

Appendix 20

**Road Safety Audit
prepared by
Bitzios Consulting**

JORDAN SPRINGS RETIREMENT VILLAGE PRELIMINARY DESIGN RSA

FOR

LEND LEASE

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1. INTRODUCTION

1.1 BACKGROUND

Bitzios Consulting has been commissioned by Lend Lease to undertake a preliminary design road safety audit for the proposed road network which would provide access to the proposed retirement village located east of the residential subdivision. The focus of the audit mainly involves assessing the main access location to the proposed retirement village i.e. Road 1/ Road 3 intersection.

Figure 1.1 below shows the location of the subject site and Figure 1.2 shows the preliminary design of the proposed retirement village internal road network including the proposed intersection of Road 1 / Road 3.



Source: Google Maps

Figure 1.1: Subject Site Location

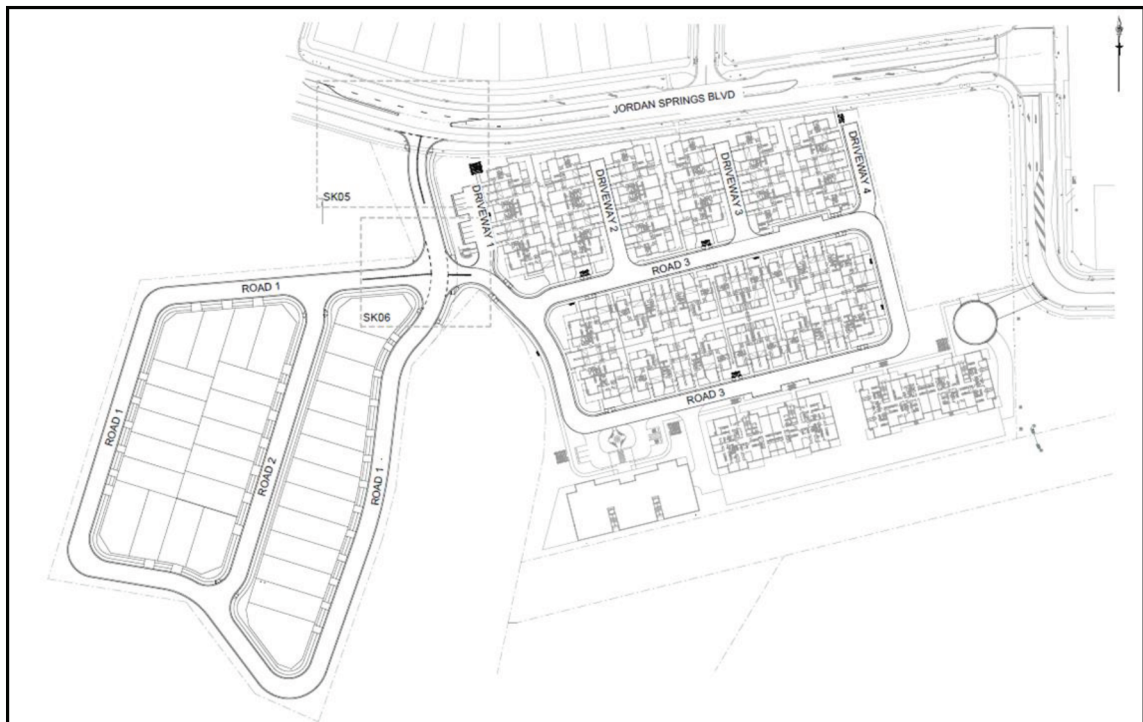


Figure 1.2: Proposed Residential Development Road Network

1.2 SCOPE OF AUDIT

The road safety audit was undertaken in accordance with the procedures set out in the *Austrroads Guide to Road Safety Part 6: Road Safety Audit (2009)*. The audit involved undertaking a Preliminary Design Stage Road Safety Audit (as per the *Austrroads Guide to Road Safety Part 6: Road Safety Audit Checklist 2*) of the preliminary design layouts for the proposed development main access with Jordan Springs Boulevard and internal road network.

The scope of this road safety audit also included undertaking a desktop review of the internal road network/intersection layout. Specifically, the following were assessed:

- intersection geometry;
- intersection sight distance;
- signs and pavement markings; and
- roadside objects and hazards.

This road safety audit presents a list of issues that were identified as presenting a safety risk.

1.3 LIMITATIONS

Actions have been suggested for each of the issues primarily as a guide for the personnel responsible for selecting and implementing remedial measures. It is not intended to imply that the suggested actions are the only possible actions.

Furthermore, while the scope items listed above presents a range of items that were reviewed as part of the audit process, only the issues identified as presenting a safety risk have been raised and commented upon within the report.

2. ROAD SAFETY AUDIT PROCESS

2.1 DEFINITIONS

The Austroads Guide to Road Safety (2009) defines a road safety audit as:

“a formal examination of an existing or future road or traffic project, or any project which interacts with road users, in which an independent, qualified examiner looks at the project’s accident potential and safety performance.”

The essential elements of this definition are that it is:

- a formal process and not an informal check;
- an independent process;
- carried out by someone with appropriate experience and training; and
- restricted to road safety issues.

The objectives of a road safety audit are:

- to identify potential safety problems for road users and others affected by a road project; and
- to ensure that measures to eliminate or reduce the problems are considered fully.

The benefits of conducting road safety audits are that:

- the likelihood of accidents on the road network can be reduced; and
- the severity of accidents can be reduced.

The aim of a road safety audit is:

“to identify any existing safety deficiencies of design, layout and road furniture which are not consistent with the road’s function and use. There should be a consistency of standards such that the road users’ perception of local conditions assists safe behaviour.”

2.2 METHODOLOGY

The road safety audit was carried out as per the procedures set out in the Austroads Guide to Road Safety. Items audited as part of the road safety audit included (but was not limited to) the following:

- intersection geometry;
- signs and pavement markings;
- sight distances;
- road side objects and hazards; and
- provision for special road users including pedestrians and cyclists and potential conflict points.

2.3 AUDIT TEAM

The road safety audit was carried out by an audit team comprising:

- Praveen Bollavaram – Accredited Lead / Senior Road Safety Auditor; and
- Alan Finlay – Senior Road Safety Auditor (Level 3).

2.4 COMMENCEMENT MEETING

A formal commencement meeting was not held for this audit as the requirements for the project were adequately communicated in the project brief of the audit.

2.5 INFORMATION SOURCES

Data sources for the road safety audit included:

- preliminary road layout design drawings prepared by J. Wyndham Prince Signs and Linemarking Layout Plan (Plan No: 110487SK/SK04;
- preliminary road layout design drawings prepared by J. Wyndham Prince Signs and Linemarking Layout Plan (Plan No: 110487SK/SK05;
- preliminary road layout design drawings prepared by J. Wyndham Prince Signs and Linemarking Layout Plan (Plan No: 110487SK/SK06;
- NSW Road and Maritime Services Road Design Guide;
- the Manual of Uniform Traffic Control Devices (MUTCD);
- the Austroads Guide to Road Design; and
- the Austroads Road Safety Audit Guidelines.

2.6 SITE INSPECTION

A day time site inspection was undertaken on the 22nd of May 2018 between the hours of 11am and 12noon.

3. AUDIT FINDINGS

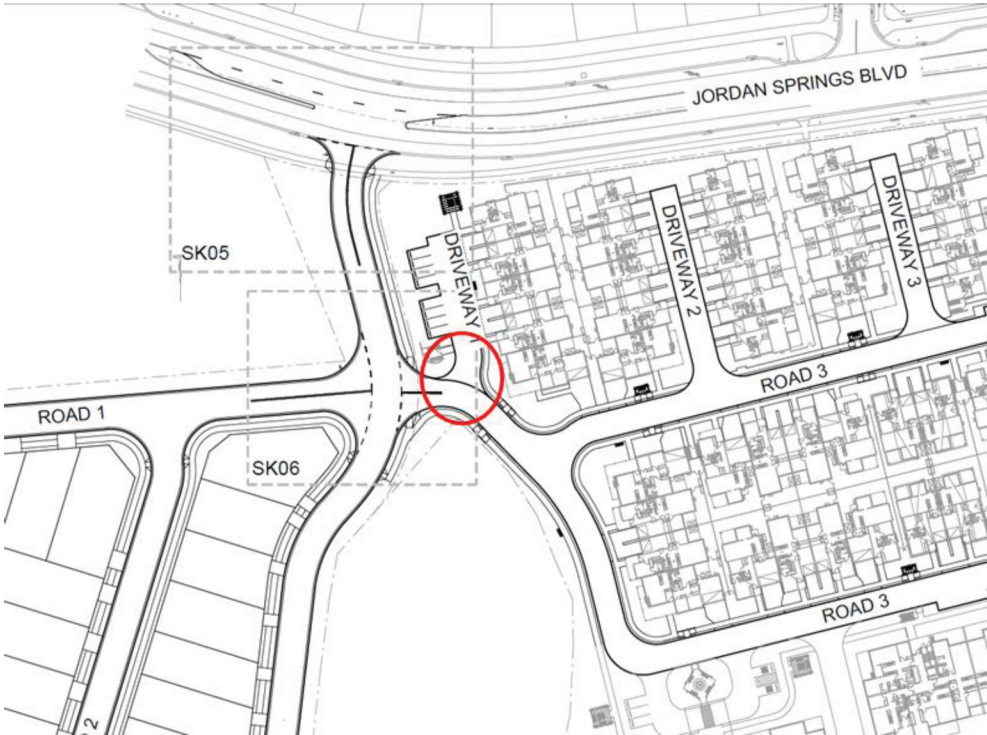
3.1 OVERVIEW

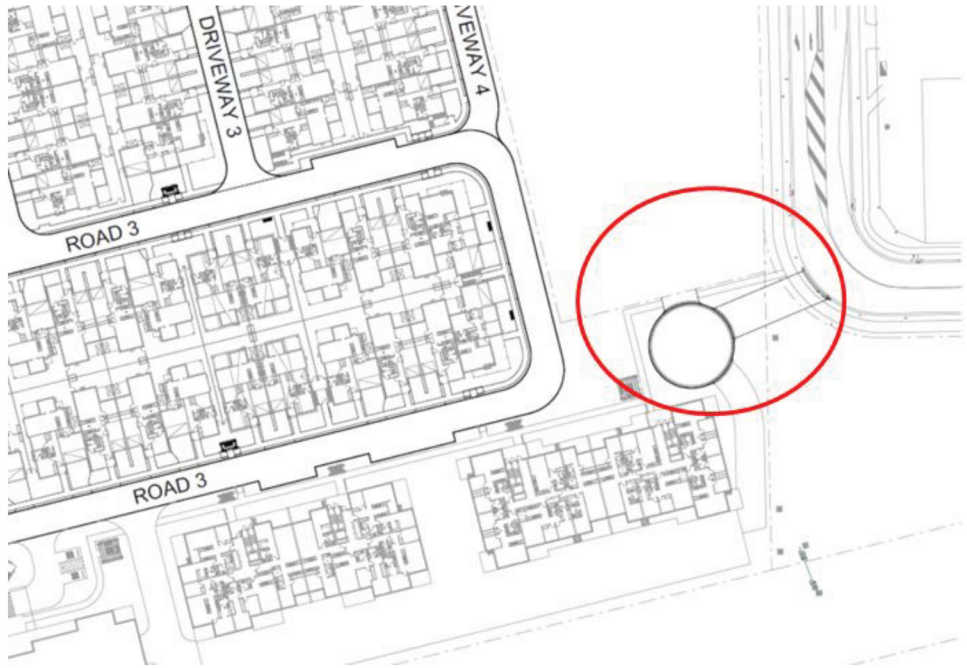
This section summarises the safety issues identified during the audit of the proposed new intersection preliminary design layouts and also presents the suggested remedial measures to address the issues raised.

3.2 AUDIT FINDINGS AND SUGGESTED IMPROVEMENTS

A list of audit findings with the suggested treatment is contained in Table 3.1.

Table 3.1: Preliminary Stage Road Safety Audit – Findings and Suggested Treatments

Item	Issues	Site Illustration	Suggested Treatment	Designers Response
1	<p>The proposed Driveway 1 is located in close proximity to Road 1/ Road 3 intersection which may introduce some vehicle conflicts for vehicles turning left into Road 3 from Road 1.</p>		<p>Ensure clear sight lines are maintained for drivers / pedestrians with no vertical obstructions at this location to improve safety.</p>	

<p>2</p>	<p>The proposed access from Lakeside Parade to the retirement village leads into a turnaround area which provides access to different components within the retirement village. However, driver confusion (i.e. who has right of way) may occur if multiple vehicles arrives at the same time at this location which is considered unsafe.</p>		<p>Consider installing a central island at the turnaround area and converting it to a roundabout control with appropriate signage in accordance with relevant Australian Standard to improve safety.</p>	
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4. CONCLUDING STATEMENT

This audit has recognised potential safety problems for road users and others and has suggested improvements to eliminate or reduce these problems. Through the introduction of the recommendations outlined in this report, the possibility of accidents should reduce but this is also dependant on the awareness of the road user in their environment.



Praveen Bollavaram, Level 3 Road Safety Auditor (Lead Auditor)



Alan Finlay, Level 3 Road Safety Auditor (Team Member)

APPENDIX A

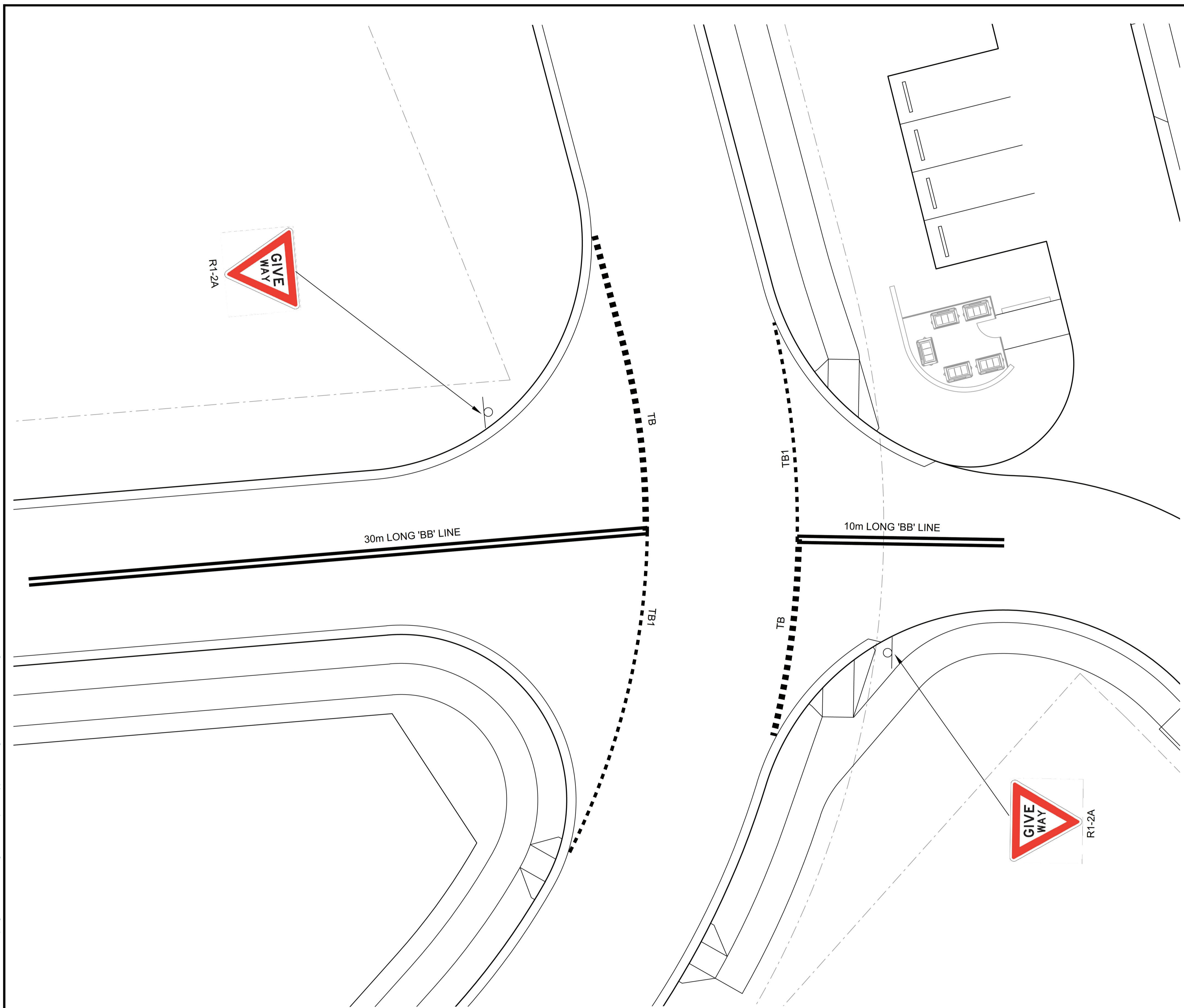
PLANS AUDITED



PAVEMENT MARKING SCHEDULE			
CODE	USE	STYLE	COLOUR & TYPE
TB	Give way line (Used with Signs)		Reflectorised white
TB1	Give way line (Used on right side of side)		Reflectorised white
BB	Barrier line where sight is restricted in both directions or approach to median island/pedstrain crossing		Reflectorised white type 'YY' pavement markers bi-directional reflective yellow
C1	Defines edge of through carriageway adjacent to turning lane, freeway ramp, bus bay and start or finish of auxiliary lane		Reflectorised white type 'W' pavement markers mono-directional reflective yellow

NOTES

1. ALL PAVEMENT MARKINGS AND REFLECTORS ARE TO BE IN ACCORDANCE WITH R.M.S. STANDARD DRAWINGS MD.R60 AND AUSTRALIAN STANDARDS.
2. ALL SIGNS TO BE IN ACCORDANCE WITH CURRENT AUSTRALIAN STANDARD: AS 1743 - ROAD SIGNS AND COUNCIL'S SPECIFICATION UNLESS OTHERWISE SHOWN. ROAD SIGNS ARE SIZE 'A', UNLESS OTHERWISE SHOWN. LOCATE OUTSIDE OF CLEAR ZONES.
3. ALL NEW PAVEMENT MARKINGS ARE TO BE INSTALLED IN WHITE, REFLECTIVE, THERMOPLASTIC PAINT.
4. RE-MARK EXISTING PAVEMENT MARKINGS AS DIRECTED BY THE PROJECT MANAGER.
5. PAVEMENT MARKINGS THAT FORM NO PART OF THE FINAL WORKS ARE TO BE REMOVED BY SAND BLASTING OR OTHER METHOD AS APPROVED BY THE PROJECT MANAGER.
6. ALL MEASUREMENTS ARE IN METERS UNLESS OTHERWISE SHOWN.



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JORDAN SPRING
STAGE 01 & 02
SIGNS AND LINEMARKING DETAIL PLAN

PLAN No: 110487SK/SK06 **1**

FILE No: 110487SK06

SHEET SIZE: A1 ORIGINAL

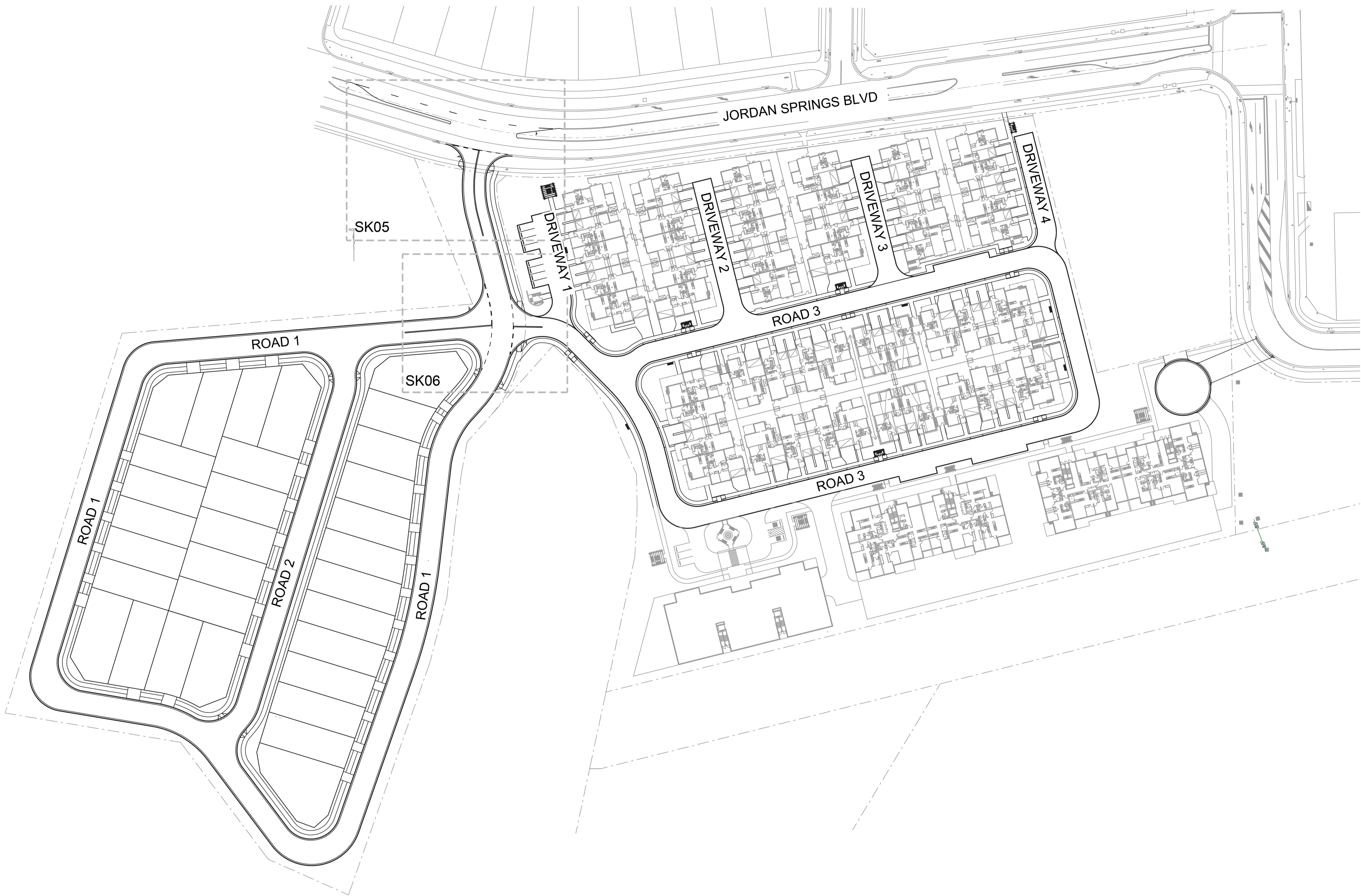
J. WYNDHAM PRINCE CONSULTING CIVIL INFRASTRUCTURE ENGINEERS & PROJECT MANAGERS

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NO	ISSUED FOR INFORMATION ONLY	MMC	NM	DES	DRN	CKD	APR	DATE
1	AMENDMENT							

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Plotted: 18 May, 2018 11:11:02 PM File Name: J:\110487 - Jordan Springs Retirement Living\02 - Development Application Stage\CD\SK110487\SK04.dwg



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	AMENDMENT					

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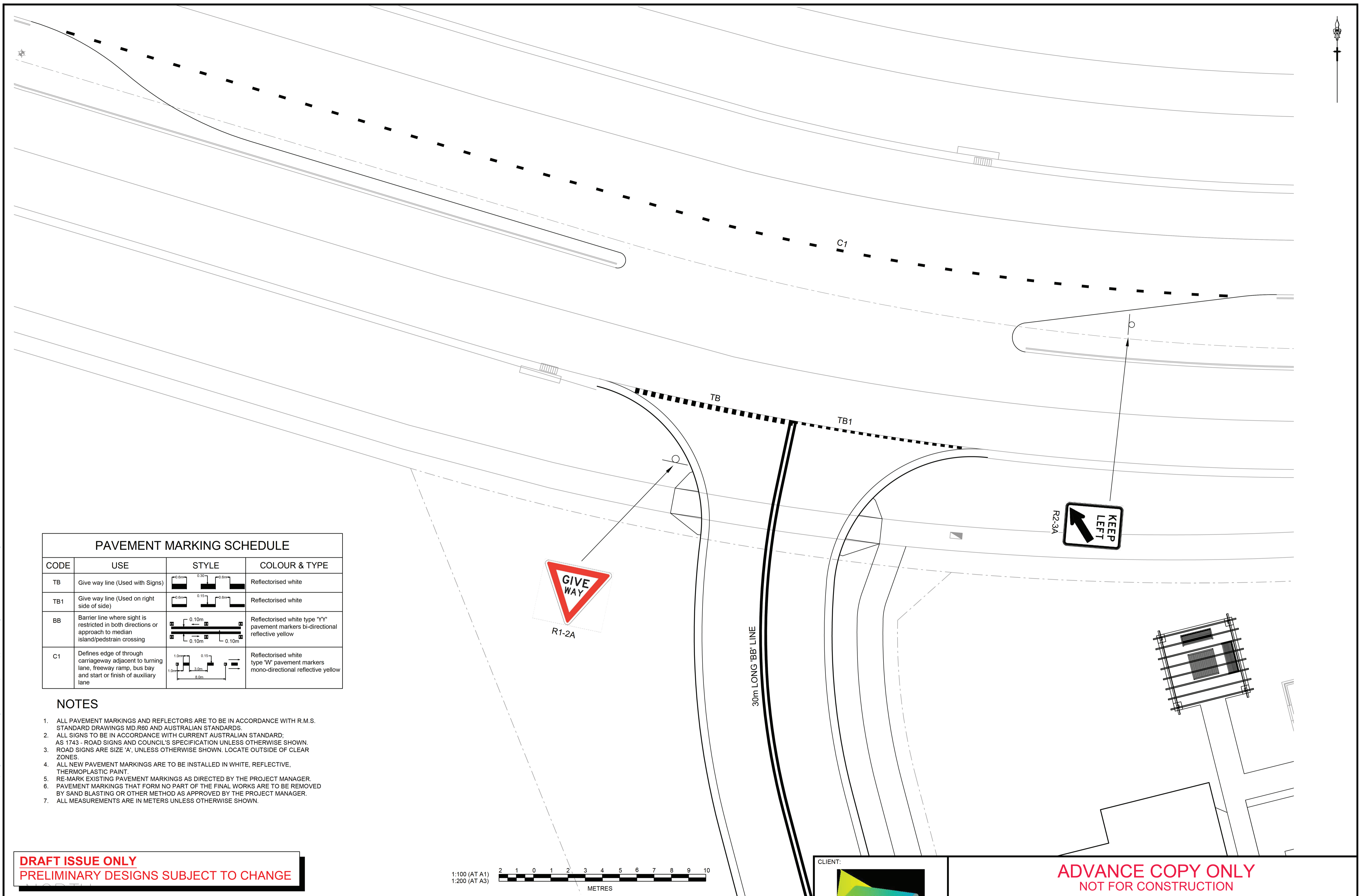


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JORDAN SPRING
STAGE 01 & 02
SIGNS AND LINEMARKING LAYOUT PLAN

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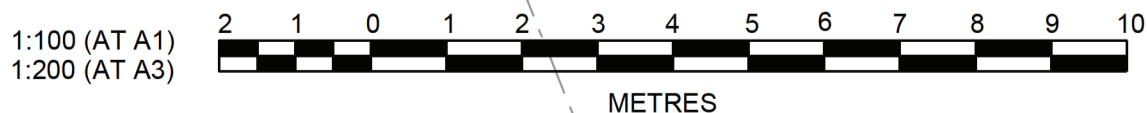


PAVEMENT MARKING SCHEDULE			
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TB1	Give way line (Used on right side of side)		Reflectorised white
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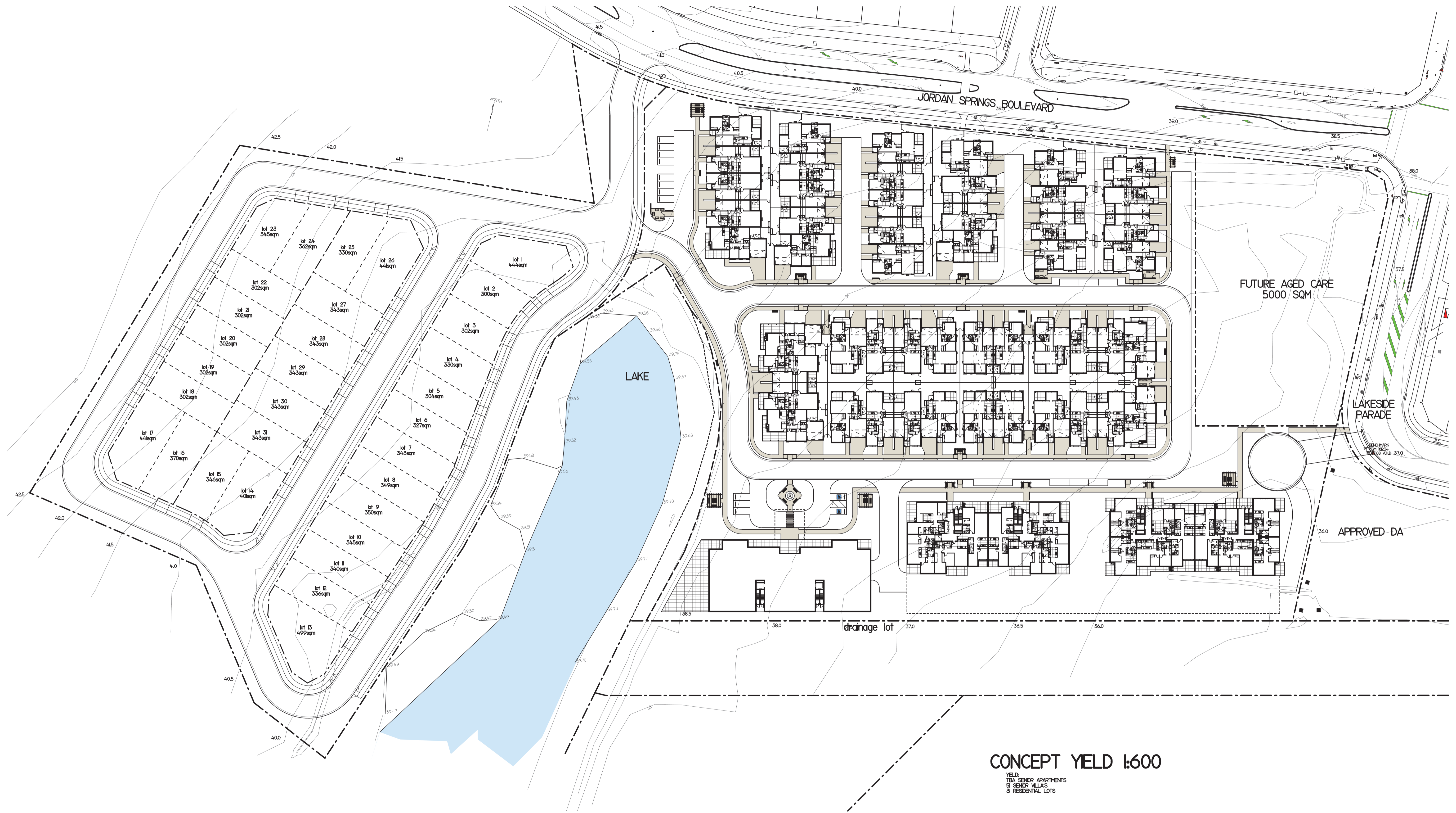
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JORDAN SPRING
 STAGE 01 & 02
 SIGNS AND LINEMARKING DETAIL PLAN

PLAN No:	110487SK/SK05	1
FILE No:	110487SK05	
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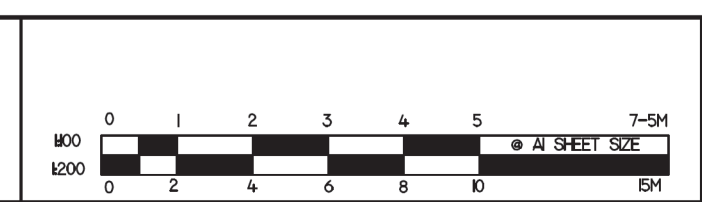


CONCEPT YIELD 1:600
 YIELD:
 176 SENIOR APARTMENTS
 31 SENIOR VILLAS
 31 RESIDENTIAL LOTS

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C	23.3.18	CONCEPT YIELD	VS					
B	7.2.18	CONCEPT YIELD	VS					
A	16.1.18	CONCEPT YIELD	VS	F	30.4.18	REVISED LOT LAYOUT	VS	
N ^o	DATE	REVISION	APPROVED BY	E	5.4.18	REVISED LOT LAYOUT	VS	

PROJECT: **JORDAN SPRINGS CID SITE**



JOB ADDRESS: **JORDAN SPRINGS BOULEVARD
 JORDAN SPRINGS**

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 DATE: 15.1.18 DRAWING N^o: AND-28405 SHEET: 2 SET OF: 10

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