Local Structure Plan

Lot 30-32 Rockingham Road, Munster

Part One and Part Two

urbis

May 2014

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	Jeff Thierfelder
Associate Director	Kris Nolan
Senior Consultant	Stijn Le Large
Consultant	Emma Taylor
Job Code	PD0887
Report Number	SP02.2014.05

Disclaimer

This report is dated April 2013 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (Urbis) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Rapid Stream Pty Ltd (Instructing Party) for the purpose of establishing a development framework over the subject lots (Purpose) and not for any other purpose or use. Urbis expressly disclaims any liability to the Instructing Party who relies or purports to rely on this report for any purpose other than the Purpose and to any party other than the Instructing Party who relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events including wars, civil unrest, economic disruption, financial market disruption, business cycles, industrial disputes, labour difficulties, political action and changes of government or law, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or made in relation to or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

Urbis has made all reasonable inquiries that it believes is necessary in preparing this report but it cannot be certain that all information material to the preparation of this report has been provided to it as there may be information that is not publicly available at the time of its inquiry.

In preparing this report, Urbis may rely on or refer to documents in a language other than English which Urbis will procure the translation of into English. Urbis is not responsible for the accuracy or completeness of such translations and to the extent that the inaccurate or incomplete translation of any document results in any statement or opinion made in this report being inaccurate or incomplete, Urbis expressly disclaims any liability for that inaccuracy or incompleteness.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the belief on reasonable grounds that such statements and opinions are correct and not misleading bearing in mind the necessary limitations noted in the previous paragraphs. Further, no responsibility is accepted by Urbis or any of its officers or employees for any errors, including errors in data which is either supplied by the Instructing Party, supplied by a third party to Urbis, or which Urbis is required to estimate, or omissions howsoever arising in the preparation of this report, provided that this will not absolve Urbis from liability arising from an opinion expressed recklessly or in bad faith.

URBIS
Australia Asia Middle East
urbis.com.au

ENDORSEMENT PAGE

This structure plan is prepared under the provisions of the City of Cockburn Town Planning Scheme.

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

06 May 2014

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

Date of Expiry: **19 October 2035**

Table of Variations

TABLE OF VARIATIONS TO PART ONE AND THE LOCAL STRUCTURE PLAN MAP

VARIATION NO.	DESCRIPTION OF VARIATION	ADOPTED BY COUNCIL	ENDORSED BY WAPC (IF REQUIRED)

Contents

FIGURES:

TABLES:

Executive Summary

This Local Structure Plan (LSP) applies to Lots 30, 31 and 32 Rockingham Road, Munster within the City of Cockburn (City).

The site is zoned Development under the City's Town Planning Scheme No. 3 (TPS 3). In accordance with the requirements of the Development zone, this LSP has been prepared to guide and facilitate the subdivision and development of Lots 30, 31 and 32 Rockingham Road for medium and high density residential development.

Part One of the report is the Statutory Section which provides the appropriate mechanics for land use and development control. These components of the LSP will bind parties through the powers of TPS 3.

Part Two of the report provides the Explanatory Section which provides the justification and clarification for the provisions within Part One.

TABLE 1 – LOCAL STRUCTURE PLAN SUMMARY TABLE

ITEM	
Total area covered by the LSP:	1.2055ha
Area of specific land uses:	
Residential	1.1187ha
Estimated lot yield:	25-30 lots
Estimated number of dwellings:	25-30 dwellings
Number and area of public open space:	Nil

1 Part One – Statutory Section

1.1 LOCAL STRUCTURE PLAN AREA

The LSP applies to Lots 30, 31 and 32 Rockingham Road, Munster, as shown on the land identified on the LSP Map – *Figure 1.*

1.2 LOCAL STRUCTURE PLAN CONTENT

The LSP comprises:

- Part One – Statutory Section

  Part One of the LSP includes the LSP Map and provisions and requirements that have statutory effect.

- Part Two – Explanatory Section.

  Part Two of the LSP justifies and clarifies the provisions contained in Part One, and is used as a reference guide to interpret and implement Part One. Part Two does not have statutory effect.

1.3 INTERPRETATION

Unless otherwise specified in this part the terms used in this LSP have the respective meanings given to them in the City's TPS 3 including any amendments gazetted thereto.

1.4 RELATIONSHIP TO THE LOCAL PLANNING SCHEME

This LSP is prepared in accordance with the requirements of TPS 3. The LSP Map and Statutory Section have the same force and effect as if they were included within TPS 3. Where there is any inconsistency between this LSP and TPS 3, TPS 3 prevails to the extent of that inconsistency.

1.5 OPERATION

In accordance with Clause 6.2.12.1 of the TPS 3, this LSP comes into effect when it is endorsed by the Western Australian Planning Commission (WAPC) pursuant to Clause 6.2.10.2.Land Use and Subdivision Requirements

1.5.1 GENERAL SUBDIVISION AND DEVELOPMENT REQUIREMENTS

The subdivision and development requirements for Lots 30, 31 and 32 Rockingham Road are generally in accordance with the LSP Map. The LSP Map outlines zones within the LSP area. The zones designated under this LSP apply to the land within it as if the zones were incorporated into TPS 3. The LSP outlines the residential density codes applicable to the LSP area.

Land use permissibility within the LSP area shall be in accordance with the corresponding zone under TPS 3.

1.6 DEVELOPMENT REQUIREMENTS

1.6.1 LOCAL AREA PLAN REQUIREMENTS

The requirement for Local Area Plans (referenced as Detailed Area Plans within TPS 3) is to be assessed on a case by case basis at the discretion of the City. Local Area Plans shall be in accordance with Clause 6.2.15.2 of TPS 3 and details shall include, but are not limited to (details to be determined at the discretion of the City):

- Setbacks
    - Building
    - Garage
- Built Form
    - Building and Roof heights
    - Primary Façade treatment
    - Secondary street and treatments
    - Porches and verandah's
    - Garage door widths
- Crossover Locations
- Fencing
- Surveillance
- Interfaces

FIGURE 1 - LOT 30-32 ROCKINGHAM ROAD MUNSTER - LOCAL STRUCTURE PLAN

LOCAL STRUCTURE PLAN

LOTS 30, 31 AND 32 ROCKINGHAM ROAD, MUNSTER

PROJECT NO: PD0887
CLIENT: RAPID STREAM PTY LTD TF THE KUNA FAMILY TRUST
DATE: 08/05/13
DRAWING NO: STP-01
REV: 0
SCALE: 1:2000@A3
DRAWN: SLL
CHECKED: ET

N

Base data supplied by: Wood and Grieve Engineers
Datum: Geocentric Datum of Australia 1994 (GDA94)
Projection: MGA 94 Zone 50
Positional accuracy: +/- 1m

LEVEL 1, 55 ST GEORGES TCE
PERTH WA 6000 AUSTRALIA
TEL +618 9346 0500
FAX +618 9221 1779
info@urbis.com.au
www.urbis.com.au

Urbis Pty Ltd ABN 50 105 256 228
Australia . Asia . Middle East

urbis

2 Part Two – Explanatory Section

2.1 PLANNING BACKGROUND

2.1.1 INTRODUCTION AND PURPOSE

The LSP for Lots 30, 31 and 32 Rockingham Road, Munster has been prepared to guide and facilitate the subdivision and development of the subject land for residential purposes. The LSP provides development classifications over the subject land in terms of R-Codes applicable to future development.

The LSP fulfils the requirements of Clause 6.2.12.2 of the City's TPS 3 for the preparation and approval of a structure plan prior to the subdivision and/or development of land in the 'Development' zone.

2.1.2 LOCAL STRUCTURE PLAN OBJECTIVES

- To guide and facilitate the subdivision and development of the LSP area.
- To facilitate medium to high density development that appropriately responds to the natural and physical characteristics of the subject land and surrounding Munster locality.
- To provide a safe, legible, efficient and effective movement network for vehicles and pedestrians within and to and from the LSP area.

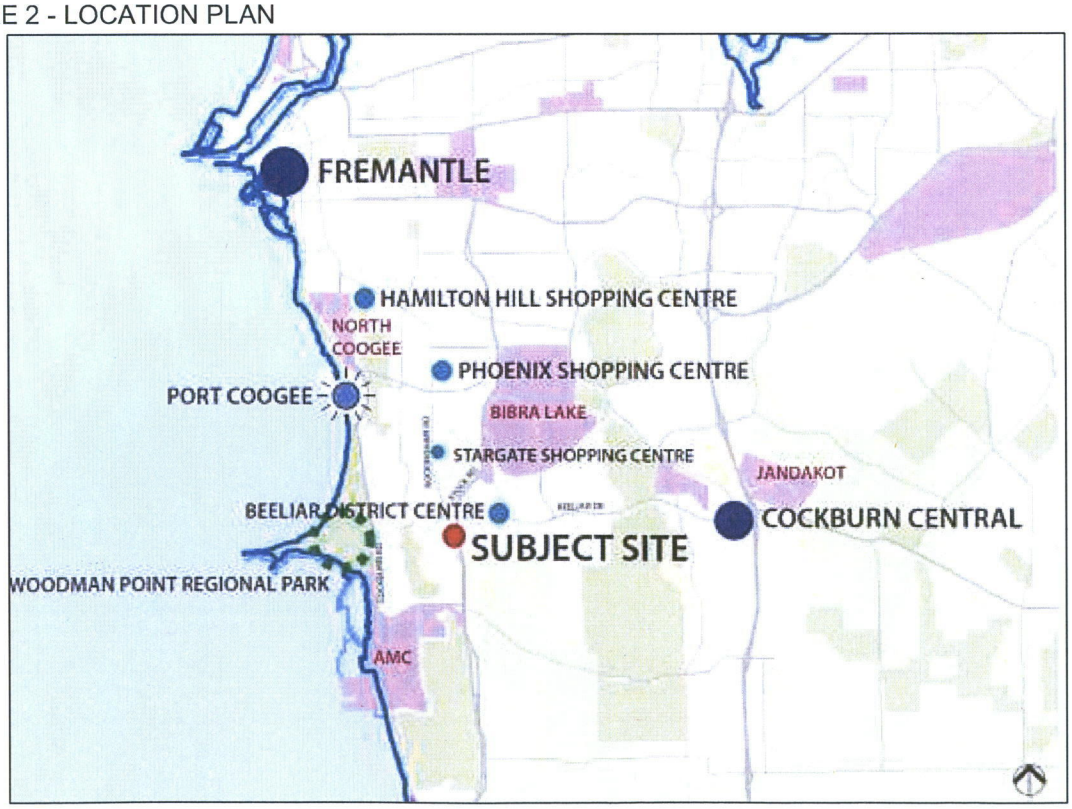
2.1.3 LAND DESCRIPTION

2.1.3.1 LOCATION

The subject land, being Lots 30, 31 and 32 Rockingham Road, Munster is located within the City. The subject land is located approximately 30km to the south west of the Perth Central Business District and approximately 10km to the south east of Fremantle as detailed in *Figure 2* below.

The site has road frontage to Rockingham Road to the west and Howe Street to the north. Stock Road abuts the eastern boundary of the site

FIGURE 2 - LOCATION PLAN



2.1.3.2 AREA AND LAND USE

The area covered by the LSP is 1.2055ha and is generally square in shape. The subject land is currently rural residential in nature. Lots 31 and 32 each currently contain a residential dwelling and associated ancillary buildings. Lot 30 is currently vacant. The subject land has a crossfall of 13m, sloping down from Stock Road to Rockingham Road. The rear of Lots 30 and 31 contain low open shrubland vegetation. A range of mature vegetation is located in proximity to the existing residential structures on the site.

FIGURE 3 - AERIAL PHOTOGRAPH (CITY OF COCKBURN 2013)

The surrounding area consists primarily of low to medium density residential development, ranging from R20 to R40. The majority of this residential development has occurred from 2005 onwards and is continuing.

A local centre is located approximately 200m to the south of the sites with a 2128m² area of POS (Solta Park) located adjacent to the local centre. The Market Garden Swam POS and a Bush Forever site is located approximately 275m to the west of the subject land.

2.1.4 LEGAL DESCRIPTION AND OWNERSHIP

The lot and ownership details for the subject site are described in *Table 2.* The Certificate of Title and Sketch for the subject sites are provided in ***Appendix A.***

TABLE 2 – LOT INFORMATION

LOT	CERTIFICATE OF TITLE	STREET	PLAN/DIAGRAM	LOT AREA	PRIMARY INTEREST HOLDER
30 **No. 602**	1200-930	Rockingham Road	3562	3536m²	Bertram John Brasier Lucy Eva Brasier
31 **No. 600**	2110-133	Rockingham Road	3562	3812m²	Ante Mihalj Yvonne Ann Mihalj
32 **No. 596**	1210-600	Rockingham Road	3562	4707m²	State Housing Commission

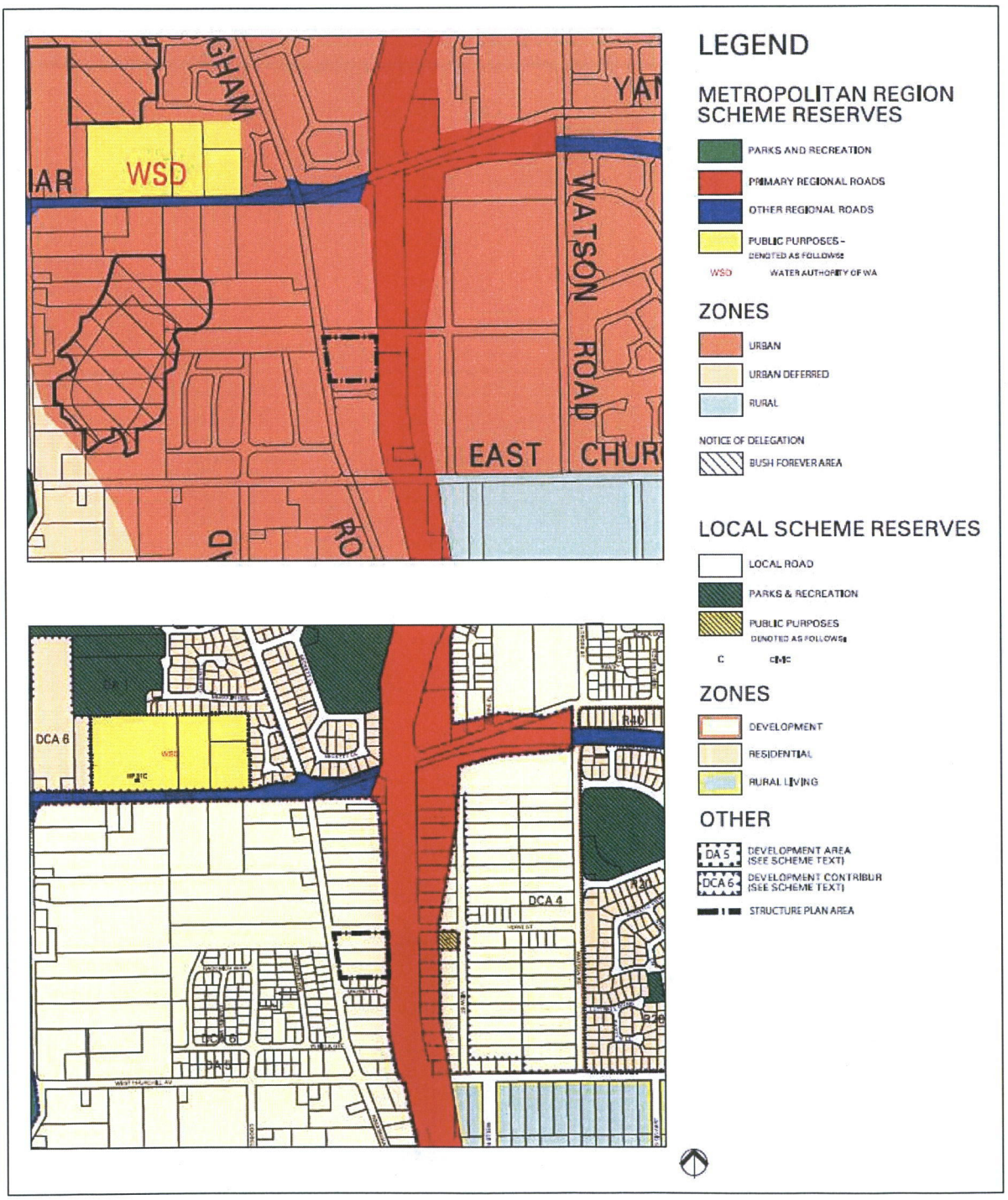
2.1.5 PLANNING FRAMEWORK

2.1.5.1 ZONING AND RESERVATIONS

The site is zoned "Urban" under the Metropolitan Regional Scheme (MRS). Areas zoned Urban provide for a range of activities, including residential, commercial, recreational and light industry. The LSP is aligned with the intent of the Urban zone, providing for residential development which is unconstrained and available for development.

The site is zoned Development under TPS 3. The Development zone aims to provide for future development in accordance with an approved structure plan.

FIGURE 4 - MRS AND TPS ZONING



2.1.6 POLICIES AND STRATEGIES – STATE GOVERNMENT

2.1.6.1 DIRECTIONS 2031 AND BEYOND

Directions 2031 - Spatial Framework for Perth and Peel was released by the Western Australian Planning Commission (WAPC) in August 2010. This is the highest level strategic spatial plan establishing a vision for the future expansion of the Perth and Peel area, which is expected to grow from 1.65 million people to 2.2 million people by 2031. The land within the LSP area is located within the 'south-west sector' which anticipates an increase in population of 70,000 persons and an increase in the number of dwellings by 41,000.

Directions 2031 sets residential density targets of 15 dwellings per urban hectare for infill development in order to meet the projected dwelling increases. At 1.2ha this results in a minimum of 18 dwellings on the subject site. The proposed densities associated with the LSP provide for 25-30 dwellings across the subject area, thus exceeding Directions 2031 targets.

The LSP presents a key opportunity for implementation of Directions 2031, in particular its focus on urban consolidation, housing affordability and redevelopment within an existing urban context

The LSP complies with the State Planning Strategy in facilitating residential development.

2.1.6.2 DRAFT OUTER METROPOLITAN PERTH AND PEEL SUB-REGIONAL STRATEGY

The Outer Metropolitan Perth and Peel Sub-Regional Strategy (the Draft Strategy) encompasses all land within the outer sectors of metropolitan Perth.

Seven strategies have been developed in order to meet the land supply, housing and employment needs of the Outer Metropolitan Area and guide the preparation and review of structure plans and local planning strategies. The strategy provides guidance on timeframes for, and outlines the likely influences on the supply of additional urban land to ensure an ongoing minimum of a 15 year supply for land.

The LSP achieves the overall intent of the Draft Strategy, specifically to deliver additional activity, amenity and housing types, building upon the existing development within Munster and contributing to State infill targets. The LSP also aims to enhance the existing natural and built environment through responding to the site topography and existing amenity.

2.1.6.3 STATE PLANNING POLICIES

The LSP complies with the following relevant State Planning Policies (SPP's):

▪ **SPP 2 – Environment and Natural Resources.**	▪ Where appropriate the LSP seeks to protect topographical features and areas of significant native vegetation.
▪ **SPP 3 – Urban Growth and Settlement**	▪ The LSP will facilitate the growth of the Munster locality and provide for a variety of residential infill development opportunities.
▪ **SPP 3.1 – Residential Design Codes of Western Australia**	▪ Subdivision and development within the LSP area is generally to be in accordance with the R-Codes.
▪ **SPP 5.4 – Road and Rail Transport Noise and Freight Considerations in Land Use Planning**	▪ The LSP proposes noise sensitive development (residential) adjacent to Stock Road which is a major road / freight route. Design of the lots and future development shall take into account appropriate measures to reduce and mitigate noise levels to meet the required noise criteria. It is anticipated

	that noise sensitive design elements (quiet house design) will be required for development in close proximity to Stock Road.

2.1.6.4 LIVEABLE NEIGHBOURHOODS

Where possible and practical, the LSP has had regard to the objectives and requirements of Liveable Neighbourhoods, whilst responding to the context of the subject site and the Munster locality.

▪ **Element 1 – Community Design**	▪ The LSP contributes to a sustainable urban environment within Munster. The site provides a range of urban densities within the walkable catchment of a local commercial centre and POS areas. The LSP is consistent with community outcomes envisaged for the developing Munster locality.
▪ **Element 2 – Movement Network**	▪ Although the LSP does not include a new movement network, the design of the LSP including access and street frontages is consistent with Liveable Neighbourhoods aims to provide an integrated movement network.
▪ **Element 3 - Lot Layout**	▪ The variety in lots provided within the density range proposed allows for a variety of housing choice located within proximity to a local commercial centre.
▪ **Element 4 - Public Parkland**	▪ The LSP includes a cash-in-lieu arrangement in relation to the provision of POS as agreed with the City. ▪ A2 of Appendix 4 of Liveable Neighbourhoods states that "Having regard to A1 (Section 153 of the P and D Act 2005), the WAPC may impose a condition seeking the provision of a cash-in-lieu equivalent of the public open space, where: ▪ *The other required 10 percent area of open space would yield an area of unsuitable size/s and dimension/s to be of practicable use."*
▪ **Element 5 - Urban Water Management**	▪ An integrated approach to water management is to be provided across the LSP area. The size and nature of the development does not trigger the requirement of an urban water management

	plan or urban water management strategy.
▪ **Element 6 - Utilities**	▪ Each lot shall be provided with sewer, water, power, gas and telecommunications as appropriate.

2.1.7 STRATEGIES AND POLICIES - LOCAL GOVERNMENT

2.1.7.1 LOCAL PLANNING STRATEGY

The City's Planning Strategy (referred to as the Planning Strategy - PS) aims to provide direction on population, employment, housing, transportation, public open space and public uses over a 10 to 15 year timeframe. The PS sets out an integrated approach to policy statements for environment, community, economic, infrastructure and regional principles which are further detailed within the Local Planning Policies.

The PS intends to guide the strategic direction of land use and provide context for local planning decisions within the City.

The LSP is consistent with the direction and intent of the City's PS.

2.1.7.2 LOCAL PLANNING SCHEME

2.1.7.2.1 TPS 3 Zoning

The LSP area is zoned Development under TPS 3 as depicted in *Figure 4*. The intent of the Development zone is as follows:

> *"To provide for future residential, industrial or commercial development in accordance with a comprehensive Structure Plan prepared under the Scheme."*

Further, the subject land is located within Development Area 5 – Munster.

The requirements under the Development zone and Development Area 5 also trigger the need for a structure plan to guide subdivision and development as Clause 6.2.4 and Schedule 11 require. This LSP has been prepared to comply with these TPS 3 requirements.

The LSP is consistent with these objectives by proposing residential development and public open space areas which facilitate well integrated outcomes.

2.1.7.2.2 Local Structure Plan Classification

The LSP proposes residential land classified with R40 and R80 density codes. Development within the Development zone identified on the LSP will be required to comply with TPS 3 requirements of the Development zone, except where varied in the Statutory Section of the LSP.

Land use permissibility within the Residential zone will be in accordance with TPS 3 and all land within the Residential zone is to conform to the requirements of the R-Codes.

2.1.7.2.4 Development Contribution Areas

The LSP Area is located in DCA6 as set out in Schedule 12 of TPS 3. The purpose of the development contribution plan is to provide for the equitable sharing of infrastructure and administrative costs between landowners.

All landowners in DCA6 shall make a proportional contribution to 23.4% of the costs of widening and upgrading Beeliar Drive between Stock Road and Cockburn Road.

The LSP area is also subject to DCA13, a contribution plan relating to the provision of community infrastructure within the City.

The above contributions are required to be paid at the time of approval of a deposited plan or survey strata plan.

2.1.7.3 LOCAL PLANNING POLICIES

The following are considered to be relevant City local planning policies.

▪ **LPP APD 4 – Public Open Space**	▪ The public open space provided within the LSP area is considered to be appropriate for the provision of public open space under this policy. The aspects of the public open space are compliant with the objectives of Liveable Neighbourhoods Element 4.
▪ **LPP APD 6 – Residential Rezoning and Subdivision adjoining Midge infested lakes and wetlands.**	▪ The LSP area is located within proximity to Market Garden Swamp (3), and is on the periphery of the 500m midge buffer. It is considered there is sufficient buffer by way of vegetation and residential development to minimise the effects of midges on future developments. As the site is located within the buffer, it is proposed that a notification will be placed on titles noting that the lots are located within a midge prone area in accordance with the requirements of LPP APD 6.
▪ **LPP APD 62 – Vehicle Access**	▪ The LSP abuts Rockingham Road, a major distributor road within the locality. Vehicle access will be further outlined as part of the Local Area Plans applicable to the sites. There will however, be no direct vehicle access/crossovers to Rockingham Road.

2.2 SITE CONDITIONS AND ENVIRONMENT

2.2.1 ENVIRONMENTAL ASSETS AND CONSTRAINTS

The site is located within the Swan Coastal Plain – south of the Moore River. Identified as part of the Spearwood Dunes landform, the environmental characteristic of the site and surrounds exhibit that of the Cottesloe Complex – Central and South. As much of the area has been historically used for market gardening and agricultural purposes the expanse and integrity of the environmental characteristics vary.

The subject site has been utilised for rural residential purposes since the late 1940's with the front being cleared for structures and revegetated with a range of exotic species. The rear of the sites, in particular Lots 30 and 31 consist of low open shrubland. The vegetation consists of a range of predominantly native species including; tussock, acacias, banksia and grevilla. Exotic species and grass trees are scattered through this area.

The vegetation on the site does not exhibit qualities which would justify retention. The quality of the vegetation on the site falls within the classification of degraded. The vegetation has been severely

impacted by disturbance with less than 25% of the site containing native vegetation. This vegetation is further segregated from surrounding tracts of vegetation by existing residential development and infrastructure.

It is not considered viable to retain or regenerate of the vegetation on the subject site.

2.2.2 LANDFORMS AND SOILS

The subject site ranges in topography from 23.0m AHD in the north eastern corner adjacent to Stock Road, falling to 10.0m AHD adjacent to Rockingham Road. This represents a cross fall of 13.0m from east to west across the site. The high and low points on the subject site are annotated on *Figure 5 –Site Context* below.

The subject site is located in the Tamala Limestone Formation, specifically part of the Spearwood Dune System. This results in soils on the site generally consisting of calcarenite and calcareous cemented sands ranging from fine to very coarse above a limestone base. Preliminary geotechnical advice has indicated that the subject land will fall within the Lot Classification "A", consistent with adjacent developments. As such there are no geotechnical constraints on the use of the site in regards to residential development.

A desktop review of acid sulphates within the locality of the subject site has indicated that there are no known occurrences of acid sulphate soil on the site or surrounding area. It is considered there are minimal or no risk of acid sulphate soils being located on the site.

2.2.3 GROUNDWATER AND SURFACE WATER

The subject site is located in the Cockburn Groundwater Area, specifically within the Kogalup Groundwater System. This area is made up of an unconstrained superficial groundwater aquifer which is recharged by infiltration from existing wetlands and water sources.

Initial geotechnical investigations have found the groundwater level at the lowest point on the site is at 1.0m AHD as outlined within the Engineering Report prepared by Wood and Grieve Engineers (***Appendix B***). As such there will be no impacts on the groundwater from the required civil and earthworks associated with the development of the sites.

2.2.4 BUSHFIRE HAZARD

An assessment of the site against the provisions of the WAPC's Planning for Bushfire Protection Guidelines (May 2010) has determined that the site is located in a low bushfire hazard level area. The following factors have been taken into account in determining the low bushfire hazard level classification as per the requirements of Appendix 1 of the guidelines:

- **Site Characteristics**
  The characteristics of the vegetation on site consist of either highly modified vegetation associated with the existing residential uses, or low open shurbland. Additionally, the site is to be cleared to facilitate the residential development, thus reducing the bushfire potential further.
- **Surrounds**
  The subject area is located within an existing urban/suburban area which is significantly developed for residential purposes and generally characterised by maintained gardens and limited vegetation. Areas of undeveloped shrubland, are zoned for development and are to be cleared and developed within the near future.
- **Buffers**
  The site is separated from potential bushfire hazards, being the shrubland to the east of Stock Road via Stock Road. The road reserve and constructed carriage way consist of low fuel materials and is of a sufficient width to act as a fire buffer.

The low bushfire hazard level classification results in the site being appropriate for residential development with no additional fire management measures required in construction of dwellings.

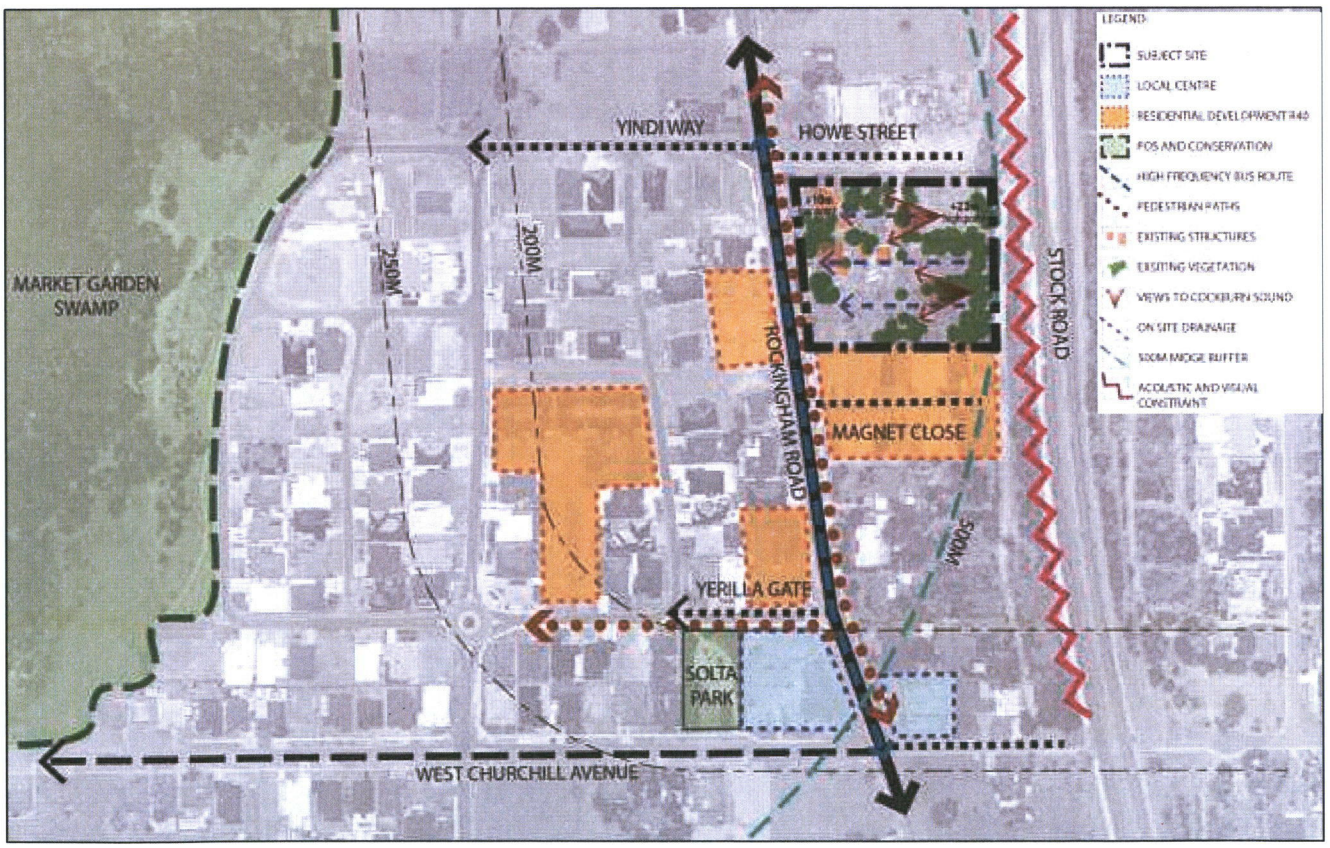
2.3 CONTEXT AND CONSTRAINTS ANALYSIS

Based on the research undertaken to guide preparation of the LSP for the subject site, an opportunities and constraints plan has been prepared (see *Figure 5*).

Key elements of this plan include:

- Existing development and distances from the subject site including residential, commercial, and public open space;
- Site characteristics including topography, drainage, vegetation and existing structures;
- Movement network including vehicle, pedestrian and public transport;
- Site opportunities including views, development potential,
- Site constraints including the Lake Coogee midge buffer, noise and visual impacts from Stock Road; and
- Ability of the site to accommodate the level of proposed development.

FIGURE 5 - SITE CONTEXT - OPPORTUNITIES AND CONSTRAINTS ANALYSIS



2.3.1 LOT 30 – DEPARTMENT OF HOUSING

At the time of preparation of the LSP a development application is being considered by the WAPC for the development of 12 dwellings on Lot 30. This application has been lodged by the Department of Housing under the *Public Works Act 1902*.

Consideration of the proposal, as based on the previous lapsed approval has been incorporated into the design of LSP. Particular consideration has been given to the proposed road, and the provision of a density consistent with the proposed development. This allows for an appropriate design response between the developments and provides a consistent approach to development within the LSP area.

2.4 LOCAL STRUCTURE PLAN

2.4.1 DESIGN RATIONALE

The study area has a number of site attributes and constraints that impact on the LSP as outlined in section 2.3 and *Figure 5*. The following sets out the main design principles providing the basis to the design of the LSP:

- The site generally slopes from Stock Road in the east to Rockingham Road in the west. The land adjacent Stock Road has views to Cockburn Sound, including the Woodman Point lighthouse and the dune system. This provides opportunities for higher density development which takes advantage of this attribute.
- Medium density residential development is proposed for the LSP, taking advantage of the proximity to the Munster local centre on the corner of West Churchill Avenue and Rockingham Road, which is located approximately 180 metres to the south.

2.4.2 LAND USE

The LSP primarily proposes residential land use at medium to high densities to provide for a variety of housing. Medium density residential development has been located on the western aspect of the site, with the higher density being located to the rear of the site taking advantage of the westerly views.

TABLE 3 – LOCAL STRUCTURE PLAN SUMMARY TABLE

ITEM	
Total area covered by the LSP:	1.2055ha
Area of specific land uses:	
Residential	1.1187ha
Estimated lot yield:	25-30 lots
Estimated number of dwellings:	25-30 dwellings
Estimated population:	57.5-69 people*
Number and area of public open space:	Nil

* based on the Australian Bureau of Statistics

2.4.3 RESIDENTIAL

The LSP includes a residential development area of 1.1187ha. It is envisaged this has the potential to provide an additional 25-30 dwellings within the Munster locality.

Single residential development has been allocated to the front of the site with a residential density of R40. This provides for medium density development with lot sizes with at least a minimum of 200m² and average of 220m².

Higher density residential has been located to the east of the site, allowing for houses with a minimum area of 100m² and average of 120m² under the R-Codes. The Multi-unit housing code provides for grouped/multiple unit housing consistent with a plot ratio of 1.0 for an R80 site. Additionally, minimum dwelling sizes of 40m² and an average of 100m² for developments over 5 units are required.

The proposed densities are appropriate to the site and locality. The density proposed is consistent with the density of the existing developments and will be readily integrated into the existing urban fabric.

The locality has sufficient community infrastructure and amenity to support the densities proposed. The site is located within 200m of the local centre and 250m of a significant POS asset. Additionally high frequency public transport runs along Rockingham Road, linking the site to Fremantle and Rockingham – both Strategic Regional Centres.

The incorporation of the higher density development to the rear of the site ensures that an appropriate scale and level interaction of the development with Rockingham Road is maintained whilst maximising the site potential in term of amenity and views across to the Cockburn sound as outlined in section 2.4.1 Design Rationale.

2.4.4 OPEN SPACE

A cash in lieu arrangement between the landowner/s of each lot within the LSP and the City has been agreed to in lieu of the provision of physical POS on the site.

Consultation with the City has noted that the form and function of POS, should it be provided on the subject site would not appropriately meet the requirements of Liveable Neighbourhoods for POS. To this end, it is considered that the resultant 10% required for the structure plan area would result in a compromised portion of open space that will lack functionality and be difficult to maintain.

A cash in lieu approach to support a larger and more usable portion of open space is considered to achieve a better outcome and provide POS which is consistent with State requirements. We understand this is also the position of the Department of Planning.

A2 of Appendix 4 of Liveable Neighbourhoods states that *"Having regard to A1 (Section 153 of the P and D Act 2005), the WAPC may impose a condition seeking the provision of a cash-in-lieu equivalent of the public open space, where:*

- *The other required 10 percent area of open space would yield an area of unsuitable size/s and dimension/s to be of practicable use."*

As such, the proposed arrangement is considered to be appropriate in terms of the requirements of Liveable Neighbourhoods.

2.4.5 MOVEMENT NETWORKS

The subject site is located to the east of Rockingham Road. Rockingham Road is a District Distributor B with a traffic volume of approximately 5,880 vph on a weekday. There is no direct vehicle access from Stock Road (a Primary Regional Road) which directly abuts the eastern boundary of the subject site. The proposed development is anticipated to generate approximately an additional 270 vph. As detailed within the Traffic Assessment prepared by Transcore (***Appendix C***) the existing movement network of Rockingham Road has sufficient capacity to accommodate this increase without creating any adverse traffic impacts.

Whilst the LSP does not include any formal movement networks under the development on the subject site it will trigger the requirement for upgrading of Rockingham Road and the construction of a road reserve to service the proposed lots. This is depicted in the LSP map.

The upgrading of Rockingham Road will be undertaken in accordance with the City 's requirements. This upgrade will be undertaken at a time specified once subdivision or development approvals associated with proposed development are granted. These works will be undertaken by the City with a proportional contribution provided by the proponents.

The construction of a road reserve will be undertaken to meet the requirements of the City of Cockburn in terms of construction standards, allowing for road reserves, parking and provision of services. This will provide access to the development on Lots 30 and 31. Access to the future development on Lot 32 is to be obtained from Howe Street.

In order to provide appropriate access to Lot 30 and 31 a shared road is proposed to be constructed across the common boundary. This access is to be 14.0m in width, encroaching 7m in width onto each site. The 14.0m wide reserve is sufficient to accommodate the carriageway, a single row of car parking

and sufficient width for the provision of services including footpaths. Detailed designs will be submitted to the City as per the conditions of subdivision or development approval related to any future development proposal.

Figure 5 highlights the existing high frequency public transport route (routes 811, 920, 522, 530, 531, 532, and 533) and pedestrian paths through within the immediate locality of the subject site. This infrastructure is of sufficient capacity to accommodate the increase in population and patronage associated with the development of the subject site.

2.4.6 WATER MANAGEMENT

Stormwater drainage for the subject land shall be treated via a pit and pipe system, feeding into Stormtech cells. Engineering calculations set out in ***Appendix D*** demonstrate that stormtech cells in the order of 26 will be sufficient to provide for the management of stormwater in accordance with the City of Cockburn's requirements.

Discussions with the Department of Water in April 2013 have confirmed that a Local Water Management Strategy is not required for the subject site as per the correspondence attached in ***Appendix D***. This has been determined based on the size of the area subject to this LSP. Additionally, it has been confirmed that a separate Urban Water Management Plan (UWMP) is not required. The requirements generally associated with a UWMP can be sufficiently addressed within the detailed design drawings for the drainage treatment.

2.4.7 INFRASTRUCTURE COORDINATION, SERVICING AND STAGING

Water

The subject site will be serviced from the existing water infrastructure within Rockingham Road. The existing 200 diameter water main on the western side of Rockingham Road is capable of being extended to service future development. The reticulated system has sufficient capacity to accommodate the level of development proposed.

Sewer

The subject site will be serviced from the existing sewer infrastructure within Rockingham Road. The sewer is capable of being extended via a gravity system along Rockingham Road to service future development. The reticulated system has sufficient capacity to accommodate the level of development proposed.

Power

The subject site will be serviced via existing power infrastructure along Rockingham Road. This will be subject to detailed design and Western Power approval at the time of development.

2.4.8 NOISE MANAGEMENT

The eastern boundary of the subject site is located directly adjacent to Stock Road. Stock Road is a Primary Regional Road in the MRS and is subject to high volumes of traffic – both vehicular and freight. It is acknowledged that transport noise attenuation measures may be required for development adjacent to Stock Road. A noise assessment has been undertaken by Herring Storer Acoustics (***Appendix E***) to determine noise impacts from Stock Road on the development.

Noise attenuation measures recommended by Herring Storer include: the construction of a 2.2 metre high barrier between the residence and Stock Road, at the edge of the development. Even with this barrier, noise received at the ground floor of the residence located adjacent to Stock Road would still exceed the "Noise Target", thus requiring Package A "Quiet House" Design. Noise received at upper stories would still exceed the "Noise Limits" and for any upper floors, Package B+ "Quiet House" Design would be required.

Noise attenuation will be addressed at the detailed design stage, through Local Area Plans and relevant development applications, and will be subject to confirmation of the level of attenuation outlined within the noise assessment report.

2.5 DEVELOPER CONTRIBUTION ARRANGEMENTS

Lot 30, 31 and 32 Rockingham Road Munster are located within the City of Cockburn's Development Contribution Area 6.

2.6 IMPLEMENTATION PROCESS

In accordance with the City's TPS 3, the following LSP approval process will need to be followed:

- LSP to be considered by Council and a determination on whether it is satisfactory for advertising is to be made.
- LSP to be advertised for a period of 21 days.
- Council to consider any submissions received and resolve to modify the LSP as it sees fit, and adopt the LSP.
- LSP to be referred to the WAPC for endorsement.
- Upon WAPC endorsement, Council shall adopt the LSP (including any modifications determined necessary by the WAPC) as the basis for future subdivision and development.

2.6.1 ROLES AND RESPONSIBILITIES

At the time of subdivision/development approval application the following will need to be undertaken to the satisfaction of the City/WAPC:

TABLE 4 - IMPLEMENTATION PROCESSES

REQUIREMENT	DOCUMENTATION	STAGE
Strategies/Assessments	Acoustic assessment	Development Approval
Notifications on Title	Midge nuisance – *"This land may be affected by midge from nearby lakes and/or wetlands. Enquiries can be made within the City of Cockburn Environmental Services."* Noise – *This lot is situated in the vicinity of Stock Road and is currently affected,* *and / or may in the future be affected by transport noise.*	Subdivision
Payments	Development contributions Cash-in-lieu requirements	Subdivision

Appendix A Certificates of Title

WESTERN AUSTRALIA

REGISTER NUMBER	
30/P3562	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
N/A	N/A

RECORD OF CERTIFICATE OF TITLE

VOLUME 1200 FOLIO 930

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 30 ON PLAN 3562

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

THE STATE HOUSING COMMISSION OF 99 PLAIN STREET, EAST PERTH
(T D974997) REGISTERED 22 DECEMBER 1988

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1200 FOL 930.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1200-930 (30/P3562).
PREVIOUS TITLE:	660-164.
PROPERTY STREET ADDRESS:	602 ROCKINGHAM RD, MUNSTER.
LOCAL GOVERNMENT AREA:	CITY OF COCKBURN.
RESPONSIBLE AGENCY:	DEPARTMENT OF HOUSING (SSHC).

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING L845920

WESTERN AUSTRALIA

REGISTER NUMBER	
31/P3562	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
2	24/10/2003

RECORD OF CERTIFICATE OF TITLE

VOLUME 2110 FOLIO 133

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 31 ON PLAN 3562

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

ANTE MIHALJ
YVONNE ANN MIHALJ
BOTH OF 600 ROCKINGHAM ROAD, MUNSTER
AS JOINT TENANTS

(T I648635) REGISTERED 3 OCTOBER 2003

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 2110 FOL 133.
2. *K726234 MORTGAGE TO COMMONWEALTH BANK OF AUSTRALIA REGISTERED 26.9.2008.

Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	2110-133 (31/P3562).
PREVIOUS TITLE:	1200-929.
PROPERTY STREET ADDRESS:	600 ROCKINGHAM RD, MUNSTER.
LOCAL GOVERNMENT AREA:	CITY OF COCKBURN.

NOTE 1: DUPLICATE CERTIFICATE OF TITLE NOT ISSUED AS REQUESTED BY DEALING K726234

WESTERN AUSTRALIA

REGISTER NUMBER	
32/P3562	
DUPLICATE EDITION	DATE DUPLICATE ISSUED
N/A	N/A

RECORD OF CERTIFICATE OF TITLE

VOLUME 1210 FOLIO 600

UNDER THE TRANSFER OF LAND ACT 1893

The person described in the first schedule is the registered proprietor of an estate in fee simple in the land described below subject to the reservations, conditions and depth limit contained in the original grant (if a grant issued) and to the limitations, interests, encumbrances and notifications shown in the second schedule.

REGISTRAR OF TITLES

REGISTRAR OF TITLES WESTERN AUSTRALIA

LAND DESCRIPTION:

LOT 32 ON PLAN 3562

REGISTERED PROPRIETOR:
(FIRST SCHEDULE)

BERTRAM JOHN BRASIER
LUCY EVA BRASIER
BOTH OF 190A ROCKINGHAM ROAD, SPEARWOOD
AS JOINT TENANTS

(T T19671/1957) REGISTERED 30 DECEMBER 1957

LIMITATIONS, INTERESTS, ENCUMBRANCES AND NOTIFICATIONS:
(SECOND SCHEDULE)

1. THE LAND THE SUBJECT OF THIS CERTIFICATE OF TITLE EXCLUDES ALL PORTIONS OF THE LOT DESCRIBED ABOVE EXCEPT THAT PORTION SHOWN IN THE SKETCH OF THE SUPERSEDED PAPER VERSION OF THIS TITLE. VOL 1210 FOL 600.

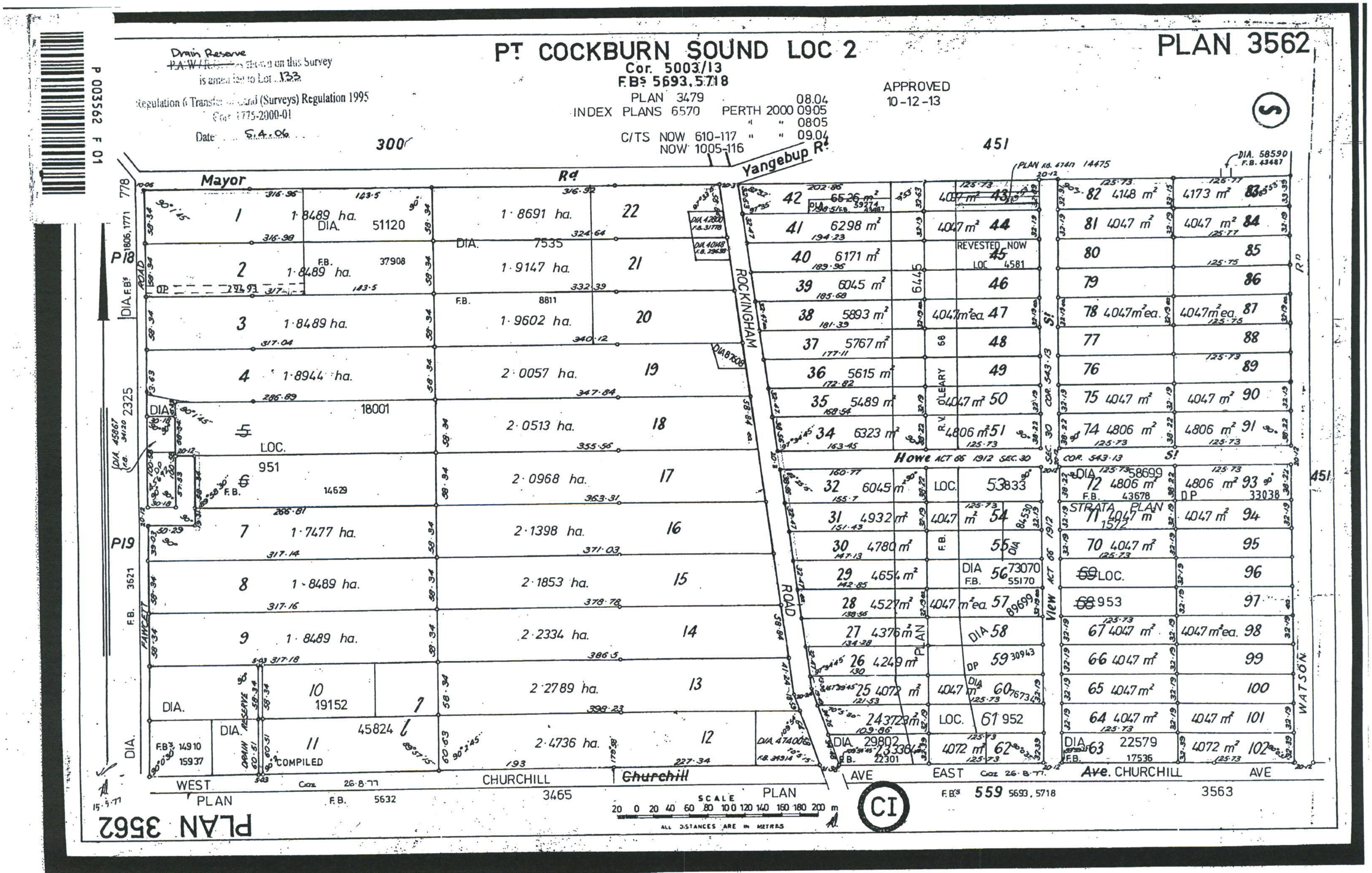
Warning: A current search of the sketch of the land should be obtained where detail of position, dimensions or area of the lot is required.
* Any entries preceded by an asterisk may not appear on the current edition of the duplicate certificate of title.
Lot as described in the land description may be a lot or location.

----------END OF CERTIFICATE OF TITLE----------

STATEMENTS:

The statements set out below are not intended to be nor should they be relied on as substitutes for inspection of the land and the relevant documents or for local government, legal, surveying or other professional advice.

SKETCH OF LAND:	1210-600 (32/P3562).
PREVIOUS TITLE:	978-95.
PROPERTY STREET ADDRESS:	596 ROCKINGHAM RD, MUNSTER.
LOCAL GOVERNMENT AREA:	CITY OF COCKBURN.


P 003562 F 01
Drain Reserve
shown on this Survey
is amalgamated to Lot 133
Regulation 6 Transfer of Land (Surveys) Regulation 1995
Cor 1775-2000-01
Date 5.4.06
PT COCKBURN SOUND LOC 2
Cor. 5003/13
F.Bs 5693, 5718
PLAN 3479
INDEX PLANS 6570
PERTH 2000 08.04
09.05
08.05
09.04
C/TS NOW 610-117
NOW 1005-116
APPROVED
10-12-13
PLAN 3562
Mayor
Rd
Yangebup Rd
ROCKINGHAM
ROAD
FAWCETT
Howe
ACT 65 1912 SEC.30
View
WATSON
RD
O'LEARY
WEST
CHURCHILL
Churchill
AVE
EAST
Ave. CHURCHILL
AVE
PLAN
3465
PLAN
3563
F.B. 5632
F.Bs 559 5693, 5718
SCALE
20 0 20 40 60 80 100 120 140 160 180 200 m
ALL DISTANCES ARE IN METRES
CI
PLAN 3562

Appendix B Engineering Report.

WOOD & GRIEVE ENGINEERS

Lot 31 Rockingham Road, Munster

Engineering Servicing Report for Structure Planning

for

Urbis
Attention: Emma Taylor

15 October 2013
Revision No. 1

Prepared by Goran Markovic Project Number: BD13642-PER-C
Ground Floor, 226 Adelaide Terrace, Perth WA 6000
Phone (08) 6222 7000 **Fax** (08) 6222 7100 **Email** perth@wge.com.au **Web** www.wge.com.au

Revision

REVISION	DATE	COMMENT	APPROVED BY
0	05/06/2013	Final Report	GIM
1	15/10/2013	Revision 1 to Report	GIM

Contents

Introduction

Wood & Grieve Engineers have been engaged to undertake an assessment of the engineering works and civil infrastructure requirements to facilitate the future Urban Development of Lot 31 Rockingham Road, Munster.

The associated assessment and reporting are prepared in support of the Structure Plan for the development.

Wood & Grieve Engineers have undertaken investigations into existing servicing and have undertaken preliminary designs to assist in the investigation and reporting of assessment findings. Preliminary investigations are based on the following:

- Structure Plan Layout prepared by Urbis
- Locality Plan
- Water Corporation Base Sheet
- Sewer and Water Layout Plan

1. Site Description

1.1 Locality

The subject site is located within the City of Cockburn and is bound by Rockingham Road to the west and Stock Road to the east of the site, refer attached Locality Plan in Appendix 1.

The land falls between Lot 32 to the north and Lot 30 to the south adjacent boundary.

1.2 Topography

The subject site has a topography ranging from approx 10.00 AHD on the Rockingham Road boundary to 23.0m HAD to the eastern Stock Road boundary.

The land falls generally from east to west and varies in height by approximately 12.0 across the site.

1.3 Soils and Groundwater

The soil is generally made up of brown sand over limestone.

Based on preliminary geotechnical advice, we understand that the site will be suitable for a Lot Classification of "A".

We understand that adjacent developments have been able to achieve a Classification of A.

Our investigations have found that groundwater level on the Rockingham Road end of the development is at approximately 1.0m AHD. Groundwater will therefore not have an effect on the earthworks levels and associated civil services.

1.4 Acid Sulfate Soils

Landgate's Acid Sulfate Mapping shows that the proposed development has no known indication of Acid Sulfate Soils.

The site is therefore shown as minimal or no risk of Acid Sulfate Soils.

Refer Attached plan in Appendix 2.

2. Existing Services / Infrastructure

2.1 Sewer Reticulation

We have obtained the existing sewer reticulation infrastructure plan from the Water Corporation and have found existing sewer reticulation is present in Rockingham Road on the southern boundary of Lot 30, refer attached Water Corporation Base Sheet attached in Appendix 3.

2.2 Water Reticulation

Water Reticulation infrastructure is present on the Western side of Rockingham Road, refer attached plan for Water Corporation information in Appendix 3.

2.3 Road Network

The proposed development falls in between Rockingham Road (District Distribution) to the western boundary and Stock Road (Regional Distribution) to the east.

Preliminary discussions with the City of Cockburn indicate that access to the development will be from Rockingham Road.

It should be noted that no access is planned from Stock Road.

3. Proposed Development

The local Structure Plan included as Appendix 4, indicates that the subject site shall be subdivided into the following components:

- R40 Lots
- R80 Lots
- Public Open Space

3.1 Demolition of Existing Residence

Currently, there is an existing residence on the subject site and this will require demolition prior to the proposed development.

Aside from the residence, the majority of the site is free from any structures requiring demolition.

3.2 Earthworks and Retaining Walls

Wood & Grieve Engineers have undertaken preliminary earthworks planning for the proposed site based on the Structure Plan Layout by Urbis Consultant Planners.

The earthworks planning undertaken is preliminary in nature and illustrates the capability of the project to proceed.

A brief summary of the preliminary earthworks investigations is summarised as follows:

- Considering the existing grades across the site and the final form of subdivisional layout, earthworks and retaining walls will be required to create level lots.
- Lots will be capable of a Classification of A.
- The site is capable of being designed and earthworked to accommodate gravity reliant infrastructure, i.e. sewer reticulation and piped drainage system.

3.3 Sewer Reticulation

The proposed development will be serviced from the existing sewer infrastructure in Rockingham Road, currently located on the southern boundary of Lot 30 Rockingham Road.

The sewer is capable of being extended via a gravity system along Rockingham Road to service Lot 31, refer attached Sewer and Water Layout Plan in Appendix 5.

3.4 Water Reticulation

The proposed development would be serviced via a connection to the existing 200 dia water main on the western side of Rockingham Road.

This would be achieved via a layout similar to that indicated and as shown in the plan in Appendix 5.

3.5 Roadworks

Based on the Structure Plan, our initial investigations and the Transport Assessment prepared by Transcore, the proposed road configurations are:

- Road reserve width is 14.0m
- The proposed road width is 5.5m
- Resulting verge width of 4.25m

This configuration of road and verge widths allows room for servicing infrastructure corridor requirements.

3.6 Stormwater Drainage

The stormwater drainage for the proposed development will be treated via pits and/or gullies and Stormtech cell system.

Preliminary design calculations have been carried out for the drainage relating to Lots 30 and 31, and are as follows:

- The total catchment for the road is in the order of 1500m^2
- The runoff coefficient in accordance with City of Cockburn policy is 0.9
- The total number of side entry pits or gullies would be in the order of 4
- The total number of individual Stormtech cells would be in the order of 26

The above figures are preliminary in nature and possibly quite conservative, and is purely to illustrate the workability of the drainage treatment.

Actual pits and Stormtech cell configurations would be subject to detailed design.

The above proposal for stormwater treatment has been accepted in principle by the City of Cockburn engineering representative.

Based on our initial discussions, the Department of Water have advised that they would not be requesting a Local Water Management Strategy, due to the minor size of the development.

In addition, the DOE have indicated that an Urban Water Management Plan would not be required as a separate document, and would be addressed by the detailed design drawings for drainage treatment.

3.7 Underground Power

The proposed development would be serviced via existing power infrastructure in Rockingham Road.

This would be subject to Western Power formal approval and detailed design.

3.8 Noise Attenuation

Herring Storer have undertaken a noise assessment study for the project and a copy of the findings is attached to the structure plan report.

Some attenuation measures are required, but there are no issues that preclude the proposed development.

4. Conclusion

Wood & Grieve Engineers have undertaken a preliminary engineering assessment for the proposed development of Lot 31 Rockingham Road, Munster, based on the structure plan prepared by Urbis Consultant Planners.

Our initial investigations indicate that there will be no issues with servicing the development with Western Power. This is subject to confirmation pending application and receipt of a Design Information Package from Western Power.

Based on our preliminary investigations, the subject site is capable of being serviced with sewer and water reticulation by extension of infrastructure in Rockingham Road.

Stormwater drainage would be treated via network of drainage pits and Stormtech drainage cells for the 1 in 10 year storm, as has been confirmed with the City of Cockburn.

The future road servicing the development would be proposed at 5.5m wide, with a 14.0m road reserved, which is capable of accommodating the servicing requirements for the project.

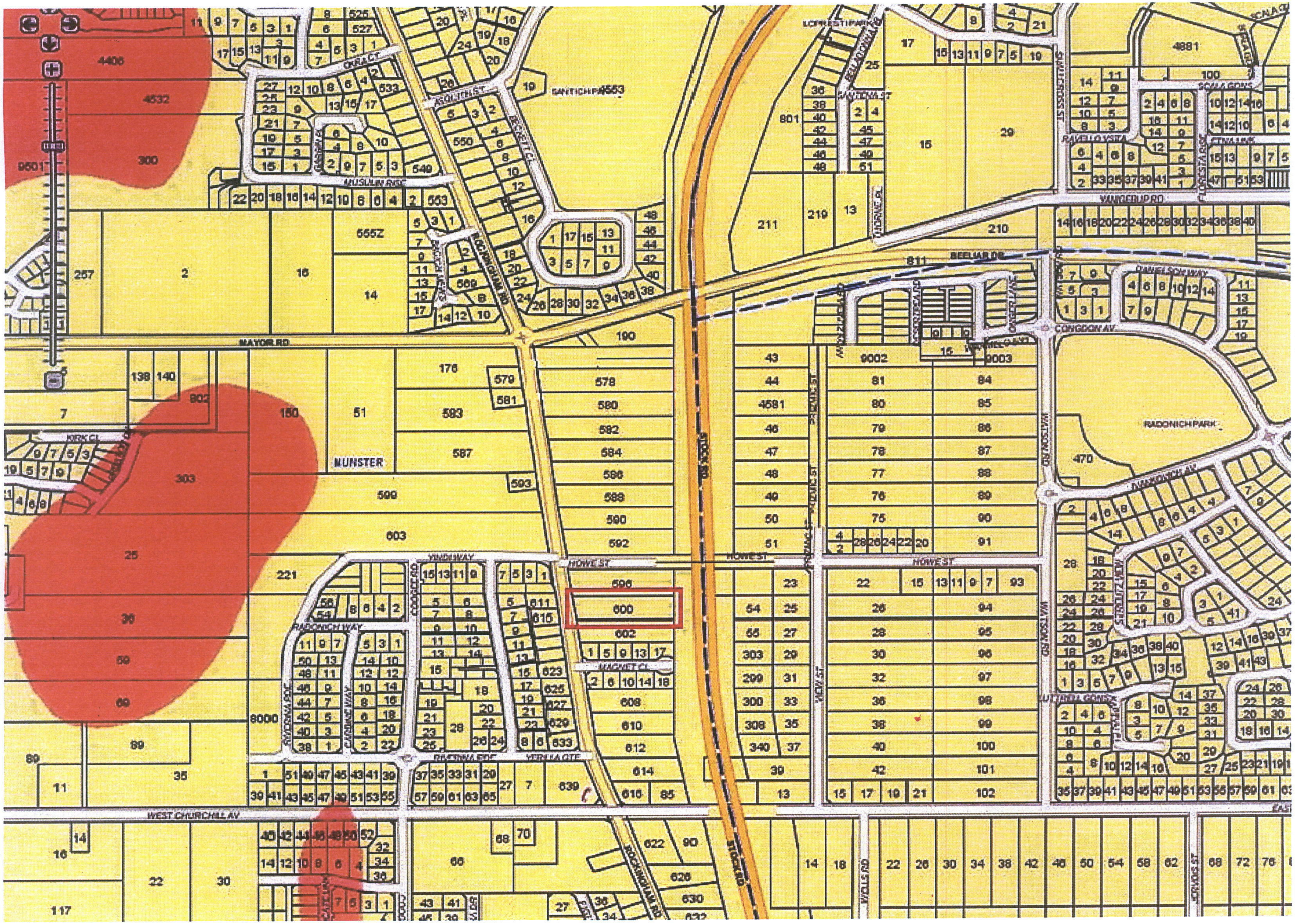
A noise assessment study has been undertaken and the findings do not preclude the proposed development.

In summary, our servicing investigations have found no impediments to the development and engineering servicing of the proposed project.


N
Howe St
Howe St
Howe St
Howe St
Howe St
Rockingham Rd
Rockingham Rd
Rockingham Rd
Rockingham Rd
Riverside Pde
Riverside Pde
Riverside Pde
Magnet Clos
Magnet Clos
Magnet Clos
1
1
Lot 32
No 596
Lot 31
No 600
Lot 30
No 602
Jan 2013

Appendix 2

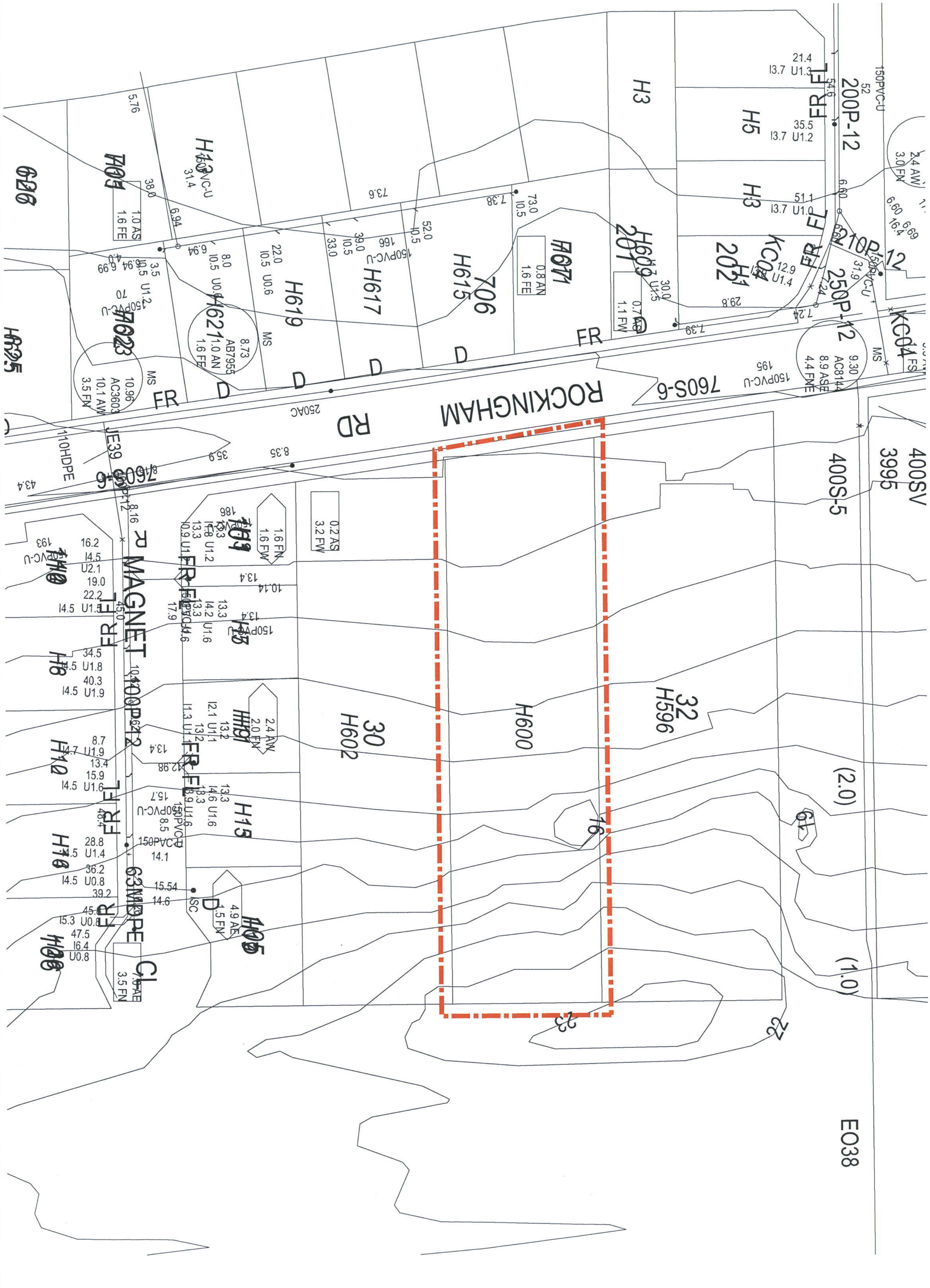
Landgate – Acid Sulfate Mapping



MAYOR RD
MUNSTER
KIRK CL
YINDI WAY
HOWE ST
RADONICH WAY
MAGNET CL
WEST CHURCHILL AV
STOCK RD
WATSON RD
BEELIAR DR
CONGDON AV
RADONICH PARK
VANDERUP RD
SANTICH PARK
LOPRESTI PARK
ROCKINGHAM RD

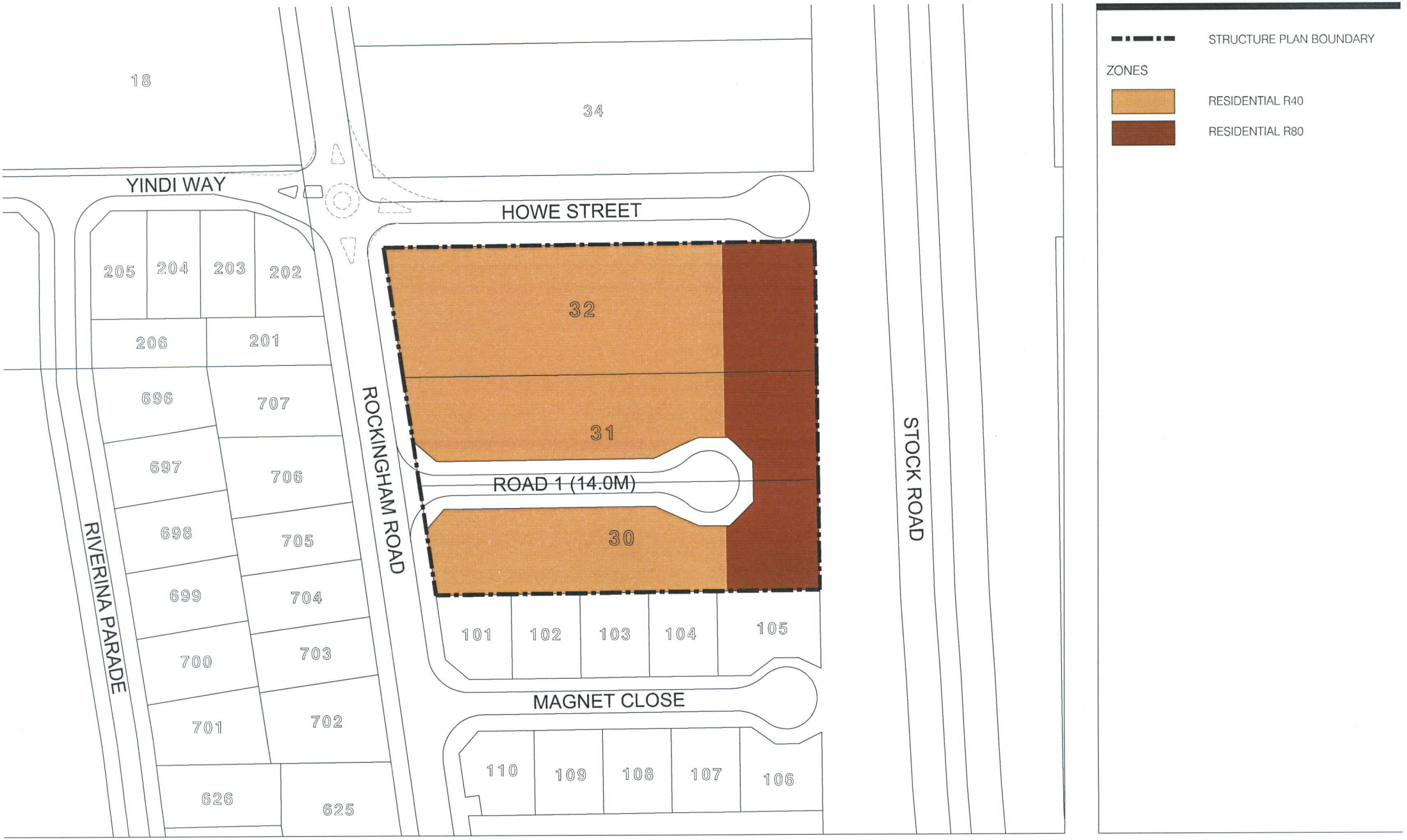
Appendix 3

Water Corporation Base Sheet


ROCKINGHAM RD
MAGNET CL
H600
30
H602
32
H596
706
H615
H617
H619
201
202
760S-6
400S-5
400SV
3995
200P-12
250P-12
210P-12
KC04
(2.0)
(1.0)
E038

Appendix 4

Structure Plan



LOCAL STRUCTURE PLAN

LOTS 30, 31 AND 32 ROCKINGHAM ROAD, MUNSTER

PROJECT NO: PD0887
CLIENT: RAPID STREAM PTY LTD
TF THE KUNA FAMILY TRUST
DATE: 15/10/13
DRAWING NO: STP-01
REV: 3
SCALE: 1:1000@A3
DRAWN: SLL

N

Base data supplied by: Wood and Grieve Engineers
Datum: Geocentric Datum of Australia 1994 (GDA94)
Projection: MGA 94 Zone 50

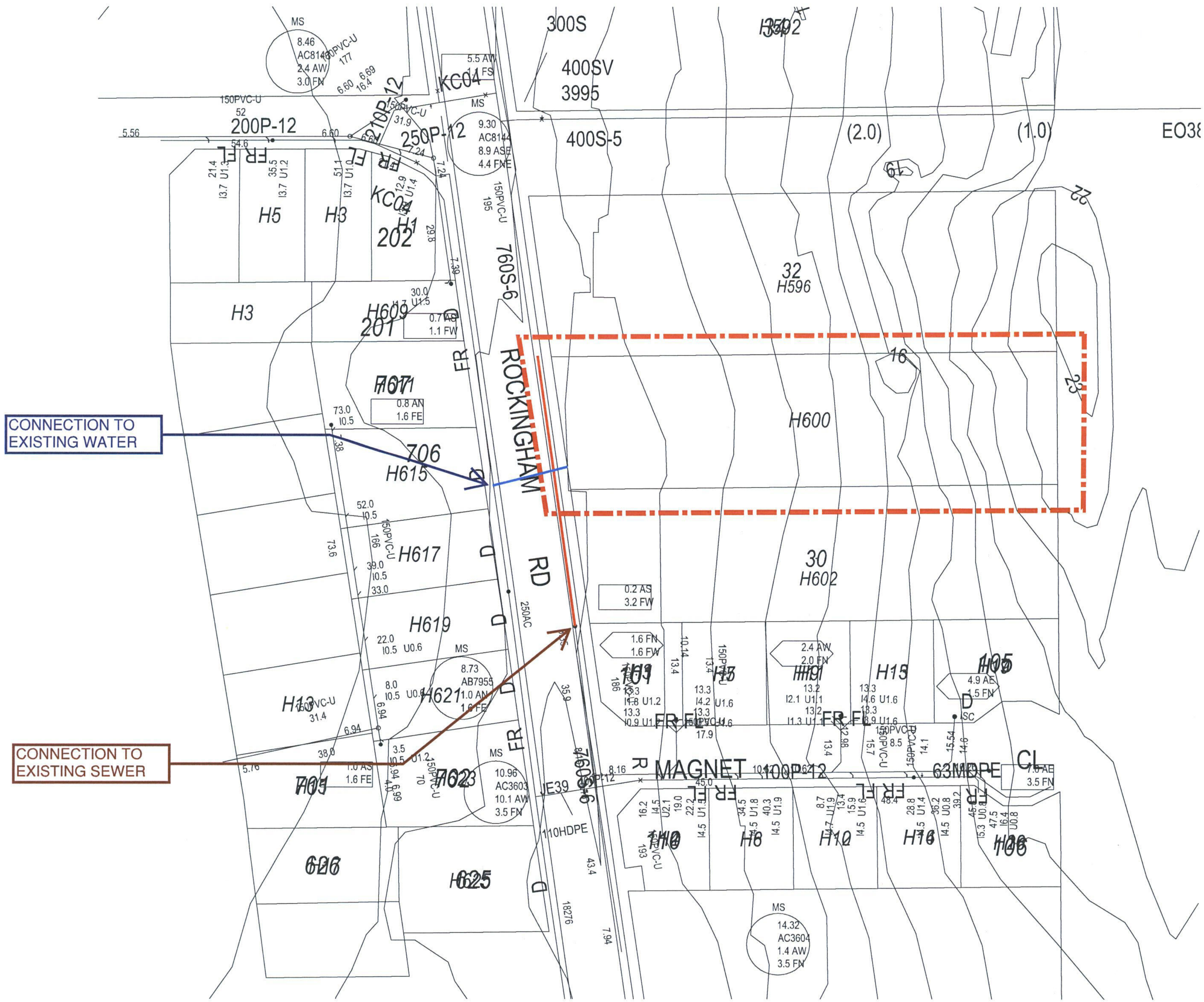
LEVEL 1, 55 ST GEORGES TCE
PERTH WA 6000 AUSTRALIA
TEL +618 9346 0500
FAX +618 9221 1779
info@urbis.com.au
www.urbis.com.au

Urbis Pty Ltd ABN 50 105 256 228

urbis

Appendix 5

Sewer and Water Layout Plan


CONNECTION TO EXISTING WATER
CONNECTION TO EXISTING SEWER
ROCKINGHAM RD
MAGNET CL
H600
H602
H596
300S
400SV
3995
400S-5
760S-6
200P-12
250P-12
210P-12
100P-12
EO3

Appendix C Traffic Impact Statement

D

LOTS 30-32 ROCKINGHAM ROAD
LOCAL STRUCTURE PLAN, MUNSTER

TRANSPORT ASSESSMENT

transport planning • traffic engineering • project management

Lots 30-32 Rockingham Road
Local Structure Plan
Munster

Transport Assessment

Prepared for:
Rapid Stream Pty Ltd

October 2013

Prepared by:

TRANSCORE PTY LTD
61 York Street, Subiaco WA 6008
PO Box 42, Subiaco WA 6904
Telephone (08) 9382 4199
Facsimile (08) 9382 4177

TABLE OF CONTENTS

APPENDICES

1.0 Summary

This Transport Assessment has been prepared for the proposed Lots 30-32 Rockingham Road Local Structure Plan (hereafter LSP) in Munster, City of Cockburn. The LSP area is proposed to take access from Rockingham Road and Howe Street and to integrate with the existing residential areas at this locality. Transport characteristics and assessment of the proposed external LSP access system form part of this report.

The *Transport Assessment Guidelines for Developments (WAPC, Vol 2 - Structure Plans, August 2006)* states that a supporting transport assessment is to be prepared for all structure plans as part of the structure planning process. Accordingly this Transport Assessment addresses the transport implications of the LSP proposal.

The proposed LSP makes provision for the sealing of the additional length of Howe Street required to secure accessibility of the future dwellings fronting this road.

2.0 Introduction and Background

This Transport Assessment (TA) has been prepared by Transcore on behalf of Rapid Stream Pty Ltd with regard to the proposed Lots 30-32 Rockingham Road LSP in Munster, City of Cockburn (refer **Figure 1** overleaf).

The proposed LSP comprises three adjacent lots fronting Rockingham Road (30, 31 and 32) and is anticipated to accommodate a combined 30 dwellings over approximately 1.2ha area. According to the advice provided to Transcore, each of the lots will comprise 10 dwellings comprising a mix of R40 and R80 residential density.

The LSP occupies an area located immediately southeast of Rockingham Road /Howe Street/Yindi Way intersection in Munster, City of Cockburn. It extends east to Stock Road and south to the existing residential area. The subject site is presently partially occupied by existing two residential dwellings with ancillary buildings which are located on Lots 31 and 32. Lot 30 is vacant.

The proposal also includes extension of sealed section of Howe Street additional 45m to the east to provide access to the future residential dwellings on Lot 32 which will be fronting this road.

Figure 1. Aerial photo of the subject site

3.0 Local Structure Plan Proposal

The location of the proposed LSP area is illustrated in **Figure 2**, which shows it in its regional context within the Metropolitan Region Scheme.

The LSP area is bounded by Stock Road to the east, Rockingham Road to the west and Howe Street to the north. The LSP area is also bordered by the existing residential area to the south.

According to the indicative LSP concept plans, Lots 30 and 31 will entail common access driveway which will run along the common border and connect to Rockingham Road. Residential dwellings on Lot 32 however would all have individual accesses on Howe Street. Lots 31 and 32 will also entail P.O.S. along Rockingham Road frontage.

The proposed LSP provides for a total of 30 residential dwellings. The proposed LSP plan is included at **Appendix A** of this report.

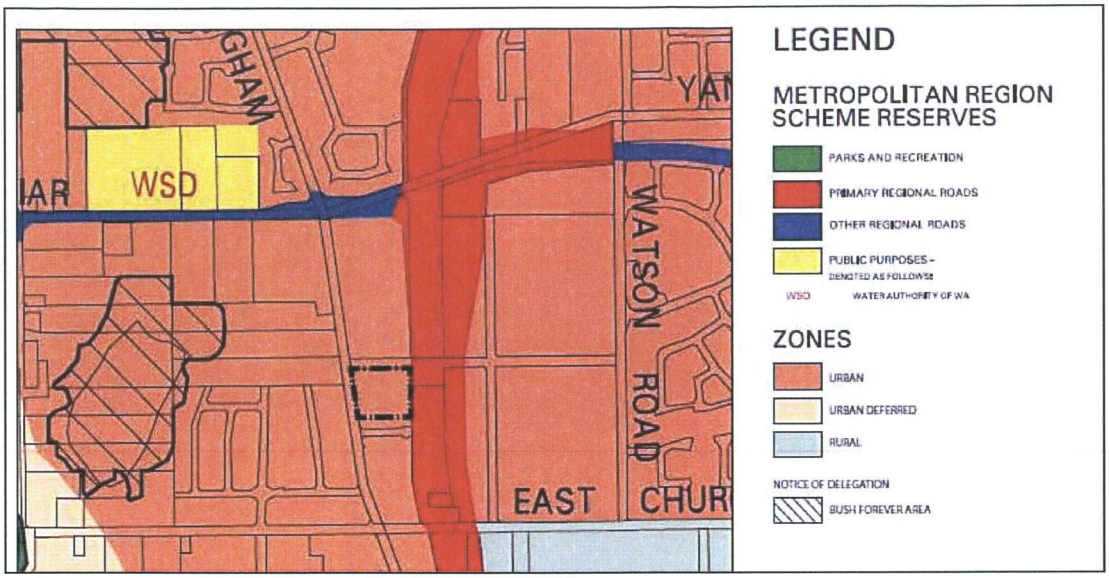


Figure 2. Site location within Metropolitan Region Scheme

4.0 Existing Situation

The subject LSP area is located approximately 20km southwest of the Perth CBD. Existing residential subdivisions are located immediately west, south and to the lesser extent, north of the subject area. A local centre is located short distance to the south with the Market Garden Swamp ad Coogee Lake to the west. The Kwinana Freeway and Cockburn Central train station are located approximately 7km to the east.

4.1 Existing road network

Rockingham Road, at this location, is a 9m wide single carriageway road with a 1.5m wide pedestrian path along the eastern side. It entails a 60km/h speed limit.

In the Main Roads WA *Perth Metropolitan Area – Functional Road Hierarchy* document, Rockingham Road, south of Beeliar Drive, is classified as a *District Distributor B* road.

According to the traffic count information sourced from Main Roads WA, this road (south of Beeliar Drive) carried approximately 5,880 vehicles per weekday in August 2011. Based on these counts, the weekday morning peak hour occurred between 7:30AM and 8:30AM (446vph), whilst the afternoon peak period occurred between 4:15PM and 5:15PM (523vph). Rockingham Road geometry in this vicinity provides for good sight lines from both southbound and northbound approaches to the staggered Howe Street/Yindi Way intersection.

Howe Street and **Yindi Way** are both typical residential 6m wide, single-carriageway roads. The are no pedestrian paths along either of these two roads in the vicinity of LSP. Howe Street is cul-de-saced approximately 70m east of

Rockingham Road. Both roads are classified as *Access Streets* in Main Roads WA *Perth Metropolitan Area – Functional Road Hierarchy* document, and operate under a default built-up area speed limit of 50km/h. No traffic count information is available for either of the two roads.

At the northwest corner of the LSP site, Howe Street and Yindi Way form a staggered priority-controlled 4-way intersection with Rockingham Road.

Main Roads WA Intersection Crash Ranking Report does not provide crash data for this intersection.

4.2 Existing public transport

There is one bus service (route no. 920) operating along Rockingham Road and Stock Road with bus stops in immediate vicinity of the subject site. Another four bus services (routes no. 530, 531, 532 & 533) are operating along Beeliar Drive/Mayor Road and Rockingham Road (north of Beeliar Drive) with a number of bus stops within a 5-10min walking distance from the subject LSP area.

The Perth to Mandurah rail line and the Cockburn Central Train Station are located approximately 7km east of the subject site, near the Beeliar Drive/Kwinana Freeway interchange. The majority of the local bus services link the train station with important local and regional destinations.

Bus and train services and route details are illustrated in **Figure 3** and **Table 1** below.

Bus service No.	Route
920	Rockingham Train Station/Fremantle Train Station
530	Cockburn Central Train Station/Fremantle Train Station
531	Cockburn Central Train Station/Fremantle Train Station
532	Cockburn Central Train Station/Carrington Street
533	Cockburn Central Train Station/Fremantle Train Station

Table 1. Bus services operating in the vicinity of the subject site

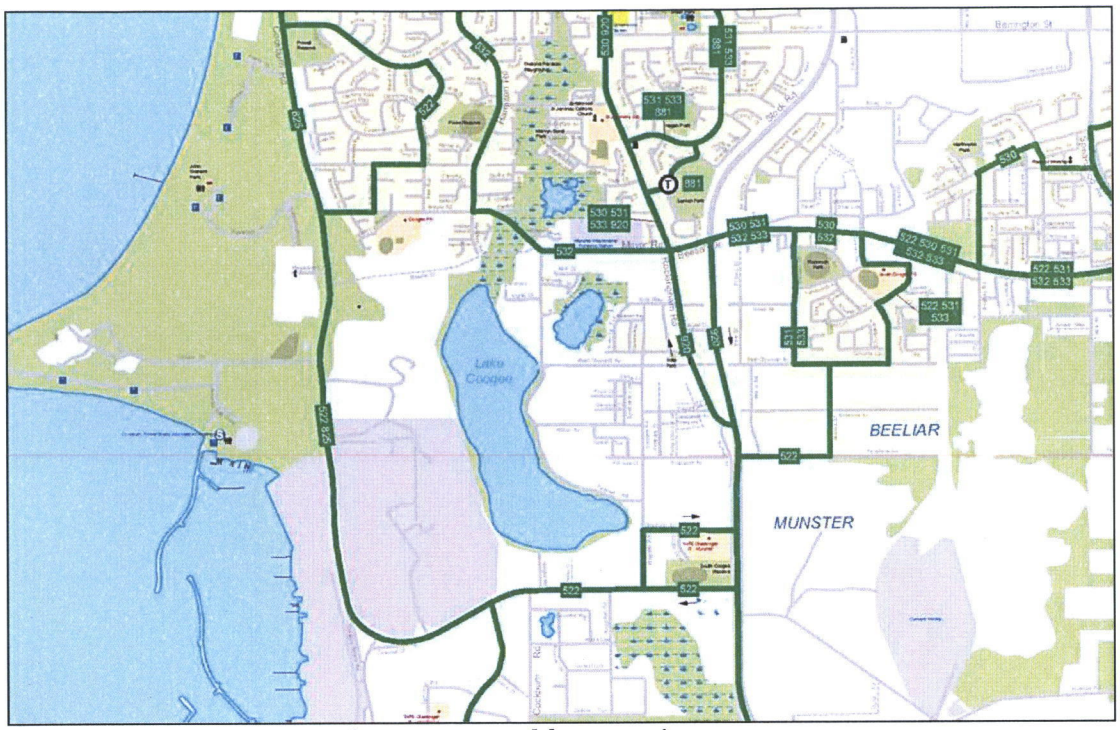


Figure 3. Local bus services map

4.3 Existing pedestrian and cyclist facilities

The Perth Bike Map series published by the Department of Transport shows limited cycling facilities in immediate vicinity of the LSP site.

A shared path is in place along Mayor Road and Beeliar Drive connecting to the Principal Shared Path along Kwinana Freeway further to the east. Another (recreational) shared path is in place around Lake Coogee connecting to Mayor Road to the north and Cockburn Road to the south.

Rockingham Road (at this location) is classified as a medium road riding environment. Stock Road however is classified as poor road riding environment. A number of local roads such as Churchill Avenue West and East, Watson Road, Congdon Avenue, Mayor Road and Fawcett Road are also classified as good road riding environment providing links to a number of local attractions. Extract from the Perth Bike Map illustrating bicycle facilities at this locality is shown in **Figure 4**.

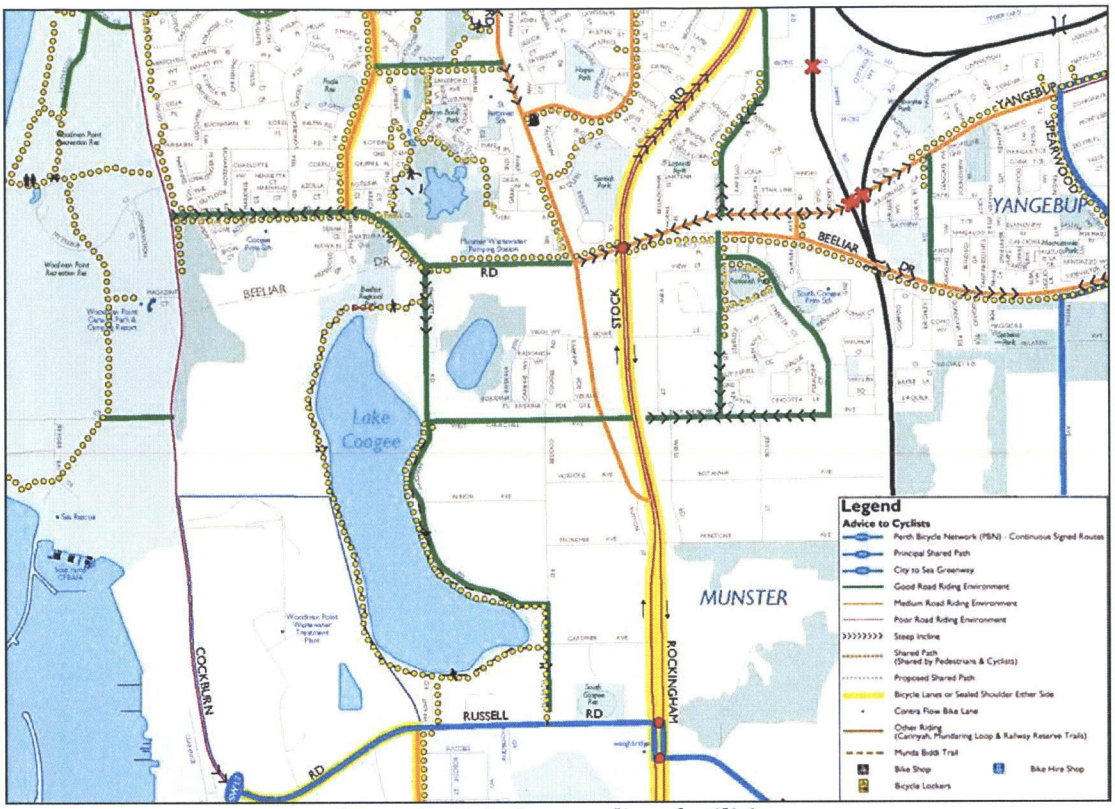


Figure 4. Existing cycling facilities

5.0 Proposed Internal Transport Network

5.1 Road Hierarchy

The subject LSP proposes construction of an access road connecting to Rockingham Road and extending east between Lots 30 and 31, to service the abutting 20 residential lots. This Access Road is likely to be constructed as a typical residential *Access Street D*, in accordance with the *WAPC "Liveable Neighbourhoods"* document. Refer **Appendix B** for more details.

The typical road reserve for *Access Street D* entails a 5.5m - 6m wide trafficable carriageway pavement with 4.1m wide verges on both sides. Maximum desirable traffic volume for this type of road is 1,000vpd. The typical cross-section of the *Access Street D* sourced from *"Liveable Neighbourhoods"* is modified to match the actual proposed road cross-section and illustrated in **Figure 5**.

As part of the proposal Howe Street carriageway is proposed to be extended eastbound additional (approximately) 70m along the full length of Lot 30. As existing, Howe Street will terminate with a turnaround facility.

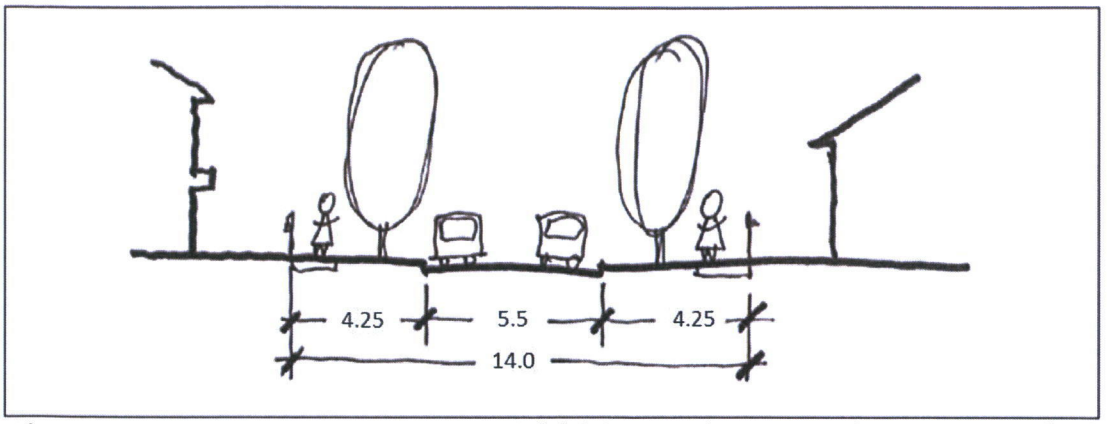


Figure 5. Access Street D – narrow yield (give way) street with target speed of 30 km/hr (<1,000vpd)

5.2 Public Transport

The existing bus services at this locality are described in section 4.2 of this report.

The proposed development can be serviced by the existing public transport services available in the immediate vicinity or comfortable walking distance of the subject site.

5.3 Pedestrian and Cyclist Facilities

The existing pedestrian and cyclist facilities available at this locality are discussed in previous sections. The proposed LSP will not however require any particular additional pedestrian or cyclist facilities.

6.0 Changes to External Transport Network

Apart from extension of Howe Street east and new Access Road between lots 30 and 31 which will connect to Rockingham Road, no other changes to the external road network are proposed.

7.0 Integration with Surrounding Area

The proposed residential Structure Plan is in tune with the existing surrounding land uses consisting primarily of residential. As such, the LSP integration into the wider area is assured.

8.0 Analysis of Internal Transport Network

8.1 Development trip generation and distribution

The traffic generation rates for the LSP were primarily sourced from the Roads and Traffic Authority, NSW, *"Guide to Traffic Generating Developments"* document. The residential traffic generation rates used range from 9 vehicles per day (vpd) per dwelling for the lower residential densities, 7 vpd for medium density dwellings and 5 vpd for high-density units close to transit. For the purpose of this TA a conservative trip rate of 9 trips per dwelling was applied to establish the total traffic generation from the proposed residential subdivision.

Accordingly, the LSP area is estimated to generate approximately **270** total daily vehicular trips for a typical weekday. The total daily vehicular traffic includes both inbound and outbound trips. Similarly, trip generation during the PM peak period for the subject LSP is estimated to be in order of **27** trips per hour.

The distribution and assignment of the subdivision-generated traffic was based on the actual location of the subject development, the existing road network and the location of various district attraction nodes.

Accordingly, forecast traffic volume plan for the LSP is illustrated in **Figure 6**.

Figure 6. PM peak hour and total daily traffic flow forecast for LSP

8.2 *Structure Plan Intersections*

Table 2.4 from AUSTROADS *"Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings"* document illustrates the traffic volume thresholds above which a detailed intersection capacity assessment is required.

Assuming that typical peak hour traffic represents approximately 10% of the total daily traffic volume, it is confirmed that uninterrupted traffic flow conditions can be expected at Rockingham Road/Howe Street/Yindi Way intersection including the proposed Rockingham Road/Access Road intersection. As hourly traffic volumes through intersections are below the indicative thresholds indicated in **Table 2,** sufficient capacity would be available and detailed assessment or capacity analysis is not warranted (refer **Figure 6** for LSP daily traffic projections).

Major Road type	Major Road Flow (vph[1])	Minor Road Flow (vph)
Two-lane	400	250
	500	200
	650	100
Four-lane	1,000	100
	1,500	50
	2,000	25

Table 2. Traffic volume threshold for detailed intersection analysis

8.3 *Structure Plan Roads*

The anticipated total daily traffic on Howe Street and the future LSP Access Road is well within the desirable daily traffic volume thresholds for typical Access Streets.

8.4 *Pedestrian/Cycle Networks*

Due to anticipated pedestrian and cyclist traffic volumes expected to be generated by the proposed LSP no specific pedestrian or cyclists facilities are warranted.

9.0 Analysis of External Transport Network

9.1 *Traffic Volumes on External Road Network*

The existing and post development daily (weekday) traffic volumes on the road abutting the subject LSP area are shown in **Table 3**. The existing traffic volumes

[1] *vph – vehicles per hour, typically represent 10% of total daily traffic volume*

on Rockingham Road (south of Beeliar Drive) were based[2] on traffic data sourced from Main Roads WA dating from August 2011.

Roads	Estimated current volumes (vpd)	Additional LSP traffic	Total post-development	Increase %
Rockingham Rd (N of LSP)	5,880vpd	134vpd	6,014vpd	2.2%
Rockingham Rd (S of LSP)	5,880vpd	136vpd	6,016vpd	2.2%

Table 3. Existing and post development traffic on surrounding roads

The WAPC *Transport Assessment Guidelines for Developments* (2006) suggests that traffic impact should be assessed on those parts of the surrounding road network where an increase of 100 vehicles per hour is generated on any traffic lane. As estimated daily traffic volume increase on Rockingham Road is nowhere this level, it is concluded that a detailed capacity assessment is not warranted.

9.2 External Intersections

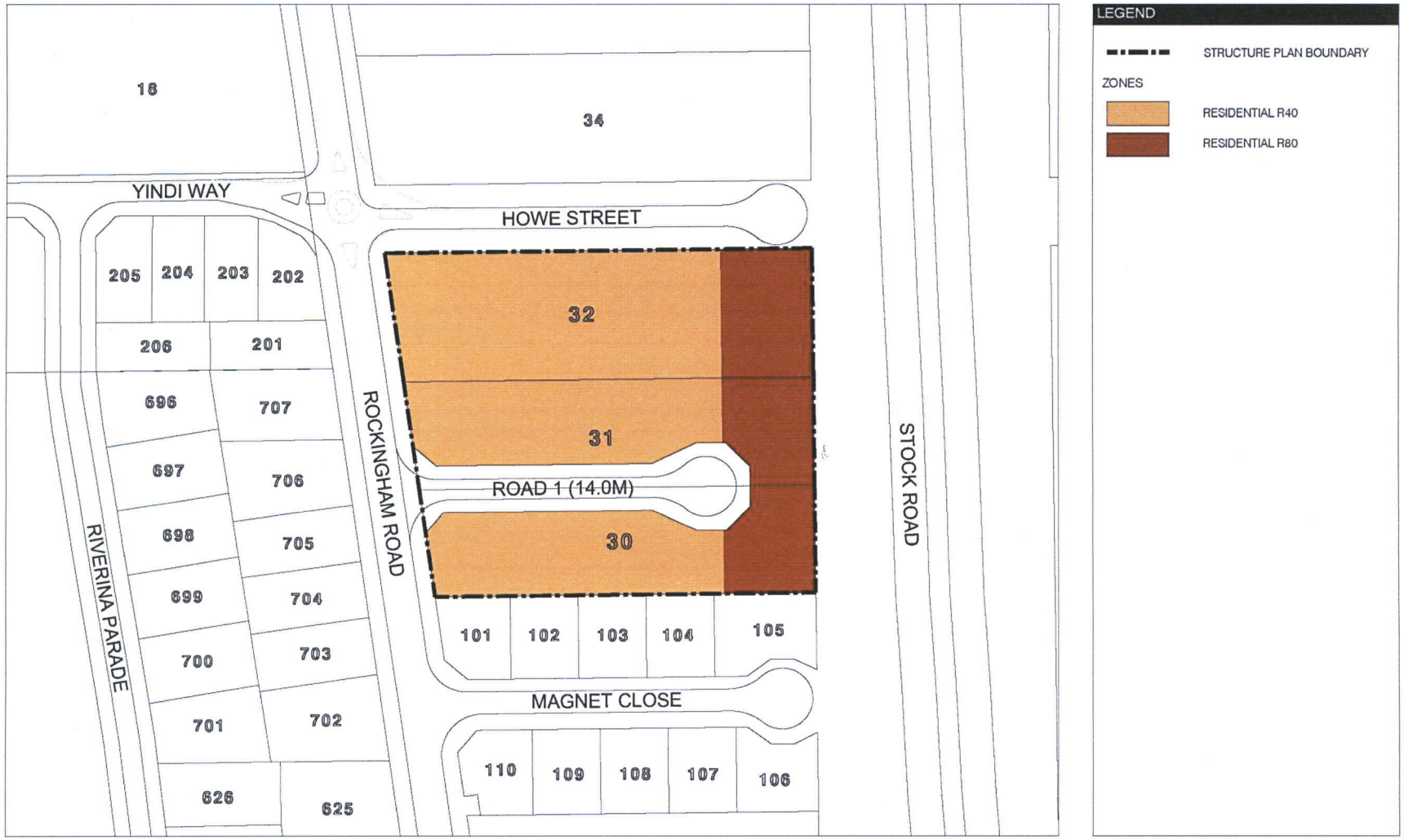
As concluded in Section 8.2 of the report, detailed capacity analysis of the Rockingham Road/Howe Street/Yindy Way intersection including the proposed new Rockingham Road/Access Road intersection is not warranted since anticipated traffic volumes through these intersection are below the relevant thresholds (refer **Table 2**).

[2] *2011 traffic volumes on Rockingham Road has been adjusted/increased by factor of 3% per year*

APPENDIX A

LOTS 30-32 ROCKINGHAM ROAD
LOCAL STRUCTURE PLAN

t13.097.vb.r01a.doc



LOCAL STRUCTURE PLAN

LOTS 30, 31 AND 32 ROCKINGHAM ROAD, MUNSTER

PROJECT NO: PD0687
CLIENT: RAPID STREAM PTY LTD TF THE KUNA FAMILY TRUST
DATE: 15/10/13
DRAWING NO: STP-01
REV: 3
SCALE: 1:1000@A3
DRAWN: SLL
CHECKED: ET

N

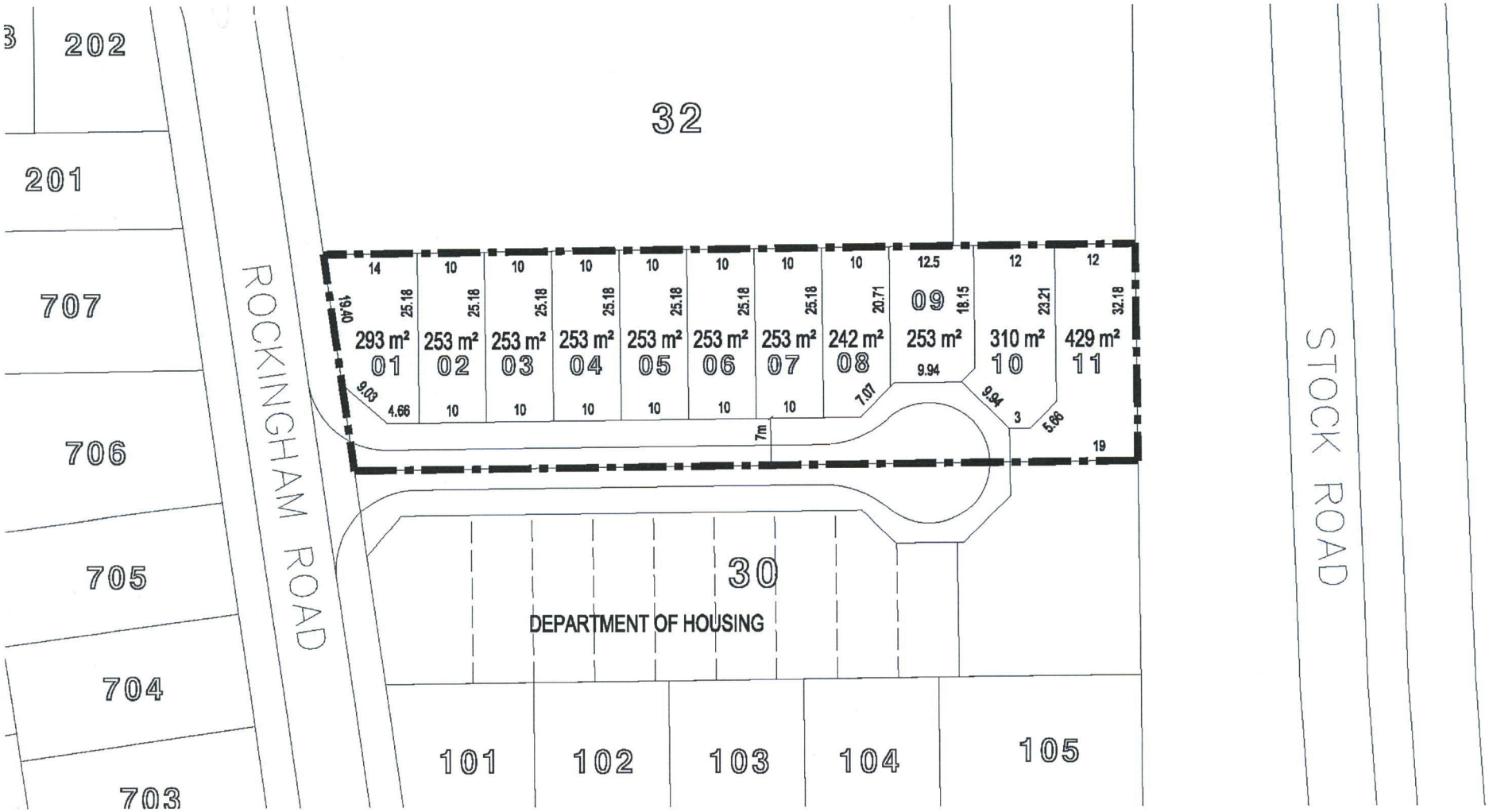
Base data supplied by: Wood and Greve Engineers
Datum: Geocentric Datum of Australia 1994 (GDA94)
Projection: MGA 94 Zone 50
Positional accuracy: +/- 1m

LEVEL 1, 55 ST GEORGES TCE
PERTH WA 6000 AUSTRALIA
TEL +618 9346 0500
FAX +618 9221 1779
info@urbis.com.au
www.urbis.com.au
Urbis Pty Ltd ABN 50 105 256 228
Australia . Asia . Middle East

urbis

APPENDIX B

LOT 31 ROCKINGHAM ROAD
CONCEPT PLAN


3
202
201
707
706
705
704
703
ROCKINGHAM ROAD
32
14
10
10
10
10
10
10
10
12.5
12
12
19.40
25.18
25.18
25.18
25.18
25.18
25.18
25.18
20.71
18.15
23.21
32.18
293 m²
01
253 m²
02
253 m²
03
253 m²
04
253 m²
05
253 m²
06
253 m²
07
242 m²
08
09
253 m²
9.94
310 m²
10
429 m²
11
9.03
4.66
10
10
10
10
10
10
7.07
9.94
3
5.66
19
7m
30
DEPARTMENT OF HOUSING
101
102
103
104
105
STOCK ROAD

Appendix D Department of Water Correspondence – LWMS

Emma Taylor

From: Goran Markovic <goran.markovic@wge.com.au>
Sent: Tuesday, 23 April 2013 8:23 AM
To: Emma Taylor
Cc: Jeff Thierfelder
Subject: FW: Rockingham Road, Munster - LWMS and UWMS

Please note below

Regards,

Goran

From: DUNN Brett [mailto:Brett.Dunn@water.wa.gov.au]
Sent: Tuesday, 23 April 2013 7:43 AM
To: Goran Markovic
Subject: RE: Rockingham Road, Munster - LWMS and UWMS

Hi Goran,

Given the proposed subdivision is only 10 lots, of an infill nature and of low risk to water resources, I would not see the need for a Local Water Management Strategy or Urban Water Management Plan.

Please note, should the City of Cockburn require such documents to ensure integration with surrounding drainage systems, then they should be prepared.

Please feel free to contact me to discuss further.

Kind Regards,

Brett Dunn
Program Manager – Urban Water Management
Department of Water
Kwinana Peel Region
PH: (08) 9550 4202
Email: brett.dunn@water.wa.gov.au

From: Goran Markovic [mailto:goran.markovic@wge.com.au]
Sent: Monday, 22 April 2013 4:13 PM
To: DUNN Brett
Subject: Rockingham Road, Munster - LWMS and UWMS

WOOD & GRIEVE ENGINEERS
Perth Office
Ground Floor, 226 Adelaide Terrace, Perth, WA 6000
Phone (08) 6222 7000 Fax (08) 6222 7100
email wge@wge.com.au Web www.wge.com.au
Albany Brisbane Busselton Darwin Gold Coast Perth Melbourne Sydney Shenzhen

---

Email Reference No 40004
Project No BD13642-PER-C
Project Name Rockingham Road, Munster
Date 22/04/2013

Dear Brett,

As discussed with you today, we are undertaking the structure planning for the development of Lot 31 Rockingham Road , Munster.

In our discussions with the City of Cockburn it was requested that we query with yourself the requirement for :

- A local Water Management Strategy
- An Urban Water Management Plan

As discussed, the development entails 10 residential Lots, refer attached plan, and it may be finically onerous on the Principal to complete the above for such a small development.

It should be noted that the Principal is including Lots 30, and 32 as mandated by the City of Cockburn, in the structure plan report for Lot 31.

Could you please advise on your requirements as soon as possible and we will include these in the structure plan report.

Regards

Goran Markovic

Appendix E Acoustic Report

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
HERRING STORER ACOUSTICS
Suite 34, 11 Preston Street, Como, W.A. 6152
P.O. Box 219, Como, W.A. 6952
Telephone: (08) 9367 6200
Facsimile: (08) 9474 2579
Email: hsa@hsacoustics.com.au

PROPOSED RESIDENTIAL DEVELOPMENT

LOTS 30, 31 AND 32 ROCKINGHAM ROAD MUNSTER

NOISE ASSESSMENT

OCTOBER 2013

OUR REFERENCE: 17014-2-13190

DOCUMENT CONTROL PAGE

NOISE ASSESSMENT
MUNSTER

Job No: 13190

Document Reference: 17014-2-13190

FOR

RAPID STREAM PTY LTD

DOCUMENT INFORMATION			
Author:	Geoffrey Harris	**Checked By:**	George Watts
Date of Issue :	11 October 2013		

REVISION HISTORY

Revision	Description	Date	Author	Checked
1	Incorporated Updated Site Plan	15/10/13	GH	

DOCUMENT DISTRIBUTION

Copy No.	Version No.	Destination	Hard Copy	Electronic Copy
1	1	Rapid Stream Pty Ltd		✓
1	2	Rapid Stream Pty Ltd		✓

CONTENTS

APPENDICES

1. INTRODUCTION

Herring Storer Acoustics was commissioned by Rapid Stream Pty Ltd to undertake a road traffic noise assessment for the proposed development located at Lots 30, 31 and 32 Rockingham Road, Munster.

The purpose of this assessment was to assess noise received within the development from vehicles travelling along Stock Road and if exceedance with the stated criteria were determined, establish the required attenuation measures to control noise intrusion to acceptable levels. The traffic noise assessment has been carried out in accordance with the WAPC State Planning Policy 5.4 *"Road and Rail Transportation Noise and Freight Consideration in Land Use Planning"*.

As part of the study, the following was carried out:

- Monitor existing noise received from vehicles travelling along Stock Road.
- For future traffic flows, determine noise that would be received at residences within the development from vehicles travelling on Stock Road.
- Assess the predicted noise levels for compliance with the appropriate criteria.
- If exceedances are predicted, comment on possible noise amelioration options for compliance with the appropriate criteria.

For information, the development plan is attached in Appendix A.

2. SUMMARY

Under the Western Australian Planning Commission (WAPC) Planning Policy 5.4 *"Road and Rail Transport Noise and Freight Considerations in Land Use Planning"* (SPP5.4), we believe that the appropriate criteria for assessment for this development are as listed below for "Noise Limits".

EXTERNAL

$L_{Aeq(Day)}$ of 60 dB(A); and
$L_{Aeq(Night)}$ of 55 dB(A).

INTERNAL

$L_{Aeq(Day)}$ of 40 dB(A) in living and work areas; and
$L_{Aeq(Night)}$ of 35 dB(A) in bedrooms.

Noise received at an outdoor area should also be reduced as far as practicable, with an aim of achieving an L_{Aeq} (night) of 50 dB(A).

Noise received at the first row of residential lots along Stock Road would, as shown by the noise contour plot attached as Figure C1 and C3 in Appendix C exceed the Policies "Noise Limits". For the first row of residence adjacent to Stock Road, to achieve compliance with SPP 5.4, the following option is stated:

1 Construct a 2.2 metre high barrier between the residence and Stock Road, at the edge of the development. Even with this barrier, noise received at the ground floor of the residence located adjacent to Stock Road would still exceed the "Noise Target", thus requiring Package A "Quiet House" Design. Noise received at upper stories would still exceed the "Noise Limits" and for any upper floors, Package B+ "Quiet House" Design would be required.

Finally, notifications on titles are required are required for the first row of residences along Stock Road.

For information, Package A and B+ "Quiet House" requirements are attached in Appendix D.

3. ACOUSTIC CRITERIA

3.1 WAPC PLANNING POLICY

The Western Australian Planning Commission (WAPC) released on 22 September 2009 State Planning Policy 5.4 *"Road and Rail Transport Noise and Freight Considerations In Land Use Planning"*. Section 5.3 – Noise Criteria, which outlines the acoustic criteria, states:

"5.3 - NOISE CRITERIA

Table 1 sets out the outdoor noise criteria that apply to proposals for new noise-sensitive development or new major roads and railways assessed under this policy.

These criteria do not apply to –

- *proposals for redevelopment of existing major roads or railways, which are dealt with by a separate approach as described in section 5.4.1; and*
- *proposals for new freight handling facilities, for which a separate approach is described in section 5.4.2.*

The outdoor noise criteria set out in Table 1 apply to the emission of road and rail transport noise as received at a noise-sensitive land use. These noise levels apply at the following locations—

- *for new road or rail infrastructure proposals, at 1 m from the most exposed, habitable façade of the building receiving the noise, at ground floor level only; and*
- *for new noise-sensitive development proposals, at 1 m from the most exposed, habitable façade of the proposed building, at each floor level, and within at least one outdoor living area on each residential lot.*

Further information is provided in the guidelines.

Table 1 - Outdoor Noise Criteria

Time of day	Noise Target	Noise Limit
Day (6 am–10 pm)	$L_{Aeq(Day)}$ = 55 dB(A)	$L_{Aeq(Day)}$ = 60 dB(A)
Night (10 pm–6 am)	$L_{Aeq(Night)}$ = 50 dB(A)	$L_{Aeq(Night)}$ = 55 dB(A)

The 5 dB difference between the outdoor noise target and the outdoor noise limit, as prescribed in Table 1, represents an acceptable margin for compliance. In most situations in which either the noise-sensitive land use or the major road or railway already exists, it should be practicable to achieve outdoor noise levels within this acceptable margin. In relation to greenfield sites, however, there is an expectation that the design of the proposal will be consistent with the target ultimately being achieved.

Because the range of noise amelioration measures available for implementation is dependent upon the type of proposal being considered, the application of the noise criteria will vary slightly for each different type. Policy interpretation of the criteria for each type of proposal is outlined in sections 5.3.1 and 5.3.2.

The noise criteria were developed after consideration of road and rail transport noise criteria in Australia and overseas, and after a series of case studies to assess whether the levels were practicable. The noise criteria take into account the considerable body of research into the effects of noise on humans, particularly community annoyance, sleep disturbance, long-term effects on cardiovascular health, effects on children's learning performance, and impacts on vulnerable groups such as children and the elderly. Reference is made to the World Health Organization (WHO) recommendations for noise policies in their publications on community noise and the Night Noise Guidelines for Europe. See the policy guidelines for suggested further reading.

5.3.1 Interpretation and application for noise-sensitive development proposals

In the application of these outdoor noise criteria to new noise-sensitive developments, the objective of this policy is to achieve –

- *acceptable indoor noise levels in noise-sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and*
- *a reasonable degree of acoustic amenity in at least one outdoor living area on each residential lot[1].*

If a noise-sensitive development takes place in an area where outdoor noise levels will meet the noise target, no further measures are required under this policy.

In areas where the noise target is likely to be exceeded, but noise levels are likely to be within the 5dB margin, mitigation measures should be implemented by the developer with a view to achieving the target levels in a least one outdoor living area on each residential lot[1]. Where indoor spaces are planned to be facing any outdoor area in the margin, noise mitigation measures should be implemented to achieve acceptable indoor noise levels in those spaces. In this case, compliance with this policy can be achieved for residential buildings through implementation of the deemed-to-comply measures detailed in the guidelines.

1 For non residential noise-sensitive developments, (e.g. schools and child care centres) consideration should be given to providing a suitable outdoor area that achieves the noise target, where this is appropriate to the type of use.

In areas where the outdoor noise limit is likely to be exceeded (i.e. above $L_{Aeq(Day)}$ of 60 dB(A) or $L_{Aeq(Night)}$ of 55 dB(A)), a detailed noise assessment in accordance with the guidelines should be undertaken by the developer. Customised noise mitigation measures should be implemented with a view to achieving the noise target in at least one outdoor living or recreation area on each noise-sensitive lot or, if this is not practicable, within the margin. Where indoor spaces will face outdoor areas that are above the noise limit, mitigation measures should be implemented to achieve acceptable indoor noise levels in those spaces, as specified in the following paragraphs.

For residential buildings, acceptable indoor noise levels are $L_{Aeq(Day)}$ of 40 dB(A) in living and work areas and $L_{Aeq(Night)}$ of 35 dB(A) in bedrooms[2]. For all other noise-sensitive buildings, acceptable indoor noise levels under this policy comprise noise levels that meet the recommended design sound levels in Table 1 of Australian Standard AS 2107:2000 Acoustics—Recommended design sound levels and reverberation times for building interiors.

These requirements also apply in the case of new noise-sensitive developments in the vicinity of a major transport corridor where there is no existing railway or major road (bearing in mind the policy's 15-20 year planning horizon). In these instances, the developer should engage in dialogue with the relevant infrastructure provider to develop a noise management plan to ascertain individual responsibilities, cost sharing arrangements and construction time frame.

If the policy objectives for noise-sensitive developments are not achievable, best practicable measures should be implemented, having regard to section 5.8 and the guidelines."

The Policy, under Section 5.7, also provides information regarding "Notifications on Titles".

3.2 APPROPRIATE CRITERIA

Based on the above, the following criteria are proposed for this development:

External	
Day	Maximum of 60 dB(A) L_{Aeq}
Night	Maximum of 55 dB(A) L_{Aeq}
Outdoor Living Areas*	Maximum of 50 dB(A) $L_{Aeq\ (night\ period)}$
Internal	
Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

*This is a suggested noise level; noise is to be reduced as far as practicably possible.

2 For residential buildings, indoor noise levels are not set for utility spaces such as bathrooms. This policy encourages effective "quiet house" design, which positions these non-sensitive spaces to shield the more sensitive spaces from transport noise (see guidelines for further information).

5. MODELLING

Modelling of noise received within the subdivision from Stock Road was carried out using SoundPlan, using the Calculation of Road Traffic Noise (CoRTN) algorithms. The input data for the model included:

- Increased traffic volume, assuming 2% growth over 20 years.
- Other traffic data as listed in Table 4.1.
- A +2.5 dB adjustment to allow for façade reflection.
- A -2.5 dB adjustment for the change in road surface from chip seal to dense graded asphalt

The traffic data currently available on the Main Roads web site are as listed in Table 5.1. Table 5.1 also lists the percentage heavy vehicles and the calculated future traffic flows.

TABLE 5.1 - SUMMARY OF TRAFFIC DATA

Parameter	Stock Road
Current Traffic Flow (vpd)	22850
Future Traffic Flow (vpd)	34000
Percentage Heavy Vehicles (%)	10.2
Speed (km/hr)	80

For the noise modeling for future traffic it has been assumed that the percentage of future heavy vehicles remains the same as for the current traffic flows. In this case, we believe that this is a conservative approach, as we believe that the percentage of heavy vehicles would fall over time.

We note that with the difference between the $L_{Aeq,8hr}$ and the $L_{Aeq,16hr}$ being less than 5 dB(A), achieving compliance with the night period criteria will also result in achieving compliance with the day period criteria.

Noise modelling was undertaken for the following scenarios:

A 2033 traffic flows, without any noise amelioration.

B 2033 traffic flows, with a 2.2m high barrier constructed adjacent to Stock Road

The noise contour plots for both the day and night periods are attached in Appendix C.

6. ASSESSMENT

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development located at Lots 30, 31 and 32 Rockingham Road, Munster, from vehicles travelling on Munster has been undertaken.

In accordance with the Policy, the following would be the acoustic criteria applicable to this project:

External

Day	Maximum of 60 dB(A) L_{Aeq}
Night	Maximum of 55 dB(A) L_{Aeq}
Outdoor Living Areas (Night)	Maximum of 50 dB(A) L_{Aeq}

Internal

Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

Noise received at an outdoor area should also be reduced as far as practicable with an aim of achieving an L_{Aeq} (night) of 50 dB(A).

Noise received at the first row of the residential lots located adjacent to Stock Road would without any noise amelioration, as shown by the noise contour plot attached as Figure C1 and C3 in Appendix C, exceed the Policies "Noise Limits". For the first row of residence adjacent to Stock Road, to achieve compliance with SPP 5.4, the following option is stated:

1 Construct a 2.2 metre high barrier between the residence and Stock Road, at the edge of the development. Even with this barrier, noise received at the ground floor of the residence located adjacent to Stock Road would still exceed the "Noise Target", thus requiring Package A "Quiet House" Design. Noise received at upper stories would still exceed the "Noise Limits" and for any upper floors, Package B+ "Quiet House" Design would be required.

Finally, for the first row of residences located adjacent to Stock Road, "Notifications on Titles" is required.

For information, Package A and B+ "Quiet House" requirements as outlined in the Implementation Guidelines SPP 5.4 are attached in Appendix D.

An example of a suitable notice, as provided within the Guidelines is:

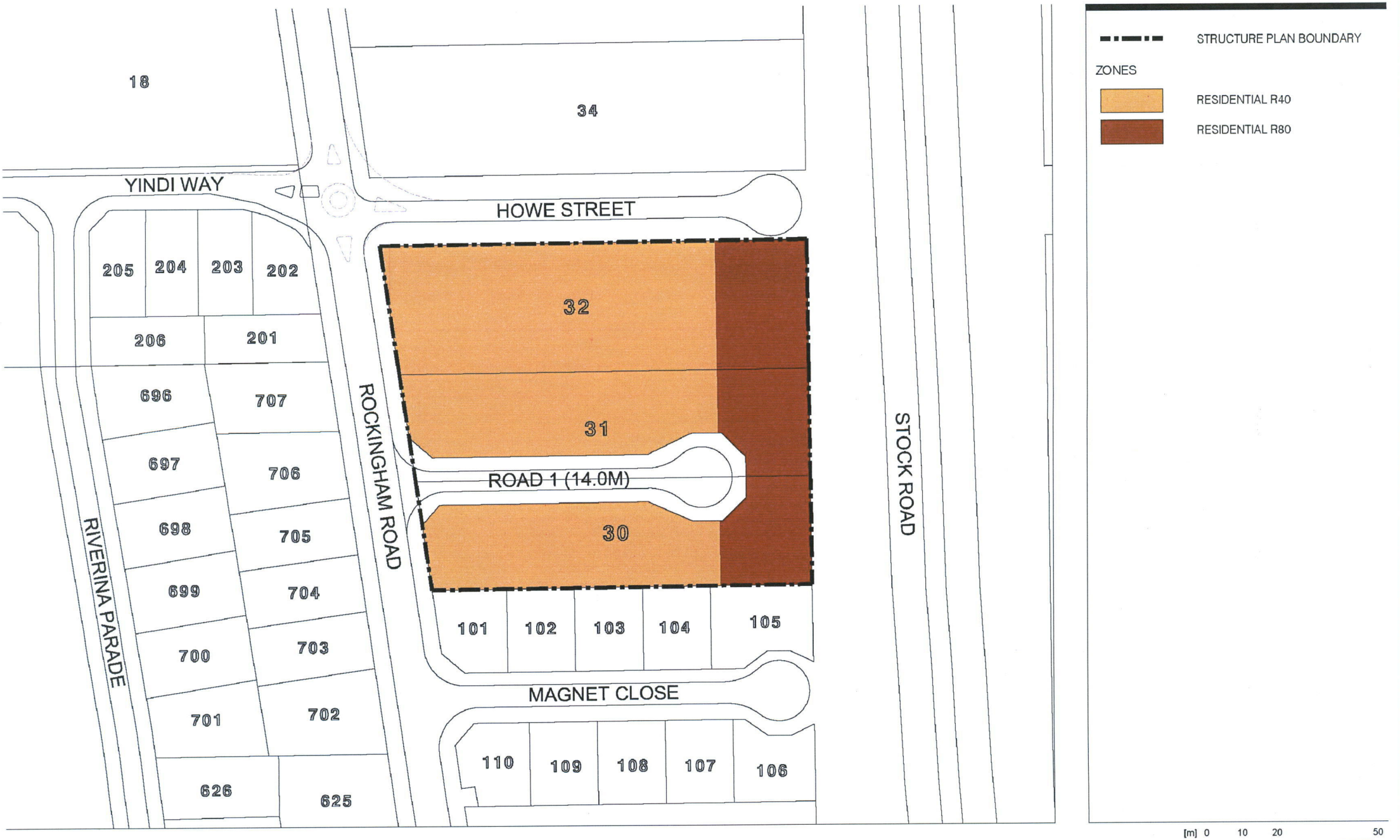
This lot is situated in the vicinity of Stock Road and is currently affected, and / or may in the future be affected by transport noise.

Notes:

1 Alternative constructions to those listed for "Quiet House" Packages A and B+ are acceptable, provided they are assessed and a report submitted by a suitably qualified acoustic consultant.

APPENDIX A

DEVELOPMENT PLAN



LOCAL STRUCTURE PLAN

LOTS 30, 31 AND 32 ROCKINGHAM ROAD, MUNSTER

PROJECT NO: PD0887
CLIENT: RAPID STREAM PTY LTD
TF THE KUNA FAMILY TRUST
DATE: 15/10/13
DRAWING NO: STP-01
REV: 3
SCALE: 1:1000@A3
DRAWN: SLL

N

Base data supplied by: Wood and Grieve Engineers
Datum: Geocentric Datum of Australia 1994 (GDA94)
Projection: MGA 94 Zone 50

LEVEL 1, 55 ST GEORGES TCE
PERTH WA 6000 AUSTRALIA
TEL +618 9346 0500
FAX +618 9221 1779
info@urbis.com.au
www.urbis.com.au

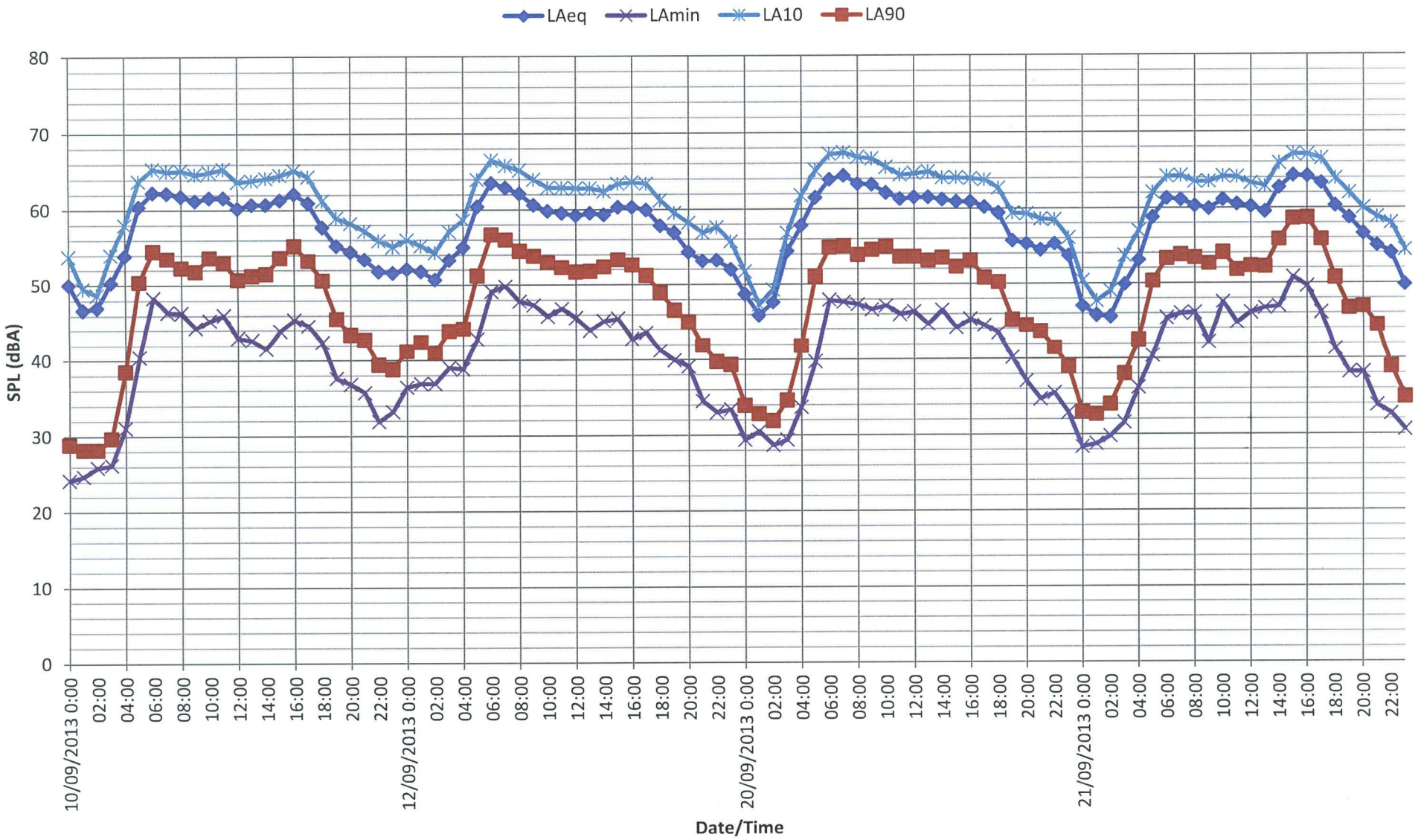
Urbis Pty Ltd ABN 50 105 256 228

urbis

APPENDIX B

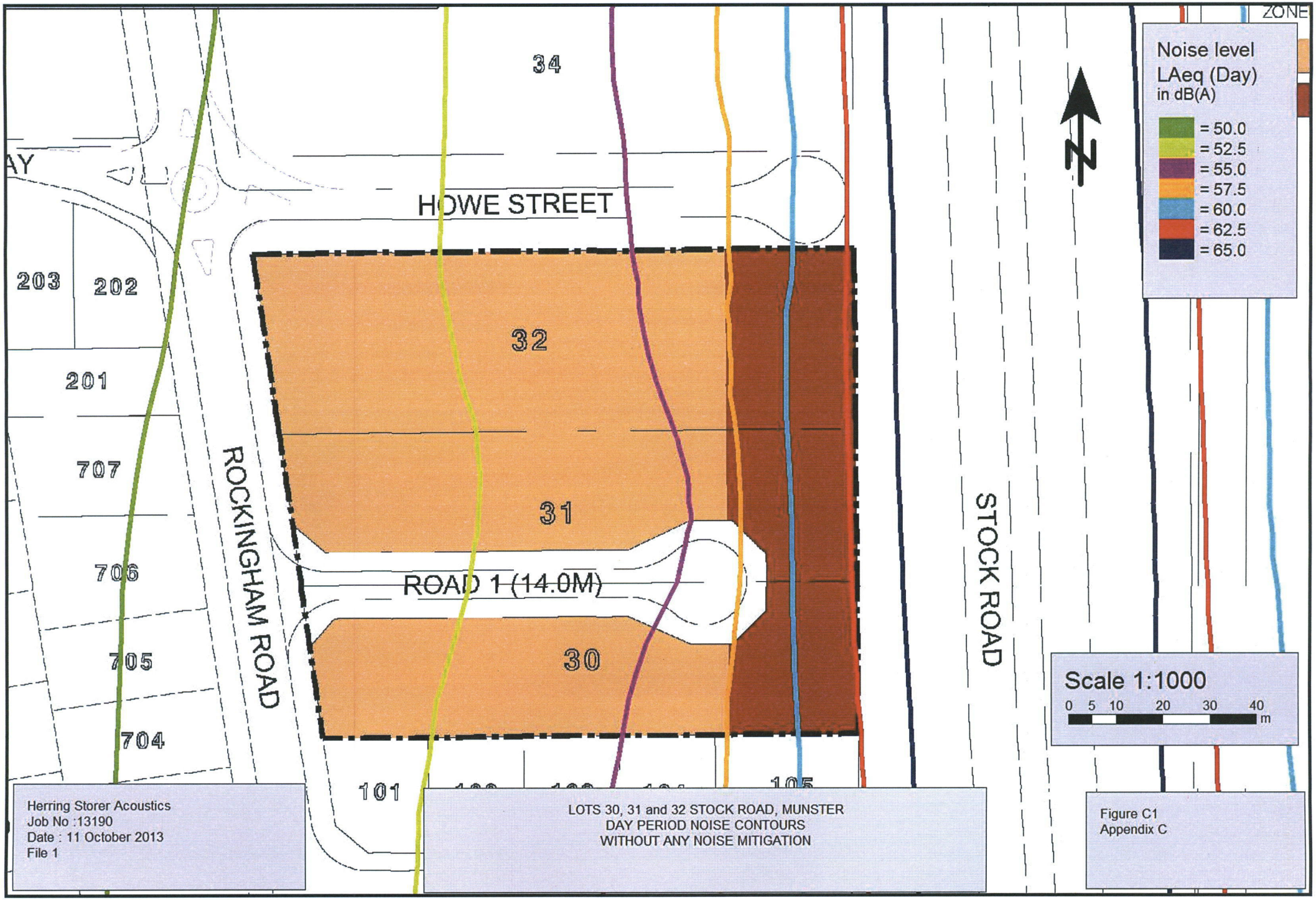
NOISE MONITORING

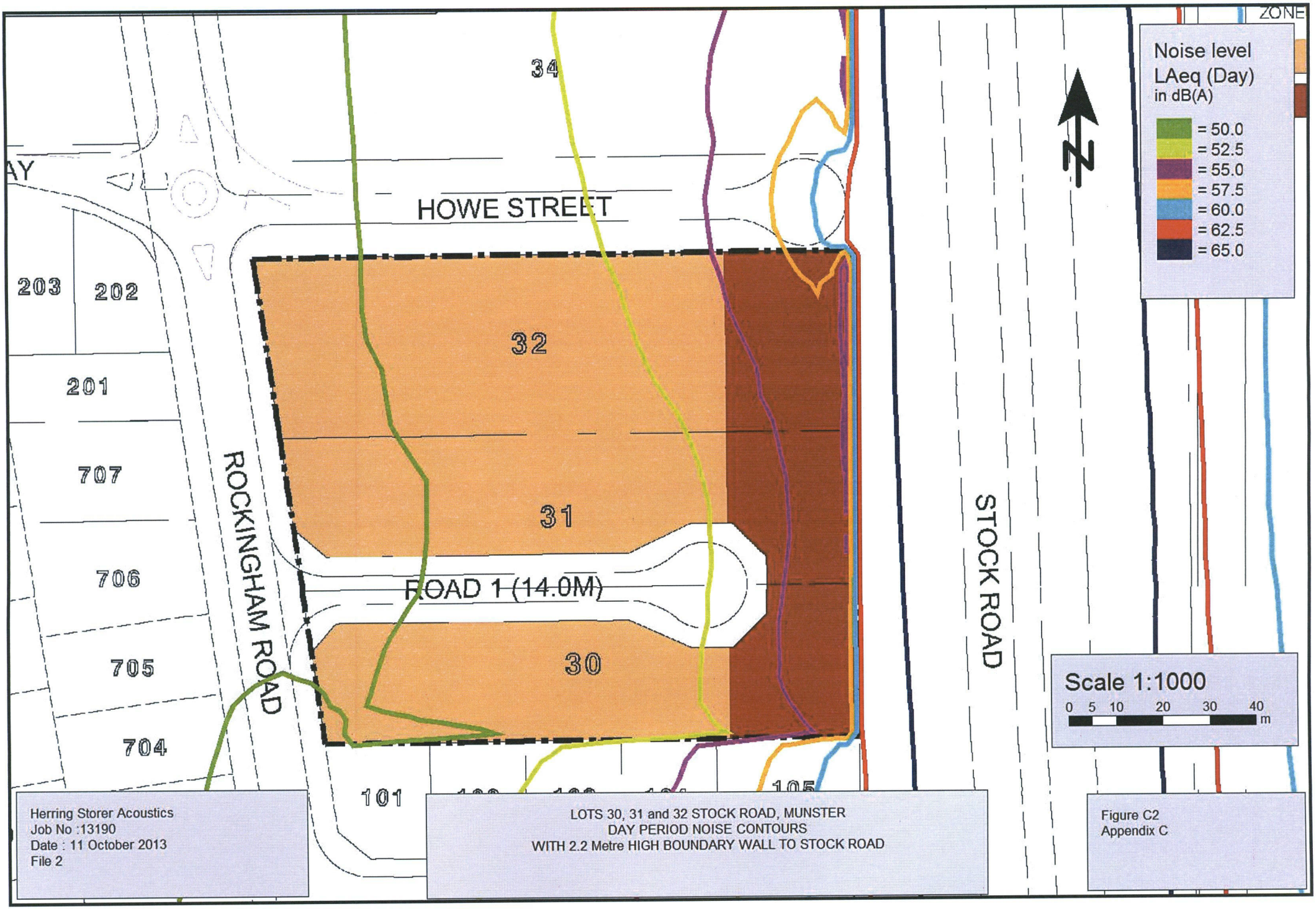
Stock Road Noise Logging, NL22B: 10, 12, 20, 21 September 2013



APPENDIX C

NOISE CONTOUR PLOTS

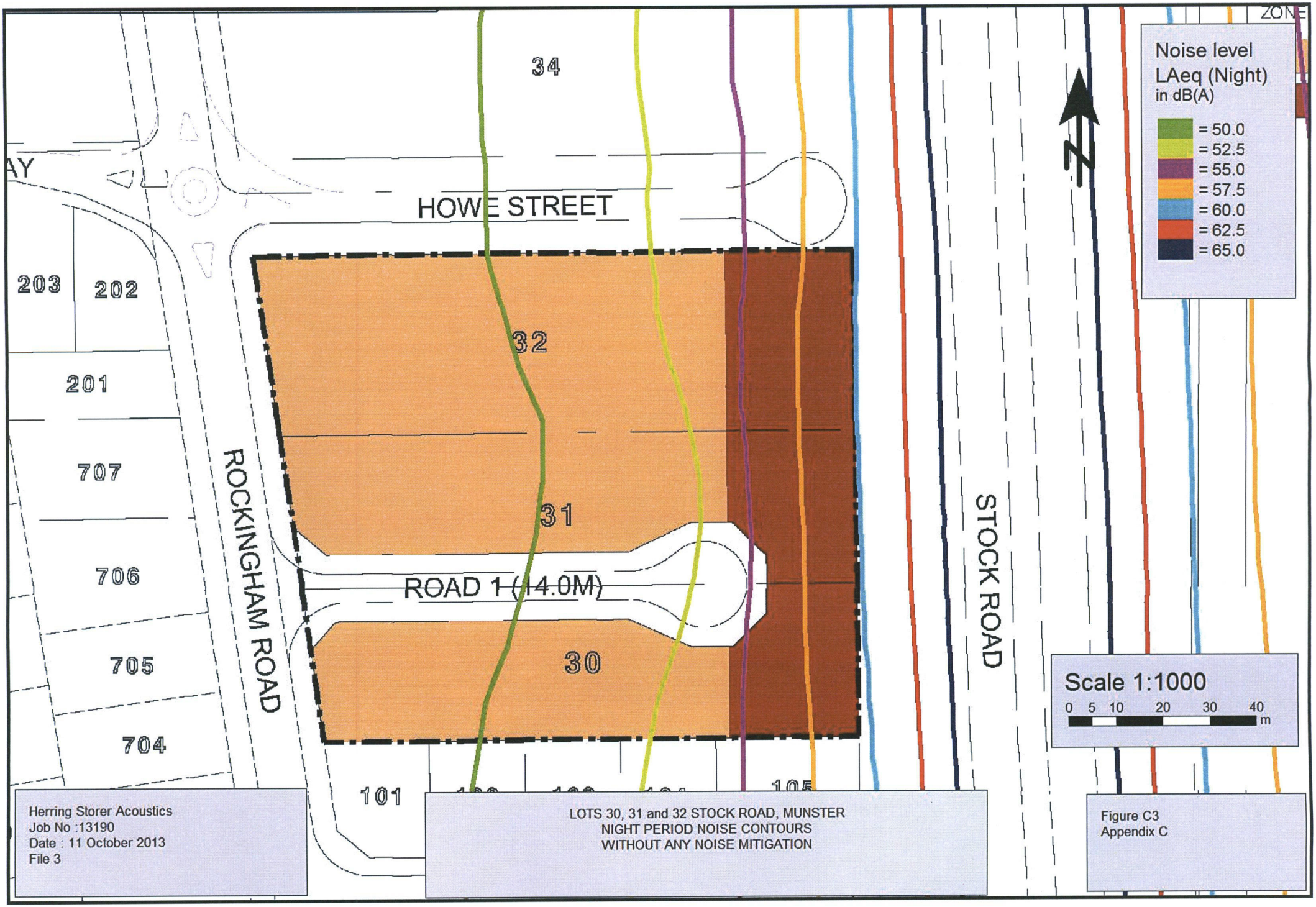

ZONE
Noise level
LAeq (Day)
in dB(A)
= 50.0
= 52.5
= 55.0
= 57.5
= 60.0
= 62.5
= 65.0
N
34
HOWE STREET
203
202
201
707
706
705
704
32
31
30
ROAD 1 (14.0M)
ROCKINGHAM ROAD
STOCK ROAD
101
Scale 1:1000
0 5 10 20 30 40
m
Herring Storer Acoustics
Job No :13190
Date : 11 October 2013
File 1
LOTS 30, 31 and 32 STOCK ROAD, MUNSTER
DAY PERIOD NOISE CONTOURS
WITHOUT ANY NOISE MITIGATION
Figure C1
Appendix C

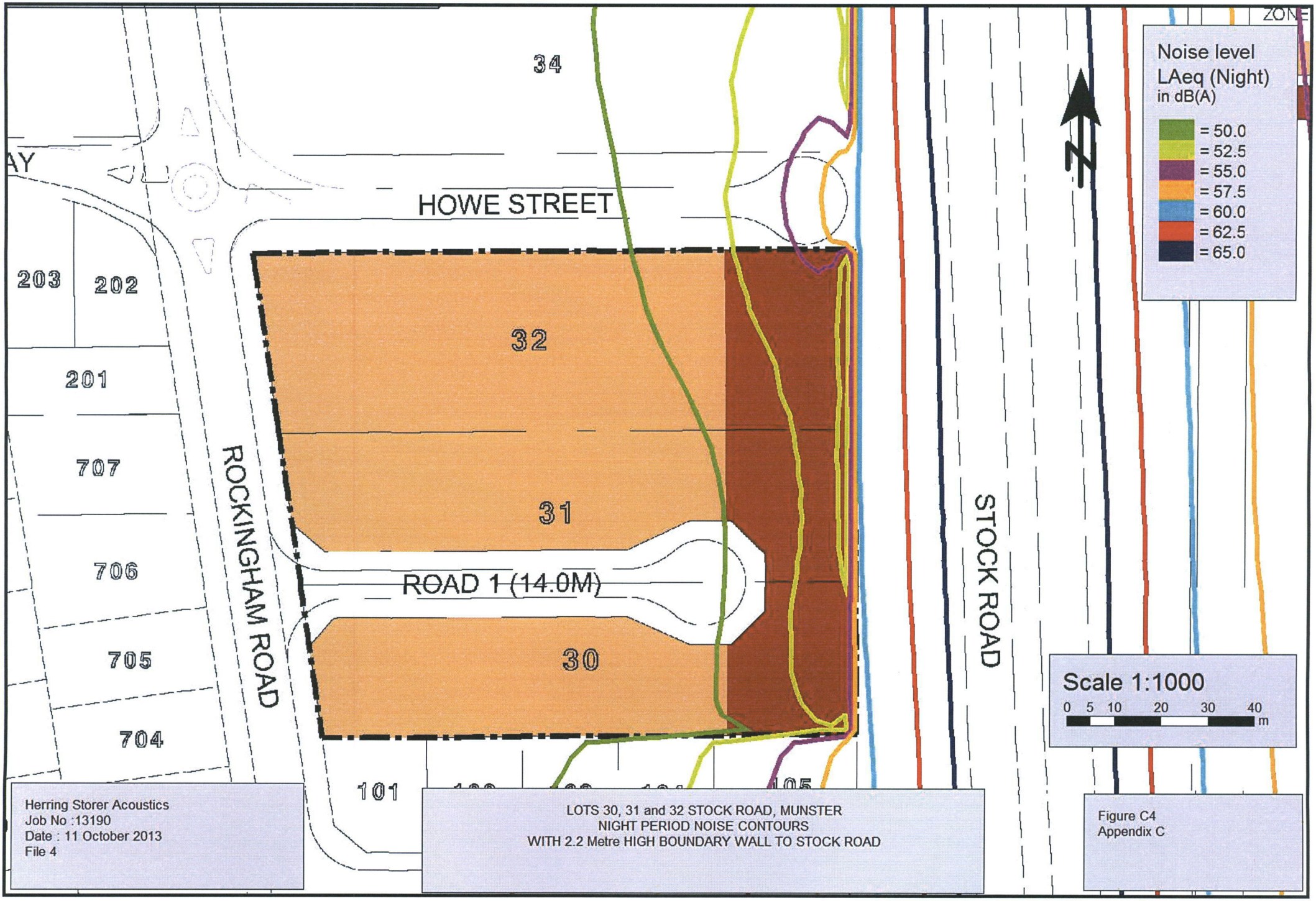


Herring Storer Acoustics
Job No :13190
Date : 11 October 2013
File 2

LOTS 30, 31 and 32 STOCK ROAD, MUNSTER
DAY PERIOD NOISE CONTOURS
WITH 2.2 Metre HIGH BOUNDARY WALL TO STOCK ROAD

Figure C2
Appendix C


Noise level
LAeq (Night)
in dB(A)
= 50.0
= 52.5
= 55.0
= 57.5
= 60.0
= 62.5
= 65.0
N
HOWE STREET
ROCKINGHAM ROAD
STOCK ROAD
ROAD 1 (14.0M)
34
32
31
30
203
202
201
707
706
705
704
101
105
Scale 1:1000
0 5 10 20 30 40
m
Herring Storer Acoustics
Job No :13190
Date : 11 October 2013
File 3
LOTS 30, 31 and 32 STOCK ROAD, MUNSTER
NIGHT PERIOD NOISE CONTOURS
WITHOUT ANY NOISE MITIGATION
Figure C3
Appendix C


Noise level
LAeq (Night)
in dB(A)
= 50.0
= 52.5
= 55.0
= 57.5
= 60.0
= 62.5
= 65.0
N
HOWE STREET
ROCKINGHAM ROAD
STOCK ROAD
ROAD 1 (14.0M)
34
32
31
30
203
202
201
707
706
705
704
101
Scale 1:1000
0 5 10 20 30 40 m
Herring Storer Acoustics
Job No :13190
Date : 11 October 2013
File 4
LOTS 30, 31 and 32 STOCK ROAD, MUNSTER
NIGHT PERIOD NOISE CONTOURS
WITH 2.2 Metre HIGH BOUNDARY WALL TO STOCK ROAD
Figure C4
Appendix C

APPENDIX D

PACKAGES A and B "QUIET HOUSE"
DESIGN REQUIREMENTS

QUIET HOUSE DESIGN PACKAGES FOR RESIDENCE ADJACENT TO STOCK ROAD

AREA TYPE	ORIENTATION	PACKAGE A	PACKAGE B
Bedrooms	Facing Road	Casement or awning windows with 6.38mm laminated glass Eaves enclosed with 6mm compressed fibre cement board Hinged doors only, fitted with acoustic seals No vents to outside walls/eaves	Casement or awning windows with 10.38mm or 6.5mm laminated glass Eaves enclosed with 6mm compressed fibre cement board No external doors No vents to outside walls/eaves
	Side-on to Road	Casement or awning windows with 6.38mm laminated glass Eaves enclosed with 6mm compressed fibre cement board No vents to outside walls/eaves	Casement or awning windows with 6.38mm laminated glass Eaves enclosed with 6mm compressed fibre cement board No vents to outside walls/eaves
	Away from Road	No Requirements	No Requirements
Living and Work Areas	Facing Road	Casement or awning windows with 6.38mm laminated glass Eaves enclosed with 6mm compressed fibre cement board 35mm (min) solid core external doors with acoustic seals Sliding doors to be fitted with acoustic seals and have overlapping meeting stiles No vents to outside walls/eaves	Casement or awning windows with 10.38mm or 6.5mm laminated glass Eaves enclosed with 6mm compressed fibre cement board No vents to outside walls/eaves Sliding doors to be fitted with acoustic seals and have overlapping meeting stiles Front door to be 40mm solid core with acoustic seals
	Side-on to Road	Casement or awning windows with 6mm glass Eaves enclosed with 6mm compressed fibre cement board	Casement or awning windows with 6.38mm laminated glass Eaves enclosed with 6mm compressed fibre cement board
	Away from Road	No Requirements	No Requirements
Other indoor areas	Any orientation	No Requirement	No Requirements

Note : Package B+ is as for Package B but with reduced window areas (Maximum of $2m^2$) for bedroom windows facing Stock Road.

Sydney
Tower 2, Level 23, Darling Park
201 Sussex Street Sydney, NSW 2000
t +02 8233 9900
f +02 8233 9966

Brisbane
Level 7, 123 Albert Street
Brisbane, QLD 4000
t +07 3007 3800
f +07 3007 3811

Melbourne
Level 12, 120 Collins Street
Melbourne, VIC 3000
t +03 8663 4888
f +03 8663 4999

Perth
Level 1, 55 St Georges Terrace
Perth, WA 6000
t +08 9346 0500
f +08 9221 1779

Australia • Asia • Middle East
w urbis.com.au **e** info@urbis.com.au