Mirvac Projects Pty Limited

Australian Technology Park

Fire Engineering - DA Report

DA

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1 Introduction

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

Mirvac Projects Pty Ltd (Mirvac) is seeking to secure approval for the urban regeneration of the Australian Technology Park (ATP), including the redevelopment of three car parking lots within ATP for the purposes of commercial, retail and community purposes, along with an extensive upgrade to the existing public domain within ATP. Building heights of 4, 7 and 9 storeys are proposed across the 3 development lots.

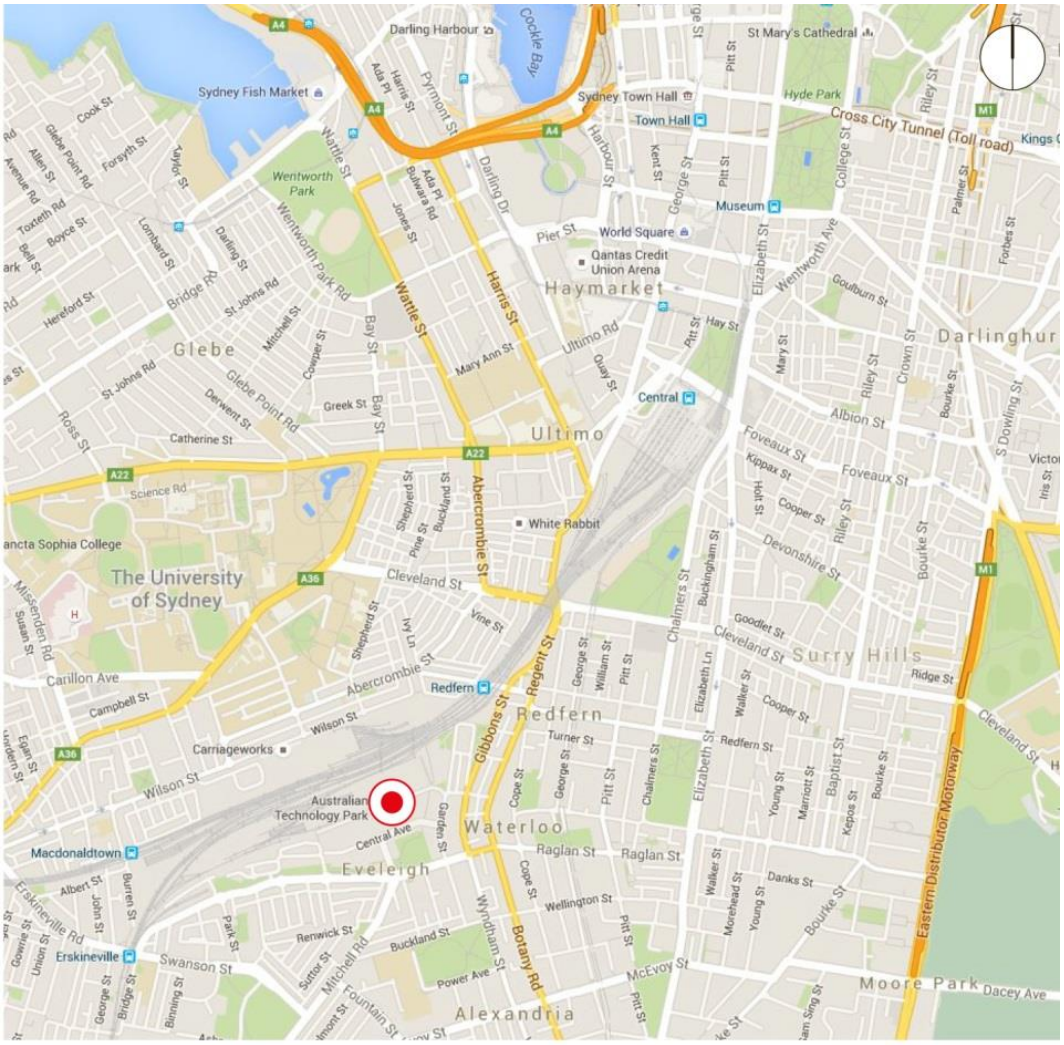
Australian Technology Park (ATP) has been continuously developed since its establishment in 1996, but has been underutilised as a technology and business precinct for quite some time. UrbanGrowth NSW Development Corporation (UGDC) has actively encouraged new development and employment opportunities at the Park for the past 15 years, and Mirvac intends to continue upon this and deliver upon the precinct's full potential, with the development of circa 107,400sqm for employment uses, which will facilitate the employment homes of an extra 10,000 staff everyday within ATP by development completion.

1.1 Background

Mirvac has been announced by UrbanGrowth NSW as the successful party in securing ownership and redevelopment rights for the ATP precinct, following an Expression of Interest (EOI) and an Invitation to Tender (ITT) process which commenced in 2014. Mirvac has also secured the Commonwealth Bank of Australia (CBA) as an anchor tenant for the development and intends to immediately commence the urban regeneration of this precinct through the lodgement of this SSDA. CBA's commitment to the precinct is in the form of one of the largest commercial leasing pre-commitments in Australian history, occupying circa 95,000 square metres of commercial, retail, community and childcare NLA, which will house circa 10,000 technology focused staff by 2019 and 2020. Mirvac's redevelopment goes well beyond the development on the 3 development lots, as it includes the regeneration of the public domain within ATP, the addition of retail to activate the precinct and also the provision of community facilities such as a community centre, a gym and 2 x 90 child childcare facilities.

1.2 Site Description

The ATP site is strategically located approximately 5km south of the Sydney CBD, 8km north of Sydney airport and within 200m of Redfern Railway Station. The site, with an overall area of some 13.2 hectares, is located within the City of Sydney local government area (LGA). Refer to **Figure 1** below for a graphic representation of the site location and context.



The Site

Three key sites remain undeveloped within the ATP site and are presently used for at-grade worker and special event car parking. These sites are:

- Lot 8 in DP 1136859 – site area circa 1,937m^2;
- Lot 9 in DP 1136859 – site area circa 8,299m^2; and
- Lot 12 in DP 1136859 – site area circa 11,850m^2.

Figure 2 provides an aerial image of the ATP site along with identifying the three development sites.

The SSDA works boundary excludes the Locomotive Workshop. Future development associated with the adaptive re-use of the Locomotive Workshop will be the subject of separate future applications.

1.3 Overview of Proposed Development

The development application seeks approval for the following components of the development:

- Site preparation works, including demolition and clearance of the existing car parking areas/ancillary facilities and excavation;
- Construction and use of a 9 storey building within Lot 9 (Building 1), comprising of parking, retail, commercial and childcare uses;
- Construction and use of a 7 storey building within Lot 12 (Building 2) comprising of parking, retail and commercial uses;
- Construction and use of a 4 storey community building within Lot 8 (Community Building) comprising of gym, retail, community, commercial and childcare uses;
- Extensive landscaping and public domain improvements throughout the precinct for the benefit of the local community; and
- Extension and augmentation of physical infrastructure/utilities as required.

A more detailed and comprehensive description of the proposal is contained in the Environmental Impact Statement (EIS) prepared by JBA.

1.4 Planning Framework

State Environmental Planning Policy (SEPP) Major Development 2005 is the principal environmental planning instrument applying to the ATP. Schedule 3, Part 5 of the Major Development SEPP sets out the zoning, land use and development controls that apply to development on the Site.

As the development has a capital investment value of more than $10 million it is identified as State Significant Development under the *State Environmental Planning Policy (State and Regional Development) 2011*, with the Minister for Planning the consent authority for the project.

2 Fire engineering design for DA

This report considers the fire safety design of the proposed ATP development, and specifically those aspects of the fire safety design that may impact upon planning and hence DA issues for the development.

The fire safety design of the development will generally satisfy the Performance Requirements of the Building Code of Australia (BCA) by complying with the Deemed-to-Satisfy (DTS) Provisions. However, there are some aspects of the design that are developed using performance based fire engineering to achieve compliance with the Performance Requirements of the BCA. The main aspects that affect the layouts of the three buildings, and hence the DA, are highlighted below.

The overall concept of the fire safety strategy for the three buildings is to provide a design that gives a satisfactory level of occupant life safety, protection to other property and can facilitate Fire Brigade intervention whilst allowing innovation in the design and helping to enable an environmentally sustainable design.

2.1 Buildings 1 and 2

The proposed fire safety strategies for Buildings 1 and 2 are fairly similar, as both buildings contain large central atria connecting all office levels. Whilst the size and layout of the two buildings differ, the fire safety measures required to provide an appropriate level of safety to building occupants are fairly consistent.

Buildings 1 and 2 are proposed to have construction elements with a Fire Resistance Level (FRL) generally in accordance with the DTS Provisions of the BCA, other than retail areas, which have the potential to have a reduced FRL.

The atrium will be designed using performance based fire engineering, in lieu of complying with the prescriptive DtS Provisions. For example, the office floor plates will be largely open to the atrium and a performance based smoke exhaust system will be provided at the atrium roof. Make-up air is proposed to be provided via a mixture of natural and mechanical means. The size of the atrium fire compartment will be in excess of the DTS limits, however is proposed to be addressed via fire engineering.

Both buildings are to be sprinkler protected throughout, which controls the size of any fires that may occur. This in turn limits the smoke production rate and moderates compartment temperatures, improving conditions for occupants and attending fire brigade crews.

Egress is facilitated by numerous fire stairs distributed around the perimeter of the buildings. This means that occupants can egress away from the atrium, which provides a potential path for smoke spread. Due to the open atrium connecting all office levels, a simultaneous evacuation regime is proposed. Areas of extended travel distances are proposed to be addressed via fire engineering. All fire stairs will be pressurised.

Fires will be primarily detected via an AS 1670.1 smoke detection system and occupant warning provided via a Sound System and Intercom System for Emergency Purposes (SSISEP).

Fire hydrant coverage is proposed to be achieved throughout the buildings. An Alternative Solution is proposed to omit fire hose reels from the office portions of Buildings 1 and 2, replacing them instead with fire extinguishers. Fire brigade provisions, such as boosters, pump rooms, tank rooms and the like are proposed to be grouped in a similar location close to where fire brigade crews would arrive at each building.

2.2 Community Building

The smaller Community Building will have a more varied usage than Buildings 1 and 2, which are predominantly office use. The proposed fire strategy and fire safety measures have due regard to this mixed use, which includes community use, childcare, office, gym and retail.

An option to construct the building out of heavy timber members will be explored via fire engineering. Where appropriate, rationalisation of FRLs may be considered.

Sprinklers are proposed to be provided throughout the Community Building, despite it being less than 25m in effective height. Sprinkler protection significantly increases the level of fire safety and will support a number of fire engineering Alternative Solutions.

Egress from each of the above ground levels, including the childcare floor, will be facilitated via fire stairs. The non-childcare floors can also use an open stair (or stairs) for egress.

To support the sustainable design aspirations for the building, openings between some of the floors may be provided for natural ventilation and the transmission of natural light, however the bulk of the childcare floor is proposed to be a separate fire compartment from all other floors.

3 Conclusion

At this stage of the design, other fire safety aspects of the development appear to be compliant with the Deemed to Satisfy Provisions of the BCA. It is anticipated that there will be other non-compliances with the DtS Provisions as the design develops, however it is considered that there are no issues that would affect the building layouts arising from fire safety and hence no impediments to the Department of Planning issuing development consent.