Report

Stormwater & Hydraulic Infrastructure Services

AUSTRALIAN TECHNOLOGY PARK - LOCOMOTIVE WORKSHOP RETAIL SSDA REPORT

Mirvac

CONFIDENTIAL

Revision: 2.0 - FINAL
Issued: 10 November 2017

Norman Disney & Young

Table of Contents

1 INTRODUCTION

This report supports a State Significant Development Application (SSDA) submitted to the Minister for Planning pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Application (referred to as SSDA 8449) seeks approval for the adaptive reuse and redevelopment of the eastern portion of the Locomotive Workshop Building (being Bays 1-4) within Australian Technology Park (ATP), Eveleigh as described in the Project Description section of this report.

This report outlines The Australian Technology Park's sustainability commitment to the redevelopment of the eastern portion of the Locomotive Workshop Building (Bays 1-4). A number of sustainable initiatives have been identified and will be incorporated in all the phases of the project.

1.1 Background

Historically, ATP was used for railway maintenance, storage and other associated industries. Use of the site as marshalling yards and workshops formed part of a large railway-based precinct on both sides of the main railway line, dating from 1882 and growing in size until its closure in 1989. Since this time, the precinct has been progressively redeveloped and repurposed.

In 2014, the NSW Government resolved to offer development sites within the ATP for sale through a selective tender process conducted by Urban Growth NSW Development Corporation (UGDC). In November 2015 Mirvac Projects Pty Ltd (Mirvac) was named as the successful party and ownership and development rights of the precinct were subsequently transferred.

In December 2015, an SSDA was submitted to the Department of Planning & Environment for a multi-building redevelopment (i.e. Buildings 1, 2 and 3 shown in **Figure 2**) of the ATP to provide new commercial office, retail and community uses and a significant upgrade to the ATP public domain. Following public exhibition, and the submission of additional information, the development was approved by the Planning Assessment Commission on 20 December 2016. The construction of Buildings 1, 2 and 3 is currently underway.

The redevelopment of the Locomotive Workshop is also part of Mirvac's redevelopment strategy for the ATP. The Locomotive Workshop building is to be redeveloped in its entirety, however planning approvals are sought through the submission of two separate SSDAs. This Application relates to the western portion of the Building and is envisaged to be the next phase of urban regeneration within the ATP.

1.2 Site Location

The Locomotive Workshop is located within the Australian Technology Park (ATP), Eveleigh. The ATP precinct is located approximately 5km south of the Sydney CBD, 8km north of Sydney airport and within 200m of Redfern Railway Station and has an overall area of approximately 13.2 hectares. An aerial photograph of the ATP precinct is shown in **Figure 1** and the locational context of the Locomotive Workshop building is identified in **Figure 2.**

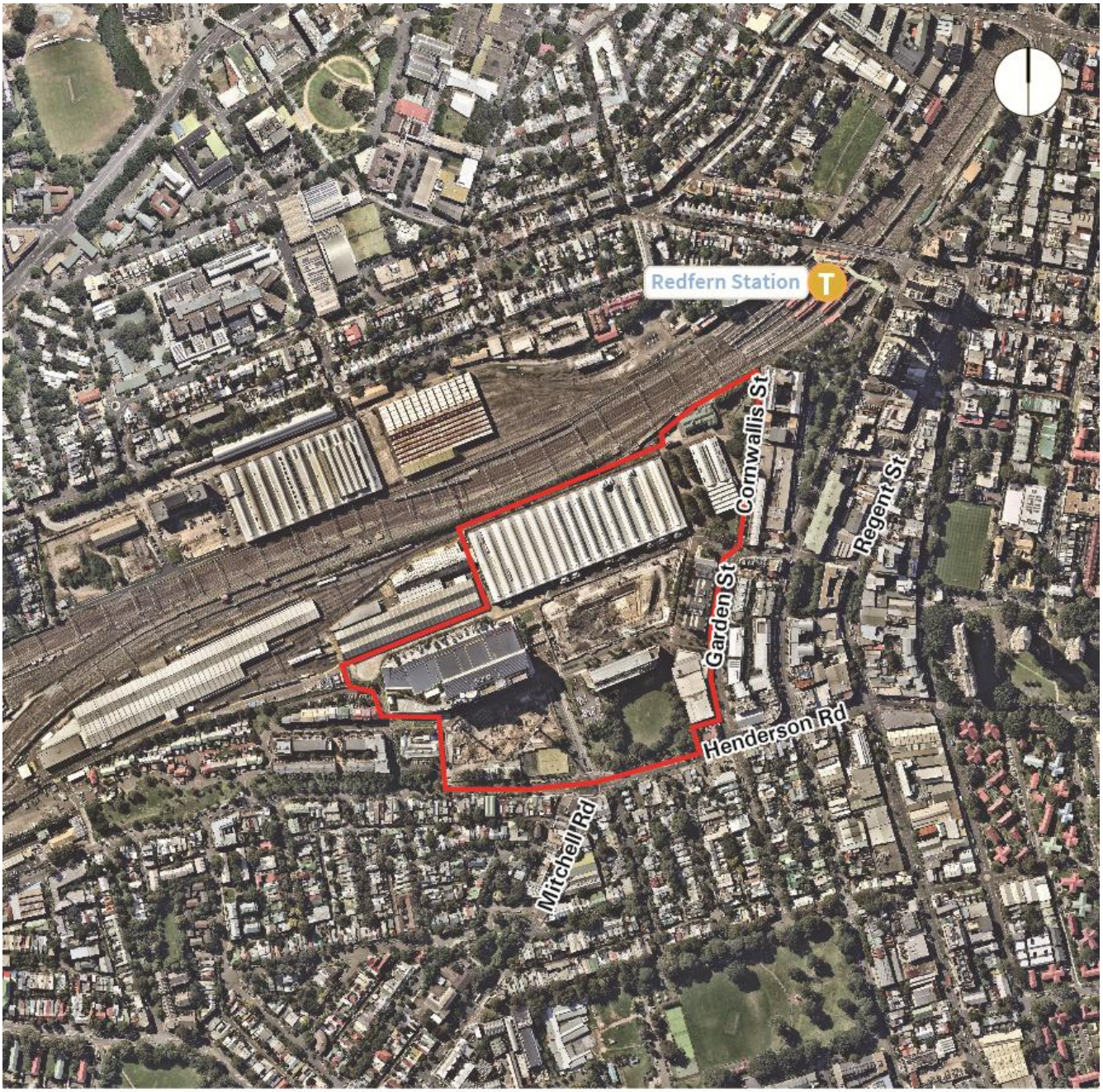


Figure 1 – ATP Precinct

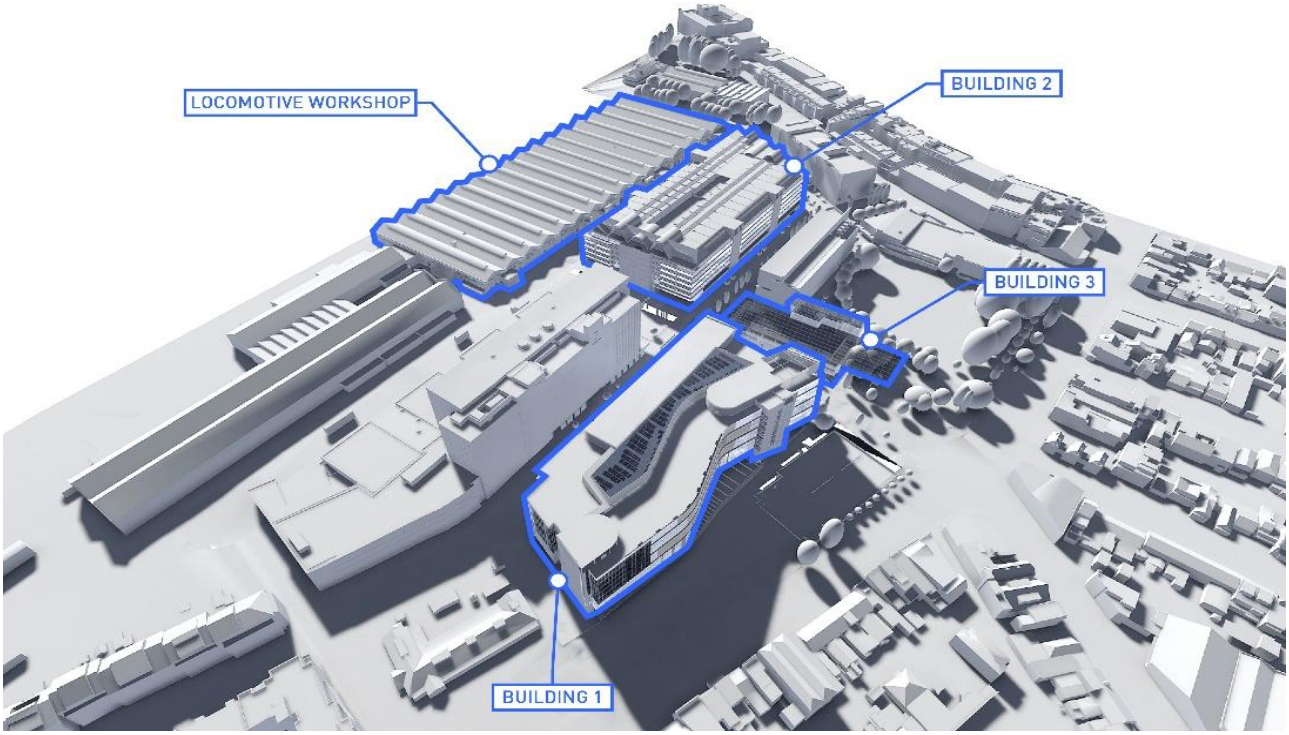


Figure 2 – Locational context of the Locomotive Workshop

1.3 Proposed Development Description

This SSDA seeks approval for the following:

- demolition of existing 'modern' infill fit-out elements to Bays 1-4;
- the adaptive reuse of the eastern portion of the Locomotive Workshop Building for 'retail premises' uses;
- construction of internal and external improvements to the Locomotive Workshop Building;
- heritage interpretation and conservation works;
- public domain improvements within the curtilage of the Building;
- provision of an external building illumination system;
- signage; and
- associated utilities and infrastructure.

A more detailed and comprehensive description of the proposal is contained in the EIS prepared by Ethos Urban.

2 SITE AUTHORITY INFRASTRUCTURE

The authority services mains available to the site, are as follows:

- Sewer drainage
- Water services
- Gas services
- Stormwater services

2.1 Sewer Mains

There is an existing Sydney Water 225mm VC sewer main is positioned immediately south of the site in Locomotive Street.

This sewer falls from west to east, towards Garden Street.

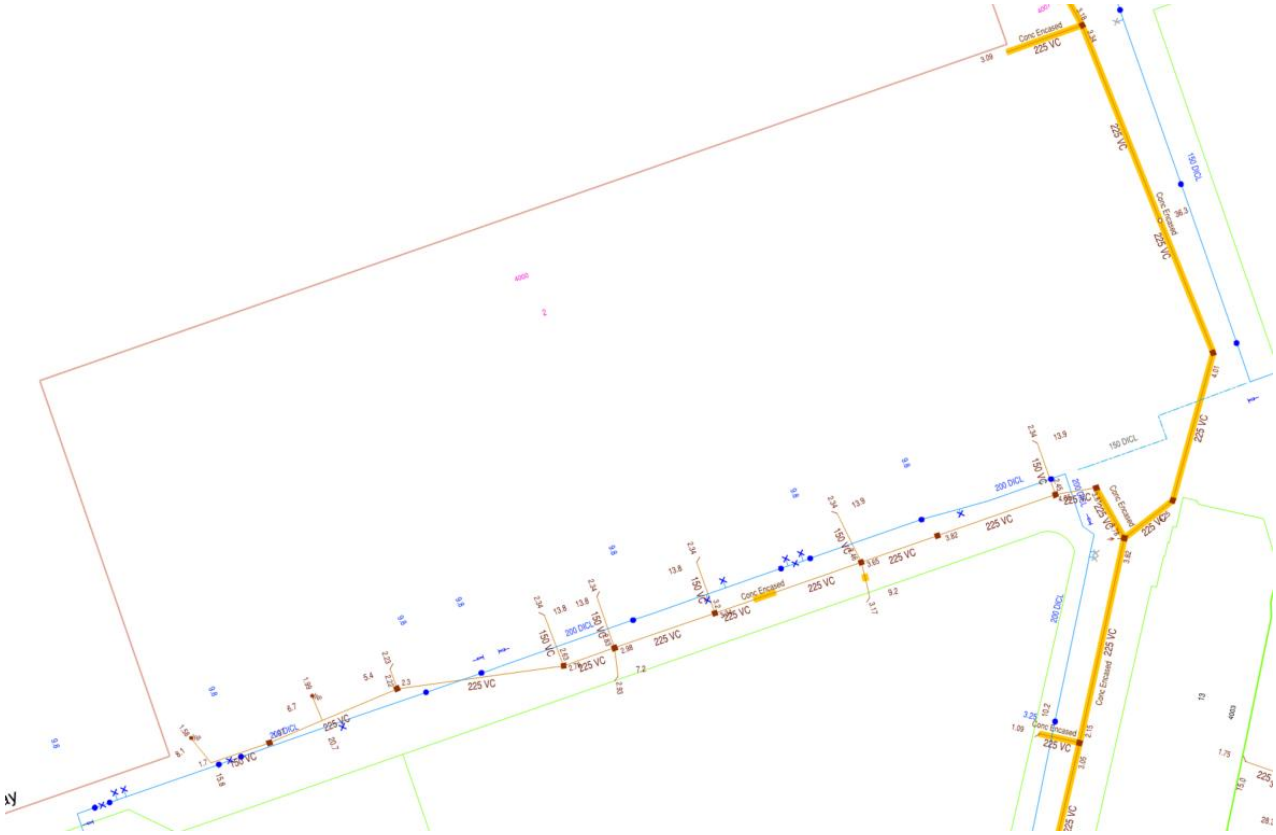


Image 2 – Sydney Water Sewer and Water Mains Plan

2.2 Water Mains

The water mains available to the site are both owned by Sydney Water.

These mains are:

- 200mm CICL water main in Locomotive Street
- 150mm CICL water main in Cornwallis Street

2.3 Gas Mains

The existing gas main serving the site, is owned and operated by Jemena.

This main is a 110mm nylon high pressure main on the southern side of Locomotive Street and runs from the western side of the building, to connect to similar mains infrastructure in Garden Street.

Image 3 – Jemena Gas Mains Part Plan (west)

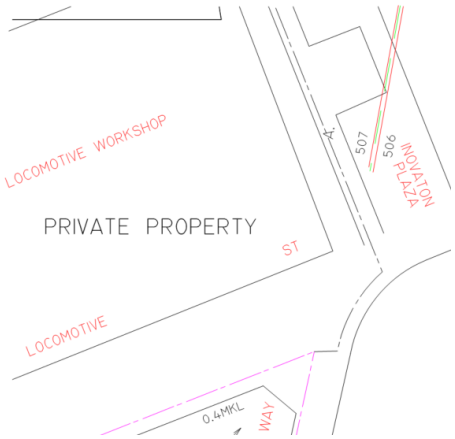


Image 4 – Jemena Gas Mains Part Plan (east)

The existing gas main is not impacted by the proposed development footprint.

The existing gas mains connection will be upgraded to suit the proposed development loads.

2.4 Council Stormwater Plans

Council stormwater infrastructure drawings were not available for the subject property, due to the age of the building.

The existing stormwater drainage and downpipe system should not be affected by the proposed development due to the unaltered building footprint.

3 AUTHORITY IMPACTS

The various authorities have requirements related to mains suitability, augmentation or extension, depending upon the size of the development with respect to water usage, sewer outflow, gas consumption and stormwater outflow.

These requirements are determined by varying methods, including:

- Sewer Drainage: Section 73 application
- Water Services: Section 73 application
- Gas Service: Jemena commercial gas application
- Stormwater: Sydney Water and Council applications for development

The following information demonstrates that the existing authority infrastructure is suitable to serve the existing development, without augmentation or amplification, subject to specific Authority responses to applications such as the Section 73, Jemena commercial gas application and the Council DA conditions related to stormwater.

Due to the fact the development footprint does not alter, the existing authority infrastructure services are not impacted.

3.1 Sewer Drainage

If information is sought from Sydney Water, it can be obtained via two methods:

- Feasibility Section 73 (without a DA number)
- Section 73 (with a DA number)

These submission methods must be completed and managed by an approved Water Services Coordinator (WSC).

The recommended WSC for the building redevelopment, Rose Atkins Rimmer, has been appointed and contacted with respect to the Section 73 feasibility application. The loads profiles have been created, and transmitted to the WSC. The WSC has is preparing the feasibility Section 73 application for the development which is expected to be lodged in the week commencing Monday 25 September 2017. A preliminary response is expected during the SSDA assessment process.

Sydney Waters' sewer and water services development criteria, is listed below:

TABLE 4.3

MINIMUM PIPE SIZES FOR RETICULATION AND PROPERTY CONNECTION SEWERS

Sewer	Minimum size DN
Property connection sewer servicing 1 or more residential lots Property connection sewer servicing commercial and industrial lots ≤300 m^2 Reticulation sewers servicing residential lots	150
Reticulation sewer servicing commercial and industrial lots >300 m^2 and other complexes where large flows may be expected	225

4.5.5 Maximum EP for reticulation sewers

Irrespective of hydraulic analysis, the maximum EP that may be serviced by reticulation sewers shall be as specified in Table 4.4.

TABLE 4.4

EP CAPACITY LIMITATIONS FOR RETICULATION SEWERS

Pipe size DN	Maximum allowable EP
150	600
225	1600
300	3200

Image 5 – Required Sewer Mains Sizes

The general requirements of Sydney Water indicate that for a development of this nature, would be required to front a sewer main of 225mm diameter.

The development fronts a sewer main of the correct diameter, and thus, the sewer main should not require augmentation, subject to the final Section 73 requirements.

3.2 Water Services

TABLE 3.1

MINIMUM PIPE SIZES FOR PARTICULAR DEVELOPMENTS

ZONING/DEVELOPMENT	MINIMUM PIPE SIZE (DN)	
	Cast iron outside diameter series	ISO series[3]
Low and medium density residential	100 [1]	125 [1]
High density residential (≥ 4 storeys)	150	180
Multiple developments of high density residential (≥ 8 storeys)	200 or 225 [2]	250 or 280 [2]
Industrial and commercial	150	180

NOTES:

1 *The Water Agency may authorise smaller pipe sizes to address issues such as water quality, provided that requirements for fire fighting supply are otherwise met.*

2 *The Water Agency to nominate the preferred size.*

3 *For steel (SCL) and polyethylene (PE) pipes only.*

Image 6 – Required Water Mains Sizes

The general requirements of Sydney Water indicate that for a development of this nature, would be required to front a water main of 150mm diameter.

At present, the development is served by a water main of 200mm diameter and thus, the water main should not require augmentation, subject to the final Section 73 requirements.

3.3 Gas Services

A commercial gas application has been completed, outlining the expected gas loads. That application has been lodged on-line via the Jemena web site.

It is anticipated that Jemena will not require augmentation of the existing 110mm natural gas main in Locomotive Street, subject to the final Letter of Offer provided by Jemena.

3.4 Stormwater Drainage

Applications to Sydney Water have been be made, in relation to the requirements for stormwater discharges.

Although a response has not yet been received, it is expected that due to the heritage nature of the building, and the existing unaltered catchment, that on-site detention will not be required for the proposed development.The existing stormwater drainage system is not fully known, however the majority of the in-ground stormwater drainage system and downpipes discharge to the stormwater main positioned within Locomotive Street. Portions of the system also discharge to the rear (SRA side), and to the north. The existing rainwater plumbing and stormwater drainage system is proposed to remain as is.

4 PROTECTION OF INFRASTRUCTURE ASSETS

Sydney Water and Jemena have been contacted by way of a feasibility Section 73 with Sydney Water, and a commercial gas application with Jemena to provide those authorities with information related to the size, description and usage patterns.

The proposed development footprint, does not impact on the existing hydraulic services infrastructure assets.

The proposed new connections to existing mains will be carried out under specific application under approval by Sydney Water and Jemena.

All new connections to mains will be carried out by approved subcontractors.

The existing stormwater infrastructure serving the site will remain as existing.

5 WATER MAINS ANALYSIS

A water mains pressure enquiry reply was provided for the existing 200mm water main that fronts the site in Locomotive Street.

An extract from the enquiry follows:

ASSUMED CONNECTION DETAILS

Street Name: Locomotive Street	Side of Street: North
Distance & Direction from Nearest Cross Street	170 metres West from Cornwallis Street
Approximate Ground Level (AHD):	22 metres
Nominal Size of Water Main (DN):	200 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	53 metre head
Minimum Pressure	28 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	28
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5 10 15 20 26 30 40 50	28 28 28 28 28 28 27 27
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	5 10 15 20 26 30 40 50	28 28 28 28 27 27 27 26
Maximum Permissible Flow	118	19

(Please refer to reverse side for Notes)

Image 7 – Water Mains Pressure Enquiry

The preliminary water services loads associated with the development, are tabled below:

Service	Design Criteria	Flow Rate
Domestic cold water	AS3500	3 – 4 L/sec
Fire hydrant system	AS2419	30 L/sec
Fire sprinkler system	AS2118.6 & AS2118.1 (OH3)	22.5 L/sec
Combined fire flow system		52.5 L/sec

The maximum permissible flow out of the 200mm diameter CICL water main is 118 litres per second.

It would appear therefore; that the water main is capable of providing all required flows, without the need for tanks, however, due to the low pressures associated with this main, pumps will be required for all services.

As an aside, it should be noted that a cold water storage tank will be required in any case, due to the requirement for PC “A” Grade office space for 2 hours water storage for domestic purposes.

6 CONCLUSION

Utilities in the form of sewer, water, gas, and stormwater drainage can be provided to adequately service the proposed development.

NORMAN DISNEY & YOUNG

CONSULTING ENGINEERS

NDY Management Pty Limited trading as Norman Disney & Young
ABN 29 003 234 571
60 Miller Street
North Sydney NSW 2060
Telephone: +61 2 9928-6800
Facsimile: +61 2 9955-6900

OFFICES

Australia:	Sydney, Melbourne, Brisbane, Perth, Canberra, Adelaide, Darwin, Gold Coast
Canada:	Vancouver
Hong Kong SAR:	Hong Kong
New Zealand:	Auckland, Christchurch, Wellington
Malaysia:	Kuala Lumpur (NDY Licensee)
United Kingdom:	London

CONFIDENTIAL INFORMATION

DISCLAIMER OF LIABILITY

COPYRIGHT

Learn more about NDY

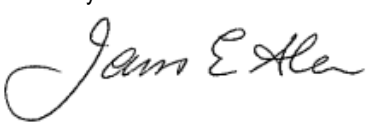
Website: www.ndy.com
LinkedIn: www.linkedin.com/company/norman-disney-&-young
Facebook: www.facebook.com/NDY-Group
Twitter: @ndygroup
YouTube: https://www.youtube.com/ndygroup

NDY QA SYSTEM

Revision No:	2.0
Revision Date:	10 November 2017
Reason Description:	FINAL
File Location:	W:\S264xx\S26442\023\H-\24_Reports
Filename:	rp170719s0001
Client Name:	Mirvac
Client Contact:	Stephen Simpson
Project Leader:	Michael Lewis
Editor:	James Allen

Authorisation By: Michael Lewis

Verification By: James Allen



NDY Offices

AUSTRALIA
Adelaide
Brisbane
Canberra
Darwin
Gold Coast
Melbourne
Perth
Sydney

CANADA
Vancouver

HONG KONG SAR
Hong Kong

MALAYSIA
Kuala Lumpur
(NDY Licensee)

NEW ZEALAND
Auckland
Christchurch
Wellington

UNITED KINGDOM
London

www.ndy.com

Norman Disney & Young