

Braden Park

# MARMION STRUCTURE PLAN

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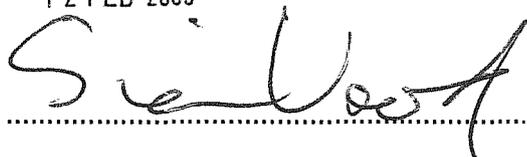
## STRUCTURE PLAN NO 9

**This Structure Plan is prepared under the provisions of Part 9 of  
the City of Joondalup District Planning Scheme No. 2**

**CERTIFICATION OF AGREED STRUCTURE PLAN**  
**(SCHEDULE 8)**

CERTIFIED THAT MODIFIED AGREED STRUCTURE PLAN NO 9, MARMION STRUCTURE PLAN, WAS ADOPTED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON

12 FEB 2008

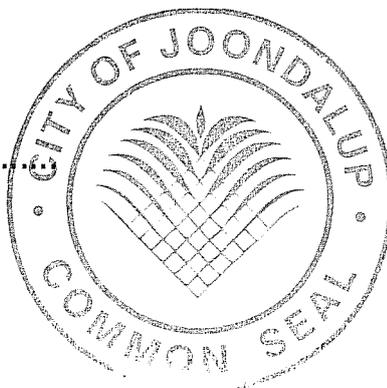
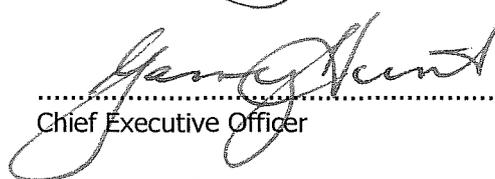


being an officer of the Commission duly authorised by the Commission pursuant to section 24 of the *Planning and Development Act 2005*

AND BY RESOLUTION OF THE COUNCIL OF THE CITY OF JOONDALUP ON 7 AUGUST 2007 AND THE SEAL OF THE CITY OF JOONDALUP WAS PURSUANT TO THE COUNCIL'S RESOLUTION HERETO AFFIXED IN THE PRESENCE OF



.....  
Mayor

.....  
Chief Executive Officer

**Record of Amendments made to the Agreed Marmion Structure Plan**

Amendment No	Description of Amendment	Endorsed by Council	Endorsed by WAPC
1	Adding the following to Clause 8.2:  v) The path (and associated seating) stated in Recommendation 1 of the Vegetation Management Plan is not required to be implemented as part of the implementation of that plan. The open space shall be fenced so as to prevent public access, and any openings (for maintenance purposes) shall be suitable barriers to prevent public access.	7 August 2007	12 FEB 2008

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### STATUTORY PLANS

**Plan 1 – Local Structure Plan**

**Plan 2 – Land Use Plan**

**Plan 3 – Residential Density Code Plan**

**Plan 4 – Finished Ground Levels**

## **OVERVIEW**

### **PARTS OF THE AGREED STRUCTURE PLAN**

This Agreed Structure Plan comprises two parts:

- Part 1:                    Statutory Planning Section  
Part 2:                    Explanatory Report

Clause 9.8 of the City of Joondalup District Planning Scheme No. 2 provides, amongst other things, that a provision, standard or requirement of an Agreed Structure Plan approved under Part 9 of the Scheme shall be given the same force and effect as if it were a provision, standard or requirement of the Scheme. It is hereby provided that such force and effect shall only be given to Part 1 of the Agreed Structure Plan. Part 2 of this Agreed Structure Plan is for explanatory purposes only, providing a descriptive analysis of the Agreed Structure Plan.

Subclause 9.8.3(f) of the Scheme states that where there is any inconsistency between any provision, requirement or standard of the Scheme and any provision, requirement or standard of an Agreed Structure Plan, the Scheme shall prevail.

## **SUMMARY**

This Agreed Structure Plan refers to Lot 61 (No 14) Leach Street, Marmion which comprises approximately 2.1885 ha and is bound by Leach Street to the west, Cliff Street to the east, Ozone Road to the north and Troy Avenue to the south.

The subject site is zoned 'Urban' under the Metropolitan Region Scheme (MRS) and has recently been rezoned to 'Urban Development' under the City of Joondalup District Planning Scheme No. 2 (DPS2).

In accordance with the resolution of the Western Australian Planning Commission (WAPC) and the City of Joondalup, a Vegetation Management Plan has been prepared in consultation with the local community and approved by the City. A detailed community consultation process has also been undertaken prior to lodgement of the Agreed Structure Plan, a summary of which is presented in the Appendices.

This Agreed Structure Plan shall determine the overall detailed land use and form of development within the subject site. The Explanatory Report provides further detail about the site and the intended design.

## **PART 1 – STATUTORY PLANNING SECTION**

As provided by the provisions of clause 9.8 of the Scheme, this part of the Agreed Structure Plan has the same force and effect as a provision, standard or requirement of the Scheme.

### **1.0 SUBJECT AREA**

The Structure Plan's land area is approximately 2.1885 ha and is described as Lot 61 (No 14) Leach Street, Marmion. The land is bounded by Leach Street to the west, Cliff Street to the east, Ozone Road to the north and Troy Avenue to the south.

### **2.0 THE SCHEME**

Unless provided for by specific requirements in this Structure Plan, all requirements shall be in accordance with the City's District Planning Scheme No.2 ('the Scheme').

### **3.0 MARMION STRUCTURE PLAN**

Plan 1 is the Marmion Structure Plan

### **4.0 LAND USE PLAN**

Plan 2 is the Land Use Plan which applies a 'Residential' land use to the developable portion of the site and a 'Local Reserves – Parks and Recreation' land use to the Public Open Space area.

### **5.0 RESIDENTIAL DENSITY CODING PLAN**

Plan 3 is the Residential Density Code Plan, which in accordance with the scheme, applies an R20 residential density code to the Structure Plan area.

### **6.0 FINISHED GROUND LEVEL PLAN**

Plan 4 is the Finished Ground Level Plan referenced in Provision 8.3.

### **7.0 GENERAL OBJECTIVES**

Development and subdivision within the structure plan area shall meet the following general objectives;

- i) The subdivision design and lot orientation & configuration shall provide a robust framework for the future development of a sustainable neighbourhood which reflects the local context, requirements of the R20 coding, is site responsive and provides the opportunity for sustainable and energy efficient housing types set within an existing neighbourhood.
- ii) Lots should be orientated wherever possible and practical to have their long axes within the range N20 deg West to N30 deg East, or E20 deg North to E30 deg South.
- iii) Buildings shall be constructed on each lot consistent with the energy efficient measures outlined in the BCA and the R-Codes and embracing economic, social and environmental sustainability principles by addressing matters in the design such as solar access and solar efficiency, thermal performance, natural ventilation, energy conservation, on site stormwater disposal, waterwise landscaping and where practical and possible greywater recycling for irrigation.

- iv) Ensure that built form outcomes prescribed under the Structure Plan for the site are generally consistent with the provisions of the Residential Design Codes of Western Australia under the R20 density code (unless varied elsewhere in this Structure Plan), particularly with respect to building height and bulk, setbacks and design for climate.

## **8.0 PROVISIONS**

### **8.1 Land Use**

- i) The only permissible land uses in the Structure Plan area will be the same as those allowable in the surrounding Marmion residential area;
- ii) For the Residential land as shown on Plan 1, uses permitted and the Scheme provisions are the same as those that apply to the Residential zone in the Scheme;
- iii) The provisions of clause 2.3 of the Scheme apply to the public open space land.

### **8.2 Vegetation & Trees**

- i) A Vegetation Management Plan shall be prepared for the northern public open space area in accordance with City of Joondalup Policy 1-2 Public Participation and shall be approved by Council prior to final adoption of this Structure Plan;
- ii) A minimum of one street tree being planted within the road reserve/verge for each new lot and being a native species approved by the City;
- iii) Satisfactory arrangements being made with the City of Joondalup to retain the existing Dryandra Trees in the Troy Avenue road reserve and any other significant existing vegetation in the road reserves surrounding the site as part of the development.
- iv) The public open space area shall be fenced to the satisfaction of the City prior to the commencement of any works on the site.
- v) The path (and associated seating) stated in Recommendation 1 of the Vegetation Management Plan is not required to be implemented as part of the implementation of that plan. The open space shall be fenced so as to prevent public access, and any openings (for maintenance purposes) shall be suitable barriers to prevent public access.

### **8.3 Building Height Limit**

- i) Council Policy 3.2 - Height and Scale of Buildings within Residential Areas shall apply to development within this structure plan area;
- ii) Natural Ground Level for the purpose of determining the Building Threshold Envelope as referenced in Policy 3.2, is deemed to be the Finished Ground Level (to within 300mm) as indicated on each lot on Plan 4. For the three (3) sloping lots fronting Troy Avenue shown on Plan 4 that do not have a natural ground level, for the purposes of Council Policy 3-2, natural ground level is as per the contours shown on Plan 4. These levels may not be varied beyond this range unless approved by the City of Joondalup.

#### **8.4 Vehicular Access**

- i) Within that area defined as Precinct A on the Structure Plan no lot shall have direct vehicle access by way of any crossover, to Cliff Street. All vehicular access to these lots shall be from the internal subdivision road.

#### **8.5 Building Setbacks**

- i) All building setbacks shall be in accordance with the R-Codes with the exception of (ii) below;
- ii) The minimum setback to Cliff Street for any building within Precinct A is 3.0 metres (averaging provisions do not apply).
- iii) Buildings within Precinct A shall address both Cliff Street and the internal access road with equal importance by providing habitable rooms and major openings facing both streets, as well providing visually interesting elevations to both streets.

#### **8.6 Lots Adjacent to POS**

- i) Any building on a lot fronting or siding the Public Open Space shall have at least one "habitable room" (as defined in the R-Codes) with a major opening orientated towards the open space. Development and fencing between the POS and proposed residential lots shall be in accordance with City of Joondalup Policy 7-15 – Subdivision and Development Adjoining Areas of Public Space.

#### **8.7 Roads & Footpaths**

- i) The developer shall consult and reach agreement with the City at the time of subdivision to identify any upgrade/improvements which may be required to the existing streets which abut the site and in particular the intersection of Troy Avenue and Cliff Street;
- ii) The developer in association with the City shall upgrade any existing footpaths surrounding the site as part of the subdivision works.

LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN

**STATUTORY PLANS**



**LOT 61 LEACH STREET, MARMION  
STRUCTURE PLAN**

**STRUCTURE PLAN NO. 9**

**THIS STRUCTURE PLAN IS PREPARED PURSUANT TO  
THE PROVISIONS OF PART 9 OF THE CITY OF JOONDALUP  
DISTRICT PLANNING SCHEME NO. 2**



**LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN**

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**LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN**

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Vegetation Management Plan**



# LOT 61 LEACH STREET, MARMION AGREED STRUCTURE PLAN

## **PART 2 – EXPLANATORY REPORT**

This section is provided as an explanation of the objective, purposes and intentions of the Agreed Structure Plan and of the processes proposed for implementation and administration of the Plan.

### **1.0 INTRODUCTION**

#### **1.1 Overview**

The Agreed Structure Plan is prepared and lodged pursuant to Clause 9.8 of the City of Joondalup's District Planning Scheme No 2 (DPS2).

The Agreed Structure Plan has also been prepared in consultation with representatives from the local Marmion community, in accordance with the City's approved consultation process, as required by Council in its resolution regarding Amendment No.24, dated 5 April 2005 (see Section 3.2.1).

#### **1.2 Background**

The land is zoned 'Urban' under the Metropolitan Region Scheme (MRS) and was rezoned from 'Local Reserve – Parks and Recreation' to 'Urban Development' as part of Amendment No.24 to DPS2 in December 2005.

Further to adopting the 'Urban Development' zone, Council resolved that three Indicative Subdivision Plans (refer Appendix A) which were included within the Amendment No. 24 documentation were appropriate as the basis for preparation of an Agreed Structure Plan over the site.

Council in considering the Amendment also resolved that the Agreed Structure Plan should address the following:

- a) Clearly demonstrate the application of the principles of environmental, social and economic sustainability (note Council Policy 2.6.4 – Environmental, Social and Economic Sustainability);
- b) Have particular regard to the retention of significant stands of natural vegetation within road reserves and straddling lot boundaries where possible;
- c) Ensure that built form outcomes prescribed under the Agreed Structure Plan for the site is generally consistent with the provisions of the Residential Design Codes of Western Australia under the R20 density code, particularly with respect to building height and bulk;
- d) Include provisions to ensure that finished lot levels proposed under any future subdivision application over the site is sympathetic to the natural topography of the land (prior to it being developed as a marine research facility). Such levels are to be coordinated with adjacent roads and development, particularly for lots that seek to obtain vehicular access from these existing roads;



## LOT 61 LEACH STREET, MARMION AGREED STRUCTURE PLAN

- e) Detail the upgrading of all existing streetscapes abutting the subject site. Consider the provision of intersection and traffic calming treatments, on street car parking, street trees, lighting and dual use paths; and
- f) Address the requirement for buildings to be constructed on the site in conformity with sustainable energy and environmental design, including grey water treatment processes on site, if feasible.

Due to high community interest in the proposal, Council also resolved that during the preparation of the Agreed Structure Plan, a community consultation process was to be undertaken to supplement the formal advertising process required under DPS2. The agreed consultation process was approved by the City of Joondalup and a series of three public workshops were conducted prior to finalisation of the preferred Agreed Structure Plan to supplement the formal consultation process required under DPS2.

The outcome of these group workshops, which are reflected in this Agreed Structure Plan, are further detailed in Section 6 and reproduced in full in Appendix C.

### **1.3 Scope**

The Report provides an explanatory background to the Agreed Structure Plan, outlining key statutory provisions, relevant environmental, traffic and servicing data, built form outcomes and a summary of the local consultation process that was undertaken with the objective of preparing a final Agreed Structure Plan for the purposes of advertising.

It also focuses on those key areas of interest described by Council in its resolution of 5 April 2005 regarding Amendment No. 24 (see Section 1.2).



# LOT 61 LEACH STREET, MARMION AGREED STRUCTURE PLAN

## 2.0 SUBJECT SITE

Lot 61 (No 14) Leach Street, Marmion is a 2.1885 hectare parcel of land bounded by Leach Street to the west, Cliff Street to the east, Ozone Road to the north and Troy Avenue to the south (Figure 1).

The site was formerly owned in freehold title by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and was used as a Marine Research Facility and Laboratory from 1975 to July 2002. In 2003 the CSIRO sold the site for redevelopment as it was surplus to their requirements. It was purchased by Marmion Estate Pty Ltd.

The site is currently unoccupied with existing buildings and structures comprising a laboratory, several sheds and storerooms as well as an aquarium facility totalling 2,753m<sup>2</sup> in area. These are to be removed.

The site is located within a well-established residential neighbourhood with convenient access to nearby facilities including Marmion Primary School, Marmion Village shops, Marmion beach, Braden Park and several smaller parks. The land is therefore very well suited to single residential land uses with the introduction of development standards which will facilitate high quality residential development and which will contribute positively to the surrounding neighbourhood.



# LOT 61 LEACH STREET, MARMION AGREED STRUCTURE PLAN

## 3.0 PLANNING CONSIDERATIONS

### 3.1 Metropolitan Region Scheme

The site is zoned 'Urban' in the Metropolitan Region Scheme (MRS), a zoning which supports development for residential uses (refer Figure 2).

### 3.2 City of Joondalup District Planning Scheme No. 2

The City of Joondalup District Planning Scheme No. 2 (DPS2) zones the site 'Urban Development'. This follows gazettal of Amendment No. 24 to DPS2 which rezoned the land from 'Local Reserve – Parks and Recreation' to 'Urban Development' (refer Figure 3.) Further to the provisions of the Urban Development zone, an Agreed Structure Plan is required to guide future redevelopment of the site for residential purposes.

#### **3.2.1 City of Joondalup - Amendment No. 24**

On 5 April 2005, Council resolved to support Amendment No. 24 to rezone the subject site from 'Local Reserve – Parks and Recreation' to 'Urban Development'. It was also resolved that a Structure Plan be prepared in accordance with Part 9 of DPS2.

The City required a high level of community and stakeholder involvement to guide the preparation of the Agreed Structure Plan and to this end requested that a community consultation plan be submitted to the City and undertaken at the applicant's cost to supplement the formal consultation process required under DPS2. This was to be undertaken prior to lodgement of the Agreed Structure Plan and the outcomes are summarised in Section 6. A complete copy of the Consultation Report can be found in Appendix C.

As highlighted within Section 1.2 of this report, Council also required that the Agreed Structure Plan address the following:

- a) *Clearly demonstrate the application of the principles of environmental, social and economic sustainability (note Council Policy 2.6.4 – Environmental, Social and Economic Sustainability);*
- b) *Have particular regard to the retention of significant stands of natural vegetation within road reserves and straddling lot boundaries where possible;*
- c) *Ensure that built form outcomes prescribed under the structure plan for the site is generally consistent with the provisions of the Residential Design Codes of Western Australia under the R20 density code, particularly with respect to building height and bulk;*
- d) *Include provisions to ensure that finished lot levels proposed under any future subdivision application over the site is sympathetic to the natural topography of the land (prior to it being developed as a marine research facility). Such levels are to be coordinated with adjacent roads and development, particularly for lots that seek to obtain vehicular access from these existing roads;*



LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN

- e) *Detail the upgrading of all existing streetscapes abutting the subject site. Consider the provision of intersection and traffic calming treatments, on street car parking, street trees, lighting and dual use paths; and*
- f) *Address the requirement for buildings to be constructed on the site in conformity with sustainable energy and environmental design, including grey water treatment processes on site, if feasible.*

The Council also requested the support of the WAPC for the landowner to provide 10% of the site for public open space purposes, to be provided within the subject site, and to include the existing area of remnant bushland to the north.

These resolutions were forwarded to the WAPC and Amendment No. 24 was approved by the Minister for Planning and Infrastructure on 5 December and gazetted on 9 December 2005.

The Ministers resolution required additional clauses be inserted into DPS2 in regard to the subject site, requiring the preparation and implementation of a Vegetation Management Plan (VMP) by the landowner over the Public Open Space prior to the approval of an Agreed Structure Plan. Specific clauses include with DPS2 are as follows:

- a) *The preparation of a Vegetation Management Plan by the landowner over the Public Open Space and approved by the Council, prior to the approval of a Structure Plan for the entire site is required. The public open space is intended to be located within the treed Northeast section of the lot.*
- b) *The Vegetation Management Plan shall be prepared in accordance with the City of Joondalup's Council Policy 1-2 'Public Participation' and shall aim to protect and enhance the area for bush conservation purposes for the long term enjoyment by the local community.*
- c) *The rehabilitation of the Public Open Space area shall be undertaken by the landowner following the approval by the Western Australian Planning Commission of the Structure Plan and prior to approval of any subdivision application over the land.*
- d) *An agreement being entered into between the City of Joondalup and the landowner. The agreement shall detail the landowner's commitment to \$10,000 for the preparation of the Vegetation Management Plan, and a further \$100,000 for the protection and further enhancement of the bushland on the proposed Public Open Space area.*

To date the VMP has been prepared and lodged with the City in accordance with the City of Joondalup's Council Policy 1-2 'Public Participation'. The developer has also entered into an agreement with the City to prepare the VMP and has allocated funds to protect and further enhance the bushland on this future public open space area.



# LOT 61 LEACH STREET, MARMION AGREED STRUCTURE PLAN

## 3.3 District Planning Context

As illustrated in Figure 4, the subject site is located approximately 16km north-west of the Perth Central Area and within 5km of the following designated regional centres:

- Whitfords City Shopping Centre; and
- Karrinyup Shopping Centre

These centres are important nodes supporting both regional and local shopping needs, providing a variety of community facilities and serving as local employment opportunities.

The site is also supported by a quality high level of district recreational facilities including:

- Marmion Angling & Aquatic Club Centre;
- Star Swamp Bushland;
- Percy Doyle Reserve & Recreational Centre; and
- Hillarys Boat Harbour.

These facilities provide a variety of active and passive recreational opportunities for local and district residents alike.

The site is well connected to the regional road network being in close proximity to the north-south distributors of West Coast Highway and Marmion Road. These routes, in addition to Cliff Street to the east, provide public transport alternatives which will increase accessibility options for future residents within the subject site.

## 3.4 Local Context

The subject site is located within an existing residential neighbourhood characterised by single residential housing. The following key non-residential land uses are in close proximity to the subject site (refer Figure 5);

- Marmion Beach;
- Braden Park;
- Marmion Village Shopping Centre; and
- Marmion Primary School.

This proximity will ensure that new residents of the Agreed Structure Plan area have immediate access to a wide variety of retail and community facilities.



# LOT 61 LEACH STREET, MARMION AGREED STRUCTURE PLAN

## 4.0 SITE ANALYSIS

An Environmental Report (ER) prepared for the subject site by RPS Bowman Bishaw Gorham (BBG), presents a detailed analysis of the land and concludes that there are no environmental constraints to development of the site. The ER is included in full in Appendix B. Findings are summarised in the following section.

### 4.1 Physical Environment

The subject site is situated at approximately RL 30m AHD being generally flat to gently undulating with the exception of the southern portion of land abutting Troy Avenue. It presents a local topographic high point within a regional setting of shore parallel limestone dune terrain which is characterised by a five (5) metre level difference between Leach Street and Cliff Street.

The land is situated in an area mapped as Tamala Limestone which comprises a thin surface layer of siliceous grey white sands which overlays Aeolian limestone. Within this area the water table of the superficial aquifer is located at 30m BGL, and regional groundwater flow direction is to the west.

### 4.2 Vegetation

A search of the CALM database for declared rare, threatened, endangered and priority flora undertaken in December 2003, indicates there are no occurrences on the site.

A botanical survey of the land was also undertaken on the 3rd December 2003 with no Declared Rare Flora or Priority species found. Survey results found that the vegetation is generally in poor biological condition comprising both native and introduced species of flora.

The environmental survey found the southern portion of the site, north of Troy Avenue, to be very disturbed and weedy, with some native Banksia present.

The eastern and western portions have mostly planted non-native eastern Australian species, nursery-grown hybrids or Western Australian species not known to the area (for full results of the vegetation survey refer to Appendix B).

The land is not proposed for reservation and/or protection and Bush Forever confirms that the vegetation has no regional conservation significance.

In accordance with the City of Joondalup and WAPC Amendment No.24 resolution, 10% of the site, being the treed northern section of the lot, has been set aside for public open space purposes.

Also, in accordance with the WAPC resolution, a Vegetation Management Plan has been prepared in consultation with the City of Joondalup and the local community to improve the quality of the native



## LOT 61 LEACH STREET, MARMION AGREED STRUCTURE PLAN

vegetation and make provision for the ongoing management of the site. Approval by Council of the VMP will occur prior to final endorsement of the Structure Plan.

### 4.3 Fauna

The absence of any significant vegetation indicates that the land does not have the capacity to support any significant populations of native fauna.

Observations during site inspection noted several bushbird species which are typical in the Perth Metropolitan area including Willy Wagtail, Magpie and Indian Turtle Dove.

### 4.4 Hazardous Materials Survey

Environmental Engineers, Parsons Brinckerhoff have undertaken an Environmental Site Assessment of the site in March 2003 to determine whether hazardous materials are in the buildings and whether contaminants are likely to be present in soils or groundwater. The assessment made the following conclusions:

- Asbestos is either known or suspected of being present in a number of locations within the facilities on the site;
- PCB capacitors are present in the older fluorescent light fittings;
- SMF in the form of glass fibre insulation material is present in the ceilings of the main laboratory;
- Subject to confirmation on the composition of any sludge material in the interceptor trap, soils within the site do not pose a health risk to future occupants of the site (thus, prior to development the solid material in the interceptor trap should be tested for chemical deposits); and
- Further site investigation of soil and groundwater is not necessary.

Demolition of the CSIRO facilities can therefore proceed without environmental risk, with the correct procedures required for the removal of the hazardous materials employed.



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## 5.0 COMMUNITY CONSULTATION PROGRAMME

### 5.1 Background

Pursuant to Councils 5 April 2005 resolution, an approved Community Consultation Programme was undertaken to supplement this formal advertising process for the Agreed Structure Plan required under DPS2. A summary of the Programme and outcomes are included in Appendix C.

As a key initial phase of the Programme, Expressions of Interest were sought from residents willing to provide input into the preparation of the Agreed Structure Plan. A Stakeholder Reference Group (SRG) was formed comprising local residents and businesses and the Marmion, Sorrento, Duncraig Progress and Ratepayers Association Inc.

The SRG was initially convened in July 2005. However the group resolved it would be more appropriate to provide input into the Agreed Structure Plan following rezoning of land. Following the Minister's approval in December 2005, the SRG reconvened on three separate occasions, engaging in an open forum discussion at workshops held in November and December 2005 and a final meeting in January 2006.

### 5.2 Community Workshop Synopsis

A series of workshops were undertaken with the SRG to identify issues to be taken into consideration during the preparation of an Agreed Structure Plan for the residential development of the subject site. As requested by Council, the three Indicative Subdivision Plans, which were included within the original amendment documentation, were used as the basis for these discussions.

The objective of the three community workshops was to attain a level of consensus from the SRG regarding key elements to comprise within the Agreed Structure Plan.

#### 5.2.1 Outcomes

Two plans were prepared for the subject site as a direct result of consultation with the SRG. (The full Community Consultation Report is included within Appendix 3 and provides a detailed explanation of the associated consultation process and outcomes.)

This Agreed Structure Plan is derived from these discussions and the original advertised Indicative Subdivision Plans. In broad form it depicts a single north south cul-de-sac, with 10% open space allocated within the north of the site adjacent to Ozone Road abutting six residential lots.

The Agreed Structure Plan also reflects the City of Joondalup, the WAPC and Department for Planning and Infrastructure's outcomes as required by Amendment No. 24. This plan also accommodates many of the recommendations put forward by the SRG at the three workshops. Key land use elements raised by the SRG and reflected in the Agreed Structure Plan include:



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- 10% public open space provided at the northern end of the site, fronting Ozone Road. This complies with Council's resolution which required 10% of the site be allocated for public open space purposes including the remnant bushland to the north;
- An average lot size of 500m<sup>2</sup>. This average lot size complies with the base residential coding of R20 as requested by Council in their resolution. Larger lots consistent with the coding have also been retained around the perimeter of the subject site to interface sensitively with the existing larger lot sizes within Marmion;
- Frontage widths of approximately 16-17 metres for proposed lots fronting Leach Street. These widths are compatible with the 18 metre frontages of existing residential lots to the west of Leach Street; and
- An internal cul-de-sac is proposed with access from Cliff Street (closer to Ozone Road rather than Troy Avenue). This option was presented in one of the three Indicative Subdivision Plans and was preferred by the SRG. This option provides the most efficient sight lines along Cliff Street, allows for improved solar orientation for lots around the cul-de-sac head and prevents short cutting through the site to Leach Street.

It is noted that a preference was expressed by some members of the SRG to include a further area of public open space along Troy Avenue which would be in addition to the standard 10% requirement. This was not supported by the landowner and as it is not consistent with current WAPC subdivision policy for open space is not a strategy being reflected in the Structure Plan.

A key element of the Agreed Structure Plan provision is the ability for the City to adopt Detailed Area Plans (DAPs) for all lots within the Agreed Structure Plan area. These detailed development control mechanisms help manage the broad form and appearance of residential development, allow for site responsive variations to the Codes if acceptable to the City, manage streetscape and help control the interface between the proposed open space and new lots.

Detailed Area Plans (DAPs) may be prepared for any lot within the Agreed Structure Plan Area to indicate Acceptable Development standards which apply for those lots pursuant to the Residential Design Codes and any other matters deemed relevant. DAPs will be endorsed by the City of Joondalup.

Variations to the Residential Design Codes Acceptable Development standards approved as part of a Detailed Area Plan may address, but will not be limited to:

- Setbacks;
- Boundary walls;
- Garage and carport locations;
- Crossover locations;
- Fencing and retaining;
- Height;
- Site cover/open space;
- Solar controls;
- Streetscape; and
- Built form.



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## 6.0 DESCRIPTION OF AGREED STRUCTURE PLAN

This Agreed Structure Plan has been prepared pursuant to Part 9 of the City of Joondalup District Planning Scheme No. 2 which requires the preparation of a Structure Plan within land zoned 'Urban Development' prior to any subdivision or development being commenced or carried out on the site.

This Agreed Structure Plan document consists of two parts as required under Clause 9.8 of DPS2. These are Part 1 – Statutory Planning Section and Part 2 – Explanatory Report. Part 1 documentation comprising the statutory requirement is included at the front of the document and includes the following Plans:

- Plan 1 - Agreed Structure Plan;
- Plan 2 – Zoning Plan; and
- Plan 3 – Residential Code Plan.

### 6.1 Agreed Structure Plan Design Objectives

The Agreed Structure Plan has been configured to provide a robust framework for the future development of a walkable neighbourhood which capitalises on the sites location, reflects the local context, is site responsive and provides the opportunity for sustainable and energy efficient housing types within an existing neighbourhood.

In this regard the Agreed Structure Plan, although only 2.1885 hectares in area, has been formulated on the principles of Traditional Neighbourhood Design or 'New Urbanism' which advocates:

- Improved walkability within neighbourhoods;
- Compact urban form;
- Connectivity to surrounding development;
- Improved streetscapes; and
- Creation of an efficient, vibrant and sustainable community.

Incorporation of Traditional Neighbourhood Design principles within the Agreed Structure Plan will enhance the existing 'sense of place' within the Marmion locality.

This Agreed Structure Plan guides the future subdivision and development of the subject site for residential purposes through the identification of appropriate zonings, allocation of R-Codings, development standards, lot configuration, open space and road layout.

### 6.2 Street Layout

Numerous road design options were evaluated in the workshops considering factors such as:

- Permeability;
- Walkability;
- Traffic Levels and Impact;
- Road Safety;
- Intersection Spacing; and
- Resultant Lot Orientation.



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The final layout is simple, safe, and efficient and the most appropriate recognising the constraints imposed by topography, site distances, protection of existing amenity and the excellent permeability already created by the surrounding road network. It consists of a single cul-de-sac accessing directly from Cliff Street. This layout was supported by both the SRG and the landowner.

The single cul-de-sac from Cliff Street (rather than a direct connection) was preferred, taking into account the following points:

- Sightlines along Cliff Street - Cliff Street is steeply sloping, with the crest of the hill just north of the southern boundary of the public open space. The location of the proposed intersection with Cliff Street is heavily influenced by visibility of other vehicles travelling over the crest of the hill. The proposed intersection with Cliff Street provides approximately 70m of visible road length;
- Prevention of shortcutting – By deleting the through road option, only internal residents enter and exit Cliff Street at the proposed intersection opposite Braden Park. This reduces the traffic levels at this intersection and reduces the potential impact of increased traffic on existing residents;
- Minimising impacts on existing residences – The deletion of the through road option reduces the impact of headlight glare from through traffic to residences on the western side of Leach Street. In the Agreed Structure Plan option headlight glare from vehicles exiting onto Cliff Street will significantly reduce any impact on existing residences, instead illuminating Braden Park;
- Excellent permeability already around the site – The site is bound by four local roads connected through an efficient grid pattern network. There was therefore no need to propose an internal through road to improve permeability;
- Opportunities for solar access – The cul-de-sac head itself is configured and oriented to maximise passive solar energy opportunities for the lots with their north/south orientation.

In terms of streetscape, all existing verges along the length of the subject site will be upgraded as part of the development, with native trees being retained within road reserves where possible and in all other cases a minimum of one street tree per lot being planted. This commitment to enhancement is consistent with Clause 6(b) of Council resolution which states that significant stands of natural vegetation within road boundaries are to be retained, where possible.

There are existing concerns regarding existing traffic safety at the corner of Cliff Street and Troy Avenue and it is appropriate through this redevelopment that the landowner work with Council to investigate options for improvement at this intersection.

The potential for additional landscaping to the northern side of Troy Avenue can also be investigated in consultation with the City in an attempt to strengthen the pedestrian link to the coast.

The potential to upgrade the existing streetscapes, footpaths and street lighting is consistent with Clause 6(e) of Councils resolution which requires that the Agreed Structure Plan contains details relating to the upgrading of all existing streetscapes along the length of the subject lots. This is further detailed in Section 6.6 of this Report.



## LOT 61 LEACH STREET, MARMION AGREED STRUCTURE PLAN

### 6.3 Residential Lots

Consistent with Clause 6(c) Councils resolution to the Agreed Structure Plan area proposes a development density of R20 which allows for a minimum lot size of 440m<sup>2</sup> with an average lot size of not less than 500m<sup>2</sup>.

In keeping with this density, the Agreed Structure Plan proposes the creation of 35 single residential lots ranging in size from 441m<sup>2</sup> to 700m<sup>2</sup>.

The uses permitted within the Agreed Structure Plan area and general provisions applicable to development are as for the Residential zone under the City of Joondalup DPS2. Additional Structure Plan Provisions introduce Detailed Area Plans as a mechanism to further manage built form and development.

The lot configuration ensures that all new dwellings orientate and address existing streets interfacing with the surrounding residential pattern of development. The lots fronting Cliff Street survey the adjoining area of public open space with those lots fronting Leach Street likely to have ocean views.

The Agreed Structure Plan has been configured to ensure maximum solar access opportunity through east-west/north-south orientation of all lots.

### 6.4 Public Open Space

Lot 61 has excellent access to substantial Regional and Local Open Spaces including:

- Braden Park (4.7ha), which is directly opposite the site;
- Clifford Coleman Park located only 70 metres away on Troy Avenue;
- Percy Doyle Reserve;
- Star Swamp; and
- Marmion Beach.

The City has also undertaken a broader Public Open Space (POS) audit of the Marmion locality, finding that a total of 18 hectares of land is available for recreational pursuits within the suburb of Marmion. This equates to approximately 16% of the suburb being set aside for recreational purposes including the foreshore reserve.

The Council has required the landowner to provide a further 10% of the subject site (2187m<sup>2</sup>) be set aside for POS at the time of subdivision in accordance with standard residential subdivision policy (refer Council Resolution 7, Amendment No. 24). The community has expressed a preference for this POS to be located within the northern portion of the site to protect an existing stand of vegetation alongside Ozone Road.



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### **6.4.1 Vegetation Management Plan**

As requested by the Minister at time of gazettal (9 December 2005), the developer has entered into an agreement with the City of Joondalup committing to the preparation of a Vegetation Management Plan (VMP) for the northern portion of public open space which includes remnant bushland. The VMP aims to improve the quality of the degraded native vegetation and make provision for the ongoing management of the site.

The VMP has been prepared in consultation with the local community through a process approved by the City in accordance with Council Policy 1-2 'Public Participation'.

The developer has also allocated funds to protect and further enhance the bushland on the proposed public open space area.

The VMP has recently been lodged with the Council and approval is expected in the short term, prior to final approval of the Agreed Structure Plan.

### **6.5 Sustainability**

Resolution 6(a) of the City of Joondalup decision of the 5 April 2005 states that the Agreed Structure Plan should "clearly demonstrate the application of the principles of sustainability (note Council Policy 2.6.4 – Environmental, Social and Economic Sustainability)".

Council Policy 2.6.4 has since been revoked and replaced by City Policy 5.4 which outlines the internal operations of the City in regard to general sustainability principles. This is not relevant to the Agreed Structure Plan.

The City is currently preparing a new Sustainability Council Policy to guide the broad sustainable strategy of the City. Following final adoption, any future development within the City will be required to address this Council Policy.

Whilst no specific Council Sustainability Policy is in operation at the time of lodgement of this Agreed Structure Plan, the general principles of sustainable development in regard to Environmental, Social and Economic Sustainability are still addressed. In considering the triple bottom line implications of this development it is important to also consider the various sustainability initiatives described in;

- Network city;
- State Sustainability Strategy; and
- Regional Residential Density Guidelines for the Perth Metropolitan Region (WAPC).

Without describing these documents in detail a key feature generally of the planning objectives being pursued is to encourage the efficient use of large undeveloped or underutilised inner urban sites within the Perth Metropolitan Area, generally for medium density residential purposes to take advantage of existing often under utilised infrastructure such as schools, parks, sewerage etc.



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Utilisation of existing infrastructure in a more efficient way in turn takes pressure off development at the urban fringe where public expense is incurred in replicating these facilities.

This objective, as it relates to Lot 61, is well expressed in the Western Australia Planning Commission's Policy Regional Residential Density Guidelines for the Perth Metropolitan Region which states;

"Where large sites exist with spare infrastructure capacity or where it can be provided the site should be given priority for consideration for residential development to maximise the use of that infrastructure potential".

More specifically with respect to the three key sustainability indicators in a triple bottom line assessment (economic, social and environment), the following is relevant.

### **6.5.1 Economic**

The clear presumption in all of these policies relevant to sustainability is that vacant or underutilised urban zoned land cannot be developed or used inefficiently as this simply places more pressure on expensive development within the urban fringe and the cost implications of this type of urban form are considerable.

Considering this, and the local context of Lot 61, the clearly preferred land use to be applied in any redevelopment of the site is for residential purposes to an appropriate density, taking advantage of existing infrastructure.

Generally the residential density applied in order to achieve such efficiency in suburban infill areas will range from R20 to R40 with many similar examples elsewhere achieving the higher density. For Lot 61, however, the City of Joondalup and local residents have expressed a clear preference for a lower density of R20 which is more compatible with existing residential densities and character.

Whilst an R20 density is slightly less sustainable in economic terms than a higher density coding it is an appropriate solution for this site given the community consultation outcome. It still meets the general triple bottom line objectives particularly those focused on improving economic efficiency and redevelopment of underutilised sites.

### **6.5.2 Social**

Whilst the relatively small nature of this development does not in itself generate the need for additional social infrastructure, what development will achieve is the more efficient use of existing infrastructure in the area which has capacity to support the relatively small number of lots a 2ha site will generate.

Key social infrastructure elements within close proximity of this site include;

- Marmion Village Shopping Centre (350m);
- Marmion Angling and Aquatic Club (500m).
- Marmion Primary School (580m);



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The site is also well connected to regional transport movement routes and public transport, ensuring efficient linkages to the region and employment opportunities. The site is in fact only 16km from the Perth Centre.

### **6.5.3 Environment**

Environmental assessment work undertaken by BBG has clearly concluded that the subject land is not proposed for reservation and/or protection of any description and even the small pocket of remnant bush being protected on Ozone Street has no regional conservation significance. The vegetation is generally in poor biological condition and comprises a mix of both native and introduced species of flora.

However, the 10% POS allocation provides the opportunity for incorporation of this bushland into 2187m<sup>2</sup> of POS to protect this as a local environmental feature. Further, implementation of the VMP will ensure the protection, further enhancement and rehabilitation of the POS for the long term enjoyment of the local community.

The site has also been assessed for hazardous materials to ensure that demolition of the CSIRO facilities can proceed without environmental risk.

In addition the Developer has committed to using best endeavours to encourage suppliers and building contractors to adopt best environmental, operational and management practices in the development phase.

The second element to environmental sustainability relates to the subsequent urban form which will result from subdivision development. The subdivision pattern provides excellent opportunity for solar access, with a central north south cul-de-sac creating both east-west and north-south oriented lots which can take full advantage of solar access and energy efficient principles.

The subdivision offers a compact development site (although constrained by an R20 coding) located within a walkable catchment of nearby district and local open space and other community facilities. The site also provides for the efficient use of public transport, with existing routes operating down Cliff Street and West Coast Drive. The site has also been well designed to provide connections to existing pedestrian links, thereby reducing local vehicle levels assisting in maintaining low greenhouse gas emissions within the City.

Solar orientation, following subdivision, will rely on landowner and builders giving due consideration to siting, orientation and spacing of buildings given the opportunity presented by the good lot orientation. As such, internal layout of rooms, orientation of windows and location of outdoor spaces on the north will also affect the success of solar access.

The Developer will encourage dwellings to be constructed on the site in conformity with sustainable energy and environmental design principles, including grey water treatment processes wherever possible.



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### 6.6 Built Form Control & Management

#### 6.6.1 Detailed Area Plans

All land within the Agreed Structure Plan area is zoned Residential R20 and shall be developed in accordance with the Residential R20 provisions of the Residential Design Codes 2002, particularly with respect to building height and bulk.

A DAP can establish particular development standards to ensure, for example, dwellings address and survey the street and adjoining public open space, which is particularly relevant to the northernmost lots. The DAPs can also assist in regulating sustainable energy and environmental design within the built form as suggested by Council in Clause 6(f) of its Resolution.

DAPs may be prepared for any lot within the Agreed Structure Plan Area to indicate Acceptable Development standards which apply for those lots pursuant to the Residential Design Codes and any other matters deemed relevant. DAPs will be endorsed by the City of Joondalup

Variations to the Residential Design Codes Acceptable Development standards approved as part of a Detailed Area Plan may address, but will not be limited to:

- Setbacks;
- Boundary walls;
- Garage and carport locations;
- Crossover locations;
- Fencing and retaining;
- Height;
- Site cover/open space;
- Solar controls;
- Streetscape; and
- Built form.

The developer will negotiate further with the City once the Agreed Structure Plan is adopted to take advantage of the DAP provisions to ensure that the housing forms reflect local conditions and amenity consideration.



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### **6.6.2 Streetscape, Landscapes and Public Space Amenity**

Resolution (d) and (e) of the Council's decision and a clear direction to emerge from the Community Consultation Workshops was the importance of the quality and appearance of the external interface of this subdivision with the existing residential areas in terms of:

- Lot levels and sympathy to natural levels;
- Street trees and landscapes;
- Treatment of public open space;
- Protection of existing vegetation;
- On-street parking; and
- Pedestrian amenity.

All of these factors are essential urban design elements which when handled sensitively not only add to the liveability and functionality of the development, but as importantly will improve the amenity of the existing residents in the Marmion area. In this regard, the following initiatives should be noted.

#### Lot levels and Sympathy to natural levels

Whilst parts of the site topography are challenging, both the design of the Plan and the engineering approach at the time of development will be aimed at minimising the need for retaining walls along existing streets. Wherever possible, at grade access will be provided to the lots from these streets, with only a small component of retaining, which in most cases would simply form part of the front fence. The only small section of the site where slightly higher retaining walls may be necessary is around the corner of Troy Avenue and Leach Street, however even in this area their height has been substantially reduced through a design modification to the Structure Plan, whereby the number of lots along Troy Avenue and the orientation has been altered. In general, the larger retaining walls will be at the rear of lots and not visible from current residences.

#### Street Trees and Landscapes

In addition to the Vegetation Management Plan being prepared for the public open space, the Developer has also committed to the preparation of a separate Landscape Management Plan at the time of subdivision. The purpose of this Plan, which will be prepared in conjunction with the City, is to improve streetscapes along Ozone Road, Cliff Street, Troy Avenue and Leach Street. In essence, this will involve identifying and retaining any existing significant specimens within the road reserve wherever possible and then supplementing these with similar compatible native species to soften the edges and to integrate the subdivision.

#### Public Open Space and Existing Vegetation

The streetscape along Ozone Road, in front of the proposed Public Open Space, will through the implementation of the Vegetation Management Plan, represent an extension of the natural bushland area remaining on the POS. In this manner the verge treatment will merge seamlessly with the Public Open Space, effectively adding that area of verge to the open space, thereby improving the quality and appearance of this edge. Once again native species will be used.



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### On-Street Parking

As all lots will have a cross-over and driveways to garages, which can if necessary accommodate visitor parking, there is no need for any additional on-street parking to be provided as part of this subdivision. In streetscape terms this is a positive, as it leaves additional area within the verge for planting and landscaping, rather than hardstand areas for parking.

### Pedestrian Amenity

As part of the subdivision process the Developer will improve and / or re-instate any footpaths on the existing road network to facilitate pedestrian movement around the site and to key attractors such as Braden Park and the Beach. The internal cul-de-sac by virtue of the low traffic volumes generated does not have a requirement for a separate footpath.



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## 7.0 ACCESS AND MOVEMENT

This section presents a summary of the report prepared by Riley Traffic Engineers (*refer Appendix D*) which outlines key results of traffic modelling undertaken on local roads within and surrounding the Agreed Structure Plan.

### 7.1 Existing Road Network

The site is well located to the district and regional road network providing good access to the city and other regional facilities.

Cliff Street is a local distributor road bounding the eastern side of the site and running parallel to West Coast Drive. Currently, daily traffic flows reach approximately 1,700vpd. Liveable Neighbourhoods suggest that traffic flows on Cliff Street should not exceed 3,000vpd.

Leach Street bounds the western side of the site and is constructed with a 6.0 to 6.5 metre carriageway. As a residential access street, current traffic volumes total less than 200vpd however increases in daily traffic flows could be easily accommodated.

Troy Avenue bounds the southern side of the site with Ozone Road to the north, both providing a connection between Cliff Street and West Coast Drive. Individual current traffic flows on both of these residential access streets are assumed at less than 500vpd.

### 7.2 Traffic Generation

The subject site is located in an existing residential area predominantly occupied by executive style homes, many with views to the ocean. Car use in the local area is higher than typical due to the excellent road connections to the city (and employment) and the reduced level of easily accessible public transport. Further, the values of the land would attract buyers that are more likely to choose to travel by car.

The proposed development will provide for a yield of approximately 35 residential lots. Current traffic generation estimations for residential lots vary from 5 to 11 trips per day with a daily trip rate of 9 trips per dwelling per day considered to be an appropriate estimation for the subject site. Based on this rate it can be expected that the site would generate (9x35) 315 trips per day.

### 7.3 Distribution

The traffic generated by the residential development is distributed onto the local road network with 20% of residents travelling north to local schools and Hillarys, 20% travelling east to local schools, shopping and Whitfords City Shopping Centre and 60% travelling south towards the local beach attractions and towards the centre of Perth. It is assumed that local residents will walk to the beach.

A detailed Traffic Distribution Table and Assumed Traffic Flows are included within *Appendix D*.



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## 7.4 Traffic Impact

Existing traffic flows on local streets and the maximum increase as a result of the proposed development are included within *Appendix D*.

These results indicate that the greatest increase in traffic is only 100 vpd which will occur on Leach Street. The total traffic movements on Leach Street will be well below the residential amenity level of 1,500vpd.

The increase on Cliff Street is shown to be between 12 vpd and 232 vpd and is not significant for a local distributor road. Throughout the day Cliff Street will operate in a similar manner to the existing situation. During peak times local residents may notice a slight increase in local traffic movement, in traffic engineering terms the development traffic flow would have no significant impact on Cliff Street.

Ozone Road and Troy Avenue are currently quiet residential streets that provide local connectivity to West Coast Drive and the ocean. The proposed development will have a minimal impact on the surrounding traffic with a typical increase of 44vpd and 26vpd respectively to these streets.

All local streets will continue to operate as quiet residential streets and it is not expected that any detrimental impact to the residential amenity would occur as a result of the proposed development.

## 7.5 Access

The proposed street layout within the Agreed Structure Plan assumes direct access to primary streets. As all local streets have daily traffic flows of less than 3,000vpd, direct lot access is acceptable under current planning guidelines.

A cul de sac head located centrally within the estate is proposed to service 17 lots. The location of the access point onto Cliff Street is approximately 62 metres south of Ozone Road with a visibility of 70 metres to the south. The access is located at the crest of the hill on Cliff Street where an existing access point is located.

These distances accord with appropriate intersection spacing requirements and approach sight distances on a 50kph road but not for Safe Intersection Sight Distances (80 metres). However, the hill on the approach to the access will limit the speed of vehicles resulting in an acceptable visibility distance which accords with a 45kph approach speed.



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## 8.0 SERVICING AND INFRASTRUCTURE

This section has been prepared by Cossill & Webley Engineers summarising the results of an assessment of future subdivisional works and services.

### 8.1 Context

The subject is elevated from the surrounding roads of Cliff Street, Leach Street, Troy Avenue and Ozone Road and is relatively flat with a gradient ranging from about 3% to 4%, making it well suited to the development of residential housing.

There is sufficient capacity in the existing services infrastructure to ensure any lots created as a result of land subdivision can be adequately serviced with sewer and water reticulation, underground power, telecommunications and natural gas.

### 8.2 Site works, Earthworks and Retaining Walls

As part of any residential subdivision it will be necessary to construct retaining walls and terraced lots for ease of dwelling construction.

The engineering approach at the time of development will be aimed at minimising the need for retaining walls and in most cases eliminating these along existing streets. Wherever possible, at grade access will be provided to the lots from these streets, with only a small component of retaining, which in most cases would simply form part of the front fence. In general, any large retaining walls will be at the rear of lots and not visible from current residences.

These engineering plans will be prepared at the time of subdivision in consultation with the City of Joondalup.

### 8.3 Drainage

The soils are suitable for the onsite disposal of stormwater, and in keeping with the Water & Rivers Commission's Interim Policy for stormwater disposal, runoff from any future building and hardstand area will be disposed of via soak wells on site. Similarly, any new roads created as a result of the future subdivision will be designed with the intention of storing all stormwater drainage within the newly created road reserve.



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### **8.4 Sewer and Water Reticulation**

Existing deep sewerage lies in close proximity to the site and can be extended to service the site.

Existing water mains with adequate capacity surround the site. These can be extended into the site, if necessary.

### **8.5 Road works**

The existing road system surrounding the site is in good condition and capable of supporting vehicle traffic, particularly with respect to the current proposal where extra traffic generation will be minor (see Section 7.2). Internal roads will be designed in accordance with the City of Joondalup's standard requirements with a direct connection to the existing network, and may comprise a brick paved entry statement.

New roads will have standard street lighting consistent with the City of Joondalup's requirements. Services extended under existing roads may be bored to minimise disturbance to traffic and the existing pavement.

### **8.6 Underground Power and Telephone**

There is sufficient capacity with the existing overhead power to service the site with power. Similarly, there is sufficient capacity in the telephone system.



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### 9.0 CONCLUSION

The future urban development of Lot 61 Leach Street, Marmion will be guided by the Approved Agreed Structure Plan which has been prepared in consultation with the City of Joondalup and local Marmion community. This Agreed Structure Plan provides a framework within which future subdivision applications and Detailed Area Plans can be approved.

The Agreed Structure Plan addresses the statutory planning and environmental qualities of the site and establishes the suitability of the land for residential development.

The community consultation process that was undertaken was effective in highlighting key issues of relevance to the local Marmion residents and resulted in a number of modifications to the original indicative subdivision design to create the final preferred Agreed Structure Plan.

The street and lot layout, public open space requirement and sustainable built form outcomes are all addressed within the Agreed Structure Plan context as too are the existing servicing and traffic requirements.

The Agreed Structure Plan prepared for the Marmion Estate provides a comprehensive planning framework which ensures integration and compatibility with existing and nearby land uses.

Based upon this framework a development outcome can be expected that provides a quality and sustainable living environment, is responsive to the physical character of the site and provides an urban form that is conducive to the building of a true neighbourhood community.



LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN

**FIGURES**



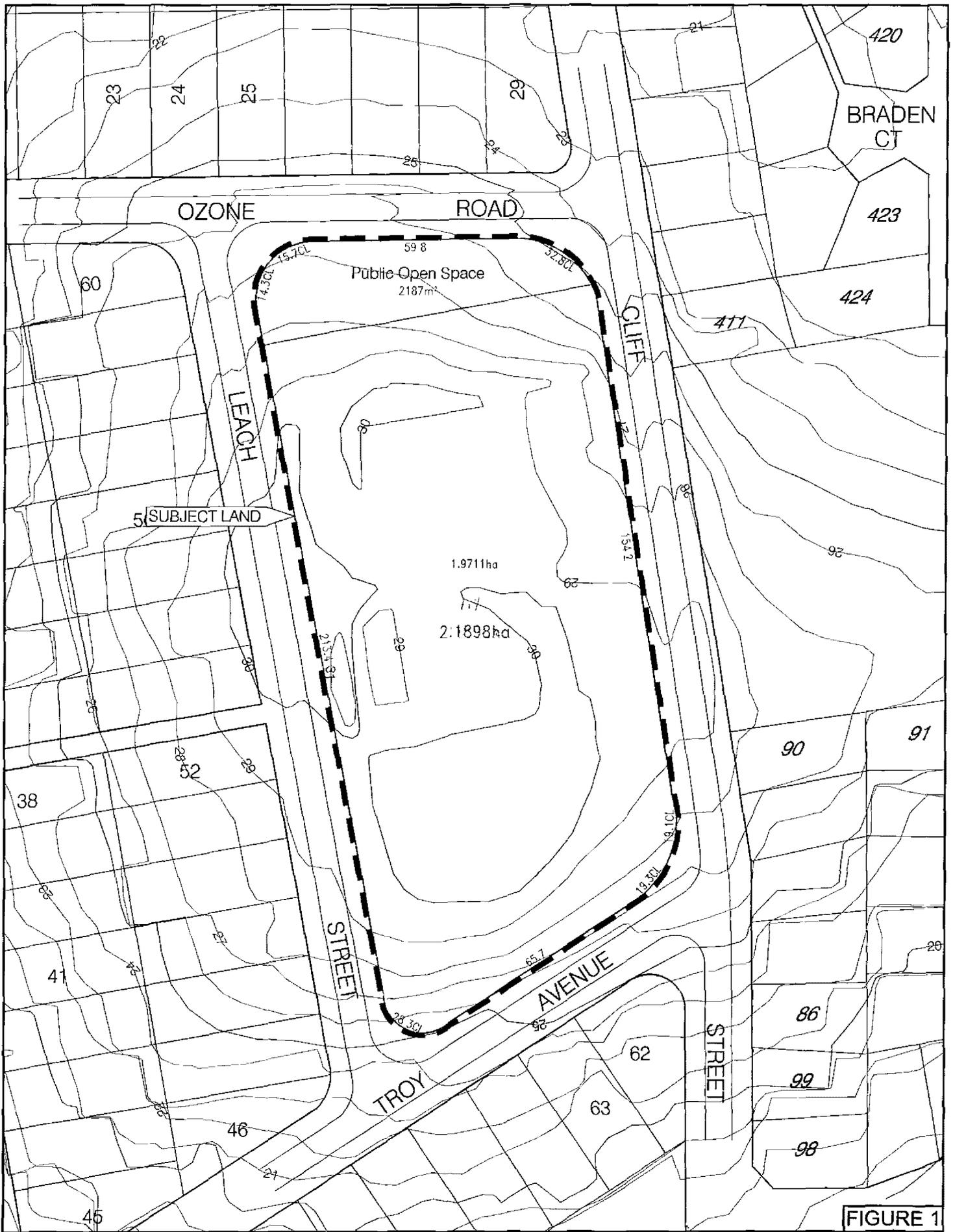


FIGURE 1

SITE PLAN  
 LOT 61 LEACH STREET, MARMION  
 CITY OF JOONDALUP



**C H A P P E L L  
 & L A M B E R T**  
 T O W N P L A N N I N G  
 U R B A N D E S I G N  
 LEVEL 2 - 36 ROWLAND STREET SUBIACO WA 6008 PO BOX 796 SUBIACO WA 6904  
 TELEPHONE (08) 9382 1233 FACSIMILE (08) 9382 1127 EMAIL dlat@chaplambert.com



AREAS AND DIMENSIONS  
 SUBJECT TO SURVEY

SCALE  
 1:1 500

DATE  
 07.07 05

COMPILED  
 C&L, MAPS

REVISED

PLAN No  
 2006-19

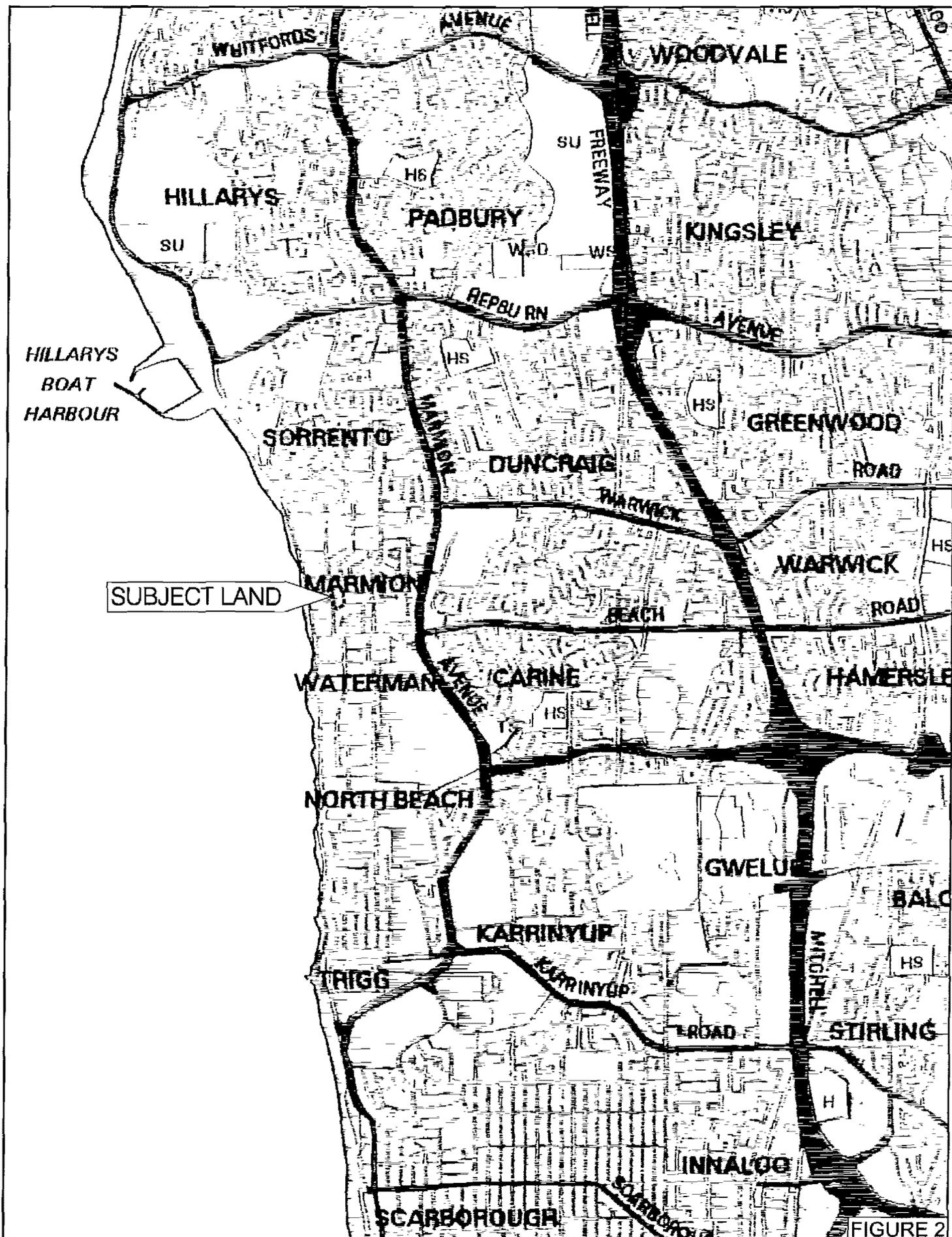


FIGURE 2

**METROPOLITAN REGION SCHEME**  
**LOT 61 LEACH STREET, MARMION**  
**CITY OF JOONDALUP**



**CHAPPELL & LAMBERT**  
 TOWN PLANNING  
 URBAN DESIGN  
LEVEL 2 - 35 ROWLAND STREET SUBIACO WA 6008 PO BOX 796 SUBIACO WA 6904  
 TELEPHONE (08) 9382 1233 FACSIMILE (08) 9382 1127 EMAIL draft@colpa.com



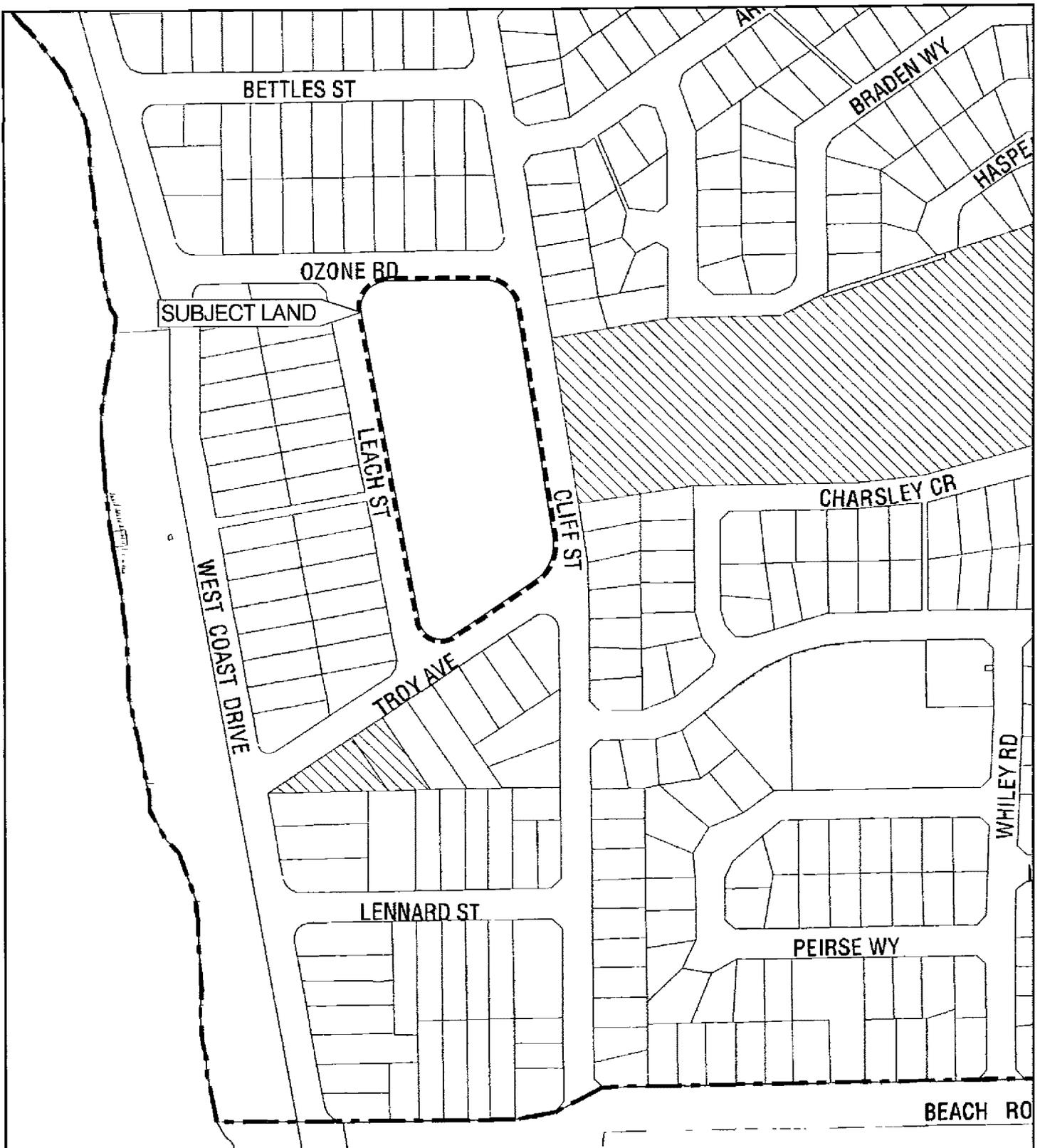
SCALE  
1:80 000

DATE  
12.09.05

COMPILED  
C&L/DPI

REVISED

PLAN No.  
2006-23



**LEGEND**

- METROPOLITAN REGION SCHEME RESERVES**
- PARKS AND RECREATION
  - RESTRICTED PUBLIC ACCESS
  - RAILWAYS
  - PORT INSTALLATIONS
  - STATE FORESTS
  - WATER CATCHMENTS
  - CIVIC AND CULTURAL
  - WATERWAYS
  - PRIMARY REGIONAL ROADS
  - OTHER REGIONAL ROADS
  - PUBLIC PURPOSES - DESIGNATED AS FOLLOWS:
    - H HIGH SCHOOL
    - HS HIGH SCHOOL
    - Y11 YEAR 11
    - CP COMMUNITY CENTRE
    - U UNIVERSITY
    - CO COMMUNITY CENTRE
    - VE VETERAN'S SERVICES
    - SU SPORTS
    - W60 W60
    - P POLICE

**LOCAL RESERVES**

- PARKS AND RECREATION
- PUBLIC USE - CLUB, CLUBHOUSE, CLUBHOUSE

**ZONES**

- RESIDENTIAL
- MIXED USE
- BUSINESS
- COMMERCIAL
- CIVIC AND CULTURAL
- PRIVATE CLUBS / RECREATION
- SERVICE INDUSTRIAL
- CENTRE
- URBAN DEVELOPMENT
- SPECIAL RESIDENTIAL
- RURAL
- ADDITIONAL USE - RESTRICTED USE - SPECIAL USE

Source: District Planning Scheme, City of Joondalup

**FIGURE 3**

**DISTRICT PLANNING SCHEME  
LOT 61 LEACH STREET, MARMION  
CITY OF JOONDALUP**



**C H A P P E L L  
& L A M B E R T**  
T O W N P L A N N I N G  
U R B A N D E S I G N

LEVEL 2 - 36 ROWLAND STREET SUBIACO WA 6008 PO BOX 796 SUBIACO WA 6904  
TELEPHONE (08) 9362 1263 FACSIMILE (08) 9362 1127 EMAIL [info@chappell.com](mailto:info@chappell.com)



AREAS AND DIMENSIONS  
SUBJECT TO SURVEY

SCALE  
1:6000

DATE  
09.09.05

COMPILED  
C&L

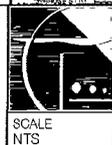
REVISED

PLAN No.  
2006-23



FIGURE 4

DISTRICT CONTEXT  
LEACH STREET, MARMION  
CITY OF JOONDALUP



**CHAPPELL & LAMBERT**  
TOWN PLANNING  
URBAN DESIGN

LEVEL 2, 118-120 LEACH STREET, BALDWIN WILLOW, KARRINYUP, WESTERN AUSTRALIA  
TELEPHONE (08) 9496 1233 FAX (08) 9496 1232 EMAIL: info@chappell.com.au



SCALE NTS	DATE 08.09.05	COMPILED C+L	REVISED	PLAN No 2006-22
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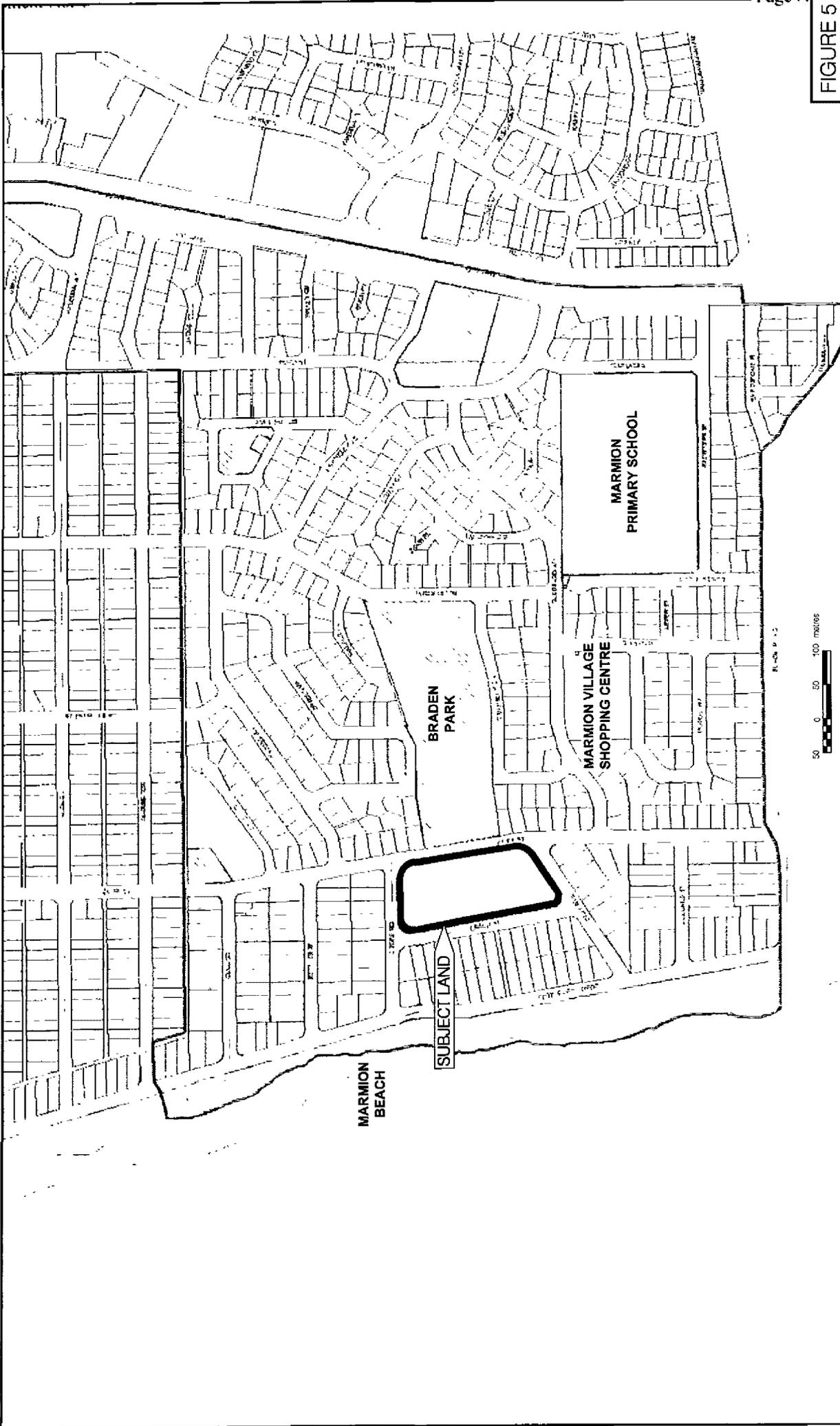
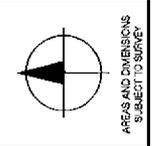


FIGURE 5



**CHAMP & LAMP**  
**PERTELL**  
**URBANNING**  
 TORBAN PLANNING  
 LEVEL 2, 39 HOWLAND STREET, SUBACCO WA 6008. P.O. BOX 796, SUBACCO WA 6004  
 TELEPHONE (08) 9482 1032. FACSIMILE (08) 9482 1127. EMAIL [info@champlamp.com](mailto:info@champlamp.com)



AREAS AND DIMENSIONS  
 SUBJECT TO SURVEY

SCALE  
 1:8 000

DATE  
 07.07.05

COMPILED  
 C&L MAPS

REVISED  
 12.09.05

PLAN No.  
 2006-24

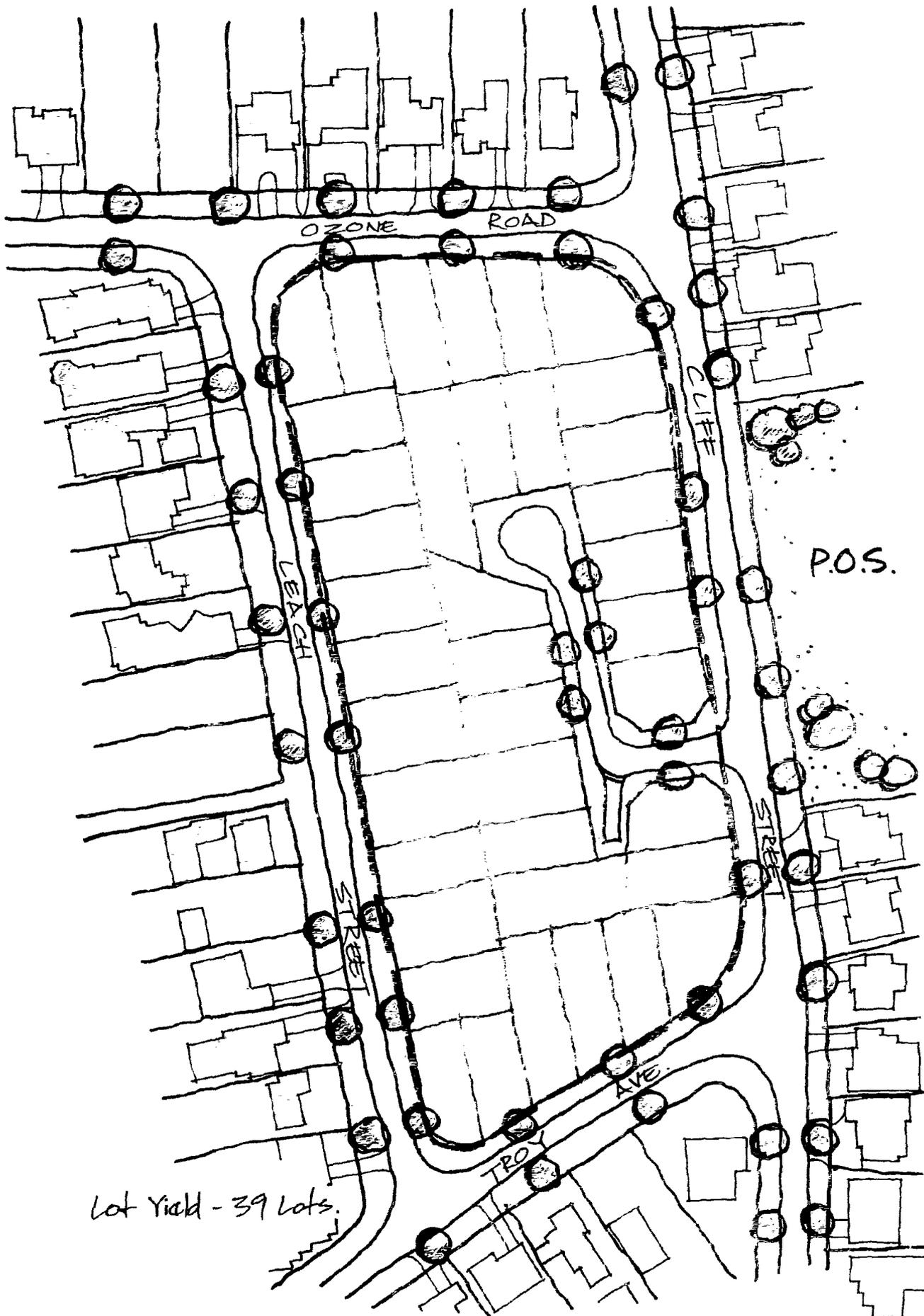
**LOCAL CONTEXT**  
**LOT 61 LEACH STREET, MARMION**  
**CITY OF JOONDALUP**

**LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN**

**APPENDIX A**

**SCHEME AMENDMENT INDICATIVE SUBDIVISION PLANS**



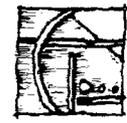


Lot Yield - 39 Lots.

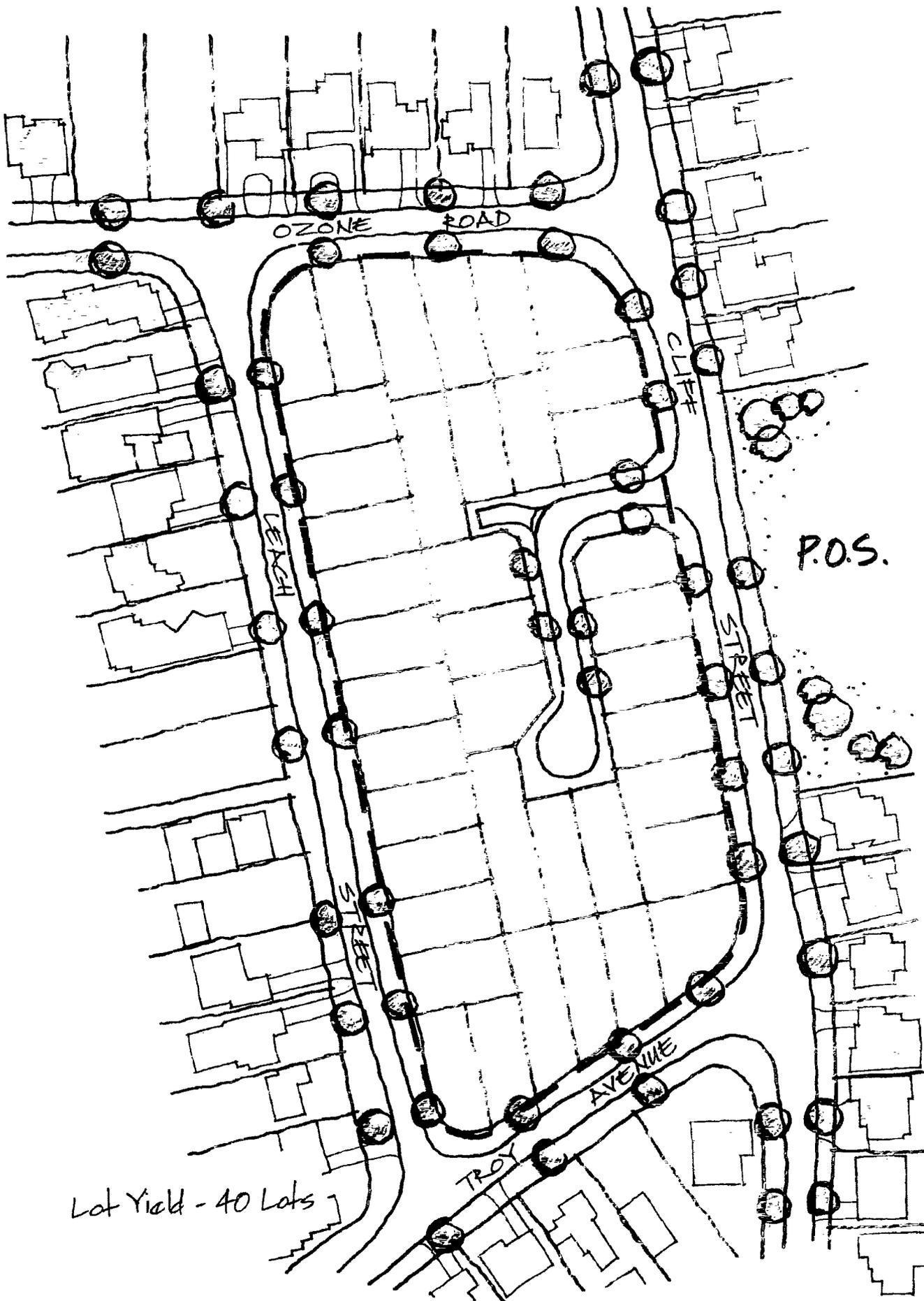
P.O.S.



PROPOSED SUBDIVISION-OPTION A  
 LOT 61 LEACH ST. MARMION.



CHAPPELL  
 + LAMBERT  
 Scale 1:1000 09.07.03



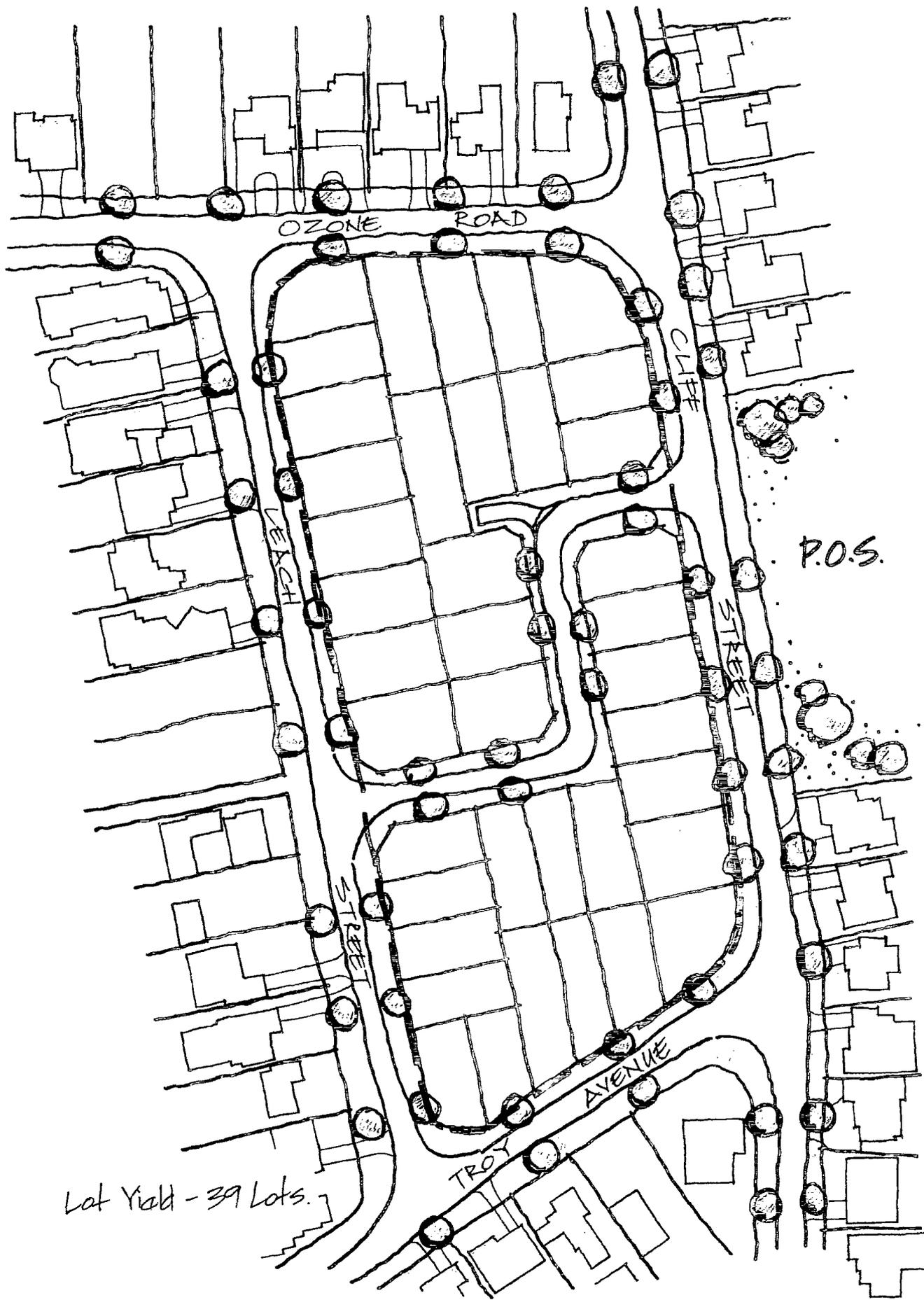
Lot Yield - 40 Lots

# SUBDIVISION CONCEPT - OPTION B LOT 61 LEACH ST. MARMION



CHAPPELL  
+ LAMBERT  
Scale 1:1000 16.01.04





SUBDIVISION CONCEPT. OPTION C  
 LOT 61 LEACH ST. MARMION.

CHAPPELL  
 + LAMBERT  
 Scale: 1:1000 16.01.04

LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN

**APPENDIX B**

**BBG ENVIRONMENTAL REPORT**



## **1.0 INTRODUCTION**

Satterley has purchased the former CSIRO Marine Research Facility in Marmion (the site) and proposes to remove the existing buildings and facilities and redevelop the land for residential purposes which are consistent with the surrounding residential lots.

The facility was established in 1975, and was used for research related to the marine environment, until recent years when these activities were relocated to other locations and the site was vacated.

The draft concept for the proposed development is for quality residential homes with an average lot size of 500sqm, similar in character to those surrounding the site.

Environmental investigations of the site and the vacated research facility buildings have been carried out and the results, which are summarised here, lead to the conclusion that there are no environmental constraints to development of the site as proposed.

## **2.0 LOCATION**

The 2.2ha site is located in the suburb of Marmion and is bounded by Ozone Road, Troy Avenue, Cliff and Leach Streets. The site is zoned urban in the Metropolitan Scheme.

The site is currently vacant and supports a number of brick and tile buildings, bitumen paved hardstand, concrete tanks, decks and other structures. The land surrounding the buildings consists of gardens and open areas supporting planted vegetation.

## **3.0 PHYSICAL ENVIRONMENT**

### **3.1 Topography**

Topographic contours for the site show that it is situated at approximately RL 30m AHD. The site is flat to gently undulating and presents a local topographic high point within a regional setting of shore parallel limestone dune terrain.

### 3.2 Geology and Soils

The Perth Environmental Geology Map series show that the site is situated in an area mapped as Tamala Limestone which comprises a thin surface layer of siliceous grey white sands which overlays Aeolian limestone.

### 3.3 Hydrogeology

The Perth Groundwater Atlas (WRC, 1997) indicates that the water table of the superficial aquifer is located at 30m BGL, and that regional groundwater flow direction is to the west.

## 4.0 BIOLOGICAL ENVIROMENT

### 4.1 Vegetation

A search of the CALM database for declared rare, threatened, endangered and priority flora was undertaken in December 2003. The results indicated there are no known occurrences within the site (see Appendix A).

In addition, a botanical survey of the site was undertaken on the 3<sup>rd</sup> December 2003. No Declared Rare Flora or Priority species were found. Survey results found that the vegetation supported by the site is generally in poor biological condition and comprises both native and introduced species of flora.

### 4.2 Vegetation Description

The site survey found the south area of the site to be very disturbed and weedy, with some native *Banksia* present.

The eastern and western portions of the site have mostly planted non-native species. Planted trees and shrubs are eastern Australian species, nursery-grown hybrids or Western Australian species not known to the area.

Vegetation in the northern area of the site consists of some native *Banksias* and *Callitris preissi* with various planted trees. The highly disturbed understorey contains occasional *Grevilleas* and *Acacias*, as well as *Conostylis aculeata*.

Anecdotal evidence offered by a local resident at an Open Day held to discuss the proposal with the local community, indicates that the entire site was cleared of native vegetation in 1975 during the construction of the CSIRO Facility, and all vegetation which the site supports has been planted.

For full results of the vegetation survey please refer to Appendix B.

#### **4.3 Local and Regional Value of Vegetation**

Review of the Western Australian Government's Bush Forever Policy maps confirms that the site is not part of the land areas proposed for reservation and therefore the vegetation which the site supports has no regional conservation significance.

On the basis of the poor biological condition of the vegetation determined by the botanical survey, and the absence of any flora species with any particular conservation significance it may be concluded that the site's vegetation does not possess any characteristics or attributes which would give it conservation significance in the local context.

#### **4.4 Fauna**

The absence of any significant vegetation indicates that the site does not have the capacity to support any significant populations of native fauna.

Observations during site inspection noted several bushbird species which are typical for the Perth Metropolitan area including Willy Wagtail, Magpie and Indian Turtle Dove.

It is likely that there are small populations of herpetofauna which are typical for very small areas of sparsely vegetated limestone dune terrain.

### **5.0 HAZARDOUS MATERIALS SURVEY**

Consultants Parsons Brinckerhoff undertook an environmental site assessment of the facility in March 2003. The aim of the assessment was to determine whether hazardous materials are in the buildings and contaminants are likely to be present in soils or groundwater. The assessment made the following conclusions:

- Asbestos is either known or suspected of being present in a number of locations within the facilities on the site.
- PCB capacitors are present in the older fluorescent light fittings.
- SMF in the form of glass fibre insulation material is present in the ceilings of the main laboratory.
- Small quantities of hazardous laboratory chemicals remain in the laboratory.
- Subject to confirmation on the composition of any sludge material in the interceptor trap, soils within the site do not pose a health risk to future occupants of the site (thus, prior to development the solid material in the interceptor trap should be tested for chemical deposits).
- Further site investigation of soil and groundwater is not necessary.

Thus, demolition of the CSIRO facilities can proceed without environmental risk, on the assumption that the following correct procedures required for the removal of the hazardous materials identified on the site are employed:

*Asbestos* – The asbestos removal and disposal should be undertaken in accordance with:

- Worksafe WA regulatory requirements on asbestos removal;
- National Occupational Health and Safety Commission (1988), *Guide to the Control of Asbestos Hazards in Buildings and Structures*, August; and
- Department of Health (Asbestos) WA regulations for disposal of asbestos.

*PCBs* – The light capacitors containing PCB in the building should be removed and stored using the procedure set out in Worksafe WA (2003) "*Safe Handling of PCBs in Fluorescent Light Capacitors*".

*Synthetic Mineral Fibres* – The synthetic mineral fibre material used for the insulation of air conditioning ducts, hot water lagging and roof insulation should be removed prior to demolition. Safe working procedures to prevent the inhalation of irritating dust and skin irritation should be adopted including the wearing of appropriate dust masks, goggles, overalls and suitable gloves. The procedures recommended by Worksafe Australia (2003) "*National Code of Practice for the Safe Use of Synthetic Mineral Fibres*" should be used.

## 6.0 REFERENCES

National Occupational Health and Safety Commission 1988. *Guide to the Control of Asbestos Hazards in Buildings and Structures* [NOHSC: 3002 (1981)], August.

Waters and Rivers Commission. 1997. *Perth Groundwater Atlas*. October 1997.

Worksafe Australia 2003. *National Code of Practice for the Safe Use of Synthetic Mineral Fibres*.

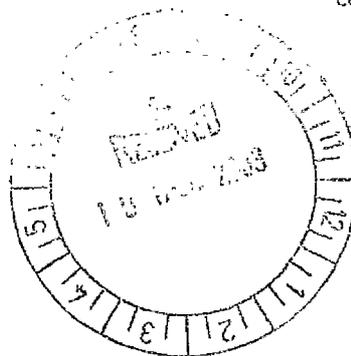
Worksafe WA 2003. *Safe Handling of PCBs in Fluorescent Light Capacitors*.

**APPENDIX A**

**CALM Flora Database Search**

Your Ref:  
Our Ref: 2001F001173VO7  
Enquires: John Riley  
Phone: (08) 9334 0123  
Fax: (08) 9334 0278  
Email:

Bowman Bishaw Gorham  
PO Box 465  
SUBIACO WA 6904



Attention: Carolyn Harding

Dear Ms Harding

### REQUEST FOR RARE FLORA INFORMATION

I refer to your request of 3 December 2003 for information on rare flora in the Marmion area. The search co-ordinates used were as quoted.

A search was undertaken for this area of (1) the Department's *Threatened (Declared Rare) Flora* database (for results, *if any*, see "Summary of Threatened Flora Data" – coordinates are GDA94), (2) the *Western Australian Herbarium Specimen* database for priority species opportunistically collected in the area of interest (for results, *if any*, see "WAHERB Specimen Database General Enquiry" – coordinates are AGD84) and (3), the Department's *Declared Rare and Priority Flora List* [this list, which may also be used a species target list, contains species that are declared rare (Conservation Code R or X for those presumed to be extinct), poorly known (Conservation Codes 1, 2 or 3), or require monitoring (Conservation Code 4) – for results, *if any*, see "Declared Rare and Priority Flora List"].

Attached also are the conditions under which this information has been supplied. Your attention is specifically drawn to the seventh point which refers to the requirement to undertake field investigations for the accurate determination of rare flora occurrence at a site. *The information supplied should be regarded as an indication only of the rare flora that may be present and may be used as a target list in any surveys undertaken.*

An invoice for \$200 (plus GST) to supply this information will be forwarded.

It would be appreciated if any populations of rare flora encountered by you in the area could be reported to this Department to ensure their ongoing management.

If you require any further details, or wish to discuss rare flora management, please contact my Principal Botanist, Dr Ken Atkins, on (08) 9334 0425.

Yours faithfully

.....  
for Keiran McNamara  
EXECUTIVE DIRECTOR

8 December, 2003

Attached

**APPENDIX B**

**Vegetation Survey Results**

ATTACHMENT

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

RARE FLORA INFORMATION

CONDITIONS IN RESPECT OF SUPPLY OF INFORMATION

1. All requests for data to be made in writing to the Executive Director, Department of Conservation and Land Management, Attention: Administrative Officer Flora, Wildlife Branch.
2. The data supplied may not be supplied to other organisations, nor be used for any purpose other than for the project for which they have been provided, without the prior written consent of the Executive Director, Department of Conservation and Land Management.
3. Specific locality information for Declared Rare Flora is regarded as confidential, and should be treated as such by receiving organisations. Specific locality information for DRF may not be used in public reports without the written permission of the Executive Director, Department of Conservation and Land Management. Publicly available reports may only show generalised locations or, where necessary, show specific locations without identifying species. The Department is to be contacted for guidance on the presentation of rare flora information.
4. Note that the Department of Conservation and Land Management respects the privacy of private landowners who may have rare flora on their property. Rare flora locations identified in the data as being on private property should be treated in confidence, and contact with property owners made through the Department of Conservation and Land Management.
5. Receiving organisations should note that while every effort has been made to prevent errors and omissions in the data provided, they may be present. The Department of Conservation and Land Management accepts no responsibility for this.
6. Receiving organisations must also recognise that the database is subject to continual updating and amendment, and such considerations should be taken into account by the user.
7. It should be noted that the supplied data do not necessarily represent a comprehensive listing of the rare flora of the area in question. Its comprehensiveness is dependant on the amount of survey carried out within the specified area. The receiving organisation should employ a botanist, if required, to undertake a survey of the area under consideration.
8. Acknowledgment of the Department of Conservation and Land Management as source of the data is to be made in any published material. Copies of all such publications are to be forwarded to the Department of Conservation and Land Management, Attention: Principal Botanist, Wildlife Branch.

THE DEPARTMENT OF CONSERVATION AND LAND  
MANAGEMENT

DECLARED RARE AND PRIORITY FLORA LIST

for Western Australia

CONSERVATION CODES

R: Declared Rare Flora - Extant Taxa

**Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such.**

X: Declared Rare Flora - Presumed Extinct Taxa

**Taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such.**

1: Priority One - Poorly known Taxa

**Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.**

2: Priority Two - Poorly Known Taxa

**Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.**

3: Priority Three - Poorly Known Taxa

**Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but are in need of further survey.**

4: Priority Four - Rare Taxa

**Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.**

ABBREVIATIONS USED IN THREATENED FLORA DATABASE PRINTOUTS

VESTING

AGR Chief Exec Dept of Agriculture  
 ALT Aboriginal Land Trust  
 BAP Baptist Union of WA Inc  
 BSA Boy Scouts Association  
 CC Conservation Commission -NPNCA  
 CGT Crown Grant in Trust  
 COM Commonwealth of Australia  
 CRO Crown Freehold-Govt Ownership  
 DOL Dept of Land Administration  
 DPU Ministry for Planning  
 EXD Exec Direc CALM  
 FRE Freehold  
 HOW Homeswest  
 ILD Industrial Lands Develop. Auth  
 JOI Joint Vesting-NPNCA & Shire  
 LAC LandCorp  
 LFC Lands and Forests Commission  
 MAG Minister for Agriculture  
 MED Ministry of Education  
 MHE Minister for Health  
 MIN Minister for Mines  
 MPL Ministry for Planning  
 MPR Minister for Prisons  
 MRD Main Roads WA  
 MTR Minister for Transport  
 MWA Minister for Water Resources  
 MWO Minister for Works  
 NAT Natural Trust of Australia WA  
 NON Not Vested  
 NPN NPNCA  
 OTH Other  
 PRI Private  
 RAI Westrail  
 SEC Western Power  
 SHI Shire  
 SPC State Planning Commission  
 TEL Telstra  
 TGR Timber Govt Requirement  
 TOW TOWN  
 UNK Unknown  
 WAT Water Corporation  
 WEL Minister Community Welfare  
 WRC Water & Rivers Commission  
 XPL Ex-Pastoral Lease

PURPOSES

ABR Aboriginal Reserve  
 AER Aerodrome  
 CAM Camping  
 CAR Caravan park  
 CEM Cemetery  
 CFA Conservation of Fauna  
 CFF Conservation Of Flora & Fauna  
 CFL Conservation of Flora  
 CHU Church  
 CPK Car Park  
 COM Common  
 CON Conservation Park  
 DEF Defence  
 DRA Drain  
 EDE Educational Endowment

EDU Educational purposes UWA  
 ENE Enjoyment of Natural Environ.  
 EXC Excepted from sale  
 EXL Exploration Lease  
 EXP Experimental Farm  
 FIR Firing Range  
 FOR State Forest  
 GHA Grain Handling  
 GOL Golf  
 GRA Gravel Pit  
 GRE Green Belt  
 GVT Government Requirements  
 HAR Harbour Purposes  
 HEP Heritage Purposes  
 HER Heritage trail  
 HOS Hospital  
 KEN Kennels  
 MIN Mining lease  
 MUN Municipal Purposes  
 NPK National Park  
 NRE Nature Reserve  
 OTH Other  
 PAC Public access  
 PAR Parkland (& Recreation)  
 PAS Pastoral lease  
 PFL Protection of Flora  
 PIC Picnic ground  
 PLA Plantation  
 POS Public Open Space  
 PPA Public parkland  
 PRS Prison site  
 PUT Public Utility  
 QUA Quarry  
 RAD Radio Station  
 RAC Racecourse  
 REC Recreation  
 REH Rehabilitation  
 RNP Re-establish Native Plants  
 RRE Railway Reserve  
 RUB Rubbish  
 SAN Sand  
 SCH School-site  
 SET Settlers requirements  
 SHI Shire Requirements  
 SHO Showgrounds  
 SNN Sanitary  
 STO Stopping place  
 TIM Timber  
 TOU Tourism  
 TOW Town-site  
 TRA Training Ground  
 TRI Trig station  
 TVT Television transmitting  
 UNK Unknown  
 UTI Utilities  
 VCL Vacant Crown Land  
 VER Road Verge  
 VPF Verrin Proof Fence  
 WAT Water  
 WCO Water & Conservation of F & F  
 WOO Firewood

WAHERB SPECIMEN DATABASE  
GENERAL ENQUIRY

*Conostylis bracteata*  
Lindl. (Haemodoraceae)  
CONSERVATION STATUS:P3  
Coll.: S.D. Hopper 4804 Date: 29 03 1986 ( PERTH 2052091 )  
LOCALITY Vacant block, 47 Karalundie Way, Mullaloo, c. 1 km inland WA  
LAT 31 Deg 48 Min 0.000 Sec S LONG 115 Deg 45 Min 0.000 Sec E  
Proliferous herb, leaves with hirsute, not spinescent margins. On steep slope of consolidated sand dune.  
Overlooking Blackboy Reserve, Acacia saligna scrub over dense low heath to 1m, on fringes of remnant tuart (Eucalyptus gomphocephala) woodland. Associated species include Xanthorrhoea and Banksia attenuata.  
Previous det.: *Conostylis aculeata* x *candicans*

*Goodenia filiformis*  
R.Br. (Goodeniaceae)  
CONSERVATION STATUS:P3  
Coll.: K. McCreery 8.1 Date: 21 12 1998 ( PERTH 06505082 )  
LOCALITY Site 8, RAAF Caversham Base WA  
LAT 31 Deg 50 Min 47.000 Sec S LONG 115 Deg 48 Min 24.000 Sec E  
Topography: depression, seasonally inundated. Slope: flat. Soil texture: peaty sand. Soil colour: white and brown. Rock type: limestone. Leaf litter: 10-30% cover, <1 cm depth, distribution mainly under shrubs. Woodlitter: sparse to negligible. Disturbance details: rabbits. Fire history: old.  
Open *Melaleuca preissiana* over dense shrubland dominated by *Pericalymma ellipticum* and *Hypocalymma angustifolia*. Total vegetation cover: 100%. Trees <5 m, 10-30%: *Melaleuca preissiana*. Shrubs 1-2 m, 2-10%: *Nuytsia floribunda*, *Acacia rosterlifer*, *Astartea fascicularis*, *Pericalymma ellipticum*. Shrubs 0.5-1 m, 70-100%: *Pericalymma ellipticum*, *Xanthorrhoea ?brunonis*, *Hypocalymma angustifolia*. Shrubs 0-0.5 m, 2-10%: *Patersonia occidentalis*, *Dasyopogon bromeliifolius*, *Sphaerolobium limophyllum*, *Dampiera linearis*. Herbs/climbers 0-2%: *Goodenia filiformis*, *Stylidium repens*. Soft grasses 0-2%: *Austrostipa compressa?*, *Aira caryophyllaceus*, *Ehrharta calycina*. Sedges 10-30%: *Mesomelaena graciliceps*, *Lyginia barbata*, *Hypolaena exsulca*.

*Jacksonia sericea*

*Benth.* (Papilionaceae)  
CONSERVATION STATUS:P4  
Coll.: G.J. Keighery 9465 Date: 02 12 1987 ( PERTH 1131206 )  
LOCALITY Trigg Dune Reserve No. 27471, Trigg; 20 km N Perth WA  
LAT 31 Deg 52 Min 0.000 Sec S LONG 115 Deg 45 Min 0.000 Sec E  
Multistem, prostrate shrub, 30 cm x 1.5 m daim. Flowers orange-yellow. Flat, grey sand over sand.  
Banksia woodland. Abundance: common.  
Previous det.: *Jacksonia calcicola* Chappill

*Jacksonia sericea*  
*Benth.* (Papilionaceae)  
CONSERVATION STATUS:P4  
Coll.: A. Kelly 90/11 Date: 17 10 1990 ( PERTH 02171430 )  
LOCALITY Warwick woodland - along Wanneroo, Beach, Erindale and Warwick roads WA  
LAT 31 Deg 50 Min 30.000 Sec S LONG 115 Deg 49 Min 0.000 Sec E  
Spreading shrub to 0.5 m high. Stems and branchlets ridged. Inflorescence silky hairy. In bud and occasional flower.  
Sandy flat, gradual slope. *Eucalyptus marginata* open woodland over *Banksia attenuata*, *B. menziesii* low woodland A.  
Abundance: abundant on disturbed road verges, occasional else- where.

*Jacksonia sericea*  
*Benth.* (Papilionaceae)  
CONSERVATION STATUS:P4  
Coll.: J.P. Pigott s.n. Date: 09 1985 ( PERTH 05369703 )  
LOCALITY Star Swamp Bushland Reserve, North Beach, WA  
LAT 31 Deg 51 Min 0.000 Sec S LONG 115 Deg 45 Min 0.000 Sec E  
Banksia woodland with scattered jarrah and tuart, tuart woodland, paperbark woodland over ephemeral wetland, various shrublands.  
Previous det.: *Jacksonia stembergiana* Huegel

*Jacksonia sericea*  
*Benth.* (Papilionaceae)  
CONSERVATION STATUS:P4  
Coll.: J.P. Pigott s.n. Date: 17 07 1987 ( PERTH 05368928 )  
LOCALITY Star Swamp Bushland Reserve, North Beach, WA  
LAT 31 Deg 51 Min 0.000 Sec S LONG 115 Deg 45 Min 0.000 Sec E  
Flowers summer/autumn. Banksia woodland with scattered jarrah and tuart, tuart woodland,

paperbark woodland over ephemeral wetland,  
various shrublands. Unburnt  
F2/3.

Previous det.: *Daviesia* sp.

*Jacksonia sericea*

Benth. (Papilionaceae)

CONSERVATION STATUS:P4

Coll.: K.A. Clarke 13 Date: 14 11 1998 (  
PERTH 05504678 )

LOCALITY Warwick Senior High School,  
Erindale Road, WA

LAT 31 Deg 50 Min 0.000 Sec S LONG  
115 Deg 49 Min 0.000 Sec E

Shrub 0.25 m high x 1.1 m wide. Spreading  
from centre, dense. Orange pea  
shaped flowers, yellow throat with red ring on  
standard petal. Grey hairy  
stems, no leaves. Pale green yellow narrow  
sepals.

Sand dune, flat inter-dune plain. Dry, ca 95%  
organic litter cover. Light grey sand.

Woodland, *Eucalyptus marginata*, *Banksia*  
*attenuata*, *B. menziesii*.

Frequency:frequent.

*Jacksonia sericea*

Benth. (Papilionaceae)

CONSERVATION STATUS:P4

Coll.: K.R. Newbey 3531 Date: 09 02 1972 (  
PERTH 06266622 )

LOCALITY Triggs Island - Perth WA

LAT 31 Deg 52 Min 0.000 Sec S LONG  
115 Deg 44 Min 0.000 Sec E

4-6 inches high and 5-8 inches wide.

Limestone sand.

8-DEC-03

Summary of Threatened Flora Data

P

Taxon Name -----	Cons. -----	Pop ID -----	Latitude -----	Longitude -----	Purpose -----
Jacksonia sericea	4	2	31^51'15.6"	115^45'35.3"	CFF
Jacksonia sericea	4	7A	31^48'40.6"	115^48'50.3"	CON
Jacksonia sericea	4	7B	31^48'40.6"	115^48'50.3"	CON
Jacksonia sericea	4	12A	31^51'52.6"	115^46'55.3"	REC
Jacksonia sericea	4	12B	31^51'52.6"	115^47'00.3"	

A total of 5 records were printed.

8-DEC-03

Threatened Flora Species Summary

Species: *Jacksonia sericea*

Common Name: \_\_\_\_\_ Flowering Period: \_\_\_\_\_

Photos: \_\_\_\_\_ Description: \_\_\_\_\_ Line Drawing: \_\_\_\_\_

Pop ID	District	Location	Vesting	Purpose	No. Plants	Last Inspect	Notific
-----	-----	-----	-----	-----	-----	-----	-----
2	Swan Coastal Dist	Star Swamp Reserve. Between Marmion Ave, Beach Rd, North Beach Rd and Hope St.	SHI	CFE		15-JUN-1979	
7A	Swan Coastal Dist	Hepburn Heights, Padbury. N of Hepburn Ave, E of O'leary Rd, and S of the Reservoir. Bushland Preservation Reserve.	SHI	CON	750	07-NOV-1990	
7B	Swan Coastal Dist	Hepburn Heights, Padbury. N of Hepburn Ave and E of the Reservoir. Bushland Preservation Reserve.	SHI	CON	250	07-NOV-1990	
12A	Swan Coastal Dist	Sandover Park. E of Dwyer Crt.	SHI	REC	100	04-APR-1990	
12B	Swan Coastal Dist	Karrinyup Country Club.	PRI			04-APR-1990	

**APPENDIX B**

**Vegetation Survey Results**

**PLANT COLLECTIONS FROM MARMION DRE SURVEY-5/12/2003  
(Anne Harris and Caroline Harding)**

SITE NUMBER	PLANT NICKNAME	DETERMINED SPECIES	PLANTED NATIVE (P)	
1-SW corner		* <i>Avena barbata</i>		
		* <i>Bromus diandrus</i>		
		* <i>Cynodon dactylon</i>		
		* <i>Ehrharta calycina</i>		
		* <i>Euphorbia terracina</i>		
		* <i>Lagurus ovatus</i>		
		* <i>Leptospermum laevigatum</i>		
		* <i>Pelargonium capitatum</i>		
		* <i>Schinus terebinthifolia</i>		
		* <i>Stenotaphrum secundatum</i>		
		* <i>Trachyandra divaricata</i>		
		<i>Calothamnus quadrifidus</i>	(P)	
		<i>Chamelaucium uncinatum</i>	(P)	
		<i>Acacia ?rostellifera</i>	<i>Grevillea olivaceae</i>	(P)
			<i>Hakea lissocarpa</i>	
			<i>Hardenbergia comptoniana</i>	
		Jacksonia sericea	<i>Jacksonia calcicola</i>	
	Melaleuca purple flowers	<i>Melaleuca nesophila</i>	(P)	
	Melaleuca ?planted	<i>Melaleuca systema</i>		
	Melaleuca ?trich	<i>Melaleuca trichophylla</i>		
	Olearia grey	<i>Olearia axillaris</i>		
2-SE corner		* <i>Ficus macrophylla</i>		
		Allo hum	<i>Allocasuarina humilis</i>	
		weed? with white flwrs in racemes	<i>Diplopeltis petiolaris</i>	
		Dryandra sessilis ssp. eri?	<i>Dryandra sessilis</i> var. <i>cygnorum</i>	
			<i>Hakea lissocarpa</i>	
		Jacksonia ?sericea	<i>Jacksonia calcicola</i>	
		Lechenaultia yellow	<i>Lechenaultia linarioides</i>	
			<i>Melaleuca systema</i>	
		Scaevola white flwrs	<i>Scaevola repens</i> var. <i>angustifolia</i>	

SITE NUMBER	PLANT NICKNAME	DETERMINED SPECIES	PLANTED NATIVE (P)
North boundary of South section has vegetation as per site 2 with these extras			
2 (cont)	Myoporum/Heliotropum	* <i>Galenia pubescens</i>	
	Gazania	* <i>Gazania linearis</i>	
	Grevillea ?tri	<i>Grevillea thelemanniana</i> 'lemon supreme'	(P)
	Scaevola repens	<i>Scaevola anchlussifolia</i>	
		* <i>Brassica tournefortii</i>	
		* <i>Leptospermum laevigatum</i>	
		* <i>Lupinus albus</i>	
3-SE edge	Yellow trumpet plant	* <i>Nicotiana glauca</i>	
	Acacia 2 striate with fruit	<i>Acacia cyclops</i>	
	Euc white flwrs	<i>Angophora costata</i>	(P)
	Actinostrobos	<i>Callitris preissii</i>	
		<i>Dianella revoluta</i>	
	Euc gomph	<i>Eucalyptus gomphocephala</i>	
	Grevillea ?thelemanniana	<i>Grevillea thelemanniana</i>	
	Hakea ?prost	<i>Hakea prostrata</i>	
	Jacksonia ?sericea	<i>Jacksonia calcicola</i>	
	Rhagodia reddish leaves	<i>Rhagodia baccata</i> ssp. <i>dioica</i>	
4- East side		<i>Acacia saligna</i>	
		<i>Agonis flexuosa</i>	(P)
		<i>Agonis flexuosa</i> 'nana'	(P)
	Euc white flwrs	<i>Angophora costata</i>	(P)
	Callistemon flwrs	<i>Callistemon</i> 'Kings Park Special'	(P)
		<i>Callistemon</i> planted	(P)
		<i>Eucalyptus rudis</i>	(P)
	Euc fine leaves	<i>Eucalyptus spathulata</i>	(P)
	Euc platyphylla	<i>Eucalyptus utilis</i>	(P)
	Mel purple flwrs	<i>Melaleuca nesophila</i>	(P)
5-NE corner		* <i>Briza maxima</i>	
		* <i>Ursinia anthemoides</i>	
		<i>Banksia attenuata</i>	
		<i>Banksia menziesii</i>	

SITE NUMBER	PLANT NICKNAME	DETERMINED SPECIES	PLANTED NATIVE (P)
5 (cont)		<i>Conostylis aculeata</i> ssp. <i>aculeata</i>	
		<i>Corymbia calophylla</i>	
		<i>Daviesia triflora</i>	
		<i>Eucalyptus patens</i>	(P)
	Euc aff macrocarpa	<i>Eucalyptus tetragona</i>	(P)
		<i>Eucalyptus utilis</i>	
	Grevillea aff obtusifolia	<i>Grevillea pinaster</i>	(P)
	Grevillea tri broad	<i>Grevillea vestita</i>	
		<i>Lechenaultia linarioides</i>	
		<i>Lomandra maritima</i>	
		<i>Macrozamia riedlei</i>	
	Melaleuca ?uncinata	<i>Melaleuca armillaris</i>	(P)
	Melaleuca viminea	<i>Melaleuca lanceolata</i>	
	Melaleuca ?coronifolia	<i>Melaleuca styphelioides</i>	(P)
		<i>Melaleuca trichophylla</i>	
		<i>Mesomelaena pseudostygia</i>	
	Myoporum	<i>Myoporum parvifolium</i>	(P)
		<i>Petrophile macrostachya</i>	
	Scaevola crass	<i>Scaevola anachusifolia</i>	
		<i>Thysanotus dichotomus</i>	
6-NW corner		* <i>Conyza bonariensis</i>	
		* <i>Leptospermum laevigatum</i>	
		* <i>Pelargonium capitatum</i>	
		<i>Acacia cyclops</i>	
		<i>Acacia podalyriifolia</i>	(P)
		<i>Acacia saligna</i>	
		<i>Agonis flexuosa</i>	(P)
		<i>Banksia littoralis</i>	
		<i>Banksia menziesii</i>	
		<i>Callitris preissii</i>	
		<i>Conostylis aculeata</i> ssp. <i>aculeata</i>	
	Euc old fruit	<i>Eucalyptus lehmannii</i>	(P)
		<i>Eucalyptus utilis</i>	
	Grevillea pinnate lvs	<i>Grevillea crithmifolia</i>	
		<i>Hakea lissocarpa</i>	
		<i>Hardenbergia comptoniana</i>	
		<i>Lechenaultia linarioides</i>	

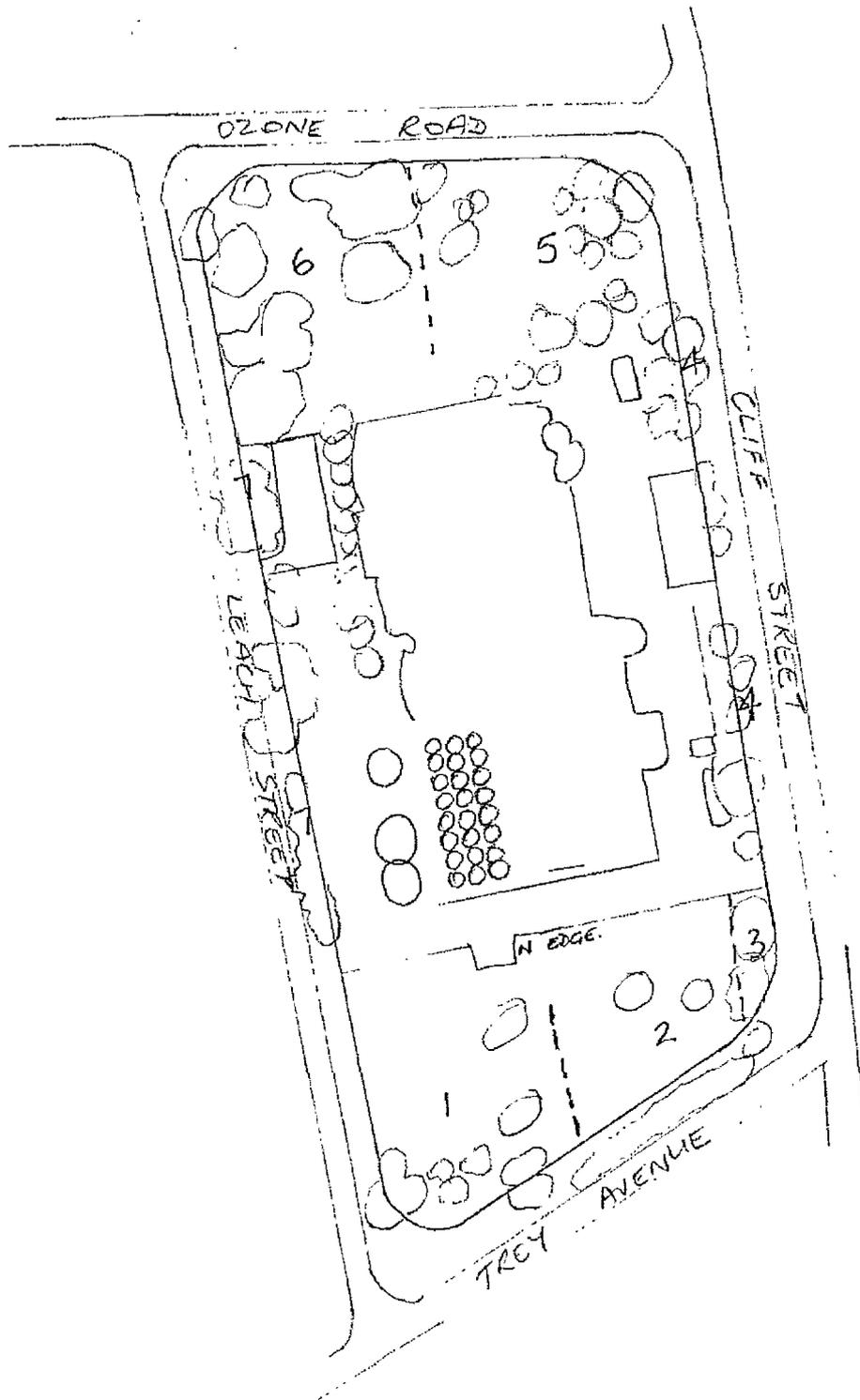
SITE NUMBER	PLANT NICKNAME	DETERMINED SPECIES	PLANTED NATIVE (P)
6 (cont)		<i>Lomandra maritima</i>	
		<i>Melaleuca nesophila</i>	
7-W edge (verge)		* <i>Gazania linearis</i>	(P)
		* <i>Leptospermum laevigatum</i>	
		* <i>Stenotaphrum secundatum</i>	
	Allocas ?huegeliana	<i>Allocasuarina sp.</i>	(P)
	not Pinus	<i>Araucaria heterophylla</i>	(P)
		<i>Eucalyptus utilis</i>	(P)
		<i>Rhagodia baccata ssp. dioica</i>	
		<i>Senecio sp.</i>	

There were no Declared Rare Flora or Priority species found in the survey of this site. Weeds such as \**Ehrharta calycina*, \**Avena barbata*, \**Bromus diandrus*, \**Cynodon dactylon*, \**Lagurus ovatus* and \**Trachandra divaricata* were noted to be common throughout the surveyed area but have only been listed in the above table in site one.

The site number listed in the table correlates with specific areas on the map. Those species denoted as planted are known eastern Australian species, nursery-grown hybrids or Western Australian species not native to the area. Others may be planted but are known to occur on coastal limestone soils within the area.

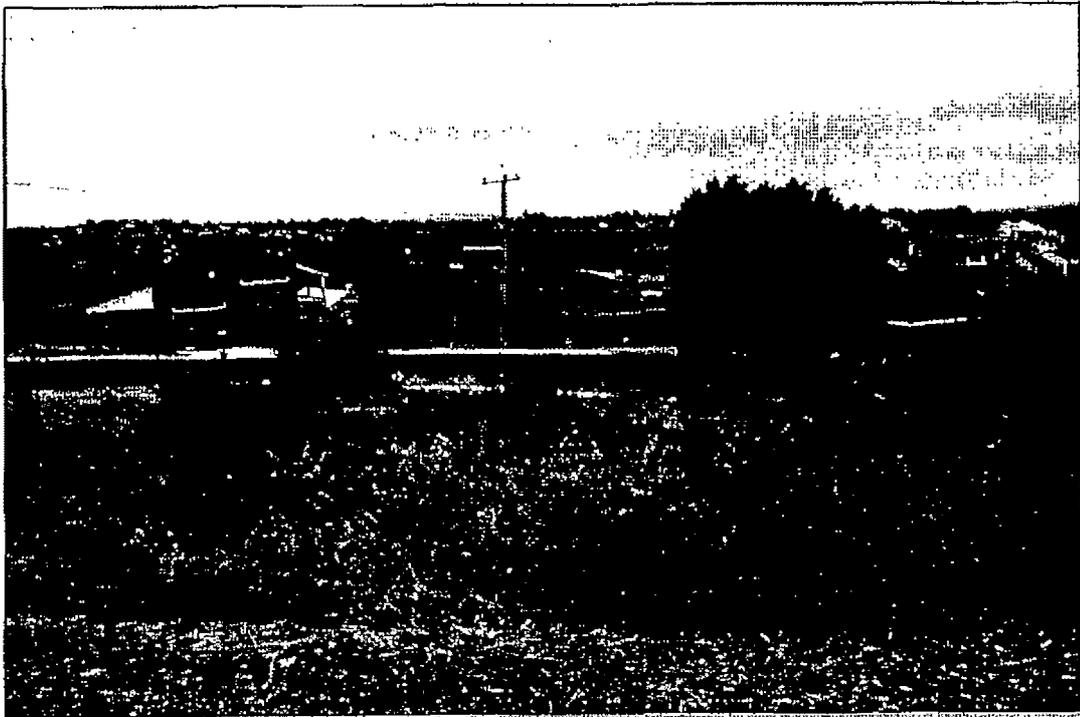
A Telstra pit was noted in site 1 on the SW corner (on or near the verge) and vertical PVC pipes were seen around the site. The pipes could have been markers or 'breather' pipes.

No evidence of dieback was noted. The south area is very disturbed and weedy and the east and west areas have mostly planted species or the vegetation was limited to the verge. Soil at the site was grey to white sand with occasional limestone outcropping on the south side. The limestone may have been brought to the surface during service installation activities.





**Photo 1:** Vegetation and rubbish in south western corner of site.



**Photo 2:** Native species with predominant weeds in south western corner of site.



**Photo 3:** Weedy track in southern portion of site facing west.



**Photo 4:** North western corner showing jarrah and peppermint trees in foreground and banksia's in background.



**Photo 5:** Banksia trees over a weedy understorey in northern portion of site.



**Photo 6:** Planted and native eucalypts in northern portion of site.

LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN

APPENDIX C

CREATING COMMUNITIES WORKSHOP



**CSIRO Marmion Development**  
**By The Satterley Property Group**  
**Community Consultation Report**  
Prepared by Creating Communities

January 2006

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## Introduction

At its meeting of April 5, 2005, the City of Joondalup resolved to grant approval to Amendment No. 24 of the District Planning Scheme No. 2, allowing residential development of the CSIRO site by changing the zoning from 'Park & Recreation Reserve (Local)' to 'Urban Development'. In late 2005, the Minister for Planning and Infrastructure granted approval to the City of Joondalup's resolution to finalise Amendment No. 24 of the District Planning Scheme No. 2.

As part of its resolution on Amendment No. 24, the City of Joondalup requested Satterley Property Group undertake further consultation on the development of a Structure Plan for the CSIRO site, via a Stakeholder Reference Group. To this end Satterley engaged Creating Communities to facilitate the consultation process. This consultation process was approved by the City of Joondalup in keeping with the City's Public Participation Strategy.

Expressions of interest were sought from community representatives to participate in a Stakeholder Reference Group (SRG) in order to identify potential issues to be taken into consideration during the preparation of a Structure Plan by the Satterley Property Group. The SRG included local residents from the Marmion community, representatives from the Marmion, Sorrento, Duncraig Progress and Ratepayers Association Inc and local businesses.

The City of Joondalup requested that the concept plan advertised with Amendment No.24 be used as the basis for preparing a Structure Plan to guide the development of the CSIRO site.<sup>1</sup>

Three workshops were held with the SRG in November and December 2005 and January 2006. The workshops provided a forum for the community to work in partnership with Satterley to identify issues of importance to be addressed in the development of a Structure Plan for the CSIRO site. Please refer to Appendix Five to review minutes taken at each of the SRG workshops in November and December 2005 and January 2006.

This report documents the outcomes of the SRG meetings. The report clearly records the key issues identified by the SRG, as well as the measures taken by the Satterley Property Group to reflect these issues in the Structure Plan.

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<sup>1</sup> See Appendix One for an illustration of the original Structure Plan

## Background

The City of Joondalup, as part of its resolution to allow residential development of the CSIRO site in Marmion, instructed the Satterley Property Group to undertake further consultation with the community. Satterley engaged Creating Communities to facilitate the consultation process, which was structured according to the City of Joondalup's Public Participation Strategy.

Expressions of Interest were sought from residents willing to provide input into the preparation of the CSIRO Structure Plan. A SRG was formed comprising local residents and businesses, and the Marmion, Sorrento, Duncraig Progress and Ratepayers Association Inc.

The SRG was initially convened in July 2005. However the group resolved it would be more appropriate to provide input into the Structure Plan following the final decision on rezoning the CSIRO site by the Minister for Planning and Infrastructure. The Minister granted final approval to Amendment No. 24 of the District Planning Scheme No.2 on November 10, 2005.

Following the Minister's approval, Creating Communities reconvened the SRG on three occasions, engaging the group in an open forum discussion at workshops held in November and December 2005 and a final meeting in January 2006 to ensure that information that had been documented, accurately reflected issues raised throughout the consultation process.

Participants attending each of the workshops are tabled below; it should be noted that the City of Joondalup declined to attend both of the workshops.

### Workshop attendees;

Ray Margaria	Marmion Resident
Christine Gherinish	
Brian Higgins	
Reg Went	
Justin Crooks	
Steven Kobelke (Proxy Bill Cohen)	
Suzette Roux	
Bill Cohen	
Michele John	Marmion Sorrento Duncraig Progress and Ratepayers Association Inc
Richard Currie	
Peter Peard	Business Representative
Nicola Smith	Chappell and Lambert
Matthew Whyte	Satterley Property Group
Tony Arias	

Allan Tranter Caroline Harris	Creating Communities
Apologies	City of Joondalup

## Synopsis of Community Workshops

A series of workshops were undertaken with the SRG to identify issues to be taken into consideration during the preparation of a Structure Plan for the residential development of the CSIRO site.

The objective of the first workshop held on Thursday 17 November 2005, sought to identify key issues which may affect the Structure Plan. The key issues identified include;

- Remnant bushland to comprise 10% of the POS site at the northern end of the development.
- Provision of additional POS comprising 15% at either end of the development, providing rear access to houses fronting the southern end POS and Cliff Street.
- Limit number of houses with vehicular access off Troy Avenue.
- An internal cul-de-sac providing rear access to houses fronting Braden Park and Troy Avenue. No through road/vehicular access from Cliff Street to Leach Street.
- Potential for boulevard landscape treatment along Troy Avenue.
- Mix of lot sizes with smaller lots located in the middle of the site.
- 450sqm lots considered too small.
- Maximum height of building to be measured from average ground level of each lot.
- Setbacks and lot width to be developed at a similar R20 standard to the surrounding housing stock. Opportunity to develop a Detailed Area Plan for the site to regulate building design.
- Houses to be at grade with existing streets, minimising use of retaining walls.
- Houses fronting POS to have rear loading.
- Boundary fencing erected to separate POS from houses fronting park at northern end of site.
- Lots fronting Leach Street to be the same width as housing stock on the opposite side - approximately 18 metres.
- Solar orientation of lots to be addressed in building design.

The issues raised by the SRG at the first workshop informed the preliminary preparation of two structure plans; Structure Plan A and Structure Plan B prepared by planning consultants Chappell and Lambert which were presented at the second SRG workshop on Thursday 17 December 2005.<sup>2</sup>

Structure Plan A incorporated as many elements that were supported by Satterley including 10% public open space to the northern end of the site.

Elements comprising Structure Plan A include;

- Allocation of 10% public open space at the Northern end of the site, fronting Ozone Road.
- An internal cul-de-sac providing rear access to most houses fronting Cliff Street.
- Extensive landscaping on the northern side of Troy Avenue. It was determined the width of Troy Avenue would not allow for a boulevard.
- At grade housing.
- Boundary fencing erected to separate POS from houses fronting park at northern end of site, providing them with rear loading.
- Main intersections modified with brick paved threshold treatment to act as a traffic calming mechanism.
- Average lot size 500sqm (smaller lots located internally).
- Leach Street lot frontages approximately 16-17 metres.
- Detailed Area Plans will be prepared for all lots within the Structure Plan area to control residential development and ensure the creation of efficient housing design, streetscape and control the interface between the proposed open space and future lots.

Structure Plan B is similar to Plan 'A' with the fundamental difference being a total of 30% POS.

Elements comprising Structure Plan B include;

- 30% total public open space; 10% at the northern end, 20% at the southern end.
- Eight lots at the southern end of the site would be given up in place of the POS.
- Minimise use / visual impact of retaining walls for lots facing southern end of POS.
- Extensive landscaping on the northern side of Troy Avenue. It was determined the width of Troy Avenue would not allow for a boulevard.
- At grade housing.

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<sup>2</sup> See Appendix two and three for illustrations of Structure Plan A and B respectively.

- Main intersections modified with brick paved threshold treatment to act as traffic calming mechanism.
- Average lot size 600sqm.
- Boundary fencing erected to separate POS from houses fronting park at northern end of site.
- Lots fronting Leach Street to be the same width as housing stock on the opposite side, approximately 18 metres.
- Detailed Area Plans will be prepared for all lots within the Structure Plan area to control residential development and ensure the creation of efficient housing design, streetscape and control the interface between the proposed open space and future lots.

The final meeting of the SRG held on Thursday 19 January 2006, provided the group with an opportunity to comment on the DRAFT Community Consultation Report, prepared by Creating Communities Australia Pty Ltd, to ensure that it was an accurate reflection of the issues that had been raised at the previous workshops.

In addition to reviewing the Community Consultation Report, the SRG and Satterley Property Group discussed opportunities to incorporate into the Structure Plan a condition to ensure that verge side maintenance is undertaken at a standard set by the developer. A verge side management plan would offer aesthetic appeal, opportunities to attract local fauna and insulate against strong winds known to impact the area.

A number of councils, including the City of South Perth and City of Gosnells have collaborated with property developers to ensure that verges adjoining developments are maintained at the standard when initially landscaped. The City of South Perth and Gosnells are investigating the introduction of a notional levy payable by residents to cover additional management costs. Further liaison between the City of Joondalup and Satterley would be required if a verge side management plan is proposed for the CSIRO site in Marmion.

## Points Agreed and Disagreed

The community consultation process identified key elements which were agreed to by both the SRG and Satterley Property Group. These include;

- Allocation of 10% public open space at the northern end of the CSIRO site protecting remnant bushland where possible.
- Mix of lot sizes with smaller lots located in the middle of the site.
- No through road access from Cliff Street to Leach Street.
- Internal cul-de-sac providing rear loading to *most* houses fronting Cliff Street.
- Extensive landscaping of Troy Avenue.

- At grade housing.
- Modification of main intersections with paved threshold treatment to act as traffic calming mechanisms.
- Detailed Area Plan (DAP).

A Detailed Area Plan will be prepared for all lots within the Structure Plan area to control residential development and ensure the creation of efficient housing design, streetscape and control the interface between the proposed open space and future lots. For the purpose of this report a DAP has been prepared for illustrative purposes identifying how it addresses built form outcomes.<sup>3</sup> Individual DAP's will be prepared as part of the future subdivision process in consultation with the City of Joondalup.

- Reduce visual impact of retaining walls.
- Boundary fencing erected at northern end of site to separate public open space from houses fronting the park.

Whilst there was general agreement between the SRG and Satterley on most issues to be addressed as part of the CSIRO Structure Plan, there were some points raised that were not supported by Satterley. These include;

- The SRG put forward that the City of Joondalup purchase 20% of the land to the southern end of the CSIRO site and retain as public open space. Residents to put forward
- Average lot size 600sqm.
- All housing fronting Cliff Street and Troy Avenue to have rear loading.
- SRG request for 18 metres to be uniform with housing stock over the road was declined, currently proposed 16-17metre frontage.

At the final meeting of the SRG held on Thursday 19 January 2006, the group requested it be formally noted that residents who support public open space at the southern end of the site, approach the City of Joondalup seeking its support to purchase a minimum of 10% of land to the southern end of the site to retain as public open space. As has been previously stated in this report, Satterley advised that any decision made regarding the purchase of such land is at the discretion of the City of Joondalup.

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<sup>3</sup> See Appendix four for an illustration of a DAP.

## Consultation Conclusion

Three consultative workshops were undertaken with the SRG in November and December 2005 and January 2006. Based on the discussions which took place at the workshops, two detailed Structure Plans were prepared and presented to the Stakeholder Reference Group for comment.

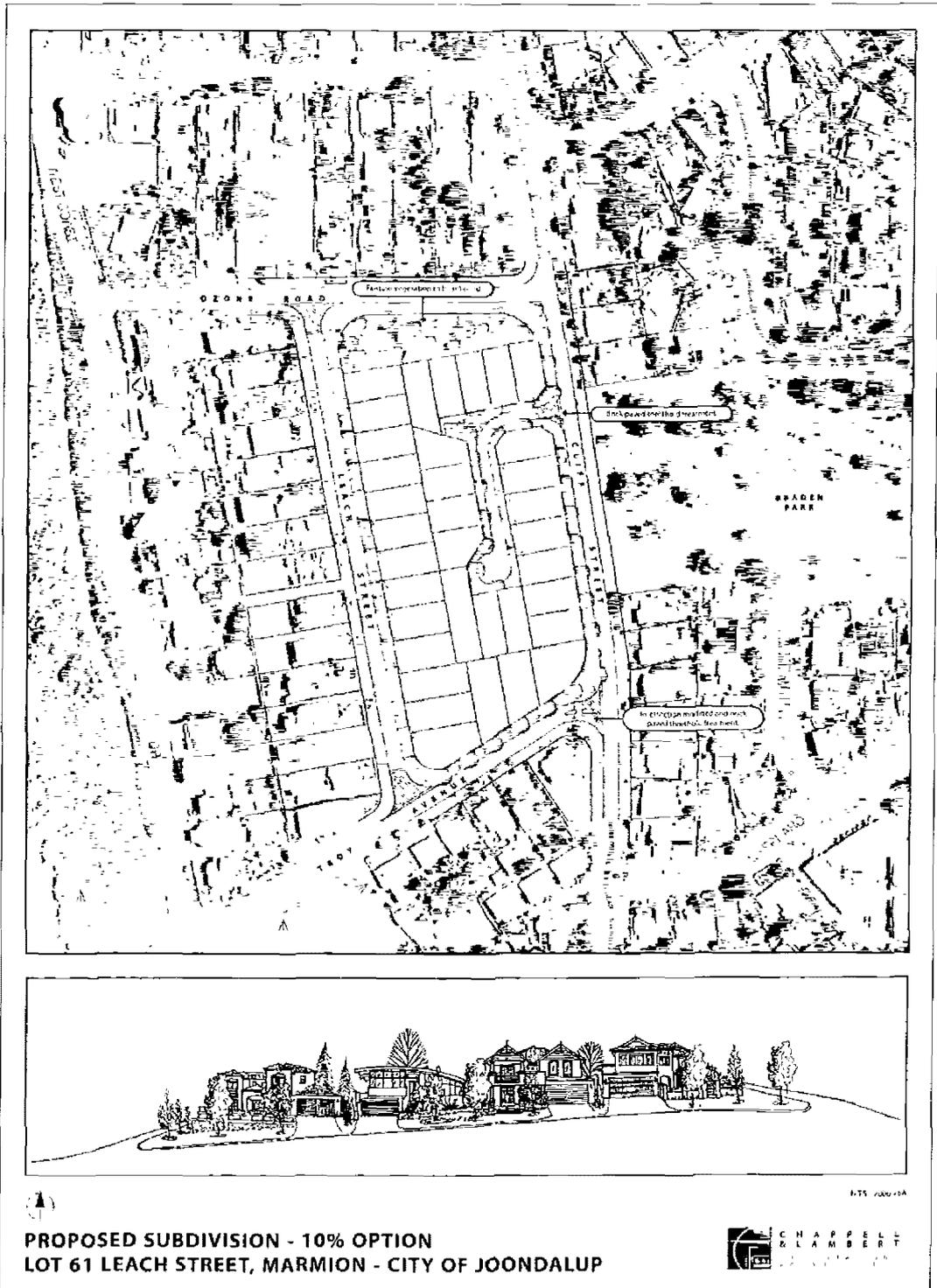
Structure Plan A, which is similar to the original advertised Structure Plan, reflects the City of Joondalup, the Western Australian Planning Commission and Ministry for Planning and Infrastructure's outcomes required by Amendment No.24. This plan accommodates where possible, as many of the recommendations put forward by the SRG and is the preferred option of the Satterley Property Group.

Structure Plan B comprises elements agreed to by both the Satterley Property Group and the SRG. In addition, Structure Plan B contains elements supported by a majority of community members represented on the SRG, including the desire to achieve increased levels of Open Space.

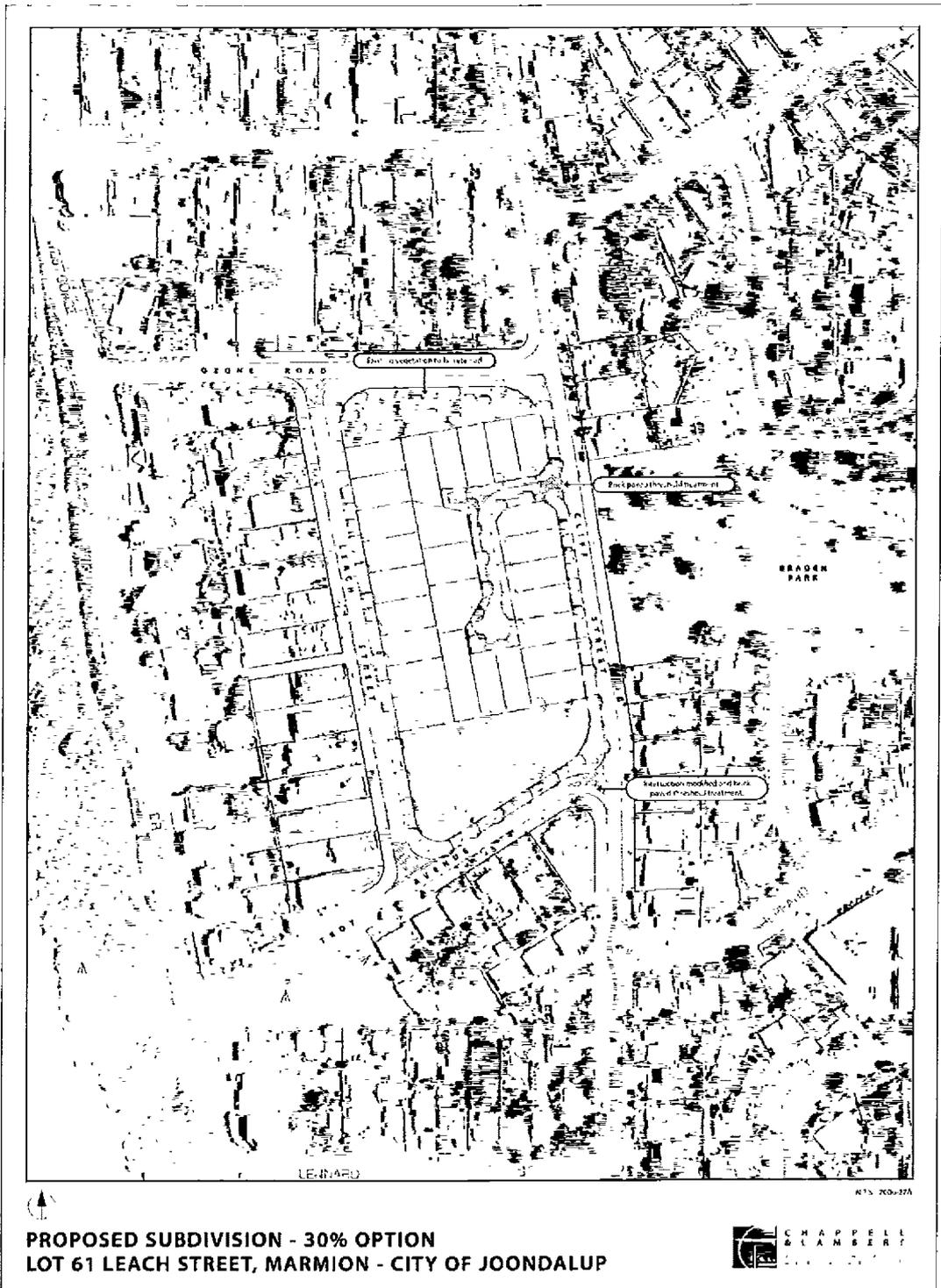
Whilst the series of workshops did not result in a single Structure Plan agreed to by both the SRG and Satterley Property Group, the community consultation processes illustrates how the Satterley Property Group have amended the original plan to accommodate ideas and suggestions put forward by the community.



**Appendix Two – Structure Plan A**



Appendix Three – Structure Plan B



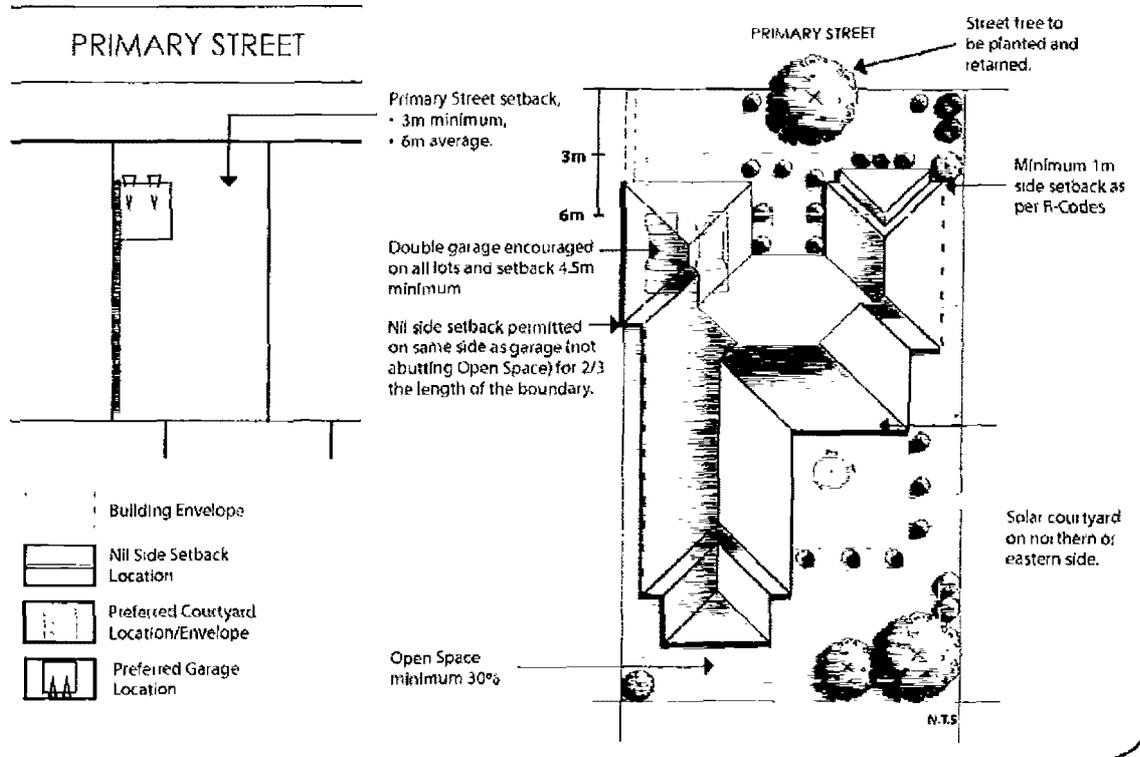
PROPOSED SUBDIVISION - 30% OPTION  
LOT 61 LEACH STREET, MARMION - CITY OF JOONDALUP



**Appendix Four – Generic Marmion Estate Detailed Area Plan**

**GENERIC MARMION ESTATE DETAILED AREA PLAN (DAP)**

- 1) The subject site is coded R20 under the Residential Design Codes of Western Australia (R-Codes).
- 2) The requirements of the R-Codes apply unless otherwise provided below.
- 3) The following standards constitute variations to the R-Codes and operate as Acceptable Development requirements:
  - Primary and Secondary streets are defined on the DAP.
  - Buildings on corner lots are to be orientated towards both the Primary and Secondary streets with a minimum of one habitable room window facing each street.
  - Boundary walls are only permitted on one side boundary. In some instances boundary wall locations are detailed on the DAP. If Council chooses to approve a garage in any location other than that shown on the DAP, the designated location of the boundary wall/nil side setback is to be moved accordingly.
  - Preferred garage locations are shown on the DAP and have been located to improve access arrangements. Those lots which do not show designated/preferred garage locations are to be located and approved at the discretion of Council.
  - All dwellings shall include an Outdoor Living Area with a minimum 6m x 4m of useable space, accessible from a habitable room.
  - No more than one third of the Outdoor Living Area may be covered by the main roof of the dwelling.
  - Additional solar access and energy efficient guidelines are outlined and controlled by the Developer through Design Guidelines.
  - Fencing greater than 1.2 metres in height is not permitted forward of the main building line.
  - Standard 1.8 metre fencing to secondary street frontages is not permitted closer than 6 metres from the corner truncation.
  - Uniform fencing around the public open space will be provided by the Developer.



## **Appendix Five – Workshop Minutes**

### **Stakeholder Reference Group – Redevelopment of CSIRO Site, Marmion**

#### **Meeting Minutes**

**Thursday 17 November 2005**

**Joondalup Reception Centre, Boas Avenue, Joondalup**

#### Members

<b>Ray Margaria</b>	Marmion Resident
<b>Christine Gherinich</b>	
<b>Brian Higgins</b>	
<b>Reg Went</b>	
<b>Justin Crooks</b>	
<b>Steven Kobelke (Proxy Bill Cohen)</b>	
<b>Michele John</b>	Marmion Sorrento Duncraig Progress and
<b>Richard Currie</b>	Ratepayers Association (inc)
<b>Peter Peard</b>	Business Representative
<b>Nicola Smith</b>	Chappell and Lambert (Planners)
<b>Matthew Whyte</b>	Satterley Property Group
<b>Tony Arias</b>	Satterley Property Group
<b>Allan Tranter</b>	Creating Communities
<b>Caroline Harris</b>	

#### Apologies

<b>Bill Cohen</b>	Marmion Resident
<b>Suzette Roux</b>	Marmion Resident
<b>City of Joondalup</b>	

#### Minutes by

<b>Caroline Harris</b>	Creating Communities (CC)
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### **1. Planning Process Update**

- Planning and Infrastructure Minister granted approval to amendment 24 of District Planning Scheme No 2 November 2005. This allows residential development on the CSIRO site. The site has been rezoned to 'Urban Development' with an assumed base coding of R20 with 10% of the site allocated for Public Open Space as requested by both the City of Joondalup and the Planning Commission.
- This consultation process will inform the development of a structure plan for the site. There will be an additional community consultation period (standard) once the plan is advertised for public comment.

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### **2. Development Givens/options**

- Total site area 2.1878ha
- Zoned 'Urban Development' under the City of Joondalup's DPS2 requiring a Structure Plan to be prepared.
- R20 – 20 dwellings per hectare - average lot size 500m<sup>2</sup> / min size 440m<sup>2</sup>
- Dwelling height of approx 8.8m – allows 2 storey
- Funds allocated to development of Vegetation Management Plan over the POS
- Funds allocated to maintain POS
- The site will be sold as vacant blocks ie no house land packages
- No Infill on site
- Height of house will be measured from finished floor level (new natural ground level) once site has been levelled off.
- Option to develop Detailed Area Plan/Design Guidelines/Covenant on titles– guide setbacks, open space, materials, driveway/garage location, streetscape
- Roads within development approx 14metres wide
- Underground power and sewage provided

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### **3. Group Discussion**

- Consensus over Option B detailed plan– identifying internal road option not through road option.
- 30% POS – 15% each end of development rather than the statutory 10% proposed. Danger of traffic entering onto Troy Street, already busy with pedestrian and vehicular flow. Main

access to the beach front. Potential for boulevard to be created.

- Keep remanent Bushland
- Site to be extensively landscaped –tall vegetation included into design to mask high density of built form
- Mix of lot sizes with an average of 600m<sup>2</sup> with smaller lots in the centre.
- Setbacks – Don't want reduced setbacks, want these lots to be developed at a similar R20 standard to the surrounding housing stock.
- Smaller sized lots on the inside of the development, larger blocks to abut the street
- 450m<sup>2</sup> considered to small
- Parking to be provided for visitors – Council does not have a policy controlling visitor / on street parking. Parking for standard lots would therefore be controlled through the R Codes at 2 bays per lot.
- Houses to be at grade with existing streets – do not want to see street of retaining walls
- Concept plan of site - Nicola to draw up options re house placements to get a visual of what it may look like from street perspective
- Opportunity for houses looking over POS to have rear loading
- Houses to be adequately spaced apart, do not want houses too close together
- Address sustainability - orientation of lots and houses within those lots, solar courtyards etc
- Lots backing onto POS – connectivity within the estate
- Potential to vary site cover and/or open space yet keep the setbacks the same as the surrounding properties.
- Want residential lots to blend/meld with the surrounding residential housing ie materials, textures

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**4. Next Meeting.** Thursday 1 December 5.30pm – 7.30pm  
Venue: Sorrento Beach Resort – Board Room

# Stakeholder Reference Group – Redevelopment of CSIRO Site, Marmion

## Meeting Minutes

**Thursday 1 December 2005**

**Sorrento Beach Resort Board Room**

### Attendees

<b>Ray Margaria</b>	Marmion Resident
<b>Christine Ghersinich</b>	
<b>Reg Went</b>	
<b>Justin Crooks</b>	
<b>Stephen Kobelke (Proxy Bill Cohen)</b>	
<b>Michele John</b>	Marmion Sorrento Duncraig Progress and Ratepayers Association (inc)
<b>Richard Currie</b>	
<b>Peter Peard</b>	Business Representative
<b>Nicola Smith</b>	Chappell and Lambert (Planners)
<b>Matthew Whyte</b>	Satterley Property Group
<b>Tony Arias</b>	Satterley Property Group
<b>Allan Tranter</b>	Creating Communities
<b>Caroline Harris</b>	

### Apologies

<b>Brian Higgins</b>	Marmion Resident
<b>Bill Cohen</b>	Marmion Resident
<b>Suzette Roux</b>	Marmion Resident
<b>City of Joondalup</b>	

### Minutes by

<b>Caroline Harris</b>	Creating Communities (CC)
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**1. Amendments to meeting minutes of 17 December 2005**

- Stephen Kobelke, proxy for Bill Cohen, requested that Tony Arias's statement in response to Marmion resident Reg Went question as to who was Peter Peard and why was he at this Stakeholder Reference Group Meeting, Mr Arias said " Mr Peard is the business representative on the Reference Group and Mr Peard was put forward in that role by The City of Joondalup".
- 

**2. Presentation of Structure Plans**

- Nicola Smith, Chappell and Lambert, presented to the SRG workshop two Structure Plans, based on the key points raised at the previous SRG meeting on the 17 November 2005.

**Structure Plan A – 10% POS option**

Accommodated most of the comments recorded at the first workshop including;

- Allocation of 10% public open space at the Northern end of the site, fronting Ozone Road,
- An internal cul-de-sac providing rear access to houses fronting Cliff Street and POS.
- Extensive landscaping on the northern side of Troy Avenue. It was determined the width of Troy Avenue would not allow for a boulevard.
- At grade housing.
- Main intersections modified with brick paved threshold treatment to act as traffic calming mechanism.
- Average lot size 500sqm.
- Consideration to develop a Detailed Area Plan for the site to determine;
  - Housing setbacks.
  - Landscaping.
  - Solar orientation of housing

**Concept Plan B – 30% POS option**

- 30% total public open space; 10% at the northern end, 20% at the southern end
- Eight lots at the southern end of the site would be given up in place

of the POS.

- Minimal retaining walls used for lots facing southern end of POS.
- Extensive landscaping on the northern side of Troy Avenue. It was determined the width of Troy Avenue would not allow for a boulevard.
- At grade housing.
- Main intersections modified with brick paved threshold treatment to act as traffic calming mechanism.
- Average lot size 600sqm.
- Lots fronting Leach Street to be the same width as housing stock on the opposite side - approximately 18 metres.
- Consideration to develop a Detailed Area Plan for the site to determine;
  - Housing setbacks similar to surrounding houses on adjacent streets.
  - Landscaping.
  - Solar orientation of housing.

### **3. Group Discussion**

- NS advised due to the narrow width of Troy Avenue a boulevard effect would not be possible, however planting on both sides of the street of the street could be addressed in the VMP.
- Landscaping the site with mature species another option to be identified in the VMP.
- Michele John, Richard Currie, Christine Gherinich, and Reg Went (noted Ray Margaria was not at the meeting at this stage) put a motion forward that Marimion residents approach the City of Joondalup requesting it purchase at half the market price land comprising 20% POS at the southern end of the site the remaining half to be underwritten by the owners of the site.
- JC questioned whether the City would spend this amount of money on such a small parcel of land in Marmion.
- TA noted that it was a decision the City of Joondalup would have to make however doubted whether the land owners would be willing to support more than the allocated 10% POS.
- MJ advised that the commissioners were in council when the application for rezoning the site was submitted and believed that if a report was put to the councillors now requesting the City of Joondalup purchase 20% of the POS it would be considered.
- The group raised the question of traffic calming devices for Cliff Street, however TA advised that this is a council cost and also that

this issue had been put to the council previously. It was noted that any traffic calming mechanisms would have to accommodate buses which use Cliff Street. NS advised that the council could review the use of splinter islands used elsewhere which buses are able to move through, whilst also reducing the speed of traffic.

- The SRG agreed that vehicular access off Troy and Cliff Street be reduced. RW suggested extending the internal cul-de-sac to the lots fronting Troy Avenue, providing these lots with rear loading as well as all lots fronting Cliff Street.
- TA advised this would result in a further reduction of 2 lots.
- RW raised the issue of houses being built too close together and questioned if pocket parks could be incorporated into the development of the site to break up the density.
- RW reiterated that the lot size determined by the R20 codes is too small. Would prefer average lot size of 600sqm.
- TA advised that the site complies with the lot average of 500sqm. Putting into context of other development sites, R codes allow for a lot more density i.e. Hollywood redevelopment.
- SRG consensus that there be a uniformity of housing setbacks along both sides of Leach Street.
- TA advised that the Western Australian Planning Council would make the final decision regarding the subdivision of the site.
- NS advised that the City of Joondalup only has a parking policy for the inner city area and not the outer suburbs. Thus general parking conditions apply as directed by the R Coding for the site – i.e. two parking bays
- NS suggested through a DAP, can stipulate each home site to be set back 4.5meters providing for two covered parking bays which allows for additional parking. (Min setback for R20 is 3meters with an average of 6meters)
- NS advised that Structure Plan A – the lot on the corner of Leach and Troy has been reorientated to minimise visual impact of retaining wall.
- It was noted that the southern end of the site drops approx 4meters to Troy Avenue. NS suggested that within a DAP the finished floor level of which building height is taken from could be stated.
- NS suggested that undercroft garages for houses fronting Troy Avenue could also be conditional as part of a DAP.
- NS also advised that in a DAP side setbacks could be restricted to a minimum of 3meters.
- The SRG requested that boundary fencing be erected by the developer

to separate the POS from houses fronting on to it.

- CG provided an overview of the VMP workshop held on 29 November, advising that most of the protected trees identified fit within the 10% POS. TA suggested that the VMP reference group focus on those tree species within the 10% POS.
- TA advised that the 10% POS was based on the certificate of title of the northern boundary
- NS advised that the width of Troy Avenue would not allow for a boulevard treatment. Additional planting on the northern side of Troy Avenue could be considered In the VMP.
- The SRG queried the impact of developing the southern end of the site, in particular;
  - impact on pedestrian flow to the beach
  - impact on houses on the opposite side of Troy Avenue
  - impact on vegetation
- TA advised that two reports would be prepared; a Structure Plan report by Chappell and Lambert and a report detailing the community consultation process undertaken, detailing the issues and concepts discussed at the workshops to be prepared by Creating Communities.
- MJ/CG reiterated the key points raised by the SRG including;
  - houses to be at grade with the street, in particular at Troy Avenue
  - minimise visual impact of retaining walls
  - no drive ways exiting onto Troy Avenue
  - Structure Plan to reflect Marmion Lifestyle
  - Increase POS
- TA advised that he would raise with the land owners the additional 20% POS option at the southern end of the site at their next meeting.

**4. Approval  
Process of  
Structure Plan**

- TA advised of the review process involved in adopting a Structure Plan for the CSIRO site including;
  - Preparation of a Structure Plan (undertaken in consultation with the SRG).
  - Report to Council requesting the plan be advertised for public comment, generally up to 42 days.
  - A second report to council documenting any public comment submissions with the Structure Plan report prepared by Chappell and Lambert.
  - The report is then lodged with the Western Australian Planning Commission.
  - The WAPC then refers the plan to relevant agencies including, Western Power, Water Authority and the City of Joondalup for their comment. After reviewing any comments the WAPC makes a final recommendation with any conditions i.e. incorporating a DAP in consultation with City of Joondalup and their guidelines.

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**5. General  
Business**

- CG raised the issue of dust, once the site is under construction.
- MW advised that demolition of the site will be based on Australian Demolition Standards 2124 which requires a dust management plan, external fencing and mechanisms i.e. watering to contain the dust.

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**6. Next  
Meeting**

- Thursday 19 January 2006, Joondalup Reception Centre

# Stakeholder Reference Group – Redevelopment of CSIRO Site, Marmion

## Meeting Minutes

**Thursday 19 January 2006**

**Joondalup Function Centre, Boas Avenue**

### Attendees

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<b>Ray Margaria</b>	Marmion Resident
<b>Christine Ghersinich</b>	
<b>Reg Went</b>	
<b>Bill Cohen</b>	
<b>Suzette Roux</b>	

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<b>Michele John</b>	Marmion Sorrento Duncraig Progress and Ratepayers Association (inc)
<b>Richard Currie</b>	

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<b>Peter Peard</b>	Business Representative
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<b>Matthew Whyte</b>	Satterley Property Group
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<b>Allan Tranter</b>	Creating Communities
<b>Caroline Harris</b>	

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### Apologies

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<b>Brian Higgins</b>	Marmion Resident
<b>Justin Crooks</b>	Marmion Resident
<b>City of Joondalup</b>	

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### Minutes by

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<b>Caroline Harris</b>	Creating Communities (CC)
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2005

1. Matters arising from previous minutes (1 December 2005)

- No matters arising.

2. Consolidate Community Consultation Outcomes

- AT gave an overview of the process to date, explaining the purpose of this meeting to comment on the Community Consultation Plan, to ensure the points noted accurately reflect the issues brought up by the SRG.
- MW advised that Satterley Property Group had undertaken a feasibility study of each of the options presented to them. The Board (comprising the owners of the CSIRO site) reviewed each option, however did not agree to an additional 20% POS at the southern end of the site. The Board agreed to Structure Plan A (for detail refer to meeting minutes of 1 December 2005) comprising 10% POS and accommodating as much as possible recommendations put forward by the SRG.
- MW advised that there is a distinction between Satterley Property Group and the owners of the site. Satterley and a number of other businesses have ownership of the site. The Board comprise representatives from those businesses.
- MJ stated that the 10% POS is a requirement of MRS 2.
- MW advised that a report will be submitted to Council ASAP proposing Structure Plan A as Satterley's preferred option, which comprises elements put forward by the SRG. This report will become a public document once presented to Council.
- AT provided an overview of the issues that have been agreed to and not agreed to arising from discussions at the two workshops, based on the original Structure Plan presented to the City of Joondalup April 2005.

**Agreed**

- Allocation 10% POS at northern end of site.
- No through road access from Cliff Street to Leach Street.
- Internal cul-de-sac providing rear loading to *most* houses fronting Cliff Street (not all).
- Extensive landscaping of Troy Avenue.
- At grade housing.
- Modification of main intersections with paved threshold treatment

to act as a traffic calming mechanism.

- Consideration to develop a Detailed Area Plan, which address;
  - o Building height
  - o Solar orientation of housing
  - o Housing setbacks
  - o Size of housing stock appropriate to lot size
- Reduce visual impact of retaining walls.
- Boundary fencing erected to separate POS from houses fronting POS.
- Smaller lots to be located within the development.

**Disagreed**

- 20% POS at southern end of CSIRO site.
- 600sqm average lot size.
- All houses fronting Troy Avenue and Cliff Street too have rear loading.
- Leach Street lot frontage 16 -17 metres, not 18 metres as suggested by SRG.
- RW requested that the minutes be included as an appendix to the Community Consultation report.
- MJ asked that a synopsis of the minutes be included in the report – identifying key points raised at the workshops.
- All members of the SRG agreed to issues that were stated as being agreed to and disagreed to.
- RM queried allocation for visitor parking, particularly on Cliff Street and Troy Avenue as they are currently very busy streets posing safety concerns.
- MW advised that the R codes allow for 2 undercover parking bays as well as 2 parking bays immediately behind. Rear loading will be provided for most houses fronting Cliff Street though not Troy Avenue.
- CG asked if the Boards decision to endorse only 10% POS at the northern end of the site was based primarily on the increased financial return.
- MW agreed that the greatest financial return from the site would be

achieved through Structure Plan A – proposing only 10% POS.

- GC believed that the Board had not given anything extra back to the community, as the 10% POS is a requirement for the site put forward by the WAPC. The community will still not be satisfied with this outcome when it goes to be advertised for public comment.
- CG reiterated the importance of allocating POS to the southern end of the site, housing Dryandra's as well as being a habitat for Black Cockatoos and safety issues for pedestrians accessing the beach.
- MJ raised the issue of the Council purchasing the 20% (10% min) land at the southern end of the site to retain as remnant bushland.
- PP queried whether the Council would be prepared to spend such a large amount of money for a small piece of land – which would not benefit the whole of the City of Joondalup community.
- MW advised that any request for the Council to purchase the 20% of land at the southern end of the site, would have to come from residents who supported that position which would then require having to go through normal Council processes.
- MJ requested that it be formally noted that the residents who supported that position will approach the City of Joondalup seeking support for the Council to purchase a minimum of 10% of land to the southern end of the CSIRO site to retain as POS.
- MW reiterated that whilst the additional 20% POS was not agreed to by the Board, a number of other issues put forward by the SRG have been accommodated into the preferred structure plan, which can be further highlighted in a DAP.
- MJ requested that the DAP be more detailed / specific. CH to follow up with Nicola Smith and include in the Community Consultation Report.
- MW advised that a DAP is normally created when design elements are contrary to the R 20 Coding. In this instance the majority of elements which the SRG group have suggested comply with the R Codes.
- MJ questioned verge side maintenance.
- MW advised that landscape maintenance, due to it being on crown land, is the responsibility of the local council. Satterley will vegetate following building construction; though on going maintenance will be undertaken by the City of Joondalup or the new owners of the lots.
- MJ asked if within the Structure Plan a Landscape Management plan pertinent to verge side maintenance could be incorporated ensuring the Council maintain the verges to the standard set by the Developers.

- MW advised that in his experience he has not seen such a condition stipulated in a Structure Plan and consequently would be difficult to achieve.
- MJ argued that it could be an opportunity to initiate such a condition, the City of South Perth have introduced mechanisms to ensure on going maintenance of verges once the developer has exited the project. CH to follow up.
- MJ and CG noted concern regarding disruption during demolition/construction process.
- MW advised that the demolition process is guided by Australian Standards Contract Form 2124, requiring a dust management plan and erection of external fences with attached sheeting to limit sand being blown to neighbouring houses by strong winds. A contractor will be appointed to undertake the demolition. The contractor's contact details will be made available to surrounding residents enabling them to report any concerns. A site inspection by nominated insurers will be undertaken of households prior to demolition/construction of the site to record if any structural damage to houses occurs during the project. Work on the site will be conducted between 7-6pm Monday – Friday or as per Local Government regulations.

**The key points agreed to at the meeting;**

- Items identified as agreed to and not agreed to.
- A synopsis of meeting minutes included in the Community Consultation Report, detailed in full as an attachment.
- Specific information comprising a detailed area plan for the site (CH to follow up with Nicola Smith).
- Representatives of the local residents to approach the City of Joondalup to purchase a minimum 10% of land at the southern end of the site to retain as POS.
- Investigate opportunities to include a landscape management plan of verges, ensuring they are maintained to a high standard as set by the developer. (CH to follow up).
- The report, minutes and draft DAP to be circulated for final approval by SRG.

**Meeting Closed – 7pm**

**LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN**

**APPENDIX D**

**RILEY CONSULTING TRAFFIC REPORT**

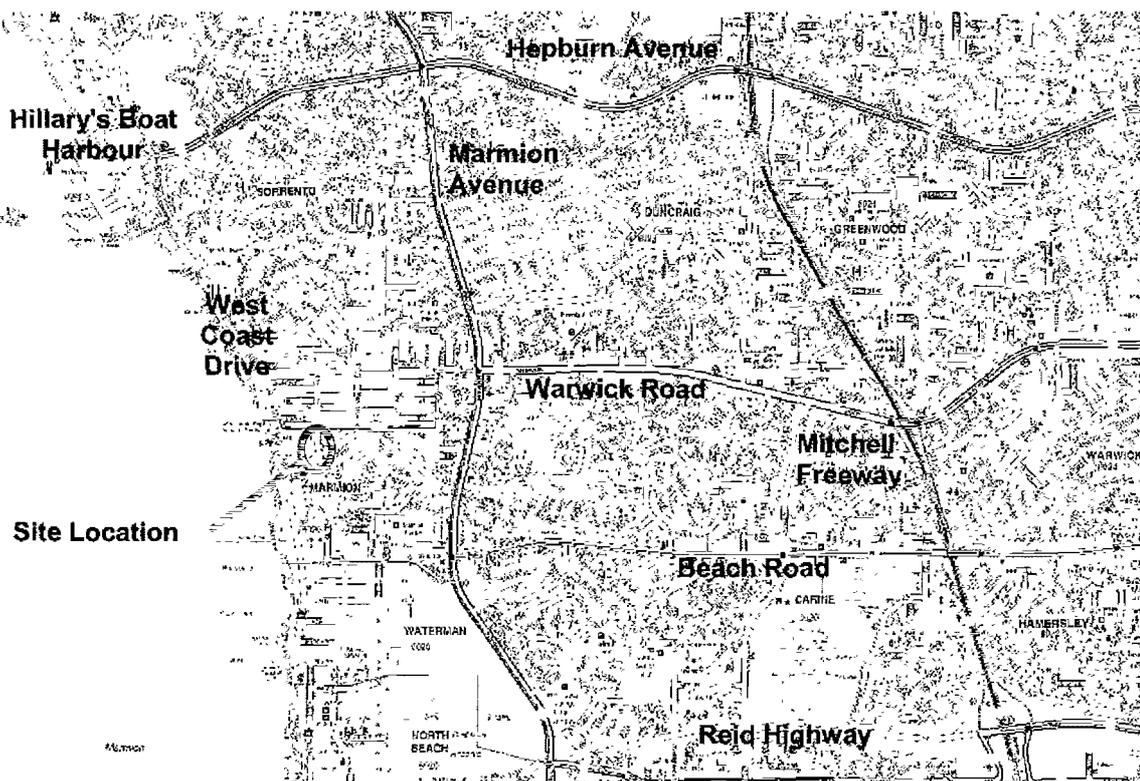


# Technical Note

**SUBJECT: Proposed Residential Development – Cliff Street, Marmion.**

## Purpose

The purpose of this technical note is to provide a brief overview of the possible traffic impacts of the proposed development of 35 residential lots on Lot 61 Leach Street, Marmion in the City of Joondalup. The location of the site is shown in Figure 1 below. Appendix A shows the layout of the site considered in this technical note.



**Figure 1 Site Location**

The site is well located to the district and regional road network providing good access to the city and other regional facilities. All streets adjacent to the site are residential in nature.

Cliff Street is a local distributor road running north-south parallel to West Coast Drive. Daily traffic flows are believed to be in the order of 1,700vpd. Current planning guidelines would suggest that traffic flows on Cliff Street should not exceed 3,000vpd<sup>1</sup>.

Leach Street bounds the western side of the site and is classified as a residential access street. Current traffic flow information is not available, but it would be expected that current volumes would be less than 200vpd. The road is constructed with a 6.0 to 6.5 metre carriageway and can easily accommodate increases in daily traffic flows.

Troy Avenue bounds the southern side of the site and provides a connection between Cliff Street and West Coast Drive. Current traffic flow information is not available, but it would be expected that current flows would be less than 500vpd.

Ozone Road bounds the northern side of the site and provides a connection between Cliff Street and West Coast Drive. Current traffic flow information is not available, but it would be expected that current flows would be less than 500vpd.

### **Traffic Generation**

The proposed development would provide for a yield of 35 residential lots taking access from all fronting streets. Current traffic generation estimations for residential lots vary from 5 to 11 trips per day and are based on the accessibility to public transport provision and the socio-economics of the surrounding area.

The site is located in an existing residential area predominantly occupied by executive style homes, many with views to the ocean. Car use in the local area is higher than typical due to the excellent road connections to the city (and employment) and the reduced level of easily accessible public transport. Further, the values of the land would attract buyers that are more likely to choose to travel by car.

A daily trip rate of 9 trips per dwelling per day is considered to be an appropriate estimation of the likely future trips associated with the site. Based on this rate it can be expected that the site would generate (9x335) 315 trips per day.

***The proposed development will generate about 315 trips per day.***

---

<sup>1</sup> Liveable Neighbourhoods

**Distribution**

The traffic generated by the residential development is distributed onto the local road network as shown in Table 1.

**Table 1 Traffic Distribution**

North to local schools and Hillary's	20%
East to local schools, shopping and Whitfords	20%
South to local beach attractions and City of Perth (Freeway)	60%
West to local beach	It is assumed that local residents will walk to the beach

Based on the above distribution assumptions the traffic flows shown in Figure 2 would be expected.

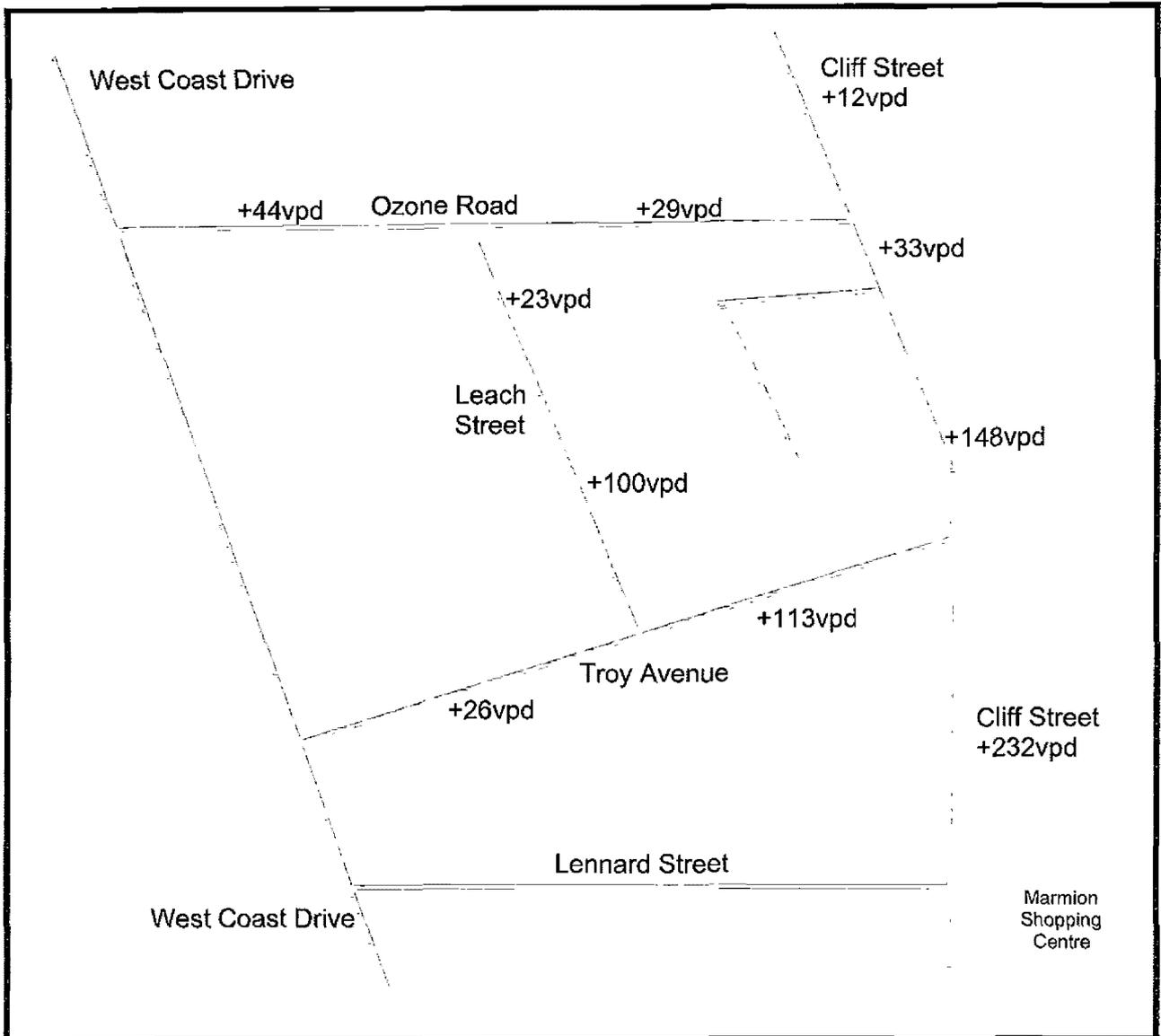
**Traffic Impact**

Existing traffic flows on local streets and the maximum increase as a result of the proposed development are shown in Table 2 below. The locations shown (except Leach Street) do not front the development site, which may have greater traffic movements.

**Table 2 Daily Traffic Flows of the Proposed Development**

Road	Daily Flow	Development
Leach Street	<200vpd	+100vpd
Cliff Street north of development	1,700cpd	+12vpd
Cliff Street south of development	1,700vpd	+232vpd
Ozone Road	<500vpd	+44vpd
Troy Avenue	<500vpd	+26vpd

The increase on Leach Street is significant in terms of the percentage change, although the total traffic movements on Leach Street will be well below the residential amenity level of 1,500 vehicles per day. The development could increase traffic flows by about 100 vehicles per day, which equates to an additional vehicle every 6 minutes during peak times. The quiet residential atmosphere of Leach Street will be retained with the proposed development.



**Figure 2 Forecast Traffic Movements**

The increase on Cliff Street is shown to be between 1% and 15% and is not considered too significant for this local distributor road. Throughout the day Cliff Street will operate in a similar manner to the existing situation. During peak times local residents may notice a slight increase in local traffic movement, but the increase equates to an additional vehicle every 2 minutes. In traffic engineering terms the development traffic flow would have no significant impact on Cliff Street.

Ozone Road and Troy Avenue are currently quiet residential streets that provide local connectivity to West Coast Drive and the ocean. Although no current traffic data is available, it would be expected that these roads would generally have less than 500vpd. The proposed development will result in a typical increase of 26vpd and 44vpd respectively to these streets. The increase during peak hours, when local residents would be more likely to notice a change in

local traffic movements, equates to an additional vehicle every 20 minutes on Troy Avenue and an additional vehicle every 12 minutes on Ozone Street.

***In traffic engineering terms, the proposed traffic associated with the development will have no significant impact on local streets.***

All local streets will continue to operate as quiet residential streets and it is not expected that any detrimental impact to the residential amenity would occur as a result of the proposed development. It should be noted that the proposed traffic flow forecasts consider a robust assessment of the potential traffic generation of the proposed development.

### **Access**

The development layout proposes direct access to streets fronting the site and as all local streets have daily traffic flows of less than 3,000vpd, direct lot access is acceptable under current planning guidelines.

A small access street through the site is proposed to service 11 lots and will take access to Cliff Street and Leach Street. The location of access to Cliff Street is approximately 62 metres south of Ozone Road and accords with appropriate intersection spacing requirements. The access is located north of the crest of the hill on Cliff Street.

Visibility of 70 metres can be achieved<sup>2</sup> on Cliff Street to the south of the proposed access. This distance accords with the Australian Standards requirements for approach sight distance on a 50kph road (min 40 metres) but not for Safe Intersection Sight Distance (80 metres). However the hill on the approach to the access will limit the speed of vehicles and the visibility distance achieved, which accords with a 45kph approach speed, is consider acceptable.

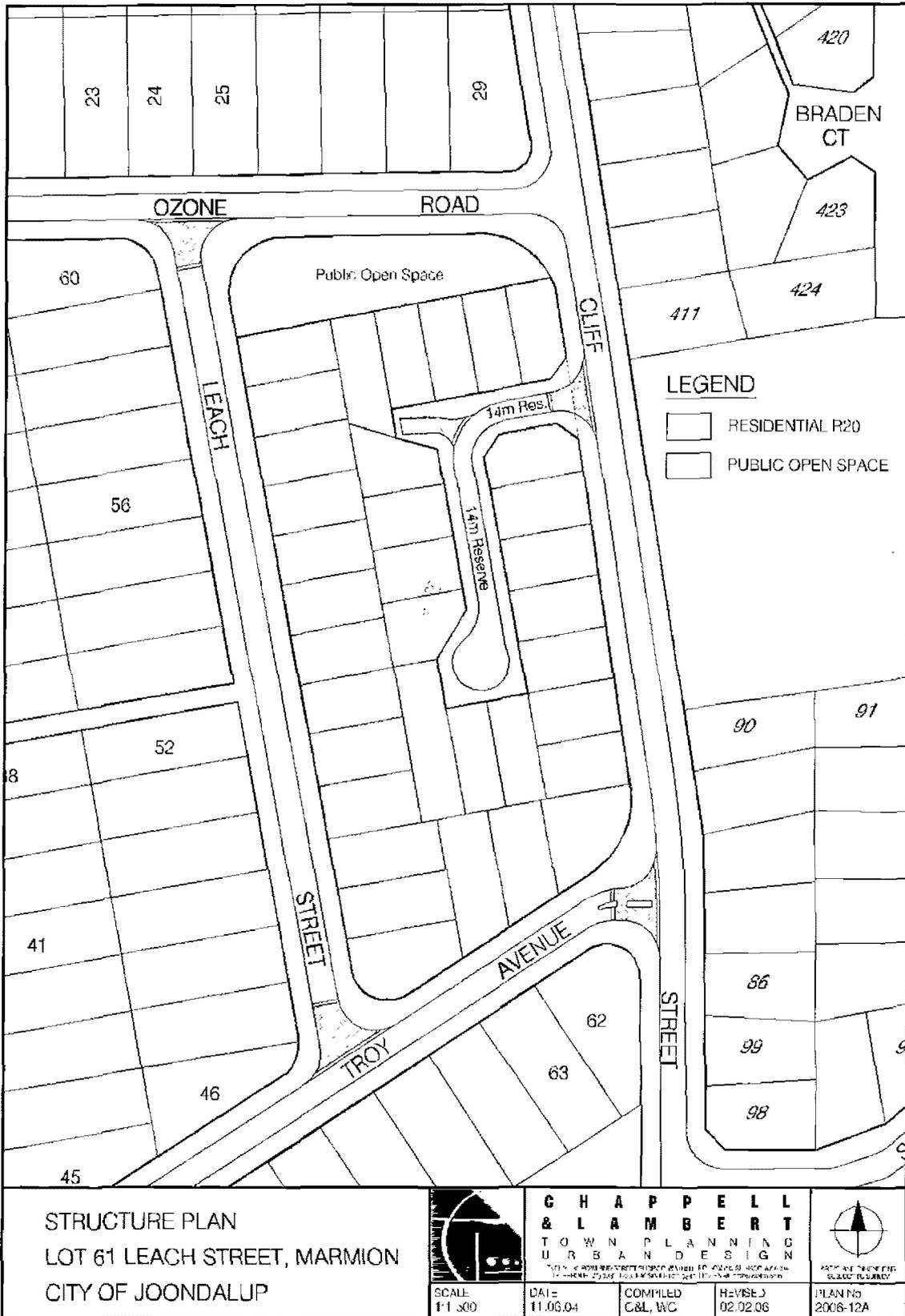
To the north of the access the SISD requirement can be achieved on Cliff Street.

***Visibility to acceptable standards can be provided.***

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<sup>2</sup> Based on 1m contours.

**APPENDIX A  
SITE LAYOUT**



STRUCTURE PLAN  
LOT 61 LEACH STREET, MARMION  
CITY OF JOONDALUP



**G H A P P E L L  
& L A M B E R T**  
T O W N P L A N N I N G  
U R B A N D E S I G N



SCALE  
1:1 500

DATE  
11.06.04

COMPILED  
C&L, W.C.

REVISED  
02.02.06

PLAN No  
2008-12A

**LOT 61 LEACH STREET, MARMION  
AGREED STRUCTURE PLAN**

**APPENDIX E**

**VEGETATION MANAGEMENT PLAN COMMUNITY  
CONSULTATION OUTCOMES  
AND VEGETATION MANAGEMENT PLAN**



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Public Open Space, Lot 61 Leach Street, Marmion

## Vegetation Management Plan

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Prepared by:  
**Joondalup Community Coast Care Forum,**  
**March 2006**

Issue 1.0

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## 1. INTRODUCTION

The Satterley Property Group purchased the former CSIRO Marine Research Facility site in Marmion (Lot 61) and applied for zoning for residential purposes.

Lot 61 is 2.19 hectares in area bounded by Ozone Road, Cliff Street, Troy Avenue and Leach Street, in the beach side suburb of Marmion. It contains buildings originally used as the CSIRO Marine Research facility, and vacant land which contains remnant native vegetation (characteristic of the open coastal bushland in the region), planted trees and shrubs (most of which do not occur naturally on this site), and many weed species. It presents a local topographic high point within the suburb, but is gently undulating to flat.

Amendment No 24 to District planning scheme No 2 rezoning of Lot 61 Leach Street was approved in December 2005, but a condition of the approval was that an area of public open space ("POS") be set aside on the northern end of the site, that it be a minimum of 10% of the area of the site, that a Vegetation Management Plan ("VMP") be prepared, and that the Satterley Group fund its rehabilitation work prior to the handover of its management to the City of Joondalup.

A Stakeholder Reference Group was facilitated by "Creating Communities" during November and December of 2005. The Joondalup Community Coast Care Forum ("JCCCCF") was involved as a stakeholder, given this community group's close involvement with many of the current coastal and bushland rehabilitation projects being implemented in partnership with the City of Joondalup.

At the Stakeholder Reference Group meeting of the 14<sup>th</sup> of December, 2006, JCCCCF offered to take on the tasks of finalising the collection of community views about the management of the POS and preparing the VMP. The Stakeholder Reference Group accepted this offer.

### 1.1. Scope

This VMP deals primarily with the POS planned for the northern end of Lot 61, together with the verge that surrounds it. The combined area is referred to as the "park".

However, recommendations are made in Section 2.9 (Linkages) on some work that could be done in nearby Braden Park, and the streetscape planting of the residential development, which will compliment the work specified in this VMP.

The public consultation process on the Structure Plan for the development has been looking at the possibility of including some additional land on the southern side of Lot 61 into the POS of Lot 61. If this eventuates, it would also come under the management recommendations provided in this document.

### 1.2. Management Objectives

A Stakeholder Reference Group was facilitated by "Creating Communities" during November and December of 2005. At the meeting of the 14<sup>th</sup> of December, 2006, the objectives of the VMP were determined and agreed as follows:

- Develop the area to be used for passive recreation only – low impact pathways, seats and fencing.
- Protect remnant native vegetation and the planted trees (including during earthworks and building phases outside of the POS).
- Retain planted trees, and judiciously prune them to maximise landscaping values.
- Retain native understorey where it still exists.
- Replant with local native trees and understorey plants (ie use only local provenance seed and cuttings). Develop a bushland setting.

- Encourage the establishment of a Friends Group to assist with the long term maintenance of the park.

A subsequent meeting with representatives of the Marmion residents was conducted by JCCCCF on the 17<sup>th</sup> of January, 2006. At this meeting:

- The objectives listed above were reiterated and confirmed.
- Plantings should have an objective of supporting an abundance of native birds and other fauna by ultimately restoring the bushland as close as possible to that which may have originally existed (using a less disturbed similar bushland in an adjacent suburb as a reference).
- That a few of the straggly/ low growing planted trees with little landscape value could be removed.
- The Victorian Tea Trees should be removed, as it classified as a woody weed and is being removed elsewhere within the City of Joondalup.
- That the Coastal Moort, Sydney Apple Myrtle and Peppermint trees (which are not native to the site) will be replaced with locally occurring species when they eventually die or are blown over.
- That a pedestrian path should exist around the entire site.
- An internal path should be created running east west in the firebreak, and another connecting the Ozone Road footpath to the firebreak.
- That a wooden post and rail (gelding) fence should surround the entire site, similar in height to that installed along the Marmion coastal reserve. Openings only provided east and west for firebreak access and for the internal path entry on the northern side.
- Suggestion the park could be called "Ozone Park" or "Ozone Bushland Park", subject to approval from the City of Joondalup and the State Government.
- A sign should be placed on the northern side near the fence opening, indicating the name of the park and that a friends group is involved in its management.
- One or two bench style seats could be placed under trees adjacent to the internal path.
- Herbicides could be used initially to spray the weeds (particularly the grass weeds), but the management strategy was needed with the aim of eliminating the need for use of herbicides as quickly as possible.
- Create linkages to the park for birds by planting more local native trees in nearby Braden Park, and retention of existing native trees and shrubs around the residential development where practical to do so.
- There should be no drainage discharge into the park.

The timing of the Structure Plan process meant that issue 1.0 of the VMP needed to be released prior to the review planned with the Marmion representatives. If the final review with these residents results in changes acceptable to the other stakeholders, another issue of this document will be released.

## **2. SITE OVERVIEW**

### **2.1. Location**

The POS is located on the northern side of Lot 61, as shown in Figure. It is bound by Cliff Street to the east, Ozone Road to the north, and Leach Street to the west.

On the eastern side, it is located adjacent to Braden Park, which comprises a large open grassed space with scattered trees, some of which are locally occurring species such as Tuart.

On the northern and western sides, it is adjacent to residential housing. However, approximately 200m to the west is the City of Joondalup's coastal reserve, which runs between Marmion and Burns Beach to the north.

### **2.2. Zoning and Vesting**

The POS will retain its MRS Zoning of Regional Reserve, Parks and Recreation. Its management will be vested with the Satterley Property Group until handed over to the City of Joondalup.

### **2.3. Area**

The POS has estimated area of approximately 0.54 acres (2191 sq m). The road verge surrounding it has an area of 880 sq m, excluding the area occupied by the footpath. So the total area of the park will be 3071 sq m. See Figure 1, Appendix 1, for a map of the position of the POS and the verge in relation to the residential development.

### **2.4. Visual Assessment**

A visual assessment was performed of the whole site and a report issued in March 2003 (see Ref 1). It noted a Visual Quality Objective of, "maximum retention of existing landscape qualities" and in order to preserve the foreground and middle-ground views: "As far as possible, mature trees, being the predominant component of the perimeter vegetation, should be retained and integrated into any future development".

In relation to the park, these recommendations align with the community objectives of retaining nearly all of the mature trees to maintain the aesthetic appeal of the park, only replacing them with locally occurring native trees when they die or blow over.

### **2.5. Heritage Assessment**

A heritage assessment was performed of the whole site and a report issued in March 2003 (see Ref 2). This report concluded that apart from the scientific significance of the research facility itself, the assessment found no other grounds to claim the site had cultural heritage values. This included no finding of Aboriginal significance of the site.

Nevertheless, Lot 61 has been part of the landscape ever since the suburb of Marmion was created, and the continued existence of the zoning "Parks and Recreation" has been strongly defended by the local community (including the local Ratepayers Association and environmental groups) on at least three occasions since 1974. As such, it is part of the social heritage of the Marmion community.

### **2.6. Soils:**

The soil of the park is Cottesloe sands over limestone outcrops and interfaces to the Spearwood dunes system (as noted in Ref 3).

## 2.7. Flora

### 2.7.1. Native Vegetation (park and southern side of Lot 61).

Table 1 lists the native vegetation which is considered to be indigenous to Lot 61. This list has been developed from five surveys conducted at Lot 61 as follows:

1. William (Bill) Cohen (local resident), August - October, 1985. Those species shaded in grey do not appear on any of the lists prepared by others some years later, and therefore may have disappeared from the site, or where not present at the time the other surveys were performed. All the other species on his list appeared on lists prepared by others.
2. Anne Harris and Caroline Harding (consultants from BOWMAN BRISHAW GORHAM), December 2003.
3. Brett Dal Pozzo (metropolitan Coastcare officer) and Phyllis Robertson (Friends of Star Swamp etc), May 2004.
4. Greg Keighery (Principal Research Scientist at CALM), September 2004.
5. Michael Norman (Chairman, JCCCF and Coordinator, Friends of Porteous Park) and Phyllis Robertson (Friends of Star Swamp etc), January 2006.

There is generally a good degree of similarity between all the lists, but none were exactly the same.

Refer to Figure 2, Appendix 1, for a diagram showing the current location of all native, planted and weedy tree species in the park, and those immediately adjacent to it, as of January 2006.

<b>Botanical Name</b>	<b>Common Name</b>	<b>Notes</b>
<i>Acacia cyclops</i>	Red-eyed wattle	
<i>Acacia pulchella</i> var <i>reflexa</i> <i>acuminate bracteole</i>	Prickly moses	P3, PP
<i>Acacia saligna</i>	Golden wreath wattle or Coojong	
<i>Acacia rostellifera</i>	Summer scented wattle	
<i>Anigozanthos humilis</i>	Cat's paw	BC, PP
<i>Alexgorgia arenicola</i> (to be confirmed)		PP, LG
<i>Allocasuarina humilis</i>	Dwarf sheoak	PP
<i>Banksia attenuata</i>	Candle banksia	PP
<i>Banksia menziesii</i>	Firewood banksia	PP
<i>Burchardia umbellata</i>	Milkmaids	BC, PP, FR
<i>Caladenia filamentosa</i>	Spider orchid	BC, PP, LG
<i>Caladenia flava</i>	Cowslip orchid	BC, LG
<i>Caladenia latifolia</i>	Pink faries	BC, LG
<i>Caladenia longicauda</i>	White spider orchid	BC, LG
<i>Calothamnus quadrifidus</i>	Clawflower or one-sided bottlebrush	PP
<i>Calothamnus sanguineus</i>	Clawflower or one-sided bottlebrush	BC
<i>Chamelaucium uncinatum</i> (to be confirmed)	Wembley Wax	
<i>Conostylis aculeata</i>	Spiny cottonhead	PP, LG
<i>Conostylis candicans</i>	Grey cottonhead	LG
<i>Corinthea micrantha</i>	Netbush	PP, LG
<i>Dampiera linearis</i>	Common damperia	BC, PP, LG
<i>Daviesia triflora</i>		LG
<i>Dianella revoluta</i>	Flax-lily	PP, LG
<i>Diplopelus heugelli</i>		S, LG
<i>Diuris longifolia</i>	Donkey orchid	BC, PP, LG
<i>Dryandra sessillis</i> var <i>cordata</i>	Parrot bush	S, P4, PP
<i>Dryandra lindleyana</i>	Cooch honeypots	PP, LG
<i>Gompholobium tomentosum</i>		PP, LG
<i>Grevillea crithmifolia</i>		PP

<i>Grevillea preissii</i>	Spider grevillea	PP
<i>Grevillea vestita</i>		
<i>Hardenbergia comptoniana</i>	Native wisteria	PP
<i>Hibertia hypericoides</i>	Buttercups	PP
<i>Hemiandra pungens</i>	Snakebush	LG
<i>Hakea lissocarpa</i>	Honey bush	PP
<i>Hakea prostrata</i>	Harsh hakea	PP
<i>Hybanthus calycinus</i>	Wild violet	BC, PP
<i>Isolepis cuneifolia</i>	Lamb poison	BC, PP, LG
<i>Isolepis nodosa</i>	Knotted club-rush	LG
<i>Jacksonia sericea</i>		P4, PP
<i>Kennedia prostrata</i>	Red runner	BC, LG
<i>Lechenaultia linarioides</i>	Yellow lechenaultia or Fountain lechenaultia	PP
<i>Lomandra hamaphrodite (to be confirmed)</i>		LG
<i>Lomandra maritima</i>	Coast mat-rush	PP, LG
<i>Macrozamia reidleyi</i>	Zamia	PP
<i>Melaleuca systina</i>		PP
<i>Melaleuca cardiophylla</i>		
<i>Olearia axillaris</i>	Coastal daisy or native rosemary	S, PP
<i>Oxylobium capitatum</i>	Bacon and eggs	BC, LG
<i>Patersonia occidentalis</i>	Purple Flag	BC, LG
<i>Petrophile linearis</i>	Pixie-mops	LG
<i>Petrophile serruriae</i>	Limestone petrophile	PP
<i>Pimelea rosea</i>	Native rose	BC, PP
<i>Rhagodia baccata</i>	Seaberry saltbush	PP
<i>Scaevola canescens</i>	Grey fanflower	PP, LG
<i>Scaevola paludosa</i>		LG
<i>Scaevola repens ssp repens</i>	Creeping fanflower	P2, PP, LG
<i>Scaevola sp. Var (anchusifolia)</i>		LG
<i>Schoenus grandiflorus</i>		PP, LG
<i>Sowerbaea laxiflora</i>	Purple tassels	BC, PP/, LG
<i>Templetonia retusa</i>	Cookies' tongue	BC, PP

<i>Thysanotus arenarius</i>	Hairy fringe lily	BC, PP?, LG
<i>Thysanotus patersonii</i>	Twining fringe lily	BC, LG

**TABLE 1:** Native species occurring on the northern and southern sides of Lot 61

Notes to Table 1:

P2, P3, P4 - Western Australian Flora Conservation Priority Code for rare taxa. These are species that have been adequately surveyed and are considered to be rare but not currently threatened. This species is endemic to the Swan Coastal Plain. There are no declared threatened or endangered flora growing on Lot 61.

S – Indigenous native species that currently occur on the southern side of Lot 61 only.

BC – ADDITIONAL species noted by local resident William (Bill) Cohen during multiple visits to Lot 61 during August-October, 1985. His list consisted of hand written notes and selected species noted on the Star Swamp species list. These species were either not growing at the time of year the other surveys were performed, or are no longer present on the site.

PP – This species also occurs at Porteous Park, Sorrento, located approximately 1.2km NNE of the park. It is suggested that the bushland at Porteous Park could be used as a local reference site for the revegetation of the park. because it is also an exposed coastal bushland site of sand over limestone outcrops, with dominant tree species being *Banksia attenuata* and *Banksia menziesii*. Porteous Park has over 100 indigenous native species so far identified (ie the flora survey has not been completed).

LG – Low growing species that could be grown in the fire break (see Recommendation 1)



**PHOTO 1:** View from NE corner of the park, showing clump of *Grevillea vestita* with *Banksia attenuata* in the background (photo by M.Norman, January 2006)



**PHOTO 2:** View of the park from Ozone Road looking south, showing fine specimens of *Banksia attenuata* trees (photo by M.Norman, January 2006)



**PHOTO 3:** View of the park from Ozone Road looking at NE corner, showing a clump of *Banksia menziesii* trees (photo by M.Norman, January 2006)

### 2.7.2. Planted Trees (park only)

Table 2 shows the species of flora that are considered to be planted in the park. None are native to the site. However, the species marked with an asterisk may have occurred naturally on the site in pre-European times, and since been eliminated by an increase in fire frequency.

Botanical Name	Common Name (if available)
<i>Acacia podalyriaefolia</i>	Queensland silver wattle
<i>Agonis flexuosa</i>	Peppermint
<i>Angophora costata</i>	Sydney apple myrtle
* <i>Callitris preissii</i>	Rottnest cypress or Rottnest pine
<i>Eucalyptus calophylla</i>	Marri
<i>Eucalyptus platypus</i>	Coastal moort
<i>Eucalyptus spathulata</i>	Swamp mallee
<i>Eucalyptus tetragona</i>	Silver marlock
<i>Melaluca armillaris</i>	Bracelet honey myrtle
* <i>Melaluca lanceolata</i>	Rottnest tea-tree or Moonah

TABLE 2: Trees planted in the park (those denoted with an asterisk may have existed on this site in pre-European times).

### 2.7.3. Weed Species (park only)

The following species of weeds have been observed at the park in January, 2006. Most are common within the Perth metropolitan area (and generally known by their common names), and there are known methods of control/ eradication. Many also occur on the southern side of Lot 61, surrounding vacant blocks, verges and the nearby coastal reserve area. More weed species would be observed while visiting the site during winter or spring. For example, local residents claim One Leaf Cape Tulip (*Moraea flaccida*) is prolific during this period.

Botanical Name	Common Name (if available)
<i>Arbanche minor</i>	
<i>Avena barbata</i>	Wild oats
<i>Briza maxima</i>	Blowfly grass
<i>Conyza bonariensis</i>	Fleabane
<i>Cynodon dactylon</i>	Couch grass
<i>Ehrharta calycina</i> –	Perennial veld grass
<i>Euphorbia terracina</i>	Geraldton carnation weed
<i>Gazania linearis</i>	Gazania

<i>Galenia pubescens</i>	Galenia
<i>Lagurus ovatus</i>	Hare's tail grass
<i>Leptospermum laevigatum</i>	Victorian or coastal tea tree
<i>Pelargonium capitatum</i>	Rose pelargonium
<i>Trachyandra divaricata</i>	Strapweed
<i>Ursinia anthemoides</i>	Ursinia

**TABLE 3: Weed species found in the park, January 2006**



**PHOTO 4:** Victorian Tea Tree (*Leptospermum laevigatum*), on the western side labelled "A" in Figures 2 and 3 (Appendix 1) of the park (photo by M.Norman, January 2006)

#### 2.7.4. Bushland Condition

The park is highly disturbed and weedy and is considered to be in "Poor" condition. The abundance of weeds varies on the site from approximately 40% to 100% of the ground area if examined metre by metre.

Also, the planted trees that are not native to the area, but are to be retained for their landscape values (ie *Agonis flexuosa*, *Eucalyptus platypus*, and *Angophora costata*), have inhibited the regeneration of any indigenous native flora for many metres around each specimen.

Nevertheless, there is very little bushland left in the suburb of Marmion, so this remnant is locally significant from this perspective, and strongly contributes to a "sense of place". Also, the banksia trees on the site are in good condition (and can be viewed as the "icon flora species" for this area) and there is also still a surprising array of understorey species present despite the high level of disturbance.

In Reference 3, CALM notes; "The distinctive character of the ecology presented on the site has been commented on by local ecologists who believe it is an interesting and locally significant ecosystem given the variety of species present and the species selection (G.Keighery and R.Powell, CALM).

There is no evidence of dieback fungus in the park.

## 2.8. Fauna

### 2.8.1. Birds

Reference 3 lists the bird species surveyed at Lot 61 by A.K.Jones on behalf of Birds Australia (WA Branch). The date of the survey is unknown.

Species Name	Common Name	Notes
<i>Elanus notatus</i>	Black-shouldered kite	W
<i>Coracina novae hollandiae</i>	Black-faced cockoo shrike	W, BC
<i>Calyptorhynchus latirostris</i>	Carnaby's cockatoo	W, EN
<i>Falco cenchroides</i>	Australian kestrel	W, BC
<i>Merops ornatus</i>	Rainbow bee eater	W, BC
<i>Streptopelia senegalensis</i>	Laughing turtle-dove	I
<i>Streptopelia chinensis</i>	Spotted turtle-dove	I
<i>Cacatua roseicapilla</i>	Pink and grey galah	W, BC
<i>Hirundo neoxena</i>	Welcome swallow	W, BC
<i>Trichoglossus moluccanus</i>	Rainbow lorikeet	E
<i>Platycercus zonarius</i>	Australian ringneck or port lincoln parrot or twenty eight parrot	A
<i>Pardalotus substriatus</i>	Striated pardalote	A
<i>Gerygone fusca</i>	Western gerygone	
<i>Anthochaera carunculata</i>	Red wattlebird	W
<i>Lichenostomus virescens</i>	Singing honeyeater	W
<i>Melithreptus brevirostris</i>	Brown honeyeater	W, BC
<i>Phylidonyris novae hollandiae</i>	New holland honeyeater	W
<i>Phylidonyris nigra</i>	White cheeked honeyeater	W, BC
<i>Grallina cyanoleuca</i>	Magpie-lark or mudlark	W
<i>Rhipidura leucophrys</i>	Willie wagtail	W
<i>Cracticus torquatus</i>	Grey butcherbird	W
<i>Gynnorhina dorsalis</i>	Australian or Western magpie	W
<i>Corvus coronoides</i>	Australian raven	W
<i>Zosterops lateralis</i>	Silvereye	W

TABLE 4: Bird species seen at Lot 61.

Notes to Table 1:

W – Distribution naturally occurs in Western Australian.

A – Species widely distributed in Australia

E – Eastern States species introduced into Western Australia

I – Species introduced into Australia.

BC – Additional species recorded by William (Bill) Cohan (Marmion resident who lives over the road from lot 61).

EN – Endangered bird species. Carnaby's cockatoo has declined 50% in the last 45 years, it is thought to be mainly due to loss of habitat.

### **2.8.2. Reptiles**

No reptiles currently appear to be present in the park, although local residents say that Bobtail skinks have appeared in the recent past.

### **2.8.3. Introduced animals**

No rabbits or foxes have been reported by local residents. Mice have been seen in the recent past. However, domesticated cats do enter the park from time to time.

### **2.8.4. Linkages**

The site is considered by CALM (as noted in Ref 3) to be “an important ecological link between the coastal reserve, Star Swamp and the remnant bushland in Sorrento. This ecological link is of particular value in maintaining the health of local ecosystems in allowing the movement of species between sites, and in providing buffer zones, alternative habitats with changing seasonal conditions/urban development and dispersal mechanisms for wildlife.”

The southern side of the adjacent Braden Park is relatively open and treeless. It is recommended that the linkages could be further improved by the clump planting of local provenance *Eucalyptus gomphocephala* (Tuart) and *Eucalyptus decipiens* (Limestone Marlock) in this park, possibly using the assistance of local residents who are keen to see more trees planted there.

Landscaping work is planned around the perimeter of the residential development of Lot 61. It is recommended that the retention of the existing (planted) native trees, and the planting of new low growing native tree species (such as *Melaluca lanceolata* – Rottnest tea tree, or *Eucalyptus ficifolia* – Red flowering gum) will also improve the wildlife linkages and the aesthetic appeal of the development, without compromising ocean views.

### 3. MANAGEMENT STRATEGY

The management objectives are listed in Section 1.2. The strategy will be met by meeting the objective for each management issue listed below.

#### 3.1. Management Issues

##### 3.1.1. Fire Control

Although fire is an integral part of the Australian bushland, the frequency of fire in many urban bushland reserves around Perth, caused by suspected arson, is actually damaging these reserves causing a long term decline in biodiversity and bushland condition. The damage occurs from:

1. Destruction of many species before they are mature enough to set seed. Some native plants do not set seed until they are at least five to seven years old.
2. Opening up of the ground stimulating weed growth which can rapidly out compete native plants.
3. Killing trees which do not re-sprout, particularly the banksia trees on this site.
4. Killing of any ground dwelling native fauna that may be present.
5. Loss of bird habitat.
6. Loss of aesthetic appeal of the bushland.

Because the park is relatively small (less than an acre), and nearby residents will be informally monitoring activity within it (as a Friends Group role), it is considered the fire risk will be low.

However, a firebreak between the park and the housing development is still required by local government regulations. A requirement is that the firebreak be a minimum width of 3 metres. It is proposed that the firebreak could consist of the combination of a 1.5 m path and the planting or retention of low growing native plant species. However, the firebreak must veer away from the southern boundary wall in places to avoid some planted trees (which would otherwise have to be removed), and to create a more interesting space.

The grass weed species, which are well established in the park, dry off in summer creating large amounts of dry matter, not only making the bushland as a whole look dry and unattractive, but also posing a substantial fire hazard.

##### Objectives

1. Protect the bushland by reducing the potential and frequency of fires in the reserve.
2. Protect the adjacent housing estate from fire damage.

##### Recommendation 1

Construct a firebreak near the southern boundary of the park consisting of a 1.5m wide sealed pedestrian path and low growing or relatively fire retardant species, planted to 1.0m either side of the path. The position of the path is shown in Figure 3, Appendix 1. The low growing plant species are denoted with "LG" in Table 1.

##### Recommendation 2

Design the path/ firebreak to avoid the removal of planted trees that the community wishes to retain. See Figure 3, Appendix 1.

### Recommendation 3

Slash the long grass under all the banksias in late spring until such time as the grass weed control program using herbicide commences. Commence the weed control program at the earliest opportunity.

### Recommendation 4

If fire does occur, place additional resources on weed control over the following winter and spring (given that weed seed germination will be prolific in the first winter after fire).

## **3.1.2. Weed Control**

The weeds, listed in Table 3 are not part of the natural ecology of the park. They are undesirable both biologically and aesthetically within a bushland setting. Weeds compete with indigenous vegetation for space, nutrients, light and water, and in most instances, out-compete native plants in disturbed or degraded areas. The grass weeds also add to the fire risk of the site, as noted in section 3.1.1.

The park is small compared to most bushland reserves in the City of Joondalup, so it should be feasible to apply a "zero tolerance" approach to weed control for all the weed species listed in Table 3, and any other weed species that may be found on the site during winter/ spring. This means that once the program commences, all of the listed weed species must be sprayed or physically pulled up/ cut out before they shed their seed. This approach will exhaust the weed seed bank in the soil as quickly as possible.

Removing weeds to allow degraded bushland to regenerate requires a set of skills and knowledge that are not generally possessed by those involved in general horticulture. Contractors involved in this work should have proven skills and experience. In particular, when non-selective herbicides are used, contractors must be able to effectively complete the work without causing collateral damage to any native species, either by spray drift or by mixing the wrong concentration of chemical.

The proposed Friends Group could also assist with weed control, under instruction from the City of Joondalup's Bushcare officer and/ or experienced volunteers from other Friends Groups, especially after the management is handed over to the City of Joondalup.

It is important that new weed species do not get established in the park, particularly difficult-to-control weed species such as *Asparagus asparagoides* (bridal creeper), *Ferraria crispa* (black flag), *Freesia alba x. Leichtlinii* (Freesia) and *Lachenalia reflexa* (yellow soldier) which are established in the nearby Star Swamp Bushland Reserve and/ or other nearby reserves. Such weed species would otherwise further complicate the management and endanger the biodiversity of the park.

Reference 4 lists the best known chemical weed control methods and the time of year each species should be treated.

Except for *Callitris preissii* (Rottneest pine) and *Melaluca lanceolata* (Rottneest tea-tree), the planted tree species that the community wants retained are also regarded as bushland weeds because they do not naturally occur at this location. Any natural regeneration from the planted tree species, while they are alive or after they die, should be removed to make room for locally occurring species. Of the planted trees, *Acacia podalyriaefolia* (Queensland Silver wattle) is particularly seen as a weed species in WA, and should be removed immediately.

There was concern from the community that the removal of too many of the woody weed species on the site will cause a sudden decline in bird habitat when there has been nothing planted to replace them. It was considered that the most western clump of Victorian tea-tree could be retained until a clump of Parrot bush was planted as a elsewhere in the park.

The verge of a bushland reserve can be a continual source of new weed invasion. The verge should therefore be combined with the POS and included in the park, as shown in Figures 1 and 3 in Appendix 1. The footpath should be extended all the way around the reserve on the eastern side. Furthermore, if the existing footpath is retained, the footpath should be widened on the western side to fill the gap between the footpath and the curb.



**PHOTO 5:** Footpath on western side could be widened to the curb to eliminate one source of weed invasion (photo by M.Norman, January 2006)

#### Objectives

Remove the existing weeds, exhaust the weed seed bank in the soil as quickly as possible, and prevent the introduction of new weed species in the reserve.

#### Recommendation 5

Commence a "zero tolerance" weed control programme, using a combination of chemical and hand weeding to obtain best results.

#### Recommendation 6

Only qualified and experienced bush regeneration contractors should be used to perform weed control in the park. Bush regeneration contractors must be accredited by the Australian Association of Bush Regenerators (WA) Inc.

#### Recommendation 7

Form a Friends Group of interested persons from the local community, and register it with the City of Joondalup.

#### Recommendation 8

That the park be carefully monitored each winter to detect the invasion of new weed species.

Recommendation 9

All seedlings arising from the planted trees, except *Callitris preissii* (Rottnest pine) and *Melaluca lanceolata* (Rottnest tea-tree), should be treated as weeds and removed. The mature *Acacia podalyriaefolia* (Queensland Silver wattle – on the western side, see Figure 2, Appendix 1) should be removed immediately.

Recommendation 10

Remove the clumps of *Leptospermum laevigatum* (Victorian tea tree – labelled “A” and “B” in Figure 2, Appendix 1). After being cut to a stump, all material to be removed immediately off the site to avoid the seed being shed in the park.

Recommendation 11

To assist with weed control, the verge should be included in the reserve as shown in Appendix 1, Figure 3. The footpath should be extended around the whole reserve, and widened on the western side to eliminate the weedy gap between the footpath and the curb.

Recommendation 12

A year of weed control should be performed before any planting is done, to observe the initial extent of the natural regeneration, and to make the task of controlling weeds amongst the planted seedlings easier.

### 3.1.3. Retention and Pruning of Planted Trees

During the community consultation process, the community representatives clearly expressed a wish to retain the planted trees for their landscape value, even if the trees were not indigenous to the site. However, it was recommended that these trees should be carefully pruned (where necessary) to enhance their landscape value – mainly under-pruning them to remove horizontal, broken or dead branches.

It was agreed that a couple of the straggly non-indigenous specimens could be removed, these being the *Eucalyptus spathulata* (Swamp mallee), *Eucalyptus tetragona* (Silver marlock) and *Acacia podalyriaefolia* (Queensland silver wattle). The location of these trees can be seen in Appendix 1, Figure 2. Given the likely position of the southern boundary of the park, the Swamp mallee and the Silver marlock will have to be removed anyway.

It was agreed that when non-indigenous planted trees died or were blown over (which is possible with mature *Eucalyptus platypus* at this exposed location), the same species would not be replanted but replaced with a tree species indigenous to the site. Furthermore, any seedling recruitment from non-indigenous trees would be removed (see Recommendation 9).



**PHOTO 6:** *Eucalyptus platypus* (Coastal moort) in need of under-pruning to enhance landscape value (photo by M.Norman, January 2006)

#### Objectives

To retain most planted trees, but carefully prune them to enhance their landscape value. Replace them with indigenous species when they die, and remove any seedling recruitment.

#### Recommendation 13

Retain all the planted trees, removing only the *Eucalyptus spathulata* (Swamp mallee), *Eucalyptus tetragona* (Silver marlock) and *Acacia podalyriaefolia* (Queensland silver wattle).

#### Recommendation 14

Carefully prune the non-indigenous planted trees to enhance their landscape value.

#### Recommendation 15

When the non-indigenous planted trees die or are blown over, replant only indigenous species. Remove any seedling recruitment from non-indigenous trees that may occur.

### **3.1.4. Rehabilitation Plantings**

It has been stated in Section 2.7.4 that the park is in a degraded state. Although quite a great deal of natural regeneration is expected to take place after the Year 1 weed control work has been completed, it is anticipated that the majority of the park will have to be replanted.

Only species that still exist on this site (see Table 1, except grey shaded rows), or where considered to exist on the site at one time (see Table 1 – grey shaded rows) or plants occurring on a similar site (e.g. at a reference site, such as Porteous Park) should be planted in the park.

Ocean views from the housing to be built on the northern side of the residential area need to be carefully considered if the implementation of a bushland park is to be enthusiastically supported by the new owners. The only trees considered to be growing naturally in the park (ie *Banksia attenuate*, *Banksia menziesii*, *Acacia saligna* and *Acacia cyclops*) are low growing species, particularly so due to the exposed position of the site. *Eucalyptus todtiana* (Pricklebark) could also be planted, given it occurs on similar sites in the area. Therefore if any of these tree species are planted, which is recommended, they will never interrupt the sea views from second story level of the adjacent homes.

Note too many more trees should be planted in the park, given it is small, and there should be a preponderance of understorey species as seen at Porteous Park. Some additional low growing tree species may need to be planted to hide the view of the southern wall and lower story level of the housing, as seen from the surrounding roads. The planting at the park should be complimented by the planting of large trees on the southern side of Braden Park (see Section 2.8.4).

The replanting should use only local provenance seedlings. Seed or cuttings of native plants that grow on similar soil types within approximately 10 to 15 km of the park should meet this criteria.

Only low growing species of understorey plants should be planted within 1.5m either side of the internal path (see Recommendation 1). It is also proposed that only low growing species should be planted within 1.5m of the fences, to help protect them from fire damage and retain line of sight for vehicles on road at the NW and NE corners of the park.

Tubestock should be delivered in size is 55 x 55 x 120 square pots and frames designed to "air prune" the roots. The City of Joondalup have recommended that the potting mix should be made alkaline by mixing in 50% beach sand. The seedlings should be grown over a six month period and sun hardened from mid March to late May/ June, when they will be delivered to site on or just before the day of planting.

JCCCF has had many years experience in successfully replanting degraded natural areas, and has developed a planting prescription which has given good results in terms of the survival rate during the first year. Survival rates of 70% and above have been achieved in years of below average rainfall, without the need for summer watering. The JCCCF tubestock planting prescription can be found in Appendix 3.

#### Objectives

Return the degraded areas of the park to its previous levels of floristic diversity as far as current best practice will allow.

#### Recommendation 16

Replant only where necessary using as wide a variety of plant species as possible as per the species list (Table 1) and those occurring at a similar nearby site in good condition.

#### Recommendation 17

Replant mainly with understorey species. Of the tree species, only replant *Banksia attenuate*, *Banksia menziesii* and possibly *Eucalyptus todtiana* (Pricklebark) in the park. Compliment the planting by clump planting local provenance *Eucalyptus gomphocephala* (Tuart) and *Eucalyptus decipiens* (Limestone Marlock) and the southern side of Braden Park.

#### Recommendation 18

Plant only low growing understorey species within 1.5m of the fences, to help protect the fence from fire damage, to reduce the cost of cutting back plant growth onto the path, and to maintain line of sight for vehicles on the road at the NW and NE corners of the park.

Recommendation 19

Use local provenance seed and cuttings, collected from similar sites within 15km of the park.

Recommendation 20

Grow the seedlings in an accredited nursery, in air-pruning pots and frames, over a six month period, ready for planting in late May or early June. Potting mix to contain 50% beach sand to make it alkaline, as the seedlings will be planted in the alkaline soil occurring at the park.

Recommendation 21

Plant the tubestock according to the JCCCF planting prescription (see Appendix 3), to maximise the seedling survival rate while avoiding the need for summer watering.

### **3.1.5. Access Control and Rubbish Dumping**

Access to the site must be controlled if native plant regeneration is to occur, and it will lessen the risk that planted seedlings will be vandalised.

Controlled access will also make it harder for the park to be used as a dumping ground for organic rubbish and building rubble. Photo 5 shows broken concrete slabs and soil dumped under the *Banksia menziesii* trees on the north western side during January 2006.

During the community consultation process, the community representatives agreed that some limited internal paths should be provided, and the whole area fenced with a low post and rail fence similar to that provided in the coastal reserve in Marmion. The suggested positions of the internal paths and fence is shown in Appendix 1, Figure 3.

Note that it has been recommended that the southern path forms part of the firebreak (see Recommendation 1).

Careful attention is required to ensure none of the trees or plants in the park are damaged while work proceeds on the adjacent residential development. A temporary fence of star pickets and wire will be required to prevent this.



**PHOTO 7:** Concrete slabs and soil dumped under the *Banksia menziesii* trees (NW corner) during January 2006 (photo by M.Norman, January 2006)



**PHOTO 8:** Garden rubbish dumped some time ago on the eastern side (photo by M.Norman, January 2006)

### Objectives

To restrict vehicle and pedestrian traffic in the park, to protect the native plants and prevent further rubbish dumping.

### Recommendation 22

Construct a temporary fence of star pickets, wire and red ties around the park (to within 1.4m of the road edge) until a permanent fence can be constructed. This includes a temporary fence along the southern boundary of the park while the proposed retaining wall is built. A 3m opening with chain and lock would be required on the northern side to gain access for the removal of tree prunings and rubbish.

### Recommendation 23

Construct meandering "liquid limestone" paths in the park, connected to the surrounding footpaths, as shown in Figure 3, Appendix 1.

### Recommendation 24

Erect a gelding fence around the park and verges (within 1.4m of the road edge) as shown in Figure 3, Appendix 1. The fence to be built according to the City of Joondalup designed standard "Single Rail Gelding Fence", as shown in Figure 4, Appendix 2. A 3m opening is to be provided on the east and west sides (for vehicle access into the firebreak) and a 1.5m opening on the northern side (for pedestrian access). The fence posts should be treated with the latest timber preservative acceptable to FESA.

### Recommendation 25

Install a removable bollard and lock in the liquid limestone paths at each end of the firebreak, as shown in Figure 3, Appendix 1.

## **3.1.6. Signage**

A sign is required on the site to name the park, making a positive statement about the park, informing the public of the existence of a Friends Group, and listing the sponsor. During the community consultation process, it was decided that a single sign, on the northern side near the access path opening, would be sufficient. The sign should be of robust design, with pleasing graphics (e.g. a print of Candle banksia on one side of the sign and Carnaby's cockatoo on the other) covered in a layer of UV anti-graffiti film.

### Objective

To place a sign in the park, to inform the public of its name, its purpose, the existence of the Friends Group and the sponsor.

### Recommendation 26

Erect a high quality, graffiti resistant sign behind the fence on the northern side facing Ozone Rd. Involve the community in its design.

### Recommendation 27

Name the park "Ozone Park" or preferably, "Ozone Bushland Park", subject to City of Joondalup and State Government approval.

## **3.1.7. Handover**

The Satterley Property Group will be responsible for the cost of developing the park. Because of the current degraded condition of the bushland, at least three years of intensive weed control and two years of planting will be required before the park can be regarded to be in "maintenance mode". Therefore, it is recommended that the

development budget be spent on the work recommended in this VMP over a three year period.

The handover of the management of the park to the City of Joondalup should occur at the end of the three year park development period. The City will inspect the park at the end of this period and a formal handover will then be negotiated.

Recommendation 28

The development budget for the park be spread over a three year period, to encompass three winters of weed control.

## 4. IMPLEMENTATION

Implementation of the recommendations of this management plan will be effected on a priority basis. The priority suggested is as follows:

1. Install a temporary star picket and wire fence (with red ties) on the southern side BEFORE earthworks or retaining wall construction commences at Lot 61 (see Recommendation 22)
2. Install a temporary star picket and wire fence (with red ties) around the east, north and west sides of the park, within 1.4m of the road edge (see Recommendation 22) BEFORE earthworks or retaining wall construction commences at Lot 61, UNLESS the permanent fence can be constructed before work commences (see Recommendation 24).
3. Remove the temporary fencing on the southern side when the retaining wall has been constructed.
4. Remove the temporary fencing on the east, north and west sides of the park and immediately install the permanent fencing. Install temporary chains and locks across the 3m openings until the bollards can be installed (see Recommendation 24).
5. Remove the rubbish on the site. Rubbish dumped under the banksias on the NW side will have to be carefully removed so as not to damage these trees.
6. Remove the trees not to be retained and under prune the trees that will be retained (see Recommendations 10, 13 and 14).
7. Erect the sign near the fence opening on Ozone Road (see Recommendations 26 and 27).
8. Install the liquid limestone paths and two bench seats, and install the bollards. Remove temporary chains and locks (see Recommendations 1, 2, 23 and 25).
9. Form and register the Friends Group with the City of Joondalup (see Recommendation 7).
10. Commence the weed control program in Year 1 (see Recommendations 3, 5 and 12).
11. Commence the clump planting of local provenance native trees in Braden Park in Year 1, depending on the availability of suitable seedlings.
12. Plant a wide variety of local provenance native plant species in the park in Years 2 and 3.
13. Continue with the weed control program, and start the planting program in Years 2 and 3 (see Recommendations 16, 17, 18, 19, 20 and 21).
14. Handover management of the park to the City of Joondalup. This will be negotiated between the City of Joondalup and the Satterley Property Group at the end of the three year development period.

The cost estimates for this work, and the year in which the expenditure will occur, is shown in Table 5, Appendix 3.

## 5. REFERENCES

Title	Author	Date of Issue
CSIRO Marmion, Site No 708, Landscape and Visual Quality Assessment.	EPCAD Pty Ltd	March 2003
CSIRO Marine Research Facility Cliff Street Marmion, Heritage Assessment	Heritage and Conservation Professionals	March 2003
Briefing notes for meeting with the Minister for Planning's Office – Lot 61 Leach St, Marmion (CSIRO Marine Laboratory site)	Not noted	Not noted
Bushland Weeds – A practical guide to their management	Kate Brown and Kris Brooks	September 2002

## 6. DOCUMENT CONTROL SHEET

### Contact for Enquiries and Proposed Changes

If you have any questions regarding this document contact:

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### Record of Issues

Issue No	Issue Date	Nature of Amendment
0.1	14/01/2006	Initial draft
0.2	28/02/2006	Minor updates
1.0	5/03/2006	Updates entered as suggested by the CoJ Conservation Officer.

This document has been prepared by the Joondalup Community Coast Care Forum Inc. (JCCCF) under instruction from the Satterley Property Group.

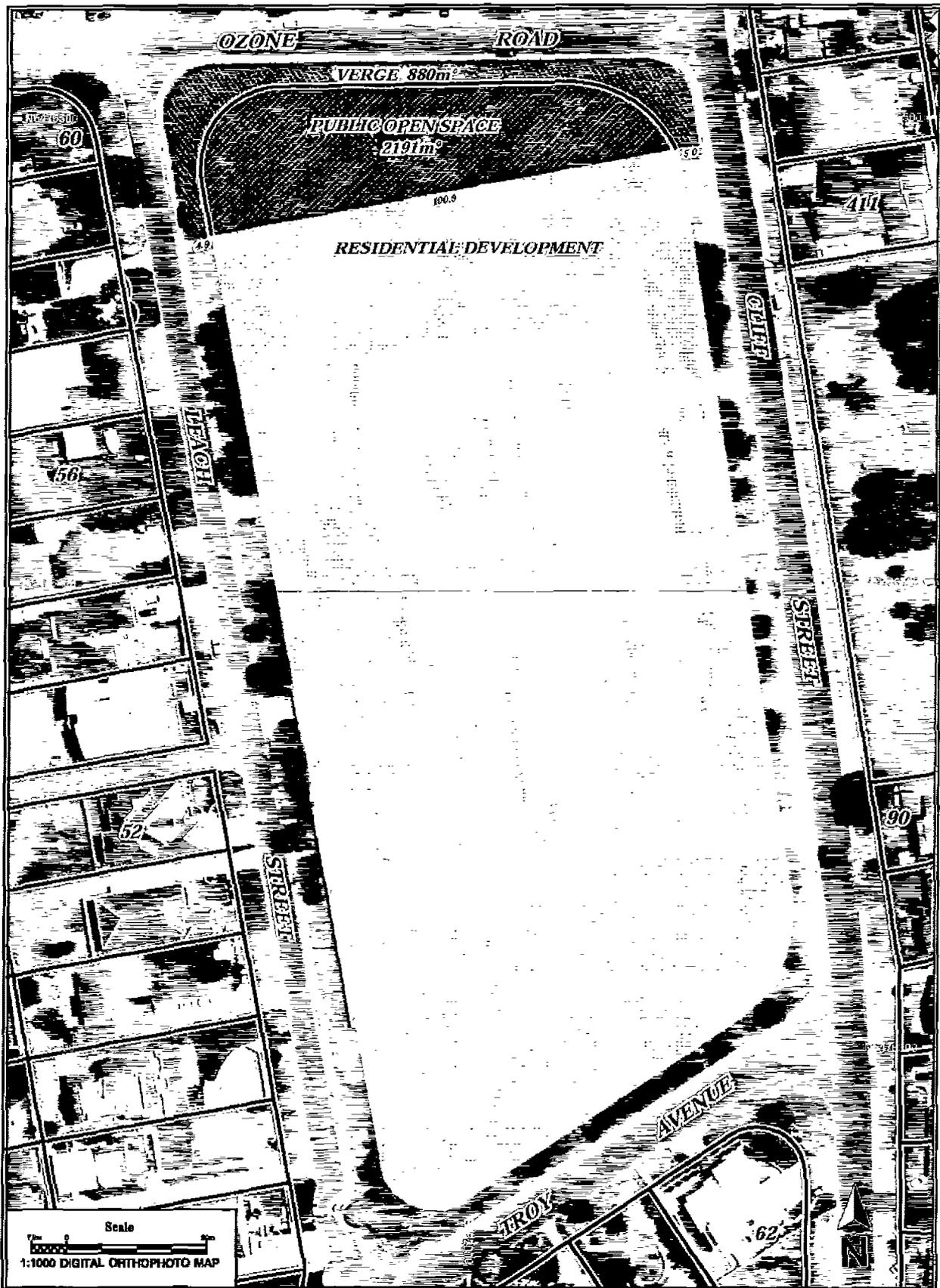
## 7. APPENDIX 1 – POS LOCATION AND TREE SPECIES

See Figures 1 to 3 on the following pages.

Figure 1 shows the position and area of the POS on Lot 61, Marmion. The combination of the POS and verge forms the "park".

Figure 2 highlights the tree species, both naturally occurring and planted (in the park and immediately adjacent to it) prior to commencement of the development. Other than this, this diagram does not show tree species that occur in the area designated for residential development.

Figure 3 highlights the tree species, both naturally occurring and planted, to be retained (i.e. after Year 1 development work has been completed). It also shows the approximate position of the path/ firebreak, bollards, fence, bench seats, and sign.



Scale  
 1:1000 DIGITAL ORTHOPHOTO MAP

**MCWILLEN**  
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**LOT 61 LEACH ST, MARMION**  
**FIGURE 1 - VEGETATION MANAGEMENT PLAN**

SOURCE DATA	Author	Date	REV
Amplified Orthophoto	SWPS	2006	0.1
Site Plan	SWPS	2006	0.1
Topography	SWPS	2006	0.1
Orthophoto Digit	SWPS	2006	0.1
MCWILLEN	2006.03.01	0.1	0.1
Plan	0.1	0.1	0.1





## 8. APPENDIX 2 – FENCING DESIGN

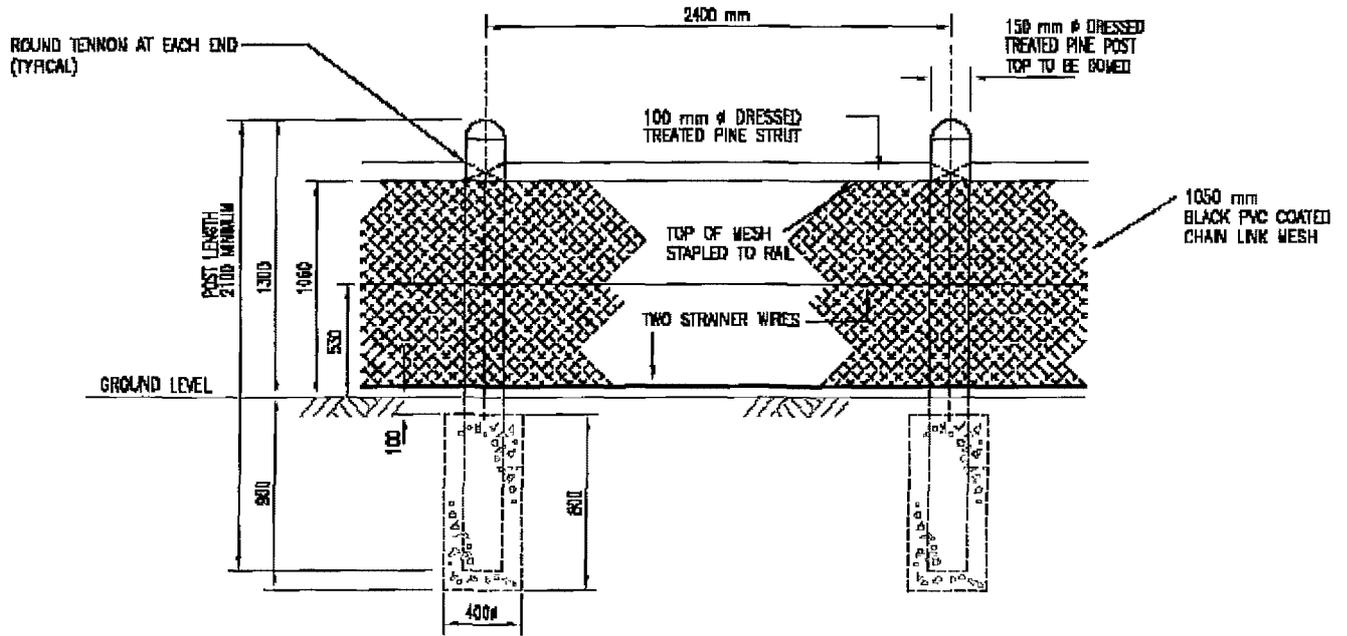


Figure 4: Single Rail Gelding Fence for Bushland (City of Joondalup drawing ES01-5-2)

## 9. APPENDIX 3 – JCCCF PLANTING PRESCRIPTION

The JCCCF tubestock planting prescription is as follows:

1. Choose a planting date late in May or early June, to maximise the establishment period before the onset of summer. Best planting time to plant is straight after the season "breaks".
2. Make sure that rabbits (if present) are controlled on the site.
3. Make sure the site is fenced and signed.
4. Do not let the seedlings dry out if they have been removed from the nursery in readiness for the planting day.
5. Make sure the various species to be planted are dropped in the correct positions on the site.
6. Make sure children and inexperienced planters receive a full demonstration of the planting technique to be used.
7. Using a full sized spade, ensure there is no weed competition within a half metre radius of the planting position.
8. Using a full sized spade, break any soil compaction and aerate the soil (even in sand) by driving in the spade (until the blade is out of view) and levering the soil in an upwards direction before planting each seedling.
9. If there is a slope on the ground at the planting position, level the ground out by digging it level and moving the soil to the down-slope side, forming a small bowl to capture heavy rainfall run off around the seedling.
10. Dig a small hole with a trowel and plant the seedling so that the root ball is entirely below soil level by about 2cm.
11. Press two fingers onto the soil in the pot (each side of the seedling's stem) and turn it upside down, tapping the edge of the pot on the handle of the spade. The root ball will then easily slide out of the pot without any root disturbance, and without breaking the root ball. Note that there is no need to separate or prune the roots if the seedling has been grown to the right size in an air pruning plastic pot.
12. Walk around each seedling to compress the soil onto the sides of the root ball. Do not stand on top of the root ball, as this will just squash the root ball and impede the growth of the seedling.
13. Water each seedling in with four litres of water mixed with a soil wetting agent.
14. Using four bamboo stakes (rather than three), install a plastic tree guard. Four stakes per guard are easier to install so that the guard stands up well in the wind. Tree guards protect seedlings from the wind, conserve moisture and protect them from rabbit attack.
15. Check the seedlings in early spring and again at the end of spring to eliminate any weed competition within half a metre of the seedling, and especially weeds growing inside the tree guard.
16. Assess the condition of the seedlings in late November, and periodically every two weeks during their first summer. Do not water the seedlings if it can be avoided. If some species are struggling, water only those species that appear to need it. Once watering commences, give three to four litres per seedling every two weeks from the beginning of December through to mid April, depending on weather conditions.



**LEGEND**

-  STRUCTURE PLAN BOUNDARY
-  RESIDENTIAL
-  PUBLIC OPEN SPACE
-  PRECINCT A

