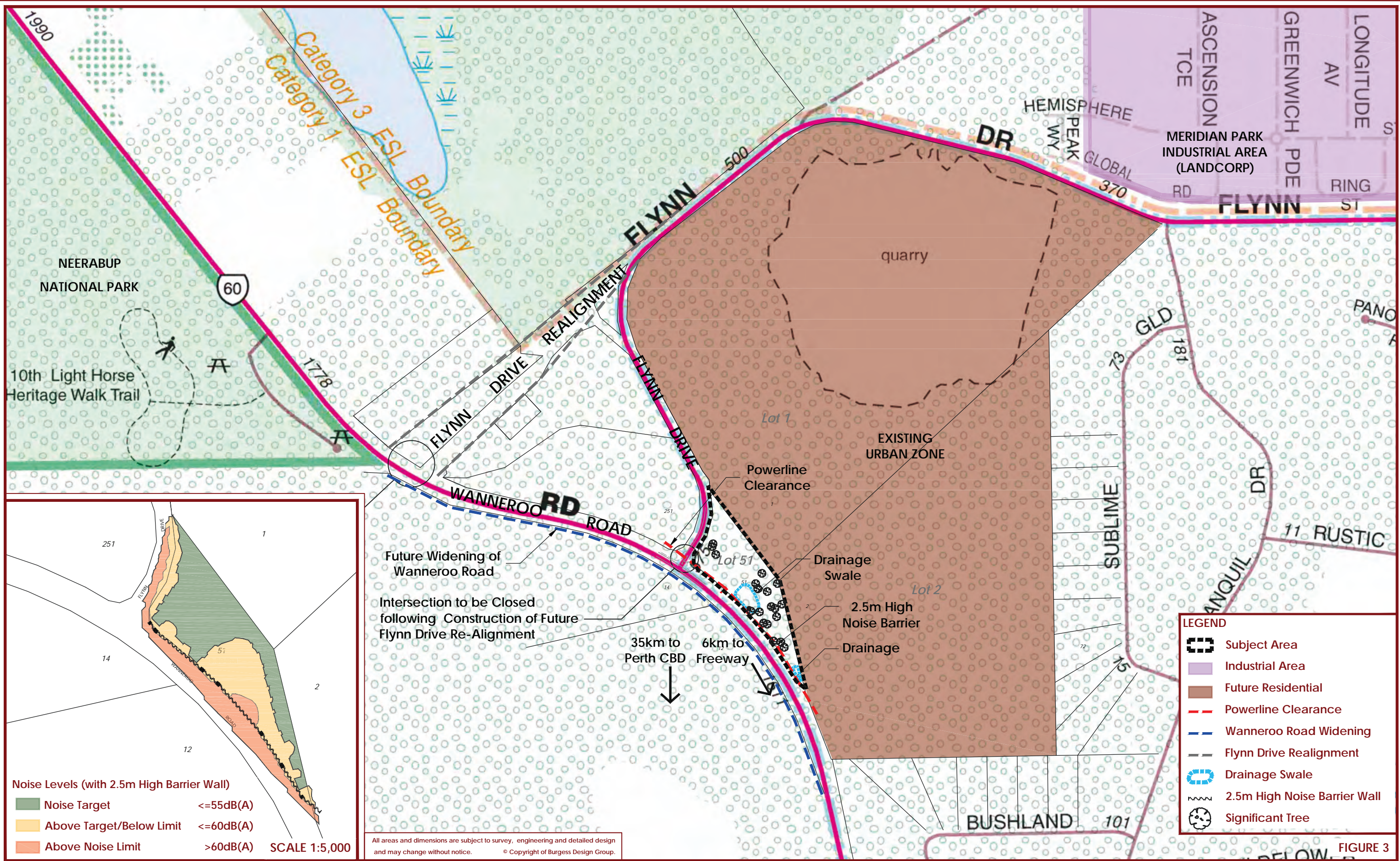
No native fauna were observed. The only animals seen were two horses, although the owner advised that a large number had been present on the site prior to the fire when most were evacuated. Due to the degraded state of the vegetation, the site provides no significant habitat for native animals, although a few disturbance-tolerant bird species may make use of some of the larger trees. The property does not contain viable habitat for any of the listed species in the CALM Threatened and Priority Fauna Database, although Carnaby's Black Cockatoo may be an occasional visitor to the few large trees.

2.2 LANDFORM AND SOILS

The landform features a gentle slope, falling from a high point of 49m AHD in the north west to a low point of 40m AHD in the southern corner. Refer to **Figure 2 – Aerial Site Plan**.

Acid Sulfate Soils

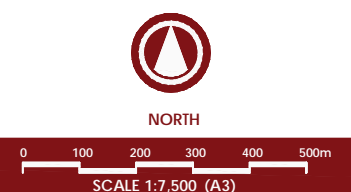
The Local Water Management Strategy (LWMS) prepared by Shawmac (refer **Appendix 4**) states that preliminary research shows the subject land is of low risk for Acid Sulfate Soils (ASS) and it is unlikely that further assessment will be required prior to construction. However, ASS will be assessed for the preparation of the Urban Water Management Plan (UWMP). In the event that the assessment indicates ASS being present, then an ASS Management Plan will be developed that addresses the specific constraints and issues.



- LEGEND**
- Subject Area
 - Industrial Area
 - Future Residential
 - Powerline Clearance
 - Wanneroo Road Widening
 - Flynn Drive Realignment
 - Drainage Swale
 - 2.5m High Noise Barrier Wall
 - Significant Tree

All areas and dimensions are subject to survey, engineering and detailed design and may change without notice. © Copyright of Burgess Design Group.

FIGURE 3



Site Contamination

The Department of Environment and Conservation's (DEC) Contaminated Sites Database does not identify the subject land as a "Known Contaminated Site".

A review of historical aerial photography and discussions with Planning Officers at the City of Wanneroo did not indicate any uses or activities that are of concern. It is considered that the risk of contamination from past and/or present land use activities is low.

Karst Assessment

In 2006 an investigation into subsurface limestone formations was undertaken, revealing no evidence of any karst formations under the site at shallow depths (refer **Appendix 5**). However, it did recommend that further penetrating investigations be undertaken to reveal any formations at greater depths. Should this be required, it is recommended that this occur at the subdivision stage.

In addition, the investigation provided commentary on the treatment of drainage management as part of any future residential development. This shall be considered at the more detailed engineering stage, and as part of the stormwater management plans for the site.

2.3 GROUNDWATER AND SURFACE WATER

The site is not located within a 1-in-100 year ARI event floodplain of a river or major watercourse; and, owing to sandy soils, is generally devoid of surface water flow.

Groundwater at the site is expected to be in the vicinity of 30 metres below the surface. As such, groundwater monitoring has not been undertaken. Groundwater at the site is expected to be marginally fresh, unsuitable for garden bores, and low risk of iron staining.

2.4 BUSHFIRE HAZARD

The site falls within a designated bushfire prone area. In accordance with the policy measures of State Planning Policy 3.7, a Bushfire Management Plan (BMP) has been prepared to assess the risk and set out appropriate management measures (refer **Appendix 6**).

2.4.1 Bushfire Hazard Level

The Bushfire Hazard Level applicable to the site and its surrounds has been assessed as 'moderate' to 'extreme'. The risk will be appropriately managed through the implementation of suitable Asset Protection Zones (APZ) and Hazard Separation Zones (HSZ) or the application of Bushfire Attack Level (BAL) construction standards in accordance with Australian Standard AS3959-2009. To that end, the design of the LSP responds directly to bushfire risk insofar that that roads, public open space and drainage is sited to maximise separation to potential bushfire hazards.

2.4.2 Bushfire Attack Level

A BAL Contour Map contained within the BMP shows the site is capable of accommodating development without requiring construction to BAL-40 or BAL-FZ construction standards. In order to prevent inappropriate siting of development within future lots, it may be necessary for Local Development Plans to prescribe minimum setbacks on lots that fall partially within areas subject to BAL-40 or BAL-FZ. This shall be determined following the preparation of a BAL Contour Map at subdivision stage once lot boundaries are known.

2.4.3 Bushfire Management Measures

The BMP sets out management measures to maintain an acceptable level of risk in accordance with the acceptable solutions of the Bushfire Protection Criteria listed at Appendix 5 of the *Guidelines for Planning in Bushfire Prone Areas* (Guidelines). This includes responses to the location, siting and design, vehicular access, and water elements of the Guidelines.

2.5 HERITAGE

The Department of Aboriginal Affairs Aboriginal Heritage Inquiry System indicates that there are no known heritage sites located on the subject land.

The Environmental Assessment Reports, prepared by Bayley Environmental Services (March 2006 and December 2011), outline that:

- there are no Aboriginal heritage sites within 1km of the property. The nearest recorded site is associated with Lake Neerabup, which is 1.3km north-west of the property; and,
- the property does not contain any significant physical features (hills, rocky outcrops, caves, creeks, wetlands) that would suggest a likelihood of any ethnographic significance).

Refer to **Appendix 3** for the Environmental Assessment Reports by Bayley Environmental Services.

2.5.1 CONTEXT AND CONSTRAINTS ANALYSIS

A Context and Constraints Plan (refer **Figure 3**) has been prepared to illustrate the main issues discussed in this section of the LSP.

OPPORTUNITIES

Industrial Area

There is a recently approved industrial park north east to the subject land developed by LandCorp named 'Meridian Park'. The area was developed to meet the industrial land demand in the north-west district corridor of Perth for the next 20 years. The development comprises 400 hectares of general industrial, service industrial and business zoned land. The development is expected to create approximately 20,000 new employment opportunities, thereby encouraging significant development and growth in the surrounding areas.

Future Residential

Adjacent Lots 1 and 2 Flynn Drive, Carramar, are the subject of Agreed Structure Plan 61, which proposes low density residential uses, open space, and an equine recreation park.

The proposed development on Lots 1 and 2 complements the proposed LSP, and represents the logical expansion of an existing urban area further to the south.

2.5.2 CONSTRAINTS

Powerline Easement

High voltage powerlines are located adjacent to the southern boundary of the subject site, along the eastern side of Wanneroo Road.

Initial consultation with Western Power has indicated that an approximate 12 metre easement will be required from the powerlines to all dwellings/buildings. The proposed LSP limits the impact that the powerline easement will have on future development by locating road reserves and open space within the easement area to the extent that it is reasonable. However, those areas that are affected by the easement will require consideration at subdivision and engineering stage, at which point, the exact width of the easement will be determined.

Flynn Drive Realignment

Flynn Drive is proposed to be realigned to access Wanneroo Road approximately 660m north west of the current intersection, which will subsequently be closed and converted to a cul-de-sac. The proposed realignment aims to better service the increased traffic demands of the future 400 hectare Meridian Park industrial estate to the north east of the subject site.

Whilst the proposed realignment will likely reduce the impacts of heavy vehicle movements to and from the abovementioned industrial estate, it will add approximately 2km to the trips of future residents who wish to access the subject site from Wanneroo Road.

Noise

A Noise Impact Assessment undertaken by Lloyd George Acoustics concluded that *the majority of lots fronting Wanneroo Road are predicted to exceed the SPP 5.4 Limit criteria*, and recommended that both *façade treatments and an acoustic barrier, 2.5m above road height*, be considered (refer **Appendix 7**).

As per these recommendations, the LSP incorporates these treatments, with quiet house design principles to be outlined through a Local Development Plan, and notifications to be placed on the Certificates of Title for all future affected lots (refer section 3.7.1 for further detail).

An updated Noise Impact Assessment will be required at subdivision stage to address any management measures required to mitigate noise impacts on the final design.

3. LAND USE AND SUBDIVISION REQUIREMENTS

3.1 LAND USE

The proposed landuses comprise low and medium density residential uses, public open space, and drainage. Refer to **Plan 1 – Local Structure Plan**.

3.2 RESIDENTIAL

The LSP proposes low and medium residential densities, comprising R25 and R30. This mix of densities generally serves to provide a transition between the low density (R5) uses proposed in the adjoining Agreed Structure Plan No.61, whilst still accommodating conventional housing product.

The total area available for residential development is approximately 1.7507ha, which will accommodate approximately 39 lots, each comprising a single dwelling with a total population of 101 people, representing a density of 22 dwellings per site hectare.

The proposed lot layout has been orientated such that it can provide effective surveillance of the public domain such as the streets and public open spaces, whilst minimising the impact of the powerline easement and potential bushfire hazards.

3.3 PUBLIC OPEN SPACE

The proposed Public Open Space (POS) comprises one site 3,479m² in area, comprising 10.09% of the gross subdivisible area.

The location and shape of the proposed POS responds to the context of the site by incorporating a drainage swale, retaining some significant trees, providing additional separation to potential bushfire hazards, and allowing for relatively conventional and developable lots. Additionally, all future lots will be within 200m of the POS, providing all future residents with easy access to recreational space.

3.4 MOVEMENT NETWORKS

3.4.1 Road Network

The proposed road network comprises two roads with a reserve width of 15m (reduced to 13.5m where abutting POS).

The site is to gain access from Flynn Drive through a priority-controlled T-intersection, approximately 35m north east of where it intersects Wanneroo Road. Flynn Drive is proposed to be realigned to access Wanneroo Road approximately 660m to the north of where it currently intersects, at which time the current intersection will be closed.

A Traffic Impact Assessment has been prepared by Transcore (refer **Appendix 8**). This Assessment states that the development would generate approximately 360 daily vehicle trips during a typical week day. The Assessment concluded that *the impact of the traffic from this development on the operation of the surrounding road network is marginal to moderate and therefore does not necessitate any upgrades to these roads.*

3.4.2 Public Transport and Cyclist Network

The Clarkson Train Station is located 6 kilometres west of the subject land. Additionally, a number of bus routes are available approximately 1 kilometre south of the subject land along Wanneroo Road. Given the growth and development of the area, it is likely that the Public Transport Authority will investigate additional future bus routes in the Carramar area.

In accordance with the Department of Transport Perth Bike Maps, the portion of Wanneroo Road that abuts the subject land is considered a 'Poor Road Riding Environment' due to the large volume of fast traffic without cycle paths. However, Flynn Drive is considered to be a 'Medium Road Riding Environment'. It is recommended that the Department of Transport consider cycle paths in their upgrades of Wanneroo Road and Flynn Drive.

3.5 WATER MANAGEMENT

A Local Water Management Strategy (LWMS) has been prepared by Shawmac (July 2016) to support the implementation of the LSP (refer **Appendix 4**). The LWMS has been prepared to achieve best practice water management outcomes through strategies that manage the total water cycle in a sustainable manner, in accordance with the objectives of State Planning Policy 2.9: *Water Resources*. The LWMS is summarised briefly below.

3.5.1 Groundwater Management

Groundwater at the site is expected to be in the vicinity of 30 metres below the surface. Given this depth, the use of controlled groundwater levels and fill is not required.

3.5.2 Stormwater Management

The stormwater management strategies for the site include:

- Implementing a drainage design that limits the peak outflow from the development to pre-development levels through on-site storage and infiltration;
- Utilising lot connections to the public stormwater network (see details below);
- Providing rain-gardens to reduce nutrient loads; and,
- Providing two stormwater retention basins to control the outflow for the 1, 5, and 100 year ARI events and ensure that the 1-in-100-year ARI event flood levels are below residential floor levels.

Geotechnical investigations have concluded that karstic features may underlie the site. This precludes the use of on-site soakwells; as concentrated water run-off may affect foundation conditions by mobilising loose sands in the limestone discontinuities. As such, lot-connections to the public stormwater network will be used instead.

3.6 EDUCATION FACILITIES

There are no schools or educational facilities provided within the proposed Local Structure Plan.

Additionally, it is not expected that the additional population to be accommodated in the proposed development will create the need for additional educational facilities nor will it create a burden on those existing.

3.7 INFRASTRUCTURE COORDINATION, SERVICING AND STAGING

3.7.1 Transport Noise Impacts

A Noise Impact Assessment undertaken by Lloyd George Acoustics concluded that *“the majority of lots fronting Wanneroo Road are predicted to exceed the SPP 5.4 Limit criteria,”* and recommended that both façade treatments and an acoustic barrier, 2.5m above road height, be implemented (refer **Appendix 7**). However, as the design of development has changed since the preparation of the Noise Impact Assessment, further assessment may be required at subdivision stage to determine appropriate management measures.

3.7.2 Power

An Engineering Services Report prepared by VDM Group confirms that an existing underground power supply on the eastern side of Wanneroo Road has sufficient capacity to service the proposed development with underground power (refer **Appendix 9**).

3.7.3 Water

There is no existing water main in the subject area. Mains water can be supplied through the extension of an existing 300mm diameter water main in Wanneroo Road, northwards from Golf Link Drive to Carramar Road for a distance of 500 metres, and then a 250mm water main to the site for a distance of 1.4km (refer **Appendix 9**).

3.7.4 Wastewater

There is no existing sewer infrastructure in the area. A new gravity fed sewer can connect to the existing sewer line near Golf Links Drive and Wanneroo Road (refer **Appendix 9**). This sewer infrastructure has sufficient capacity to service the proposed development.

3.7.5 Telecommunications

There is an existing Telstra network in the immediate vicinity of the subject site with sufficient capacity to service the development with telecommunications services (refer **Appendix 9**). Telstra will install any new telecommunication network facilities to the proposed lots, subject to the developer providing, at their cost, trenching for cable laying.

3.7.6 Gas

There is an existing 150mm diameter high pressure gas main within the Wanneroo Road reserve; with sufficient capacity to service the development with reticulated gas services (refer Appendix 9). A pressure reducing station will need to be installed to reticulate the gas throughout the subdivision.

4. CONCLUSION

This LSP report, accompanying plans, and appendices, satisfy the Council's Scheme requirements with respect to the objectives of the 'Urban Development' zone, and the preparation of Structure Plans.

The Local Structure Plan as described in this report satisfies the planning frameworks adopted by the City of Wanneroo and the Western Australian Planning Commission and the advice received during consultation with other agencies. The Plan should ultimately assist in achieving a contemporary and well integrated subdivision that provides the foundation for a strong and cohesive community.

In light of the above, the Local Structure Plan as submitted represents a logical, well planned and timely addition to the ongoing development of the Carramar locality.