Environmental Impact Statement

Doran Drive Precinct

2 Mandala Parade, Castle Hill

Submitted to the Minister for Planning and Public Spaces
On Behalf of Deicorp Project Showground Pty Ltd

JULY 2021

REPORT REVISION HISTORY

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		Ashleigh Coombes *Associate*	Stephen Kerr *Executive Director*
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		Prepared by	**Verified by**
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EIS CERTIFICATION

Name of author:	Stephen Kerr
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Declaration:

I certify that this Environmental Impact Statement:

- Complies with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*;
- Has regard to the *Preparing an Environmental Impact Statement: State Significant Development Guide*;
- Contains all available information relevant to the assessment of the project;
- Contains no false or misleading information;
- Contains a consolidated description of the project in a single chapter of the Environmental Impact Statement;
- Addresses the Secretary's Environmental Assessment Requirements for the project;
- Identifies and assess the relevant statutory requirements for the project;
- Contains an accurate summary of the findings of any community engagement and technical studies; and
- Contains a comprehensive evaluation of the impacts of the project as a whole.

Signature:  Date: 15/07/21

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1. EXECUTIVE SUMMARY

This Environmental Impact Statement (EIS) has been prepared by City Plan Strategy & Development Pty Ltd (City Plan) on behalf of Deicorp Projects (Showground) Pty Ltd (Deicorp) as the applicant of the project. It is submitted to the NSW Minister for Planning and Public Spaces for a State Significant Development Application (SSDA) under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and Part 2 of State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP). The SSDA seeks approval for a mixed-use development at 2 Mandala Parade, Castle Hill (the site), including residential apartments, commercial and retail uses, community spaces, public plaza, basement car parking, landscaping, stormwater drainage works, infrastructure upgrades and signage strategy.

The site already benefits from a concept approval (SSD-9653) for the Hills Showground Station Precinct, which was approved by the NSW Minister for Planning and Public Spaces on the 29 January 2021 and included:

- Concept subdivision, road hierarchy and precinct layout,
- Maximum building envelopes ranging from 12 metres to 68 metres,
- Maximum gross floor area (GFA) of up to 166,486m^2, including:
  - 152,546m^2 of residential accommodation, and
  - 13,940m^2 of commercial premises,
- Residential development of up to 1,620 dwellings,
- Minimum 5% of all residential dwellings provided as affordable housing (for a minimum of 10 years),
- Open space and public domain areas, and
- Car and bicycle parking rates.

The concept approval identified three future development lots for the Hills Showground Station Precinct, being Hills Showground Precinct West, Doran Drive Precinct and Hills Showground Precinct East. Of these three lots the site that is the subject of this SSDA comprises the Doran Drive Precinct development lot. Doran Drive Precinct is the first of the three development lots created by the concept approval to be developed.

The Hills Showground Station Precinct and the site are the result of years of long-term strategic planning. The strategic context of the site and its surrounds is discussed in detail in Section 3 of this EIS.

The Capital Investment Value (CIV) for the proposed development is $171,884,179 (excluding GST). As it exceeds the $30 million threshold for commercial premises/ residential accommodation in a railway corridor, it is classified as State Significant Development (SSD) pursuant to Clause 19 of Schedule 1 of the SRD SEPP.

The EIS has been prepared in accordance with Clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Act) and addresses the relevant matters for consideration by a consent authority as required by Section 4.15 of the EP&A Act in assessing Part 4 applications.

The EIS has also been prepared with regard to the *Preparing an Environmental Impact Statement: State Environmental Development Guide* prepared by the Department of Planning, Environment and Industry (DPIE). This guide is still in its draft form as was publicly exhibited and has not yet been finalised.

Nonetheless, this EIS has been prepared in accordance with the structure identified within the guide as follows:

1. Executive summary
2. Introduction
3. Strategic Context
4. Project description
5. Statutory context
6. Engagement
7. Assessment of impacts
8. Evaluation of the project

Further, this EIS responds to the Secretary's Environmental Assessment Requirements (SEARs), which were issued by the Department of Planning, Industry and Environment (DPIE) on 30 March 2021 (**Appendix 1**). A SEARs Compliance Table has been prepared by City Plan and included at **Appendix 2**.

Based on the Architectural Package prepared by Turner (**Appendix 3**) the proposed development includes:

- Six (6) levels of basement car parking accessed via a two-way driveway off De Clambe Drive;
- Four (4) residential towers above a 2-4-storey retail/ commercial podium, comprising:
  - a supermarket (including fitout);
  - liquor store;
  - retail and commercial tenancies;
  - community spaces;
  - male, female and accessible bathroom facilities;
  - communal open space and associated landscaping; and
  - four-hundred and thirty-one (431) residential units;
- Loading area and turntable for the supermarket and retail tenancies accessed off Andalusian Way;
- Associated plant and mechanical equipment;
- Infrastructure upgrades;
- Outdoor public plaza at ground level fronting Doran Drive;
- Stormwater drainage works; and
- Signage strategy.

The Architectural Package is supported by the following reports that describe in detail the architectural intent:

- Architectural Statement (**Appendix 4**);
- Design Integrity Report (**Appendix 5**); and
- Design Excellence Report (**Appendix 6**).

Urban Design Guidelines (UDGs) were prepared by Cox Architecture in partnership with Oculus, which were submitted and endorsed as part of the concept approval for the Hills Showground Station Precinct. The key elements of the concept approval are reflected within the UDGs that have been prepared,

including the buildings envelopes, apartment yields and maximum GFA for the different development lots. The proposed development is consistent with the UDGs for Doran Drive Precinct and the wider precinct, which is a requirement of the conditions of development consent imposed by the concept approval.

The applicant and wider and project team have carried out consultation as required by the SEARs, including the Hills Shire Council, State Design Review Panel (SDRP) and the local community. The feedback received throughout this consultation process has informed the development of the design to-date.

The site and its immediate surrounding locality are not subject to any environmental hazards such as flooding, bushfire, landslip or environmentally sensitive land that would preclude the proposed development. Consequently, the site is suitable for its proposed use as a high-density mixed-use precinct.

The EIS also considers the social and economic benefits resulting from the proposed development. Notably, the EIS concludes the proposed development will represent a positive social contribution by providing a vibrant high-density mixed precinct that will provide new housing, jobs and public domain areas for people to live, work and visit within walking distance of the Hills Showground Station. Economic benefits of the proposed development include the creation of jobs during its construction and ongoing operation and an increase in population to support the Hills Showground Station Precinct as a new local centre.

The proposed development has been assessed as having acceptable environmental impacts, including in relation to traffic, parking, stormwater management, waste management, heritage, geotechnical and amenity impacts such as noise and vibration, overshadowing, visual amenity, lighting and wind. The potential environmental impacts of the proposed development as outlined in detail in Section 7 of this EIS can be satisfactorily mitigated and managed subject to the implementation of the recommendations of the various technical studies and plans the accompany this SSDA as complied in **Appendix 7** of this EIS.

This EIS demonstrates that the potential impacts of the proposed development can be managed or mitigated. Considering the above and the evident significant public benefits of the proposed development, it is recommended that development consent be granted to this SSDA for the Doran Drive Precinct.

2. INTRODUCTION

2.1. Project overview

This SSDA is seeking development consent for the construction of a new mixed-use development as the first stage of the Hills Showground Station Precinct to be delivered in accordance with the concept approval.

Based on the Architectural Package prepared by Turner (**Appendix 3**) the proposed development includes:

- Six (6) levels of basement car parking accessed via a two-way driveway off De Clambe Drive;
- Four (4) residential towers above a 2-4-storey retail/ commercial podium, comprising:
  - a supermarket (including fitout);
  - liquor store;
  - retail and commercial tenancies;
  - community spaces;
  - male, female and accessible bathroom facilities;
  - communal open space and associated landscaping; and
  - four-hundred and thirty-one (431) residential units;
- Loading area and turntable for the supermarket and retail tenancies accessed off Andalusian Way;
- Associated plant and mechanical equipment;
- Infrastructure upgrades;
- Outdoor public plaza at ground level fronting Doran Drive;
- Stormwater drainage works; and
- Signage strategy.

An aerial sketch of the Hills Showground Concept Masterplan taken from the Hills Showground Station Precinct Urban Design Guidelines and Concept Development Approval is included at Figure 1.

A high-resolution photomontage of the proposed development as viewed from the sky is included at Figure 2. Refer to **Appendix 8** of this EIS for further photomontages of the proposed development by Ivolve Studios.

Figure 1 - Aerial sketch of the Hills Showground Concept Masterplan (looking south). (Source: Hills Showground Station Precinct Urban Design Guidelines)

Figure 2: Photomontage of the proposed development (looking north). (Source: Turner)

A detailed description of the proposed development and its key elements is provided in Section 4 of this EIS.

2.2. Location

The site is located in the suburb of Castle Hill within The Hills Local Government Area (LGA), 34 kilometres north-west of the Sydney Central Business District (CBD) and 12 kilometres north of Parramatta. Hills Showground Station is south of the site on the opposite side of Mandala Parade and is one of eight station precincts along the new Metro North West Line (MNWL) urban corridor. MNWL connects the site to key employment and retail centres located within the Hills LGA, including Castle Hill to the east, Norwest Business Park to the west and Rouse Hill Town Centre to the north-west. A map showing the location of the site in the context of the MNWL urban corridor is at Figure 3.

Figure 3: Location plan (Source: Nearmap)

Castle Hill Showground is located immediately north of the site on the opposite side of De Clambe Drive. Immediately south of the site is the Hills Showground Station entry/ exit and its associated plaza area, with R4 High Density Residential zoned located beyond on the southern side of Carrington Road. The R4 zoned land currently comprises single detached dwellings housing consistent with the previous zoning. However, various applications for residential flat buildings have been approved on this land. East of the site on the opposite side of Andalusian Way is the future Hills Showground Precinct East, which when developed will comprise up to eight-hundred and seventy-three (873) residential apartments and a new minimum 3,500m^2 park that will include a play space and open lawn for passive recreation. Further east of the future Hills Showground Precinct East is the State Road known as Showground Road. Immediately west of the site on the opposite side of Doran Drive is the Hills Showground Precinct West, as well as a six-hundred (600) space commuter car park and bicycle parking facilities. Further west is the Cattai Creek riparian corridor and the Castle Hill Industrial Estate located around Victoria Avenue.

2.3. The applicant

The applicant for this SSDA is Deicorp Project Showground Pty Ltd as the developer of this mixed-use project. Suitably qualified technical consultants have been engaged by the applicant in support of this

SDDA. These consultants and the technical studies that they have prepared are set out in the beginning of this report in the table of appendices.

2.4. Project objectives

The principal objectives of this project in providing for a new mixed-use development on the site are to:

- Deliver a vibrant commercial and residential precinct adjacent to the Hills Showground Station, which demonstrates best practice transport orientated-development (TOD) principles by actively encouraging walking, cycling and public transport use and reducing demand for private car use, and is consistent with the existing concept approval for the wider Hills Showground Station Precinct.
- Provide an appropriate mix and scale of retail, commercial and community floor space that reflects and reinforces the role of the precinct as a local centre and supports the various needs of the community.
- Maximise the supply and diversity of higher density housing in proximity to the Hills Showground Station to provide a unit mix that accommodates different generations, lifestyles and price points.
- Provide an outdoor public plaza on Doran Drive that serves as the civic heart of the precinct and provides a safe and accessible pedestrian link from the Hills Showground Station to Castle Hill Showground.
- Activate the frontages to Mandala Parade, Andalusian Way, De Clambe drive and Doran Drive Plaza.
- Provide a high-quality built form outcome that works to shape the future character of the area, integrate with surrounding development and maximise the amenity of residents, workers and visitors.

Additionally, specific objectives for the Hills Showground Station Precinct were developed for the concept. These objectives are focused on place, diversity and value and are detailed in the following figure.

Figure 4: Hills Showground station development objectives (Source: Cox Architecture/ Oculus)

2.5. Background

2.5.1. Relevant planning history

2.5.1.1. North West Rail Link - Major Civil Construction Works (Stage 1)

State Significant Infrastructure Application (SSI-5100) was approved on 25 September 2012, which sought approval for major civil construction works as the first stage of the North West Rail Link (NWRL). The construction activities that were to be undertaken as part of these major civil construction works included:

- Enabling works, including:
  - power, water and telecommunications;
    site establishment;
  - road modifications; and
  - public transport modifications;
- Tunnels and underground stations excavation;
- Elevated stations structure construction;
- Fill embankment and cutting earthworks; and
- Viaduct and bridge construction works.

2.5.1.2. North West Rail Link - Stations, Rail Infrastructure and Systems (Stage 2)

A subsequent State Significant Infrastructure Application (SSI-5414) was approved on 8 May 2013, which sought approval for the stations, rail infrastructure and systems as the second stage of the NWRL, including:

- Any additional land take for station precinct works (e.g. road works);
- Operation and construction of:
  - stations;
  - station precincts;
  - services facilities;
  - stabling facility at Tallawong Station; and
  - rail infrastructure and systems.

In relation to the Hills Showground Station Precinct these approved Stage 2 works for the NWRL included the construction and operation of the underground station approximately 25 metres below ground. Major elements of the station included the platform level, station mezzanine and/ or concourse level, station entrance, emergency ingress and egress and station ventilation (natural and mechanical). Additionally, the following works were also approved as part of SSI-5414 for the creation of the station precinct:

- Way-finding signage and transport information;
- Station utilities/ services facilities;
- Public space/ plaza areas adjacent to station entry points;
- Retail space;
- Local bus interchange located on Doran Drive;
- Two (2) bus stops on Doran Drive;
- Fifteen (15) kiss and ride spaces and four (4) taxi spaces;

- Bicycle parking and storage facility for forty (40) bicycles;
- Three level park and ride facility with capacity for approximately six-hundred (600) cars;
- New precinct access between Carrington Road and Showground Road
- New precinct access road between Doran Drive and Middleton Avenue;
- Upgrade and widening of Doran Drive to allow for two lanes of traffic;
- Extension of Middleton Avenue;
- New signals at the intersection of Carrington Road and Doran Drive;
- Access to the station entrances for emergency, delivery and maintenance vehicles;
- Footpath upgrades as needed along Carrington Road and Doran Drive;
- New footpath from car park to new northern access road;
- Provision of pedestrian crossings on Middleton Avenue, Doran Drive and the new access road;
- Service buildings located at both ends of the station box;
- On-site stormwater detention (OSD);
- Future development sites.

An indicative layout of The Hills Showground Station Precinct as lodged with SSI-5414 is included at Figure 5. The indicative vehicle and pedestrian movements as lodged are also included at Figure 6 overleaf.

Figure 5: Hills Showground Station - Indicative layout (Source: Transport for NSW)

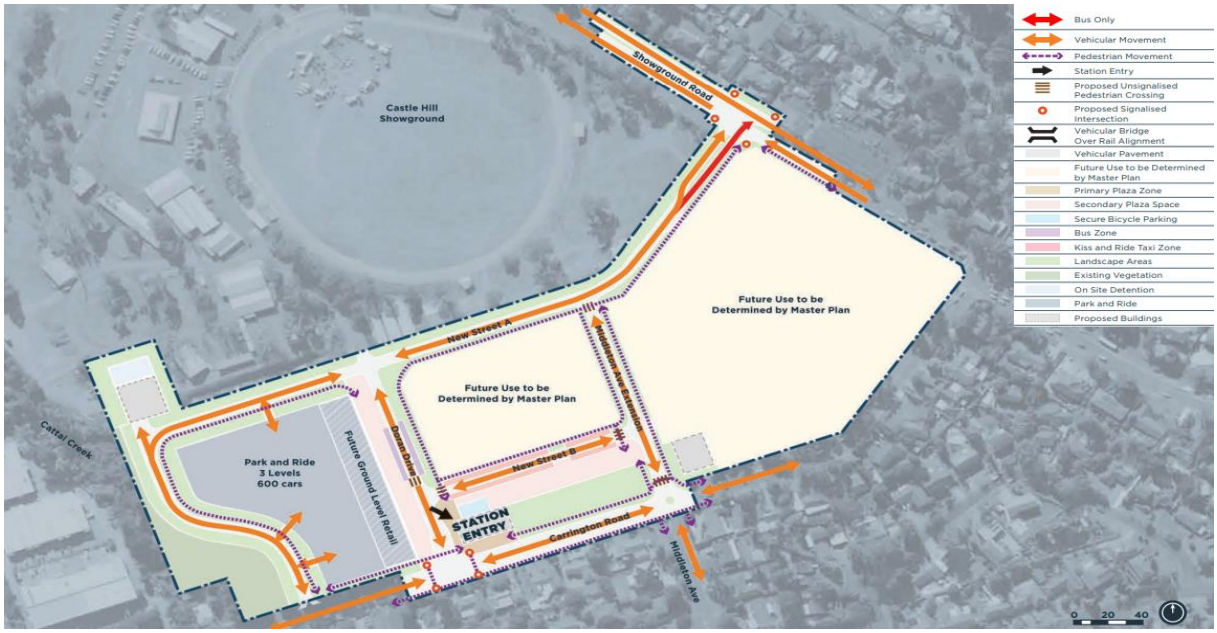

Figure 6: Hills Showground Station - Indicative vehicle and pedestrian movements (Source: Transport for NSW)

2.5.1.3. Subdivision

Following the completion of construction of the Hills Showground Station under SSI-5100 and SSI-5415, an application was submitted with Land Registry Services to subdivide the then Lot 140 DP 1180973. This subdivision as registered created new roads and a number of lots within DP 1253217 as listed below.

- Lot 51 Drainage reserve and basin;
- Lot 52 Sydney Metro - commuter car park and plaza;
- Lot 53 Development lot - Hills Showground Precinct West;
- Lot 55 Development lot - Doran Drive Precinct;
- Lot 56 Development lot - Hills Showground Station East;
- Lot 54 and Lot 50 Sydney Metro - Hills Showground Station Box and service facility boxes;
- Lot 57 Existing car park around the Showground Oval; and
- De Clambe Drive, Doran Drive, Mandala Parade and Andalusian Way.

2.5.1.4. Hills Showground Station Precinct

Concept application

The concept application for the Hills Showground Station Precinct was approved on 29 January 2021 and related to the three development lots that were created by the previous subdivision of Lot 140 DP 1180973. The location of these three development lots within the precinct is demonstrated in the figure below.

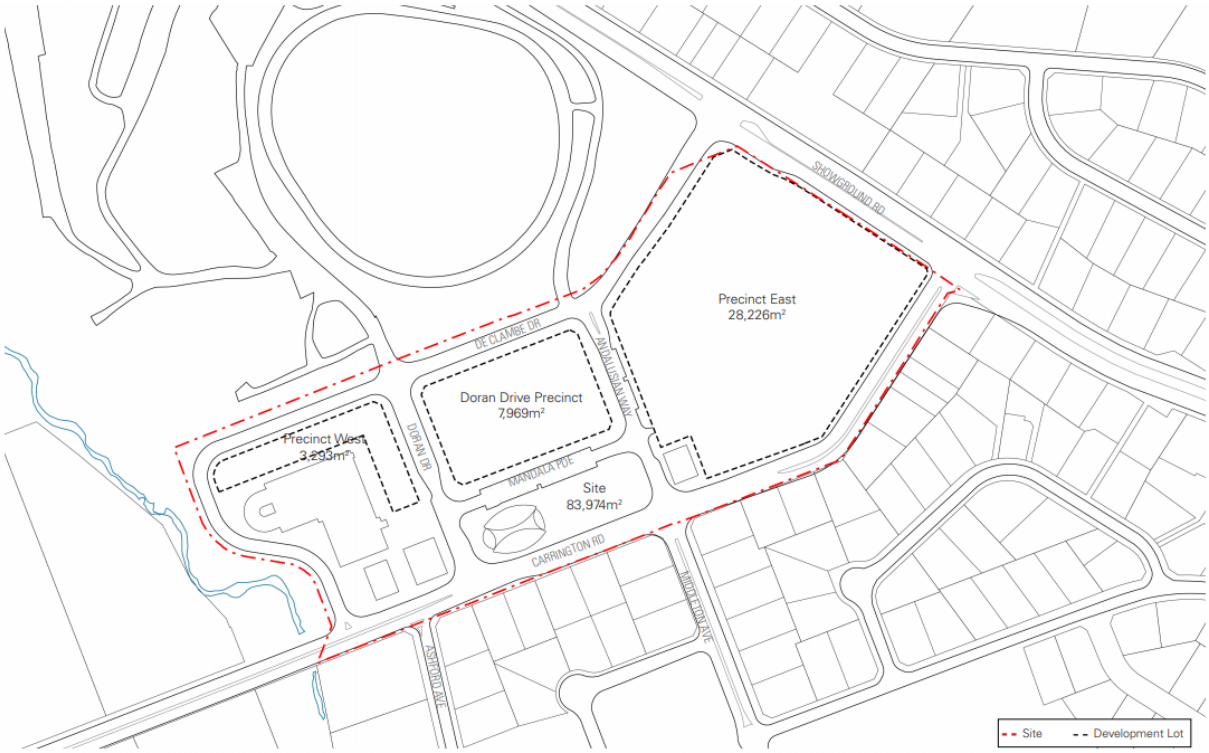

Figure 7: Approved site and development lots plan (Source: Cox Architecture)

An overview of the concept approval as it relates to all three of the development lots is included at Section 1. A Concept Masterplan was prepared for the precinct as part of the concept application (Figure 8), which demonstrated the general layout of the buildings, public open space provision and landscaping. The concept was made possible by the rezoning of the Hills Showground Station Precinct, which occurred as part of the Showground Planned Precinct Planning Proposed prepared by the DPIE.

Figure 8: Concept Masterplan (Source: Cox Archirtecture)

The key elements approved for Doran Drive Precinct as part of the concept application are provided below.

Table 1: Key elements of concept approval

Key Element	Doran Drive Precinct
Maximum apartment yield	440
Maximum GFA	51,065m^2
Use	Mixed-use
Open space	Doran Drive Plaza (Minimum 1,400m^2)
Setbacks	3 metre outdoor dining 0 metre primary setback 3 metre secondary setback
Building heights	Maximum 68 metres/ 21 storeys
Sun access	100% to Doran Drive Plaza
Street wall height	2-4 storeys
Building separation	Refer to Drawing No. SK 11 (Rev C) of approved plans.

The table below addresses how each condition of the concept development approval has been satisfied.

Table 2: Concept Development Approval Conditions

Condition	Response
C1. Each future detailed development application shall include a Design Integrity Report that demonstrates how design excellence and design integrity has been achieved in accordance with: (a) the design objectives of the concept approval (b) the approved Urban Design Guidelines (as amended by Condition B1) (c) the approved Design Excellence Strategy (as amended by Condition B2) (d) any advice from the relevant DRP and Applicant's response to this advice (e) the conditions of this consent.	A Design Integrity Report has been prepared by Turner and is provided at Appendix 5.
C2. The Design Integrity Report shall include how the process will be implemented through to completion of the approved development.	The Design Excellence Report at Appendix 6 explains how design excellence and design integrity will be implemented through to completion of the project.
C3. Future development applications must demonstrate that buildings are contained within the building envelopes, consistent with the plans listed in Condition A2.	As demonstrated on the Architectural Plans at Appendix 3, the proposed massing and built form is compliant with the approved Concept Plan building envelopes.

C4. The maximum achievable gross floor area (GFA) for each precinct is: (a) Precinct West: 29,146 m2 (b) Doran Drive Precinct: 51,065 m2 (c) Precinct East: 86,275 m2 (d) the maximum amounts will only be achieved subject to: (i) buildings being wholly contained within the approved building envelopes (ii) compliance with the conditions of this concept approval (iii) demonstration of design excellence	As shown on the Gross Floor Area Diagrams at Appendix 3, the total proposed GFA for the Doran Drive Precinct is 51,064sqm compliance with the maximum GFA for the precinct. In accordance with C4(b), the proposed buildings are contained within the approved building envelopes and design excellence is demonstrated in the Design Excellence Report at Appendix 6. As demonstrated in this table, each of the conditions of the concept approval have been satisfied. Therefore, the maximum achievable GFA applies to the precinct.
C5. Future detailed development applications shall address compliance with: (a) the Urban Design Guidelines as endorsed by the Planning Secretary pursuant to Condition B1 (b) the Design Excellence Strategy as endorsed by the Planning Secretary pursuant to Condition B2.	The Urban Design Guidelines have been addressed by Turner in the Design Integrity Report at Appendix 5. The Design Excellence Strategy has been satisfied in this DA through the inclusion of a Design Integrity Report and consideration of the proposal at two SDRP meetings. Following these meetings, the advice has been addressed in the Design Excellence Report (Appendix 6) and design refinements made where required.
C6. The rates of car parking and bicycle parking spaces for future development applications are to be in accordance with the maximum rates and caps established under the Urban Design Guidelines endorsed pursuant to Condition B1.	A modification application has been submitted to adjust the car parking rates to enable the provision of a supermarket as contemplated in the concept approval. In the event that the modification application is not supported the car parking numbers can be easily adjusted, however, of more concern is that the supermarket will not be economically viable. Refer to the Section of the EIS following this table for further detail on the modification application.
C7. Future development applications shall be accompanied by a Green Travel Plan consistent with the framework and initiatives in Section 4.3 of the Traffic and Transport Impact Statement dated 16 September 2020 prepared by SCT Consulting.	In accordance with Condition C7 a Green Travel Plan has been prepared by Varga Traffic Planning and is provided at Appendix 9.
C8. The first future Development Application for Doran Drive Precinct for any above ground building works must: a) include the provision of a community facility with a gross floor area of a minimum 500 m² on the site, including an appropriate mechanism to dedicate ownership or control to a public authority or non-profit community organisation; or	The proposed development complies with this condition as detailed in Section 4.12 of this EIS, through the provision of two community spaces with a total combined GFA of 543.06m2. Deicorp has entered into any agreement with local community services provider HCA to operate the community spaces.

b) enter into a planning agreement with Council for an equivalent monetary contribution towards the delivery of community facilities as agreed by Council. The Planning Agreement must be entered into prior to the determination of the first future application for Doran Drive Precinct for any above ground building works. c) Community facilities in this condition are as defined in THLEP.	
C9. Any Planning Agreement prepared must be in accordance with Division 7.1 of Part 7 of the EP&A Act.	N/A
C10. Future detailed development applications must demonstrate how the principles of ecologically sustainable development (ESD) have been incorporated into the design, construction and ongoing operation of the proposal.	In accordance with Condition C10, an Environmental Performance and ESD Report is provided at Appendix 13 which addresses the ESD principles.
C11. The ESD credentials of future detailed development applications shall be in accordance with, or improve upon, the targets established within the Ecologically Sustainable Development Report, dated October 2019 and prepared by WSP and subsequent memo dated 19 May 2020.	Section 4 of the Environmental Performance and ESD Report at Appendix 13 responds to the 'mandatory' and stretch' goals established within the WSP report and subsequent memo.
C12. Future development applications involving buildings of eight or more storeys are to be subject to Wind Impact Assessment, including computer modelling within a wind tunnel study of detailed building form. Wind criteria for the use of different spaces around the development are to be adopted. Recommendations of the Wind Impact Assessment must be incorporated in the drawings lodged.	In accordance with Condition C12, Pedestrian Wind Environment Study has been prepared by Windtech and is provided at Appendix 48.
C13. Future detailed development applications shall be accompanied by a Security and Crime Risk Assessment prepared having regard to Crime Prevention Through Environmental Design (CPTED) principles.	In accordance with Condition C13, a Crime Prevention Through Environmental Design Assessment has been prepared by Barker Ryan Stewart and is provided at Appendix 15.
C14. Future detailed development applications shall provide analysis and assessment of the impacts of construction and include: (a) Construction Pedestrian and Traffic Management Plan as per Condition C17 (b) Noise and Vibration Management Plan (c) Air Quality Management Plan (d) Construction Waste Management Plan (e) Community Consultation and Engagement Plans The plans referred to above may be prepared as part of a Construction Environmental Management Plan prepared and implemented under the conditions of any consent granted for future development applications.	Conditions C14 has been satisfied as follows: (a) A Construction Pedestrian and Traffic Management Plan has been prepared by Barker Ryan Stewart and is provided within the Construction Management Plan at Appendix 26. (b) A Construction Noise and Vibration Plan of Management has been prepared by Koikas and is provided at Appendix 53. (c) An Air Quality Management Plan has been prepared EI Australia and is provided at Appendix 52.

	(d) Construction Waste Management is addressed in the Construction Management Plan at Appendix 26. (e) A Community Consultation Report has been prepared by Heard Agency and is provided at Appendix 45.
C15. Future development applications shall be accompanied by detailed Traffic and Transport Impact Assessment.	In accordance with Condition C15, a detailed Traffic and Parking Assessment Report has been prepared by Varga Traffic Planning and is provided at Appendix 49.
C16. Future development applications shall detail the timing and commitments of road network upgrades to mitigate any impacts of the development. This must include evidence of consultation and agreement with the relevant road authority on the responsibility, scope and timing of any works.	The Traffic Report (Appendix 49) concludes that the proposal will not have any unacceptable traffic implications in terms of road network capacity. The Traffic Report notes, however, that TfNSW is proposing to upgrade Carrington Road, with the upgrade works to provide a left-turn slip lane turning onto Showground Road, additional turning lanes from Showground Road onto Carrington Road and two continuous in both directions, between Showground Road and Andalusian Way.
C17. Future development applications shall incorporate a Construction Pedestrian and Traffic Management Plan (CPTMP) prepared in consultation with the Hills Shire Council and to the satisfaction of the relevant road authorities. The CPTMP shall include, but not be limited to: (a) construction car parking strategy (b) haulage movement numbers / routes including contingency routing (c) detailed traffic management strategy for construction vehicles including staff movements (d) maintaining property accesses (e) maintaining bus operations including routes and bus stops (f) maintaining pedestrian and cyclists links and routes (g) independent road safety audits on construction-related traffic measures (h) measures to account for any cumulative activities and work zones operating simultaneously.	In accordance with Condition C17, a Construction Pedestrian and Traffic Management Plan has been prepared by Barker Ryan Stewart and is provided within the Construction Management Plan at Appendix 26.
C18. Independent road safety audits are to be undertaken for all stages of detailed design involving road operations and traffic issues. Any issued identified by the audits shall be closed out in consultation with Transport for NSW and Hills Shire Council to the satisfaction of the relevant road authority.	In accordance with Condition C18, a Road Safety Audit has been undertaken by MU Group Consulting Pty Ltd and is provided at Appendix 50.

C19. Future development applications shall include Noise and Vibration Impact Assessment that identified and provides a quantitative assessment of the main noise generating sources and activities during operation. Details are to be included outlining any mitigation measures necessary to ensure the amenity of future sensitive land uses is protected during the operation of the development, including residential premises near future retail premises such as food and beverage tenancies.	In accordance with Condition C19, an Acoustic Report has been prepared by Koikas Acoustic and accompanies this application at Appendix 54.
C20. Future detailed development applications shall include the preparation and submission of documentation compliant with Sydney Metro Underground Corridor Protection Technical Guidelines.	Provided at Appendix 64 is the Sydney Metro Package containing the following information in accordance with the Guidelines: ▪ Letter for Grade and Elevated Sections Corridor Protection ▪ Survey Drawings ▪ Plans relating to Metro Infrastructure ▪ Structure Report for Sydney Metro ▪ Civil Design Package ▪ Geotechnical Report ▪ Detailed Site Investigation ▪ Electrolysis Report
C21. Future development applications shall address the exiting capacity and any augmentation requirements of the development for the provision of utilities, including staging of infrastructure through the preparation of an infrastructure / utility management plan in consultation with relevant agencies and service providers.	This application is accompanied by the following Appendices which address utilities in accordance with Condition C21: ▪ Electrical Infrastructure and Power Supply Letter prepared by JHA (Appendix 28) ▪ Sydney Water Supporting Letter prepared by Opal Water Management (Appendix 29) ▪ Feasibility Letter prepared by Sydney Water (Appendix 29) ▪ Electrical, Mechanical & ASP3 Services and Infrastructure Report prepared by JHA Consulting Engineers (Appendix 31)
C22. Future detailed development applications shall be accompanied by a Flood and Stormwater Impact Assessment. The assessments must have regard to the conclusions and recommendations of the Hills Showground Station Precinct Integrated Water Cycle Management Strategy, dated 9 June 2020 prepared by WSP.	A Flood and Stormwater Impact Assessment Report and Flood Model has been prepared by ACE and is provided at Appendix 42 in accordance with Conditions C22.
C23. Future detailed development applications for aboveground works shall include a Reflectivity Assessment demonstrating that external treatments,	In accordance with Condition C23, a Solar Light Reflectivity Report has been prepared by Windtech and is provided at Appendix

materials and finishes of the development do not cause adverse or excessive glare.	57. The report confirms that the subject development will not cause adverse solar glare to motorists or pedestrians in the surrounding area provided the recommendations in the report are incorporated.
C24. Future detailed development applications shall be accompanied by a Soil and Contamination Report. The report(s) must have regard to the conclusions and recommendations contained in Soil and Contamination Report, dated 29 October 2019 prepared by JBS&G.	A Letter has been prepared by EI Australia and accompanies this application at Appendix 65 which specifically addresses Condition C24 of the concept development approval.

Modification application

A Section 4.55 (1A) Modification Application has been lodged which proposes to amend the endorsed UDGs prepared by Cox Architecture and Oculus as part of the concept, specifically in relation to the car parking rates it establishes for retail and commercial uses in the Doran Drive Precinct. The endorsed UDGs currently specify a maximum car parking rate of 1 space per 60m^2 of GFA for retail uses and a maximum car parking rate of 1 space per 100m^2 of GFA for commercial uses within the precinct. It is proposed to remove these car parking rates and introduce a cap on retail/ commercial car parking. The cap on retail/ commercial car parking is proposed to be three-hundred and forty-one (341) or 1 space per 32m^2, whichever is the lower. A summary of the existing and proposed car parking rates for retail and commercial uses is provided overleaf.

Table 3: Existing and proposed retail/ commercial car parking rates

Use	Existing car parking rate		Proposed car parking rate
	Minimum	Maximum	
Retail	1 space/ 130m^2 GFA	1 space/ 60m^2 GFA	Maximum 341 car parking spaces
Commercial	1 space/ 145m^2 GFA	1 space/ 100m^2 GFA	

This proposed modification requires amendments to the wording within Condition B1 of the concept approval. Condition B1 of the concept approval outlines the revisions required to be made to the UDGs prior to the lodgement of the first detailed development application for the Hills Showground Station Precinct. The purpose of this Section 4.55 (1A) modification is to ensure that the car parking provision in the Doran Drive Precinct is sufficient to enable a full-line supermarket to be provided without causing car parking to spill into surrounding residential streets and compromise the TOD) credentials of the precinct. No other modifications are proposed to the concept approval or the corresponding UDGs as endorsed.

2.5.2. Analysis of alternatives

The design of the project has been informed by the concept approval for the Hills Showground Station Precinct, which established the built form parameters to guide the future development of the site. Analysis of feasible alternatives to the proposal as described in Section 4 of this EIS, was undertaken as part of the preparation of the concept application for the Hills Showground Station Precinct. The site's suitability for the project and the built form outcome that it achieves were considered acceptable in the issuing of the concept approval by the NSW Minister for Planning and Public Spaces.

Development options

The concept application was subject to a rigorous design development process prior to its lodgement, which was overseen by the Landcom Design Directorate and the Government Architect NSW (GANSW) SDRP. This process involved an initial urban design and yield analysis undertaken by Hassell in 2018. The initial urban design and yield analysis was used to identify the upper yield achievable within the precinct. From a design perspective this upper yield did not result in the most desirable outcome but provided an indication of the development yield that could be achieved within this precinct. Following the establishment of this platform from which to consider a more rigorous design approach, various design options were explored for the precinct based on a set of six pre-determined principles, including:

1. Arrival to the precinct via public spaces;
2. Cohesion between public and private domain;
3. Defining the public realm with built form;
4. Maximising the public amenity;
5. Maximising the private amenity; and
6. Maximising the bushland shire outlook.

The more significant design refinements that were made to the concept following this exercise, included:

- A change to the internal road configuration to remove an internal road connection to Carrington Road to provide improvements in the provision of open space and public domain within the precinct, avoiding through traffic and creating a development that is more pedestrian orientated; and
- A better distribution of density across the site to be more consistent with the objectives of the precinct.

Additionally, HillPDA investigated two potential scenarios in relation to the viability of the non-residential uses, which informed the amount of non-residential GFA for which approval was sought as part of the application. The purpose of this economic research was to ensure that future developers can meet both a viable current market demand and a viable future market demand based on anticipated population growth.

Do nothing approach

The 'do nothing' option is not a feasible option for the site given its close proximity to Hills Showground Station, which has been in operation since 26 May 2019 when the MNWL first opened. The MNWL is the result of the accumulation of years of strategic planning and community engagement. The strategic context of the MNWL is discussed in detail within Section 3 of this EIS, which demonstrates that the MNWL is identified within various government strategies, policies and reports that also nominate the Hills Showground Station Precinct and other station precincts along the MNWL as TOD sites and a key contributor to the provision of more housing and jobs within The Hills Shire LGA. The absence of any development on the site would fail to meet the objectives of the strategic planning and result in the underutilisation of the land use opportunities that exist around the Hills Showground Station.

2.5.3. Key strategies to avoid or minimise the impacts of the project

The proposed development seeks to minimise and avoid impacts where possible by complying with the UDGs and plans that were approved as part of the concept application for the Hills Showground Station Precinct, which were prepared with consideration to the opportunities and constraints of the precinct. Additionally, the concept included the preparation of an EIS by Elton Consulting supported by various technical studies, which included a detailed assessment of the key issues as they related to the precinct.

In accordance with the SEARs that were issued by the DPIE on 9 October 2019 for the concept application, the key issues addressed within the EIS prepared by Elton Consulting included the following:

- Land use and density;
- Integration with Sydney Metro station infrastructure;
- Staging and subdivision;
- Built form, urban design and public domain;
- Design excellence;
- Visual impacts and view impacts;
- Amenity, including:
  - solar access/ overshadowing;
  - visual privacy; and
  - reflectivity;
- Noise and vibration;
- Heritage and archaeology;
- Aboriginal heritage;
- Traffic, transport and access;
- Ecological sustainable development;
- Soils and contamination;
- Flooding and stormwater;
- Biodiversity;
- Water sources and riparian corridor;
- Utilities; and
- Contributions and public benefits.

Based on the assessment that was undertaken of the environmental impacts of the concept application, the EIS concluded that potential impacts had been avoided, adequately justified or appropriately mitigated. Therefore, the land use, GFA mix, conceptual road and open space layout and building envelopes were considered to be capable of providing future development that is appropriate for the precinct.

Moreover, this EIS includes a detailed environmental impact assessment specific to the proposed development, which identifies measures to mitigate and manage potential impacts where required. These mitigation measures have been compiled following the review and consideration of the key issues raised by the SEARs and the recommendations of the various technical studies in responding to the SEARs. A table of the mitigation measures required for the proposed development is included at **Appendix 7**.

2.5.4. Other approvals

Clause 7(1)(d)(v) of the EP&A Reg requires an EIS include a list of any approvals that must be obtained under any other Act or law before the development, activity or infrastructure may lawfully be carried out. However, clause 4.41 of the EP&A Act "switches off" the application of these other approvals for SSDA. This includes any approvals under Sections 88,90 and 91 of the *Water Management Act 2000* (WM Act). If it were not for this clause of the EP&A Act then the proposed development would be integrated development as it would also require separate development consent under Section 91(2) of the WM Act due to dewatering being required during the excavation, construction and operation phases to manage groundwater.

However, the proposed development does include infrastructure upgrades that will require separate approval. These upgrades will likely include a waste water connection requiring approval from Sydney Water. Following the submission of this SSDA to the NSW Minister for Planning and Public spaces for approval, an application will be submitted to Sydney Water for an assessment against their servicing requirements. Sydney Water will then issue a Notice of Requirements letter outlining any requirements. All works outlined in this letter will need to be completed before a Section 73 Compliance Certificate is issued. The proposed development also requires the provision of a new substation within the site boundaries and underground cables and conduits to connect the substation to the Endeavour Energy network. Approval from Endeavour Energy will be required for these proposed infrastructure upgrades, noting an application has also been submitted for their design requirements and a Design Brief received.

3. STRATEGIC CONTEXT

3.1. Justification for the project

3.1.1. Greater Sydney Region Plan

The Greater Sydney Region Plan (Region Plan) for Greater Sydney is called *A Metropolis of Three Cities*. It was released in March 2018 and is the first Region Plan prepared by the Greater Sydney Commission. It encompasses a global metropolis of three cities where it is envisioned people of Greater Sydney will live within 30 minutes of their jobs, education and health facilities, services and great facilities. The three cities are the Western Parkland City, the Central River City and the Eastern Harbour City.

Of these three cities the site is located within the Central River City in the Central City District. The Region Plan sets a housing target of 53,500 new dwellings within the Central City District over 5 years. It also sets a 20-year strategic housing target of 207,500 new dwellings for the Central City District. Specifically, the Region Plan identifies the Hills Showground Station Precinct (inclusive of the site) as a TOD.

An extract of the Greater Sydney Region Plan showing the site as a TOD is included at Figure 9 below.

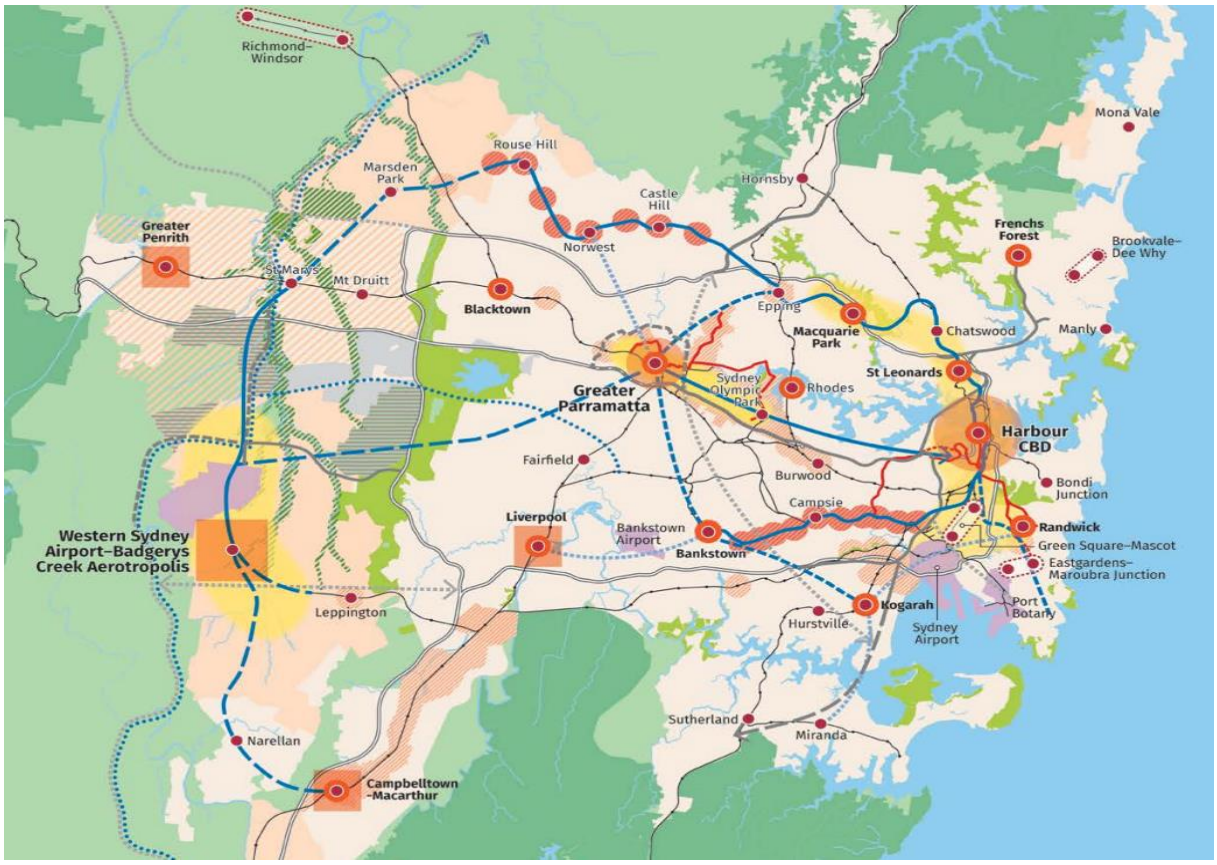

Figure 9: Greater Sydney Region Plan (Source: Greater Sydney Commission)

Refer to Table 4 for a detailed assessment of the proposed development against the Region Plan's objectives.

3.1.2. Central City District Plan

The site is located within the boundaries of The Hills LGA and therefore forms part of the Central City District. The Central City District also comprises the Blacktown, Cumberland and Parramatta LGAs. The Central City District Plan (District Plan) sets out a series of planning priorities and actions for improving the quality of life for residents, workers and visitors as the District grows and develops over the next 20 years. It is consistent with the Region Plan in identifying the Hills Showground Station Precinct as a TOD. Furthermore, it sets a 5-year housing target of 8,550 new dwellings for The Hills LGA, which represents approximately 16.5% of the housing target of 53,500 set by the Region Plan for the District. The District Plan notes that additional capacity for housing supply is well progressed across much of the District, with the Sydney Metro Northwest Urban Renewal Corridor one of a few current State-led initiatives that will contribute to the achievement of the Region Plan's housing targets set out for the District.

An assessment against the relevant planning priorities within the District Plan is provided at the table below, noting that the planning priorities relate specifically to the objectives identified within the Region Plan.

Table 4: Consistency with Region Plan and District Plan

Directions and objectives	Planning priority	Assessment
A city supported by infrastructure		
Objective 4: Infrastructure use is optimised	C1. Planning for a city supported by infrastructure	The proposed development will optimise use of the Hills Showground Station and wider MNWL by providing apartments consistent with the target yield established by the concept approval, which will increase the population within walking distance of a metro station. Combined with the efficient use of land through the co-location of residential, retail/ commercial and community spaces in a highly accessible these strategies will contribute to the Region Plan's core vision of creating a 30-minute city. A Green Travel Plan has a been prepared (**Appendix 9**), which will encourage the use of sustainable transport choices such as public transport, walking, cycling or a combination of these.
A city for people		
Objective 6: Services and infrastructure meet communities' changing needs	C3. Planning services and social infrastructure to meet people's changing needs	The proposed development has been designed to meet the needs of community now and into the future through the provision of Doran Drive Plaza, which is considered to be the main public domain area located within the Hills Showground Station Precinct. In complying with the minimum area required for the plaza by the concept approval, and being designed as a highly functional space, it is considered that this publicly accessible plaza will be able to meet people's changing needs. The proposed development also includes community spaces and will provide affordable housing. The proposed development has been designed to be accessible to people of all ages/ abilities, as is demonstrated by the Access Review that is included at **Appendix 10** of this EIS. The provision of a full-line supermarket and other retail/ commercial floor space has also been based on the findings of a Retail and Economic Assessment prepared by HillPDA for the concept application, which identified demand for a full-line supermarket within the precinct by 2026 and demand for 15,250m^2 of retail floor space by 2041.

Directions and objectives	Planning priority	Assessment
Objective 7: Communities are healthy, resilient and socially connected Objective 8: Greater Sydney's communities are culturally rich with diverse neighbourhoods Objective 9: Greater Sydney celebrates the arts and supports creative industries and innovation	C4. Fostering healthy, creative, culturally rich and socially connected communities	The proposed development will provide for a socially connected community through the activation of the streets at the ground level and the provision of formal and informal gathering spaces within both Doran Drive Plaza and the communal open space area at the podium level. This includes the deciduous tree grove and terraced seating steps within the plaza, which have the potential to be used for markets and an amphitheatre with integrated stage for performances. Social connections will also be enhanced through the community spaces provided. Moreover, the creation of a high-density mixed use precinct in a highly accessible location improves the opportunity for people to walk and cycle to school, work, local shops and other services. The safety, convenience and accessibility of walking and cycling trips has been enhanced through the integration of the proposed development with existing cycling and walking infrastructure, the provision of end-of-trip facilities and implementation of a lighting strategy (**Appendix 11**). By enhancing walking and cycling trips, the proposed development seeks to promote healthy lifestyles and reduced traffic congestion. A public artwork is proposed within Doran Drive Plaza, which will provide opportunities for artistic, cultural and creative expression and contribute to making this station precinct a great place to be in.
Housing the city		
Objective 10: Greater housing supply Objective 11: Housing is more diverse and affordable	C5. Providing housing supply, choice and affordability with access to jobs, services and public transport	The proposed development is consistent with these objectives of the Region Plan and associated planning priority from the District Plan in that it will provide a mix of 1, 2 and 3 bedroom apartments totalling four-hundred and thirty-one (431) apartments in a TOD adjacent a metro station, which will help to achieve the housing targets set by these plans for the District and the LGA. Additionally, a minimum 5% of the apartments are to be provided as affordable housing for at least 10 years and will be managed by Bridge Housing.

Directions and objectives	Planning priority	Assessment
Objective 12: Great places bring people together	C6. Creating and renewing great places and local centres, and respecting the District's heritage	The site has been subject to a place-making exercise as part of the concept approval, through the creation of the UDGs for the precinct. The proposed development has been designed to comply with the UDGs as demonstrated throughout this EIS and the appended plans and Design Integrity Report.
Objective 13: Environmental heritage is identified, conserved and enhanced		
Jobs and skills for the city		
Objective 14: A Metropolis of Three Cities - integrated land use and transport creates walkable and 30-minute cities	C9. Delivering integrated land use and transport planning and a 30-minute city	Refer to the response to Objective 4 in this table.
Objective 22: Investment and business activity in centres	C10: Growing investment, business opportunities and jobs in strategic centres	The proposed development forms part of a new local centre located within The Hills LGA, noting it is intended to be the focal point of this local centre. In doing so it will support the centre hierarchy, including the strategic centres of Castle Hill and Rouse Hill along the MNWL urban corridor.
A city in its landscape		
Objective 25: The coast and waterways are protected and healthier.	C13. Protecting and improving the health and enjoyment of the District's waterways	Erosion and sediment control measures are to be implemented during the construction of the proposed development to minimise any potential impacts on the nearby waterway of Cattai Creek. Water sensitive urban design (WSUD) have also been integrated into the stormwater management system for the proposed development as detailed within the Stormwater Management Plan (**Appendix 12**).
Objective 30: Urban tree canopy cover is increased	C16. Increasing urban tree canopy cover and delivering Green Grid connections	The proposed development includes the provision of landscaped public and private communal open spaces on the ground, podium and roof that achieve 40-45% tree canopy cover. Doran Drive Plaza will contribute to delivering Green Grid connections by providing a publicly accessible landscaped link between the Hills Showground Station and Castle Hill Showground. The proposed development has also been designed to be integrated with the existing walking and cycling infrastructure and future links to Cattai Creek via future Showground Precinct West.
Objective 32; The Green Grid links parks, open spaces, bushland, and walking and cycling paths		

Directions and objectives	Planning priority	Assessment
Objective 31: Public open space is accessible, protected and enhanced	C17. Delivering high quality open space	Doran Drive Plaza has been designed as a high quality open space are as discussed in detail within Section 2 of the Design Excellence Report (**Appendix 6**).
An efficient city		
Objective 33: A low-carbon city contributes to net-zero emissions by 2050 and mitigates climate change	C19. Reducing carbon emissions and managing energy, water and waste efficiently	The UDGs establish sustainability controls to guide the design of the Hills Showground Station Precinct at the development application stage, including a minimum 5-star Green Star rating, and energy and water targets for NABERS and BASIX. The proposed development has been designed to comply with these controls or have the ability to comply with these controls as detailed in the Environmental Performance and ESD Report (**Appendix 13**) and BASIX Report (**Appendix 14**). Refer to these reports for further details.
Objective 34: Energy and water flows are captured, used and re-used		
Objective 35: More waste is re-used and recycled to support the development of a circular economy		
A resilient city		
Objective 36: People and places adapt to climate change and future shocks and stresses	C20. Adapting to the impacts of urban and natural hazards and climate change	Measures to mitigate against climate changes and future shocks and stresses include the implementation of the sustainability initiatives recommended within the Environmental Performance and ESD Report included at **Appendix 13**. The proposed development will not be affected by flooding from Cattai Creek to the west of the site. The proposed development has been designed to mitigate the impacts of the heat island effect through the provision of 40-45% canopy cover within public and private communal open space areas, shading devices/ structures and awnings. However, awnings will provide protection from the weather at all times of the year and not just summer.
Objective 37: Exposure to natural and urban hazards are managed		
Objective 38: Heatwaves and extreme heat are managed		

3.1.3. The Hills Local Strategic Planning Statement

The Hills Shire Council's (Council) Local Strategic Planning Statement (LSPS) is called *Hills Future 2036*. The LSPS was made on 6 March 2020 and responds to the vision and actions of the District Plan. It sets a 5-year housing target of 9,500 which is more than the target set by the District Plan. Specifically, the LSPS sets a target of 7,000 plus new dwellings within the Hills Showground Station Precinct to 2036,

noting higher density housing must be provided in areas connected to transport and other urban services.

Consistent with the Region Plan and District Plan in identifying Hills Showground Station Precinct as a TOD site, the LSPS notes that Sydney Metro station precincts are being planned using transport-orientated design principles that provide for a mix of land uses, increased walkability and public domain improvements.

The proposed development is consistent with the following planning priorities identified within the LSPS:

- Planning Priority 2: Build strategic centres to realise their potential;
- Planning Priority 6: Plan for new housing to support Greater Sydney's growing population;
- Planning Priority 7: Plan for new housing in the right locations;
- Planning Priority 8: Plan for a diversity of housing;
- Planning Priority 9: Renew and create great places;
- Planning Priority 10: Provide social infrastructure and retail services to residents' needs;
- Planning Priority 12: Influence travel behaviour to promote sustainable choices;
- Planning Priority 15: Provide new and upgraded passive and active open spaces;
- Planning Priority 17: Protect areas of high environmental value and significance;
- Planning Priority 18: Increase urban tree canopy;
- Planning Priority 19: Manage natural resources and water responsibly; and
- Planning Priority 20: Prepare residents for environmental and urban risks and hazards.

These planning priorities given effect to the planning priorities that were identified within the Distract Plan, noting the proposed development's consistency with the District Plan is demonstrated in Table 4 above.

3.1.4. Future Transport Strategy

The *Future Transport Strategy 2056* is an update of the *NSW Long Term Transport Master Plan 2012.* It is a 40-year strategy that is supported by plans and strategies for regional NSW and Greater Sydney, which have been prepared to achieve a long-term vision for the NSW transport system as an *"…enabler of economic and social activity and contributes to long term economic, social and environmental outcomes".* The vision established by the *Future Transport Strategy 2056* is built on the following six outcomes:

- Customer focused,
- Successful places,
- A strong economy,
- Safety and performance,
- Accessible services, and
- Sustainability.

These outcomes provide a framework to guide planning, investment, policy, reform and service provision, aimed at harnessing rapid change and innovation to support a modern, innovative transport network.

The Future Transport Strategy 2056 identifies the MNWL as part of the city-shaping network, providing high speed and volume public transport connections between cities and centres that shape locational decisions.

The proposed development is consistent with outcomes of *Future Transport Strategy 2056* in that it will:

- Facilitate the redevelopment of land for a transit-orientated and high-density mixed precinct that is located adjacent the Hills Showground Station in accordance with government policy and investment, noting that the MNWL is one of the largest public infrastructure projects within Australia.
- Capitalise on the environmental, economic and social benefits associated with the MNWL, including increased accessibility and reduced travel times for existing and future residents and workers.
- Be consistent with the UDGs prepared by Cox Architecture for the Hills Showground Station Precinct, thereby creating high-quality streets and public domain areas that provide a sense of place by creating a safe, vibrant and active area that links to the Hills Showground Station and massing that considers public and private views and solar access to Doran Drive Plaza at ground level.
- Provide car parking in accordance with the reduced residential rates established within the UDGs.

3.1.5. North West Rail Link Corridor

The *North West Rail Link Corridor Strategy* (Corridor Strategy) was released in September 2013. The Corridor Strategy was prepared by the then Department of Planning and Environment (DPE) and Transport for NSW (TfNSW) in collaboration with the relevant councils and state government agencies. It was prepared to guide future development along the NWRL urban corridor over the next 20 years, with the aim of engaging with the community, landowners and state and local government agencies to identify future visions for precincts surrounding the eight stations located along the NWRL urban corridor and establishing frameworks for realising these visions and managing future land use change. The Corridor Strategy was also prepared to allow infrastructure agencies to identify, prioritise and coordinate the delivery of infrastructure upgrades in accordance with each precinct's long term growth potential. The Corridor Strategy notes that the Hills Showground Station Precinct is to be underpinned by TOD principles, with the Structure Plan that was prepared for this station precinct identifying the site for mixed-use.

An extract of the Structure Plan for the Showground Road Precinct can be viewed at Figure 10 below.

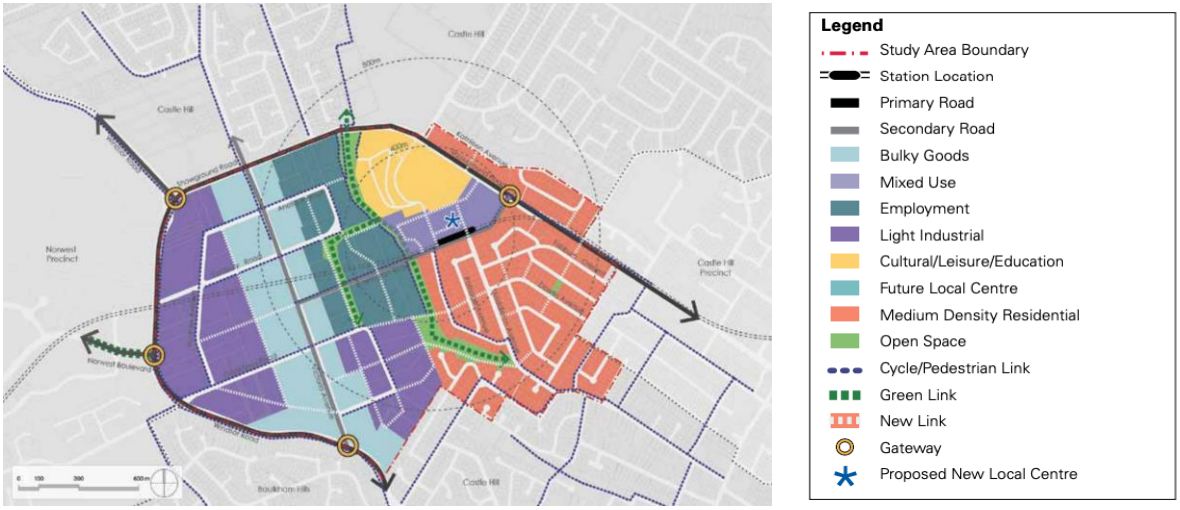

Figure 10: Showground Structure Plan (Source: DPE/ Transport for NSW)

The introduction of a station within this precinct and in the location identified on the Structure Plan, was considered to have the potential to provide the catalyst for the development of the area as a mixed-use centre with strong public transport links to the city and other centres throughout the north-west region, which would see the area evolve into a vibrant and active centre that comprises offices, retailing, community facilities, recreation, cultural, leisure, education and housing within walking distance of a new station.

The proposed development is consistent with the Structure Plan for the then Showground Road precinct, in that it provides for a mix of residential, commercial/ retail, community and leisure (i.e. public open space) uses located directly opposite and within very easy walking distance of the Hills Showground Station.

3.1.6. Showground Station Precinct Rezoning

The Corridor Strategy and Structure Plan for the Hills Showground Station precinct were used to inform a proposal to change the planning controls applicable to the precinct in terms of zoning, height and floor space.

State Environmental Planning Policy Amendment (Showground Station Precinct) 2017 was approved in 2017, which amended the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) and the former The Hills Local Environmental Plan 2012 (THLEP) (now THLEP 2019), to:

- Identify development in the Hills Showground Station Precinct as State Significant Development (SSD).
- Rezone the Hills Showground Station Precinct under THLEP with new statutory planning controls, including a 5,000 cap on the maximum number of residential dwellings on land within the precinct.

Specifically, the new statutory planning controls contained within the THLEP in relation to the site included:

- Rezoning the site to B2 Local Centre,
- Increasing the maximum building height to 68 metres, and

- Increasing the floor space ratio (FSR) to 4:1.

The proposed development is consistent with these new statutory controls as discussed in Section 5.4.

3.1.7. Other strategic planning policies

The proposed development has been considered against the relevant strategic policies as per the SEARs. The proposed development has been assessed and found to be generally consistent with these. A summary of the assessment of the proposed development against these policies is provided at Table 5.

Table 5: Strategic planning policies

Strategic planning policy	Response
NSW State and Premier Priorities	The proposed development is consistent with the following state priorities, which have been developed to enhance the quality of life of people in NSW: ▪ Greener public spaces; and ▪ Greening our city. The proposed development is consistent with these State priorities through the provision of a heavily landscaped Doran Drive Plaza area and communal open spaces that provide for increased tree canopy cover and a new green connection between the metro station and Castle Hill Showground.
State Infrastructure Strategy 2018	The proposed development is consistent with State Infrastructure Strategy 2018 in that it promotes the integration of land use and infrastructure planning through the provision of a high-density mixed-use development in a highly accessible location adjacent to a metro station along the MNWL corridor.
Better Placed	Better Placed identifies seven objectives for achieving good design. The proposed development is consistent with these various objectives in that it will: ▪ Comply with the UDGs established and endorsed as part of the concept approval, which established the urban design framework for the site, considering the context of the site and its opportunities and constraints. ▪ Be designed in accordance with best practice sustainability practices as detailed within the Environmental Performance and ESD Report (**Appendix 13**), including the requirements of Green Star, NABERS and BASIX. ▪ Provide opportunities for social interaction in the residential communal open spaces, the publicly accessible Doran Drive Plaza, activated ground floor plane and street interface and multiple community spaces. ▪ Provide a safe place for all having been designed in accordance with the Crime Prevention Through Environmental Design (CPTED principles, as detailed within the CPTED Assessment that is included at **Appendix 15**. ▪ Provide high quality public domain and residential communal open spaces that have been designed to provide a high level of functionality and informal gathering areas that to cater to the changing needs of the community.

Strategic planning policy	Response
	▪ Create and add value to the Hills Showground Station Precinct by providing high quality residential apartments and public domain areas, which will be constructed to comply with the relevant building regulations, thereby ensuring the longevity of the proposed development. ▪ Create an engaging, inviting and attractive place via a high quality public domain, active streets and a street wall height that creates a human scale. Enhanced amenity is also provided through significant landscaping.
Draft Greener Places Design Guide	The draft Greener Places Design Guide prepared by GANSW establishes a framework to design, plan and implement green infrastructure in urban areas. The proposed development is consistent with the Guide's objectives, including: ▪ Provide high quality and significantly landscaped communal open spaces at the ground, podium and rooftop levels of the proposed development, with Doran Drive in particular providing a green link that provides a connection from Hills Showground Station to Castle Hill Showground. These spaces have been designed to be highly functional. ▪ Significantly increasing the site's tree canopy cover compared to existing, which will help to ameliorate the urban heat island effect on the site.
Draft Connecting with Country	The draft Connecting with Country framework seeks to help develop connections to Aboriginal culture in the planning and design of the built environment. The proposed development seeks to provide a connection to country the implementation of public art as described in detail within Section 4.10. Public art is proposed within Doran Drive Plaza in the form of a water fountain, which represents the importance of Water to Aboriginal life, noting the site of the proposed development is within close proximity to Cattai Creek. The proposed water feature is also intended to serve as a bird bath, with companion planting to provide shelter and food for various local bird species.
Crime Prevention Through Environmental Design Principles	The CPTED principles of surveillance, access control, territorial reinforcement and space management have been considered in the design of the proposed development as discussed in detail within Section 7.3.4 of this EIS and the CPTED Assessment prepared by Barker Ryan Stewart (**Appendix 15**).

3.2. Key features of the site and surrounds

The Doran Drive Precinct is the first precinct within the wider Hills Showground Station Precinct to be developed. Hills Showground Precinct West will be the next precinct developed followed by Precinct East. Hills Showground Precinct West will comprise mixed-use development of a similar scale to the proposal, providing a maximum apartment yield of 307 units and a maximum overall GFA of 29,146m^2. Hills Showground Precinct East will comprise residential apartments with a maximum yield of 873 units, as well as new public open space in the form of a park that is to have a minimum area of 3,500m^2. Collectively, it is intended that the redevelopment of the precinct will transform the area around Hills Showground Station into a vibrant local centre that provides a mix of housing and new open space areas.

The site is located immediately adjacent to Hills Showground Station as one of the stations along MNWL. The site is also immediately adjacent to the Castle Hill Showground as the home of the Castle Hill Show. Castle Hill Showground is not currently listed as a heritage item but is considered to be a potential item, noting that previous heritage investigations have identified it as having cultural significance at a local level.

There are no risks or hazards for the site such as flooding, bushfire, contamination, steep slopes and potential landslips, mine subsidence, coastal hazards and climate that would preclude the project from occurring.

3.3. Cumulative impacts

Based on the detailed environmental impact assessment that is included within Section 7 of this EIS, it is considered the proposed development on its own or in conjunction with other development in the locality, does not give rise to any cumulative environmental impacts that cannot be appropriately managed through the implementation of the mitigation measures that are identified within **Appendix 7**.

The proposed development is consistent with the concept approval for the Hills Showground Station Precinct, which has already considered potential cumulative impacts of the proposed and surrounding development. This included potential cumulative impacts of the concept application in terms of traffic. The Traffic and Transport Impact Assessment prepared by SCT Consulting in support of SSD-9653 indicates that the Showground Road and Carrington Road upgrades that are already proposed provide sufficient capacity for the cumulative impacts of the Hills Showground Station Precinct up to 2031, and that the concept approval does not trigger the need for any additional infrastructure by itself. The proposed development is consistent with the residential and GFA yields set by the concept approval. Therefore, the conclusions in relation to the cumulative impacts arising at the concept stage remain relevant.

A Section 4.55 (1A) Modification Application has been prepared to modify the car parking rates for retail and commercial uses as identified within the UDGs endorsed as part of the concept approval. A Transport and Parking Assessment has been prepared by JMT Consulting in support of the proposed modification, with the forecast level of traffic generated by the proposed modifications included at Figure 11. Noting that the proposed modifications result in 22% less vehicle trips compared to the concept approval, the JMT Consulting's Transport and Parking Assessment concludes that the Section 4.55 (1A) Modification Application will not adversely impact on the operation of the surrounding road network, nor will it undermine the findings of the Traffic and Transport Impact Assessment supporting the concept approval.

Number of car parking spaces	Vehicle trips per parking space	Passing trade discount	PM peak hour traffic generation (retail)		
			Current assessment with 341 parking spaces	Assumed for Concept SSDA	% reduction compared to Concept SSDA
341	2.0	25%	512	662	-22%

Figure 11: Forecast traffic generation with 341 retail and commercial car parking spaces (Source: JMT Consulting)

4. PROJECT DESCRIPTION

4.1. Project overview

A simple overview of the project that is the subject of this application is provided in Section 2.1 of this EIS, with a summary of the main elements that contribute to the overall project included in Table 6 below.

Table 6: Project summary

Project element	Summary of project
Project site area	7,969m^2
Site description	Lot 55 DP 1253217
GFA	Total: 51,064m2 ▪ Residential: 40,125m2 ▪ Non-residential: 10,939m2
Residential apartments	Total: 431 ▪ 1 bedroom: 77 ▪ 2 bedroom: 311 ▪ 3 bedroom: 43
Affordable Housing	22 apartments (Minimum 5%)
Maximum height	68 metres/ 20 storeys
Total parking spaces	Total: 772 ▪ Residential: 431 ▪ Retail: 341
Motorcycle parking	18 motorcycle parking spaces
Bicycle parking	204 bicycle parking spaces
Construction hours	7am to 6pm (Monday to Friday) 7am to 5pm (Saturday) No work on Sundays and Public Holidays
Communal open space (public)	1,400m^2
Communal open space (private)	2,426.9m^2
Capital investment value	$171,884,179 (Refer to Quantity Surveyor's Report at **Appendix 16**)

The Architectural Package prepared by Turner and the following sections of this EIS provide additional details.

4.2. Project area

The land on which the project will be located has a street address of 2 Mandala Parade, Castile Hill and is bounded by De Clambe Drive, Mandala Parade, Andalusian Way and Doran Drive as shown in Figure 12.

Figure 12: Aerial view of site - site outlined in orange (Source: Nearmap)

The project area comprises a single allotment that is legally described as Lot 55 in Deposited Plan (DP) 1253217, with a site area of 7,969m^2 based on the boundary dimensions that are included in Table 7 below.

Table 7: Site dimensions

Boundary	Frontage	Dimension (metres)
North	De Clambe Drive	103.545
South	Mandala Parade	104.725
East	Andalusian Way	63.705
West	Doran Drive	62.76

Source: Daw & Walton Consulting Surveyors

Refer to the Detail Survey prepared by Daw & Walton Consulting Engineers (**Appendix 17**) for further details.

4.3. Disturbed area

All land within the project area identified in this section will be physically disturbed as part of the project. Some minor works are also proposed within the public domain area along Mandala Parade, specifically where the existing pedestrian crossing is located between the site and the Hills Showground Station entry. These minor works include the slight widening off the existing pedestrian crossing to its east, which will require the removal of an existing street tree and some shrubs and their replacement with hardstand. The works are proposed to improve the permeability and connectivity of the ground floor plane.

4.4. Environmental constraints

The project area comprises vacant land and as such it is affected by minimal environmental constraints. The most significant environmental constraint affecting the site is its topography as detailed in following section.

4.4.1. Topography

The project area land gently slopes downwards from Andalusian Way in the east to Doran Drive in the west. As per the Detail Survey prepared by Daw & Walton Consulting Engineering (**Appendix 17**), the site decreases from a high point of Reduced Level (RL) 98.13 metres Australian Height Datum (AHD) at the site's north-eastern corner at the Andalusian Way/ De Clambe Drive intersection to a low point of RL 89.24 metres AHD in the site's south-western corner at the De Clambe Drive/ Doran Drive intersection. This equates to a maximum level change of 8.89 metres across the site in an east-west direction.

4.5. Architectural Intent

Turner has sought to design a vibrant mixed-use development underpinned by TOD principles, which responds to the character of the area through the integration of landscaping elements where possible, and the use of brick as the primary material in reference to the material palette traditionally used in this locality. A highly activated streetscape, permeability of the retail tenancies, multiple building entries, awnings and the provision of the generously landscaped and publicly accessible Doran Drive Plaza will provide a memorable, enjoyable and highly functional space for residents, workers and visitors of the precinct. These elements seek to reinforce the role of the development as the active heart of the precinct.

The podium forms the base of the development and has been designed to avoid a single big box retail solution through a series of smaller scale buildings that range in height from 2-4 storeys and vary in character. Collectively, this grouping of buildings creates a dynamic, fine-grain and interesting streetscape. Above the podium sits four residential tower buildings that further inform the streetscape below.

Each of the four buildings has been designed with its own individual expression and architectural character. Buildings A and D sit above the podium and have a horizontal emphasis to the façade design, while Buildings B and C partly come to the ground at the street corners and promote a vertical façade language. However, these buildings still sit comfortably together as a cohesive and familial group of buildings.

Refer to the Design Excellence Report prepared by Turner (**Appendix 6**) for details of the architectural intent.

4.6. Built Form and Urban Design

The project consists of four residential towers located above a highly articulated podium that contains retail tenancies, a supermarket, residential/ commercial lobbies, loading facilities and community spaces. An internal elevation showing the configuration of these uses is demonstrated in the following figure.

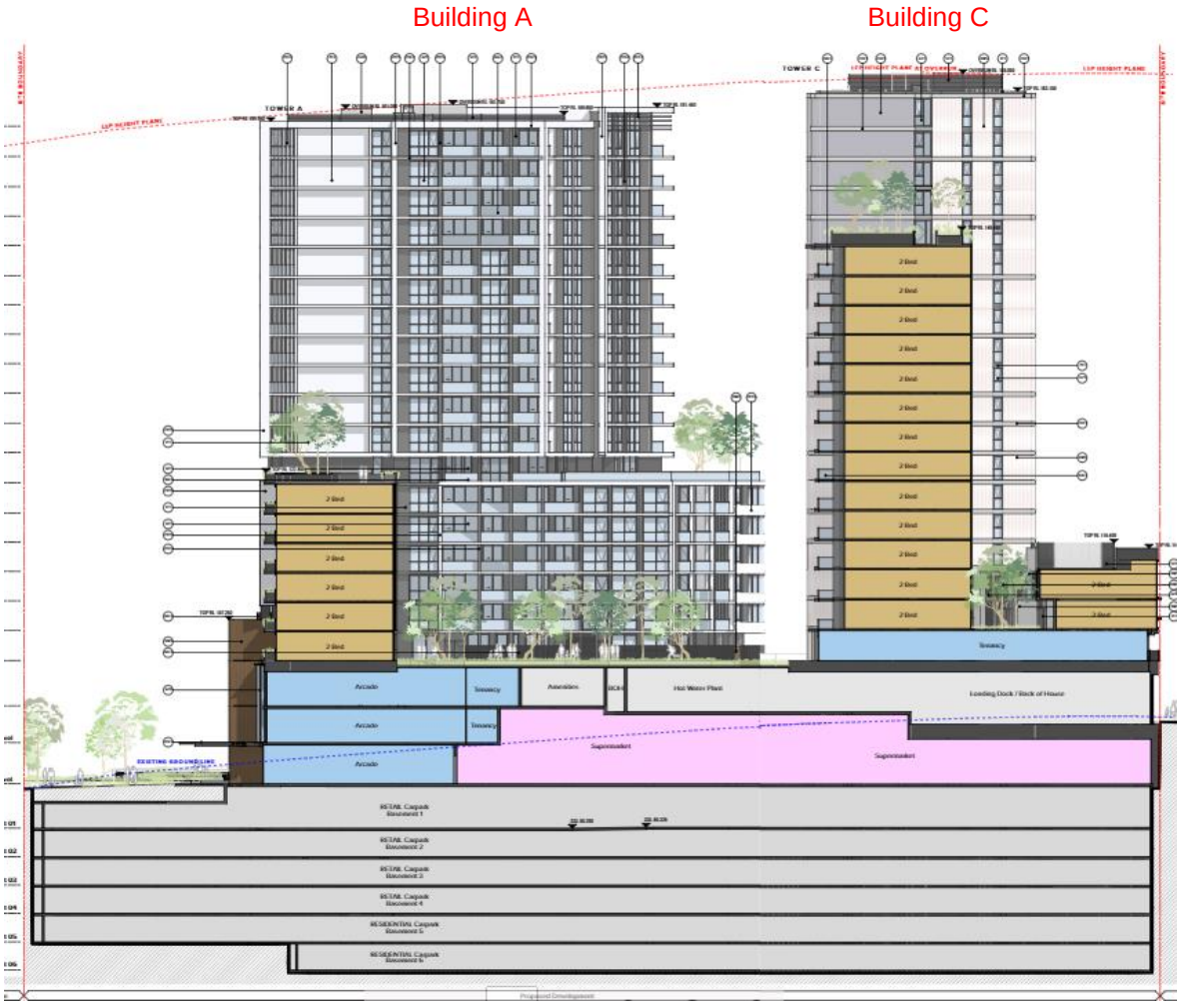

Figure 13: Internal elevation A & C (Source: Turner)

The built form of the development responds to the concept approval for the Hills Showground Station Precinct, which established the building envelopes and landscape outcomes for the site, including building height, street wall height, setbacks, building separation and the location and size of Doran Drive Plaza.

The building envelopes for Doran Drive Precinct originally envisaged two towers as part of the concept approval. However, the development seeks to improve on this by breaking down the massing further and creating four towers above the podium that anchor the street corners and complement the ground

plane. The evolution of the built form from concept to proposed is shown in Figure 14 and Figure 15, respectively.

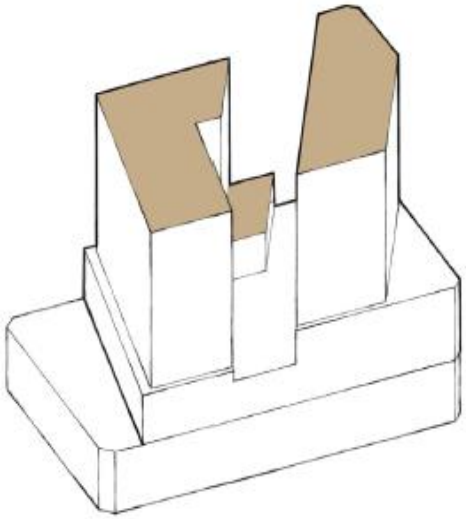

Figure 14: Concept building envelope (Source: Turner)

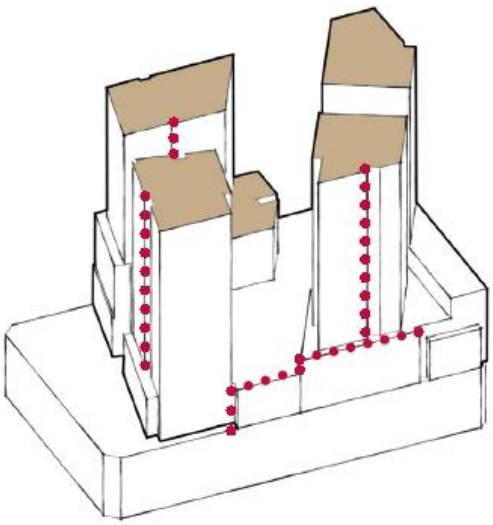

Figure 15: Proposed built form (Source: Turner)

The four buildings in plan view are included in the roof level plan extract that can be viewed at Figure 16.

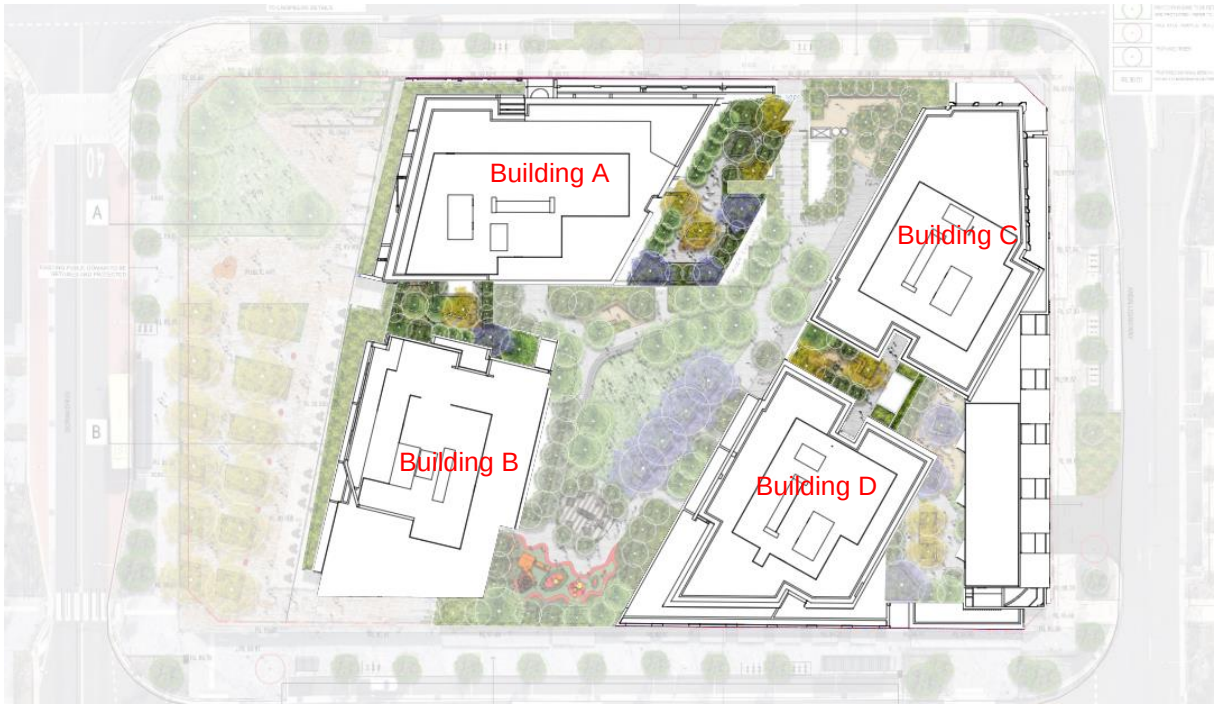

Figure 16: Roof level plan (Source: Turner)

The urban design framework for the proposed development was established by the endorsed UDGs. A detailed assessment of the proposed development's compliance against the UDGs prepared by Cox Architecture and Oculus is contained within the Design Integrity Report prepared by Turner included at **Appendix 5**.

4.7. Materials and finishes

The selected materials and finishes contribute to the individual expression of each of the four buildings. Brick is the primary material used as the material palette that is traditionally used within this locality. The full material palette that has been incorporated into the design of the development is included at Figure 17.

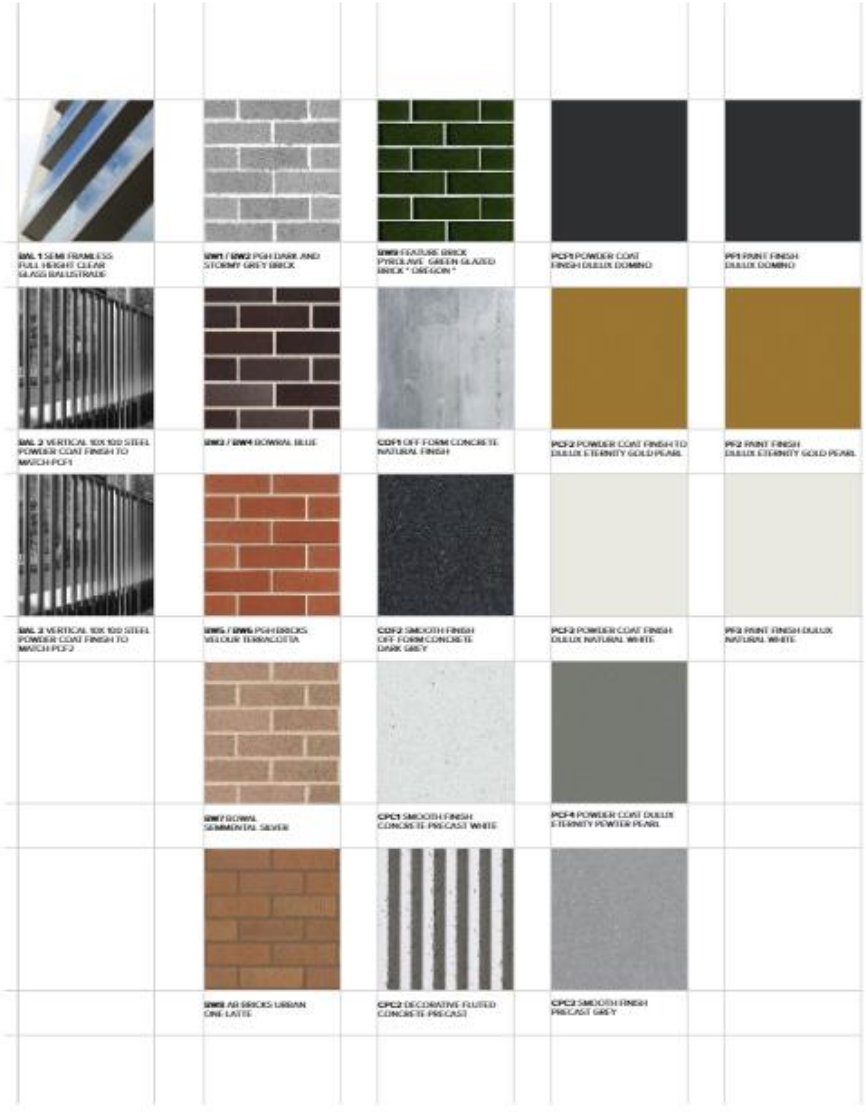

Figure 17: Material and colour schedule (Source: Turner)

4.8. Landscaping, Communal Open Spaces and Public Domain

The proposed development includes the provision of a new and significant landscaping throughout the site. Landscape Plans and a Landscape Report have been prepared by Urbis (**Appendix 18**). These identify the principles that underpin the design of the landscaped areas as summarised in Table 8 below.

Table 8: Landscape design principles

Design Principle	
Community	▪ Outdoor rooms ▪ Connectivity ▪ Community gatherings ▪ Sense of place ▪ Play ▪ Active recreation ▪ Retail ▪ Pop up spaces and community facilities ▪ Active/ passive open space ▪ Communal open space (public and private)
Haven	▪ Increase urban canopy ▪ Improve green infrastructure ▪ Retreat ▪ Water - Water Sensitivity Urban Design (WSUD) ▪ Soft ▪ Nature ▪ Engaging ▪ Native ▪ Biodiversity ▪ Habitat
Place	▪ Local identity ▪ Public art ▪ Series of outdoor rooms ▪ Active engaging spaces ▪ Various programs for a diversity of uses and demographics ▪ Active/ passive open space ▪ Flexible spaces

4.8.1. Doran Drive Plaza

The 1,400m^2 Doran Drive Plaza is an important open space area for the Hills Showground Station Precinct, noting that its provision is a requirement of the recent concept approval for the wider precinct. Its main purpose is to provide a connection between Showground Station and Castle Hill Showground; however, it is also intended to provide an activated and comfortable space for people to use and inhabit

daily. The plaza includes the following built and natural features for it to be able to serve its various functions:

- A central open lawn area to cater for informal recreation and small events;
- Active retail edge to the east with opportunities for outdoor dining;
- Shade trees and low-level planting;
- Lighting;
- Paved circulation spaces, including:
  - A 3-metre-wide footpath adjacent Doran Drive Plaza; and
  - A 6-metre-wide pedestrian connection along the eastern edge.
- Opportunities for public art and interpretation.

The ground level landscape plan showing the landscape design for Doran Drive Plaza is extracted at Figure 18.

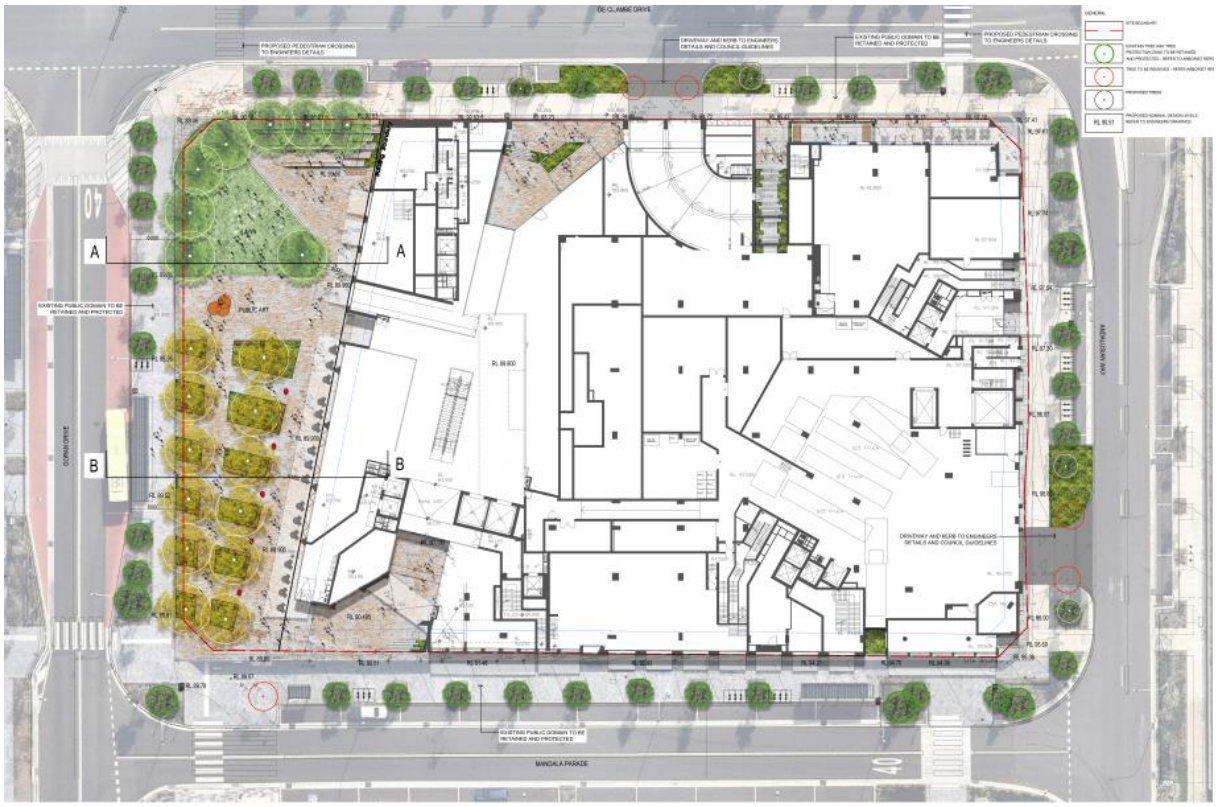

Figure 18: Ground level landscape plan (Source: Urbis)

The plaza will remain under the private ownership of Deicorp but will be accessible to the public at all times.

4.8.2. Communal open space areas

Communal open spaces areas for residents are to be provided at Levels 2, 3, 8 and 16 of the project. Details in relation to the size of these areas and their built and natural features are included in Table 9.

Table 9: Communal open space areas

Communal open space area	Size	Features
Level 2 (Podium)	1,500m^2	▪ Raised central lawn space ▪ Community gardens ▪ Green stairs with integrated amphitheatre edges ▪ BBQ pavilion ▪ Children's playground ▪ Seating areas ▪ Cascading planters to building edges
Level 3	456m^2	▪ Raised planter edges to private open space ▪ Seating areas ▪ Raised timber pods and breakout spaces ▪ Cascading planters to building edges
Level 8	345m^2	▪ Raised planter edges to private open space ▪ Seating areas ▪ Raised timber pods and breakout spaces
Level 16	125.9m^2	▪ Raised planter edges to private open space ▪ Seating areas

The landscape plans showing the landscape design for Levels 2, 3 8 and 16 are extracted in the figures below.

Figure 19: Level 2 landscape plan (Source: Urbis)

Figure 20: Level 3 landscape plan (Source: Urbis)

Figure 21: Level 8 landscape plan (Source: Urbis)

Figure 22: Level 16 landscape plan (Source: Urbis)

4.8.3. Lighting

The lighting strategy for Doran Drive Plaza and the communal open spaces is proposed to include the following:

- Under bench lighting;
- Sculptural pole top luminaries;
- Under awning downlights;
- Adjustable spots within planters;
- Integrated lighting within overhead external structures;
- Feature planting within planters with a downward distribution;
- Bollard lighting;
- Pathway lighting for intuitive way findings; and
- Integrated downward lighting.

Refer to the Lighting Report prepared by JHA Consulting Engineers and included at **Appendix 11** for further details on the lighting strategy for the proposed development and its various open space areas.

4.9. Tree Removal

The public domain within the Hills Showground Station Precinct has already been constructed and as such, did not take into account the future detailed design of the development for the Doran Drive Precinct. A total of five (5) street trees are proposed to be removed to make way for the proposed vehicular and servicing entry/ exits along the site's De Clambe Drive and Andalusian Way frontages, as well as facilitate the increasing in width of the existing pedestrian corner at the western end of Mandala Parade. The street trees that are proposed to be removed are indicated on the ground level landscape plan.

4.10. Public Art

The UDGs for the concept approval identify Doran Drive Plaza as a location for public art. Accordingly, a Public Art Strategy has been prepared by CK Stathum and Jenifer Turpin and is included at **Appendix 19**. The Public Art Strategy proposes the engagement of renowned Australian artist Jennifer Turpin to create a permanent public artwork that gives expression to both the precinct's cultural and environment context.

The opportunity has been identified within the Public Art Strategy to provide public art in the form of a fountain. The fountain is intended to merge the forms of a classical tiered fountain and a bird bath, forming an ambitious and playful water sculpture that offers residents and visitors a connection to native life.

The water-based artwork will be located in a central position in Doran Drive Plaza as shown in Figure 23.

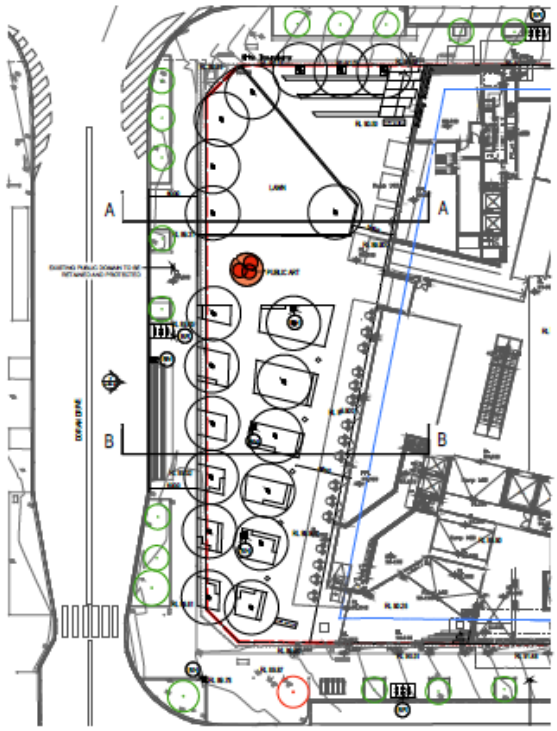

Figure 23: Public art location (Source: CK Stathum/ Jenifer Turpin)

4.11. Retail and Commercial Spaces

The development provides for a total of 10,939m^2 of non-residential floor space across four levels. The majority of this floor space is intended to comprise a mix of different retail and commercial tenancies, with the remaining portion of floor space being going towards community spaces as detailed in Section 4.12. The podium and ground plane have been skilfully designed to ensure the retail and commercial components create a vibrant and active retail mall that forms of the foundations of this new local centre. The location of the retail tenancies along the street edges and Doran Drive Plaza will activate the streetscape.

The retail mall will be anchored by a full-line supermarket that is supported by various other uses that is likely to include food and beverage, a medical centre and/ or other health-related uses, child care and a gym. The fit-out of the retail is shown on the fit-out plans prepared by D+R and included at **Appendix 20.**

Consent is sought as part of this application for the fit-out of the supermarket as per the plans at **Appendix 21**. A Supermarket Plan of Management has also been prepared and is included at **Appendix 22**.

Consent is not sought as part of this application for the use and fit out of the other retail/ commercial tenancies. This will be the subject of future use and fit out applications submitted to Council where relevant. Nonetheless, a preliminary Shopping Centre Operational Management Plan is included at **Appendix 23**, which includes details in relation to the measures to be adopted for retail mall's ongoing management.

4.12. Community Spaces

The project includes the provision of two (2) community spaces with a total area of 543.06m^2. Deicorp, through their community sponsorship and charitable program known as Deicorp Community, has established a sponsorship agreement with local community services provider Hills Community Aid (HCA). Through this agreement Deicorp will continue to support HCA and the services it provides by providing free use of the community spaces for a minimum five years after the completion of the project.

One community space is located at Level 1 of the development and fronts directly into De Clambe Drive. The other is located at Level 2 of the development and is accessed via the commercial lobby off Mandala Parade. The locations of these spaces within the development are extracted at Figure 24 and Figure 25.

Figure 24: Level 1 community facility (Source: Turner)

Figure 25: Level 2 community facility (Source: Turner)

4.13. Residential

The dwelling target for the development is set by the stamped plans for the concept approval, which established a maximum of four-hundred and forty (440) apartments for Doran Drive Plaza. The development provides for a total of four-hundred and thirty-one (431) apartments and therefore complies. The mix of apartments is further established by the Urban Design Guidelines for the concept approval, which specify that no more than 25% of dwellings are to be a studio or 1-bedroom dwelling (or both) and at least 10% of the total number of dwellings will comprise dwellings with 3 or more bedrooms. The dwelling mix within each of the four buildings and the overall development is included at Table 10.

Table 10: Dwelling mix

Building	1 bed	2 beds	3 beds
A	28	81	19
B	21	77	1
C	2	83	23
D	26	70	0
TOTAL	77 (17.8%)	311 (72.2%)	43 (10%)

4.13.1. Affordable Housing

The concept approval requires that a minimum of 5% of all dwellings be provided as affordable housing. The development will include the provision of twenty-two (22) dwellings as affordable housing, which is compliant with the minimum established by the Urban Design Guidelines for the concept approval. The affordable housing will remain as such for a minimum 10 years from the date of occupation and will managed for the duration of these 10 years by Bridge Housing who are a registered community housing.

4.14. Access and Parking

4.14.1. Parking

All parking for the mixed-use development will be provided underground within six (6) levels of basement. A breakdown of the car, motorcycle and bicycle parking level by level is provided in Table 11 below.

Table 11: Parking provision breakdown

Basement Level	Parking Provision	No. of accessible car parking spaces
1	▪ 83 retail car parking spaces ▫ 4 parents with prams car spaces ▫ 79 retail spaces (inc. accessible spaces) ▪ 24 retail bicycle parking spaces (inc. end of trip facilities)	2
2	▪ 130 retail car parking spaces ▫ 5 parents with prams car spaces ▫ 21 Tenancy 1 car spaces ▫ 104 retail car spaces (inc. accessible spaces) ▪ 4 retail motorcycle parking spaces	3
3	▪ 128 retail car parking spaces ▫ 5 parents with prams car spaces ▫ 98 retail car spaces (inc. accessible spaces) ▫ 8 car share spaces ▫ 12 staff car spaces ▫ 5 staff car spaces (supermarket) ▪ 4 retail motorcycle parking spaces ▪ Car wash zone	2
4	▪ 159 residential car parking spaces ▪ 10 residential motorcycle parking spaces ▪ 26 residential bicycle parking spaces ▪ 38 visitor bicycle parking spaces ▪ 1 car wash bay	14
5	▪ 165 residential car parking spaces ▪ 60 residential bicycle parking spaces	14
6	▪ 106 residential car parking spaces ▪ 60 residential bicycle parking spaces	15
TOTAL	▪ 772 car parking spaces ▫ 431 residential car parking spaces ▫ 341 retail car parking spaces ▪ 18 motorcycle parking spaces ▫ 10 residential motorcycle parking spaces	50

Basement Level	Parking Provision	No. of accessible car parking spaces
	▫ 8 retail motorcycle parking spaces ▪ 208 bicycle parking spaces ▫ 146 residential bicycle parking spaces ▫ 38 visitor bicycle parking spaces ▫ 24 retail bicycle parking spaces (inc. end of trip facilities)	

The basement car parking will be operated in accordance with the Car Park Management Report (**Appendix 24**). This Car Park Management Report prepared for the proposed development by InterPark Australia, focuses in particular on the retail/ commercial component of the basement car park. Key elements of the operation of the retail/ commercial component of the basement car park include the following:

- Paid parking operational 24 hours a day;
- No early bird or long-term parking;
- Number plat scanning for basement car park entry;
- Two hours free for retail/ commercial visitors;
- No boom gates on entry;
- No residential users to park in retail car park; and
- $50 overnight rate to deter residents from parking in the retail car park.

4.14.2. Vehicular Access

The road network surrounding the site was established during the construction of the Hills Showground Station, including De Clambe Drive, Mandala Parade, Andalusian Way and Doran Drive that bound the site. These streets provide connections to the surrounding wider road network including Showground Road.

The concept approval identifies two zones in which parking entries/ exits may be located (see Figure 26. The development is consistent with the concept approval in that vehicular access for the residential and retail components is provided via a shared driveway located towards the eastern end of De Clambe Drive. A plan showing the location of the vehicular access in the context of the development is at Figure 27.

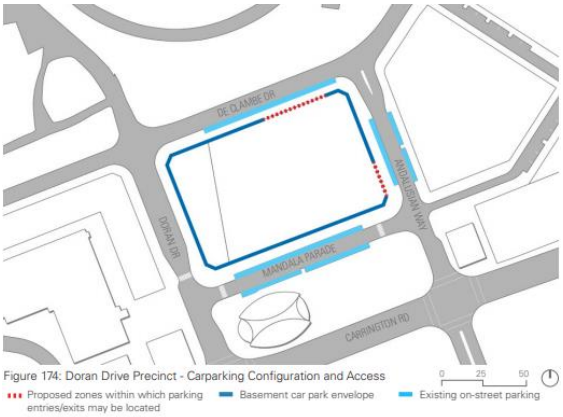

Figure 26: Concept access (Source: Cox Architecture)

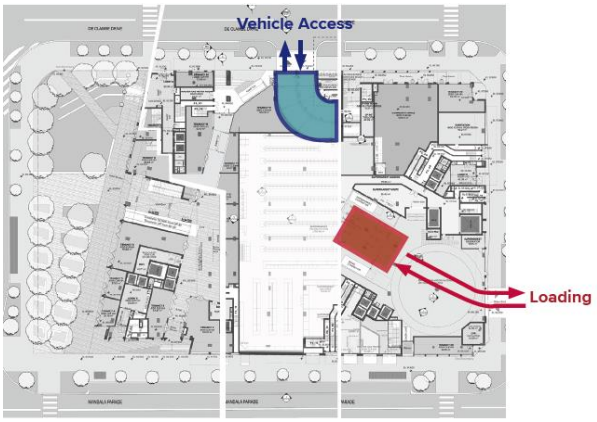

Figure 27: Proposed access (Source: Turner)

4.14.3. Bicycle and Pedestrian Access

Buildings A, C and D are provided with a legible residential lobby accessed directly from the adjacent street. Building B is provided with a legible residential lobby access from the retail entry in the site's south-west. A commercial lobby fronting Mandala Parade provides access to Level 2 of the development where Tenancy 1 and one of the two community spaces that is to be used by HCA to provide community services. The other community space is located at Level 1 and accessed directly from De Clambe Drive.

Entry/ exit points to the retail mall are provided off De Clambe Drive, Mandala Parade and Doran Drive Plaza. Travelators provide pedestrian access between the retail levels and to/ from the basement levels below.

Cyclists will utilise the shared residential and retail vehicular access point that is proposed off De Clambe Drive.

4.14.4. Service Access

A dedicated loading/ servicing area is to be located at the ground level (Level 1) of the development. This area will be capable of accommodating three (3) x 12.5-metre-long heavy rigid vehicle (HRV) trucks. The concept approval indicates that the loading/ servicing area is to be located off Andalusian Way. An extract of the indicative location and access point for service vehicles is included at Figure 28. Access to the service area has been provided consistent with the concept approval as shown in Figure 27. The provision of a turntable will allow vehicles to enter and exit the site in a forward direction at all times.

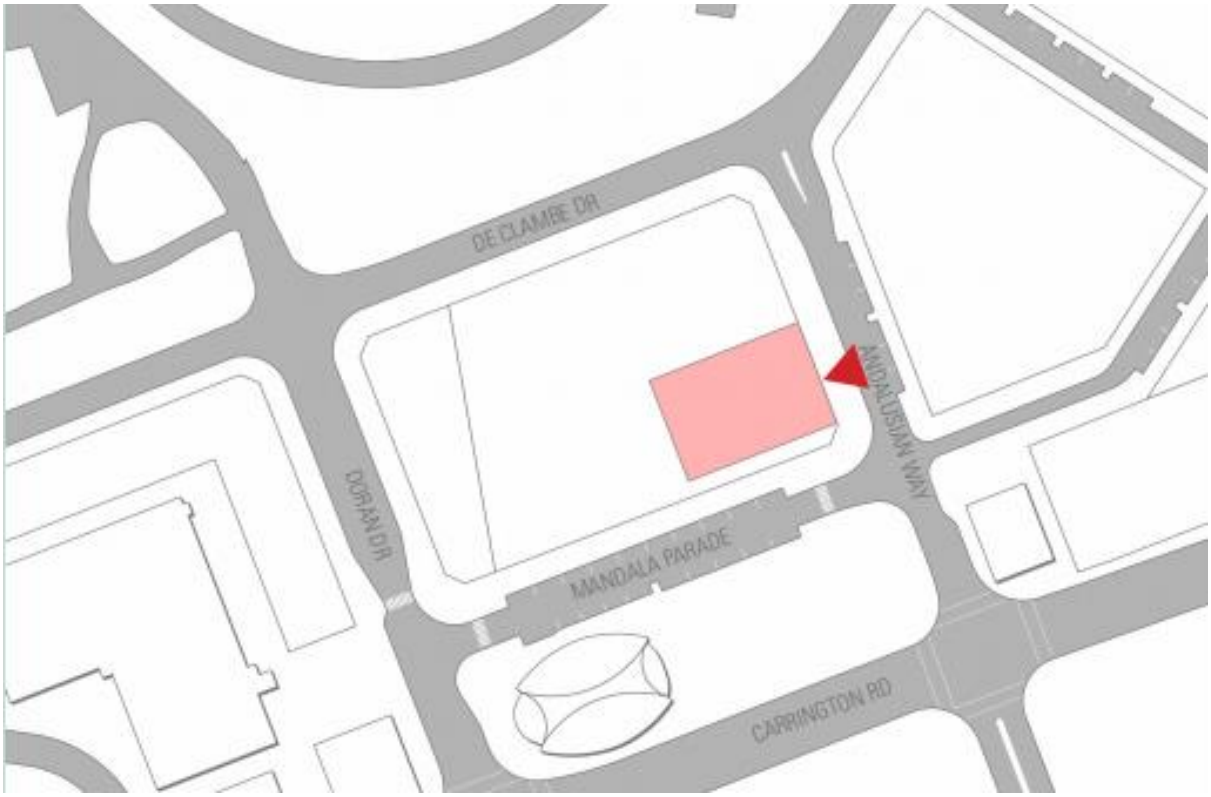

Figure 28: Concept service vehicles and waste collection (Source: Cox Architecture)

A Vehicular Servicing and Management Plan (VSMP) prepared by Varga Traffic Planning is included at **Appendix 25**. The intention of the VSMP is to inform the capabilities of the loading/ servicing area and provide principles to be adopted by the Owners Corporation for its safe and efficient management and operation.

The loading/ servicing area is proposed to operate 6am to 10pm 7 days a week in accordance with the VSMP.

4.14.5. Construction Access

Access to the site during the construction phase of the development will be off Andalusian Way. The location of the construction access is the same as the operational access for the loading/ servicing area. Construction access and truck movements are further detailed in the Construction Management Plan (**Appendix 26**).

4.15. Waste

The development provides for on-site waste collection from the loading/ serving area located at Level 1. An Operational Waste Management Plan (OWMP) prepared by Elephants Foot is included at **Appendix 27**, which outlines in detail the waste management procedures for the development's future operation.

4.16. Stormwater

Stormwater run-off from Buildings A, B C and D will be collected via the internal building drainage system and transported to two (2) separate rainwater tanks located within the basement of the proposed development. These rainwater tanks will provide re-use for irrigation and landscaped areas. Overflow from these rainwater tanks will be directed to the on-site detention (OSD) system being conveyed under Council's verge to existing drainage infrastructure located within Mandala Parade south of the site. The overflow system, internal/ building reticulation and rainwater tank sizing has been coordinated and is further discussed in detail within the Stormwater Management Plan prepared by AECOM included at **Appendix 12**.

The communal podium catchment area located at Level 2 of the proposed development will bypass the rainwater tank collection and convey directly to the 250m^2 OSD facility that will be located below ground level.

At the ground level grated drains will capture perimeter runoff and direct surface flows into the OSD. Surface runoff downstream of the grated drains will bypass the OSD system and instead, safely discharge overland to be captured by SO2 butterfly pits that are situated in the dish drain within Doran Drive.

Refer to the Stormwater Plans within the Civil Package prepared by AECOM and included at **Appendix 12**.

4.17. Earthworks

Bulk earthworks are proposed to accommodate the proposed development's 6 levels of basement. An excavation depth of 19 metres Below Existing Ground Level (BEGL) is estimated at the Doran Drive end, while an excavation depth of 26.6 metres BEGL is estimated for the Andalusian Way end of the site. Locally deeper excavations for may be required for footings, service trenches, crane pads and lift pits.

4.18. Infrastructure

A 3 x 1500kVA transformer surface chamber substation is included as part of the proposed development. The substation will be located in the north-eastern corner of the site at Level 1 of the building. Access to the substation will be from Andalusian Way via a dedicated corridor adjacent to the substation. Underground conduits along Andalusian Way to the Carrington Road intersection are also to be installed to connect the proposed substation to the existing Endeavour Energy network in the locality.

Refer to the letter prepared by JHA Services (**Appendix 28**) for further details on the proposed electricity infrastructure.

A letter has also been prepared by Opal Water Management and included at **Appendix 29** of this EIS, which indicates that a waste water extension is required from the west (DN450 sewer) or south (DN300 sewer). This has been confirmed by the Feasibility Letter from Sydney Water that is included at **Appendix 30**.

Further details of the proposed building services systems such as electrical, dry fire and mechanical are included within the Electrical, Mechanical & ASP3 Services and Infrastructure Report included at **Appendix 31**.

4.19. Signage

A Signage Strategy has been prepared by Turner and is included at **Appendix 32** of this EIS that includes:

- One (1) building identification sign on the north elevation;
- One (1) plaza branding sign on the west elevation;
- One (1) car parking indicator sign;
- One (1) entry/ exit sign; and
- Various tenancy directory signs and lobby identification signs throughout the site to assist with wayfinding.

The location and dimensions of the signage zones that have been incorporated into the design of the proposed development are demonstrated on the elevations that are included within the Signage Strategy.

4.20. Ecologically sustainable development

The proposed development has been designed to reflect best practice sustainable building principles to improve environmental performance in relation to energy efficiency, water conservation and thermal comfort. An Environmental Performance and ESD Report has been prepared by ARUP and included at **Appendix 13**, which details the sustainability initiatives that have been achieved and/ or embedded within the design, construction and operation of the proposed development to promote sustainability. These sustainability imitative includes solar photovoltaic (PV) panels on the roof and rainwater tanks for re-use and are based on those initiatives outlined in regional policies, local planning policies, the SEARs and sustainability commitments between Landcom as the current owner of the site and Deicorp as the developer.

4.21. Crime Prevention Through Environmental Design

The proposed development has been designed to reduce the potential opportunities for crime by implementing recommended strategies within the design and its ongoing operation based on the CPTED principles. These strategies include but are not limited to CCTV, alarm systems and key card access, as well as an on-going maintenance plan for waste, vandalism, toilets, community facilities and lighting etc. A detailed list of these strategies is included within the CPTED Assessment that is included at **Appendix 15.**

4.22. Hours of operation

The preliminary Shopping Centre Operational Management Plan prepared by Deicorp and included at **Appendix 23**, proposes that the retail mall will operate seven days a week between 6am and midnight.

4.23. Jobs

The proposed development will generate the following number of jobs during the operation of the retail mall:

- Supermarket - 40 full-time positions and 5 casual staff (with 18 expected on-site at any one time) and
- Other retail/ commercial tenancies - a combination of 100 full-time/ casual staff across the tenancies.

Temporary jobs will also be created on-site during the construction phase of the proposed development.

4.24. Staging and program

The construction of the project will be staged as illustrated in the Staging Plan (**Appendix 33**) extracted below.

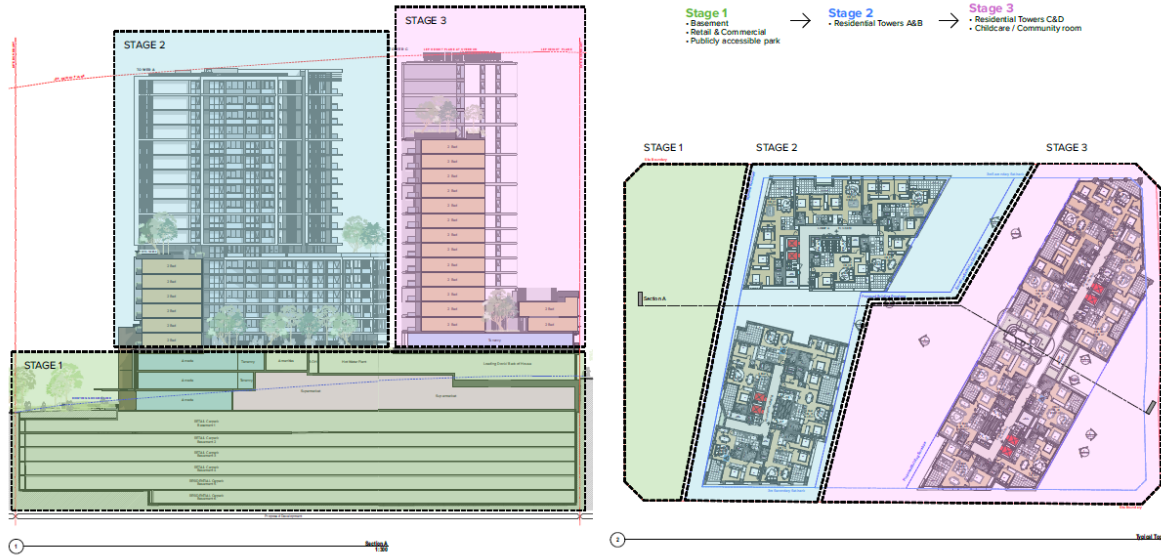

Figure 29: Staging diagrams (Source: Daw & Walton Consulting Engineers)

The elements of the project that are to be included within each of the three stages is detailed in Table 12.

Table 12: Project staging and program

Stage	Development component	Estimated duration
1	▪ Basement ▪ Retail and commercial ▪ Doran Drive Plaza	18 months
2	▪ Residential towers A and B	6 months
3	▪ Residential towers C and D ▪ Child care/ community room	6 months

4.25. Construction

Excavation and construction of the proposed development will be carried out in accordance with the Construction Management Plan prepared by Barker Ryan Stewart included at **Appendix 26** of this EIS. The Construction Management Plan outlines the excavation and building process for the proposed development and how the builder and contractors will manage potential impacts caused by these

processes. It is to be read in conjunction with the following management plans that are attached to it as appendices:

- Construction Waste Management Plan; and
- Construction Traffic Management Plan.

Materials handling plans for each of the three stages identified in Section 4.22 of this EIS are also attached as an appendix to the Construction Management Plan and identify the location of the following:

- Hoarding;
- Materials handling area;
- Small deliveries and truck entry/ exit;
- Construction pumping and lifting zones; and
- Temporary site accommodation.

The construction of the proposed development is to be carried out during the following operating hours:

- Monday to Friday - 7am to 6pm;
- Saturdays - 7am to 5pm; and
- No work on Sundays and Public Holidays.

The Construction Management Plan is to be adjusted as required prior to the commencement of works, based on any additional reports or plans recommended and any relevant conditions of development consent, as well as any other site-specific conditions that may occur during the carrying out of the works.

5. STATUTORY CONTEXT

The relevant statutory requirements for the project are contained within the following State and local legislation:

- *Environmental Planning and Assessment Act 1979*;
- *Environmental Planning and Assessment Regulation 2000*;
- *State Environmental Planning Policy No. 55 - Remediation of Land*;
- *State Environmental Planning Policy No. 65 - Design Quality of the Residential Apartment Development*;
- *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;*
- *State Environmental Planning Policy (Infrastructure) 2007*;
- *State Environmental Planning Policy (State and Regional Development) 2011*;
- *Draft Sydney Metro Northwest SRD SEPP amendment;*
- *Draft Design and Place State Environmental Planning Policy;*
- *The Hills Local Environmental Plan 2019*; and
- *Draft The Hills Local Environmental Plan 2020*.

5.1. Relevant statutory requirements

5.1.1. Power to grant consent

The proposed development is declared to be SSD under section 4.36 of the EP&A Act as it seeks consent for development for the purpose of commercial premises and residential accommodation with a capital investment value of $30 million or more within a railway corridor or associated with rail infrastructure, in accordance with clause 19 Rail and related transport facilities of Schedule 1 of the SRD SEPP.

The Independent Planning Commission (IPC) is declared under section 4.5(a) of the EP&A Act to be the consent authority for any of the following development that is SSD unless the application is made by or on behalf of a public authority or the development is State significant infrastructure related development:

- The relevant council has made a submission by way of objection,
- A minimum of 50 submissions were made by way of objection, or
- The application was made by a person who has disclosed a political donation.

In all other circumstances the Minister for Planning (or delegate) is the consent authority for SSD applications.

5.1.2. Permissibility

The site is zoned B2 Local Centre under *The Hills Local Environmental Plan 2019* (THLEP 2019). 'Centre-based child care facilities', 'commercial premises', 'community facilities', 'residential flat buildings' and 'shop top housing' are all permitted with development consent in the B2 Local Centre zone. Subsequently, the proposed development is permitted with consent on the site under THLEP 2019.

5.1.3. Other approvals

There are no other approvals that are required for the carrying out of the proposed development, with the exception of approvals required from the relevant suppliers for proposed infrastructure upgrades.

The proposed development would be considered integrated development if it was not declared SSD, requiring a separate approval under Section 90 of the WM Act for the dewatering of the basement.

5.1.4. Pre-conditions to exercising the power to grant approval

The below table identifies the pre-conditions to exercising the power to grant approval to the project, including any mandatory conditions that must be satisfied before the consent authority may grant approval.

Table 13: Pre-conditions to exercising the power to grant approval

Statutory reference	Pre-condition	Relevance	Section in EIS
Environmental Planning and Assessment Act 1979 - Section 4.24	While any consent granted on the determination of a concept development application remains in force, the determination of any further development application in respect of the site cannot be inconsistent with the consent for the concept proposal for the development of the site.	The site is the subject of a concept approval (SSD-9653).	Section 5.2
State Environmental Planning Policy No. 55 - Remediation of Land - Clause 7(1)	A consent authority must be satisfied that the site is suitable in its current state (or that the site will be made suitable after remediation) for the purpose that is proposed.	Applies to the site as land located within the state of NSW.	Section 5.3
State Environmental Planning Policy (Infrastructure) 2007 - Clause 85(2)	A consent authority must within 7 days of the application being made, give written notice of the application to the rail authority for the rail corridor and take into consideration any response to the notice received within 21 days after the notice is given and any guidelines that are issued by the Secretary for the purpose of this clause and are published in the Gazette.	The site is adjacent to a rail corridor.	Section 5.3

Statutory reference	Pre-condition	Relevance	Section in EIS
State Environmental Planning Policy (Infrastructure) 2007 - Clause 86(2)	Same as pre-condition to Clause	The proposed development involves excavation that is within 25 metres of a rail corridor.	Section 5.3
State Environmental Planning Policy (Infrastructure) 2007 - Clause 87 (3)	The consent authority must be satisfied that the appropriate measures will be undertaken to ensure the following LAeq levels are not exceeded: ▪ in any bedroom in residential accommodation - 35 dB(a) from 10pm to 7pm; and anywhere else in the residential accommodation - 40 db(A) at any time of the day.	The site is adjacent to a rail corridor and the proposed development is for the purpose of residential accommodation.	Section 5.3
State Environmental Planning Policy (Infrastructure) 2007 - Clause 104(3)	A consent authority must within 7 days of the application being made, take into consideration any submissions that the RMS makes in response to the notice within 21 days after the notice was given and the accessibility of the site concerned.	The proposed development is traffic-generating development.	Section 5.3

5.1.5. Mandatory matters for consideration

The below table identifies that the decision maker is required to consider in deciding whether to grant approval.

Table 14: Mandatory matters for consideration

Statutory reference	Mandatory consideration	Section in EIS
Consideration under the EP&A Act		
Section 1.3 - Objects of the Act	The objects of the EP&A Act that relevant to the project are: ▪ to promote the social and economic welfare of the community. ▪ to facilitate ecologically sustainable development. ▪ to promote the orderly and economic use of land.	Section 5.2

Statutory reference	Mandatory consideration	Section in EIS
	▪ to promote the delivery and maintenance of affordable housing. ▪ to protect the environment. ▪ to promote the sustainable management of heritage. ▪ to promote good design and amenity of the built environment. ▪ to proper construction and maintenance of buildings.	
Section 4.15 - Evaluation	Relevant environmental planning legislation	
	▪ SEPP 55 - Remediation of Land ▪ SEPP 65 - Design Quality of Residential Apartment Development ▪ BASIX SEPP ▪ Infrastructure SEPP ▪ SRD SEPP ▪ THLEP 2019 (see detail below)	Sections 5.3 and 5.4
	Relevant proposed environmental planning legislation	
	▪ Draft Sydney Metro Northwest SRD SEPP amendment ▪ Draft Design and Place SEPP ▪ Draft THLEP 2020	Sections 5.3 and 5.4.1
	Development control plan	
	▪ THDCP ▫ Part B Section 5 - Residential Flat Building ▫ Part B Section 6 - Business ▫ Part B Section 8 - Shop Top Housing and Mixed Use Development ▫ Part C Section 1 - Parking ▫ Part C Section 3 - Landscaping ▫ Part C Section 4 - Heritage ▫ Part C Section 6 - Flood Controlled Land ▫ Part D Section 19 - Showground Station Precinct	Section 5.5
	Relevant planning agreement or draft planning agreement	N/A
	Regulations	
	▪ Clause 50(1A) - Design verification ▪ Clause 92 - Additional matters a consent authority must consider ▪ Clause 98 - Compliance with the Building Code of Australia ▪ Schedule 2 - Environmental impact statements	Section 5.2
	Likely impacts	

Statutory reference	Mandatory consideration	Section in EIS
	▪ natural and built environments ▪ social ▪ economic	Section 7
	Site suitability	Section 7.21
	Submissions	
	This is a matter for consideration by the relevant consent authority.	N/A
	Public interest	Section 7.22
Section 4.24 - Status of concept development applications and consents	Recent concept approval ▪ Concept approval (SSD-9653) granted 29 January 2021.	Section 5.2
Mandatory relevant considerations under EPIs		
State Environmental Planning Policy No. 65 - Design Quality of Residential Apartment Development - Clause 28(2)	In determining a DA for consent to carry out development to which *State Environmental Planning Policy No. 65 - Design Quality of Residential Apartment Development* (SEPP 65) applies, a consent authority is required to consider the following: ▪ the advice (if any) obtained from the design review panel. ▪ the design quality of the development when evaluated in accordance with the nine applicable design quality principles. ▪ the Apartment Design Guide (ADG).	Section 5.3
State Environmental Planning Policy (Infrastructure) 2007 - Clause 87(2)	Before determining a development application for development for the purposes of residential accommodation, a place of public worship, a hospital, educational establishment or centre-based child care facility, a consent authority must take into consideration any guidelines that are issued by the Secretary for the purposes of noise or vibration impacts on non-rail development.	Section 5.3
The Hills Local Environmental Plan 2019	▪ Part 2 - Permitted or prohibited development ▪ Part 4 - Principal development standards ▪ Part 5 - Miscellaneous provisions ▪ Part 7 - Additional local provisions ▪ Part 9 - Showground Station Precinct	Section 5.4
Considerations under other legislation		

Statutory reference	Mandatory consideration	Section in EIS
Biodiversity Conservation Act 2016 - Section 6:12	Any application for SSD is required to be accompanied by a detailed biodiversity development assessment report (BDAR).	Section 5.2

5.2. State legislation

The proposed development has been assessed against the relevant legislation as summarised in Table 15.

Table 15: Assessment against relevant legislation

Legislation	Response
Environmental Planning and Assessment Act 1979	**Section 1.3 - Objects of the Act** This section of the EP&A Act identifies the objectives of the Act. The proposed development is consistent with the objectives of the EP&A Act as follows: ▪ It provides for a mix of compatible uses in proximity to public transport, which are of a scale that is consistent with the concept approval, and which will not generate any harmful emissions, thereby no resulting in any adverse impacts on the State's natural and other resources. ▪ It has been assessed as having an acceptable environmental, economic and social impact as is discussed in detail in Section 7 of this EIS and the appended technical studies prepared by qualified consultants. ▪ The orderly and economic development of land is promoted in that the site is of a size that can accommodate the proposed development without any significant adverse impacts on the locality or any major variations with the relevant statutory and non-statutory planning controls. Furthermore, the proposed development does not preclude the redevelopment of surrounding properties for their intended purpose. ▪ It includes the provision of a minimum 5% of dwellings as affordable housing. ▪ The proposed development is of a mixed-use residential and retail/ commercial nature and will not produce any harmful emissions. Any potential impacts on stormwater or air quality can be appropriately mitigated. A BDAR Report has been prepared by WSP and is included at **Appendix 34**. ▪ It will have an acceptable impact on nearby heritage items and is unlikely to impact upon Aboriginal archaeological remains or heritage as discussed in detail within Section 7.9 and the relevant technical studies. ▪ It has been the subject of a design review process via the SDRP, with a detailed description of the design refinements made as a result of this process included in the Design Excellence Report (**Appendix 6**). The high-quality design of the proposed development is reflected

<table>
<tr><th>Legislation</th><th>Response</th></tr>
<tr><td></td><td>
in its positive environmental amenity impacts as detailed within Section 7.5.

It will be constructed in accordance with the relevant codes and standards, as demonstrated by the appended technical studies, including the Regulatory Compliance Report (Appendix 35), which demonstrates compliance with the Building Code of Australia (BCA) provisions. It will also be appropriately maintained during its ongoing operation phase to ensure the safety of residents, workers and visitors.

Section 4.24 - Status of concept development applications and consents

The site benefits from a concept approval for the Hills Showground Station Precinct. In accordance with the requirements of Section 4.24 of the EP&A Act, the proposed development is consistent with the concept approval, as demonstrated by its compliance with the approved plans and endorsed UDGs.
<table>
<tr><th>Key element</th><th>Concept</th><th>Proposed Development</th></tr>
<tr><td>Maximum apartment yield</td><td>440</td><td>431</td></tr>
<tr><td>Maximum GFA</td><td>51,065m^2</td><td>51,064m^2</td></tr>
<tr><td>Use</td><td>Mixed-use/ publicly accessible</td><td>Residential, retail/ commercial and community uses and Doran Drive Plaza, which is to be publicly accessible.</td></tr>
<tr><td>Open space</td><td>1,400m^2</td><td>1,400m^2</td></tr>
<tr><td>Setbacks</td><td>▪ 3 metre outdoor dining
▪ 0 metre primary setback
▪ 3 metre secondary setback</td><td>As per concept approval - refer to Section 4.2.8 of the Design Integrity Report that is included at Appendix 5 of this EIS.</td></tr>
<tr><td>Building heights</td><td>68 metres/ 21 storeys</td><td>68 metres/ 20 storeys</td></tr>
<tr><td>Sun access</td><td>100% to Doran Drive Plaza</td><td>As per concept approval - refer to the shadow diagrams (Drawing Nos. DA-703-101 and DA-703-102) included at Appendix 3.</td></tr>
<tr><td>Street wall heights</td><td>2-4 storeys</td><td>2-4 storeys</td></tr>
</table>
</td></tr>
</table>

Legislation	Response
	<table><tr><td>Building separation</td><td>Refer to Drawing No. SK 11 (Rev C) of the approved plans for building separation distances.</td><td>As per concept approval - refer to Section 4.2.7 of the Design Integrity Report that is included at **Appendix 5** of this EIS.</td></tr></table> The proposed development is also consistent with the endorsed UDGs, as is demonstrated within the Design Integrity Report at **Appendix 5** of this EIS.
Environmental Planning and Assessment Regulation 2000	**Claus 50(1A) - Design verification** An Architectural Statement prepared by Turner is included within **Appendix 4**. **Clause 92 - Additional matters a consent authority must consider** This clause of the EP&A Reg prescribes the matters a consent authority in must consider in assessing and determining a development application. None of the matters prescribed by this clause relate to the proposed development. **Clause 98 - Compliance with the Building Code of Australia** A Regulatory Compliance Report is included at **Appendix 35** of this EIS, which demonstrates that the proposed development complies with the BCA or is capable of achieving compliance with the BCA through performance solutions. **Schedule 2 - Environmental impact statements** This EIS has been prepared in accordance with clauses 6 and 7 of Schedule 2 as demonstrated throughout this EIS and appended technical studies.
Biodiversity Conservation Act 2016	A BDAR Report has been prepared by WSP (**Appendix 34**). The findings of this report are discussed in detail in Section 7.15 of this EIS.

5.3. State Environmental Planning Policies

The proposed development has been assessed against the relevant provisions of the applicable State Environmental Planning Policies (SEPPs) in accordance with the SEARs as summarised in Table 16 below.

Table 16: Assessment against relevant SEPPs and draft SEPPs

Relevant SEPP	Response
State Environmental Planning Policy No. 55 - Remediation of Land	A Detailed Site Investigation has been prepared by EI Australia (**Appendix 36**), which confirms that no evidence of contamination has been identified on the site and it is suitable in its current state for the proposed development, subject to the recommendations of the investigation being implemented. Refer to Section 7.8 of this EIS for further details on contamination.

<table>
<tr><th>Relevant SEPP</th><th>Response</th></tr>
<tr><td>State Environmental Planning Policy No. 64 - Advertising and Signage</td><td>
The proposed signage is consistent with the objectives of SEPP 64 as follows:

The quantity, location and dimensions of the signs are consistent with the proposed development being for a high-density mixed-use precinct that is the civic heart and commercial centre of a new local centre;
The location of the signs where they are visible from key locations, such as the Hills Showground Station and Castle Hill Showground, as well as Doran Drive Plaza and the surrounding road network, will assist with wayfinding and contribute the effective legibility of the site; and
The signs will incorporate high quality materials and finishes that integrate seamlessly with the architectural expression of the buildings.

The proposed signage has also been assessed against the assessment criteria included within Schedule 1 of SEPP 64 as detailed in the table below.
<table>
<tr><th>Assessment criteria</th><th>Proposed development</th></tr>
<tr><td>1. Character of the area</td><td>The proposed signage is considered to be compatible with the desired future character of the area and consistent with signage generally present with a local centre, particularly within a mixed-use precinct context, in that it involves a mix of building and business identification signs near the main building entrances and at prominent locations at the site's corners.</td></tr>
<tr><td>2. Special areas</td><td>The site is not a heritage item or conservation area but is located within the vicinity of identified heritage items. The proposed signage has been integrated within the overall design of the proposed development, comprises sympathetic materials and is small in scale, thereby not detracting from the item's amenity or visual quality.
For the reasons that have been identified above, the proposed development will also not adversely impact on the amenity or visual quality of the Cattai Creek Corridor.
No other special areas that are environmentally sensitive area, natural or other conservation areas and rural landscapes are located in the vicinity of the site that would have their amenity or visual quality adversely impacted by the proposed signage on the building.</td></tr>
<tr><td>3. Views and vistas</td><td>There are no significant or iconic views that currently exist across the site and could be affected by the development. Nonetheless, the proposed signage has either been integrated into the overall design of the</td></tr>
</table>
</td></tr>
</table>

<table>
<tr><th>Relevant SEPP</th><th>Response</th></tr>
<tr><td></td><td>
<table>
<tr><td></td><td>proposed development or has been and/ or is low scale, noting that the proposed development is consistent with the building envelopes of the concept approval. Therefore, the proposed signage does not dominate the skyline or reduce the quality of any vistas.
The location, size and rationality of the proposed signage is such that the viewing rights of other future advertisers within the locality will be unaffected by the proposal.</td></tr>
<tr><td>4. Streetscape, setting or landscape</td><td>The proposed signage is limited to the podium and has been integrated into the overall design of the proposed development such that it does not protrude above buildings, structures and tree canopies within the site.
The location of the proposed signage on the building façade will ensure no vegetation management is required.</td></tr>
<tr><td>5. Siting and building</td><td>The proposed signage has been appropriately located and integrated into the overall design of the proposed development to ensure that important features of the site and building are respected and enhanced. This ensures the signage is viewed as subservient to the building.</td></tr>
<tr><td>6. Associated devices and logos with advertisements and advertising structures</td><td>No associated devices or logos are proposed.</td></tr>
<tr><td>7. Illumination</td><td>No illumination is proposed.</td></tr>
<tr><td>8. Safety</td><td>The proposed signage is located on the building façades and/ or well setback from the site's street frontages, and therefore will not obscure sightlines and reduce the safety of any vehicles, pedestrians or cyclists.</td></tr>
</table>
Based on the above assessment of the proposed development's signage against the Schedule 1 assessment criteria included within SEPP 64, the signage is considered to be appropriate and consistent with the SEPP provisions.
</td></tr>
<tr><td>State Environmental Planning Policy No. 65 - Design Quality of Residential Apartment Development</td><td>The proposed development has been designed with consideration to the nine design quality principles as detailed in the Architectural Statement (Appendix 4). The proposed development has also been designed in accordance with the provisions contained with Apartment Design Guide (ADG), as demonstrated by the ADG Compliance Table included in the statement. This includes compliance with key provisions of the ADG such as:
▪ Communal open space;</td></tr>
</table>

Relevant SEPP	Response
	▪ Deep soil zones; ▪ Visual privacy (i.e. separation distances); ▪ Solar and daylight access; ▪ Natural ventilation; ▪ Ceiling heights; ▪ Apartment size and layout; ▪ Private open space and balconies; and ▪ Storage.
State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004	A BASIX Report has been prepared by Windtech and is included at **Appendix 14**, with a BASIX Certificate for the proposed development appended. The results of this assessment indicate that the development will satisfy the requirements of BASIX if all of the items outlined within this report are incorporated into the overall design of the proposed development, with the proposed development achieving the following scores: ▪ Water - 49 (Target 40); ▪ Thermal comfort - Pass (Target Pass); and ▪ Energy - 52 (Target 25). Any changes to the building design will require a reassessment against BASIX.
State Environmental Planning Policy (Infrastructure) 2007	**Clause 85 - Development adjacent to rail corridors** The rail authority is to be given notice of this SSDA as part of its assessment. It is the responsibility of the consent authority to give this notice. The applicant can address any of the rail authority's comments post lodgement. **Clause 86 - Excavation in, above, below or adjacent rail corridors** Refer to the response above in relation to clause 87 of the Infrastructure SEPP. Any potential impacts from the proposed development on the safety or structural integrity of existing rail infrastructure facilities in the rail corridor or the safe and effective operation of those same existing infrastructure facilities, can be mitigated and managed as assessed in detail within Section 7.20. **Clause 87 - Impact of rail noise or vibration on non-rail development** Refer to Section 7.13 of this EIS for a detailed assessment of potential impacts in terms of noise and vibration and identified mitigation measures. **Clause 104 - Traffic generating development** TfNSW is required to be referred this SSDA as part of its assessment process. It is the responsibility of the consent authority to make this referral. The applicant can address any submission from TfNSW/ RMS post lodgement.
State Environmental Planning Policy (State and Regional Development) 2011	The proposed development is considered to be SSD under the SRD SEPP as is discussed in detail above within Section 5.1.1 of this EIS. Development control plans do not apply to applications for SSD in accordance with clause 11 of the SRD SEPP as is detailed within Section 5.5.

<table>
<tr><th>Relevant SEPP</th><th>Response</th></tr>
<tr><td>Draft Sydney Metro Northwest SRD SEPP amendment</td><td>The following is to be identified as SSD in relation to MNWL station precincts:
A principal subdivision establishing major roads or public domain areas; or
The creation of new roadways and associated works; or
Has a CIV of more than $30 million.
However, it is proposed to limit the uptake of this clause to development carried out by or on behalf of TfNSW or the Planning Ministerial Corporation.
This amendment will also remove provisions previously introduced for the Hills Showground, Bella Vista and Kellyville Station Precincts and combine these under the new clauses that are to be included within the SRD SEPP.
The proposed development has a CIV of $171,884,179 therefore this amendment does not affect the planning approval pathway.</td></tr>
<tr><td>Draft Design and Place SEPP</td><td>The draft Design and Place State Environmental Planning Policy (Design and Place SEPP) establishes principles, matters for consideration and guidance to encourage innovate design that maximises public benefit. The Explanation of Intended Effect (EIE) was exhibited from February to April 2021, with the final SEPP expected to go on public exhibition later in 2021.
It is anticipated that the draft Design and Place SEPP will include savings/ transitional provisions for its implementation in relation to development applications. The draft SEPP is not imminent or certain given it is not proposed to be publicly exhibited or finalised until the end of 2021. However, given the EIE for the draft Design and Place SEPP has been exhibited, it requires a merit-based assessment of its guiding principles. Compliance with the objectives of draft Design and Place SEPP has been achieved by the proposed development as demonstrated in the below table.
<table>
<tr><th>Principles</th><th>Comment</th></tr>
<tr><td>Design places with beauty and character that people feel proud to belong to.</td><td>The proposed development includes a well-considered and articulated architectural quality, through the creation of group of buildings with their own individual expression that sit cohesively together, use of high-quality materials and new public spaces. The architecture will create interest, attract visitors and entice new residents and businesses to this new local centre.</td></tr>
<tr><td>Design inviting public spaces to support engaged communities.</td><td>The proposed development includes Doran Drive Plaza, which includes landscaping, new public art and an interface with the retail mall component of the development, which will assist in creating an inviting place. The public domain is discussed in detail in Section 7.3.</td></tr>
<tr><td>Design productive and connected places to</td><td>The proposed development includes Doran Drive Plaza, of which one of its main purposes is to provide a connection between the station and Castle Hill Showground. The proposed development also</td></tr>
</table></td></tr>
</table>

<table>
<tr><th>Relevant SEPP</th><th>Response</th></tr>
<tr><td></td><td>
<table>
<tr><td>enable thriving communities.</td><td>includes a permeable and connected ground floor plane as discussed in detail in Section 7.3.2 of this EIS.</td></tr>
<tr><td>Design sustainable and greener places for the wellbeing of people and the environment.</td><td>The SSDA is accompanied by an Environmental Performance and ESD Report prepared by ARUP (Appendix 13), demonstrating how the proposed development will promote ecologically sustainable development. Moreover, the proposed development provides a variety of open space areas and increased tree canopy to create greener places and links in the precinct.</td></tr>
<tr><td>Design resilient and diverse places for enduring communities.</td><td>The proposed development will promote resilient and diverse communities by providing a range of land uses located directly opposite the Hills Showground Station. The development will include apartments of varying sizes and non-residential tenancies for different businesses, as well as a publicly accessible plaza, which will promote social cohesion and provide employment.</td></tr>
</table>
It is anticipated that the new SEPP will be accompanied by a revised ADG. These amendments to the ADG are not yet known but are likely to include:
<table>
<tr><th>ADG amendment</th><th>Comment</th></tr>
<tr><td>Communal Open Space – will be based on the number of apartments.</td><td>The EIE does not outline the amended methodology for calculating communal open space for SEPP 65 development. The current SSDA calculates communal open space based on 25% of the site area that is used for the purpose of residential development, noting that the proposed development provides a total 36% of communal open space, which allows for a variety of communal open space areas at the podium and the rooftops of the different buildings.</td></tr>
<tr><td>Deep soil – increased deep soil landscaping based on site area.</td><td>Given the site's location within a new high-density local centre with ground floor non-residential uses, no deep soil is proposed as defined within the ADG. Nonetheless, the Soil Specification Design report prepared by SELS Australia and included at Appendix 37, supports the soils depths that are proposed.</td></tr>
<tr><td>Floorplate – introduce maximum floorplate sizes.</td><td>The proposed building envelopes have been informed by the UDGs and approved plans for the concept approval.</td></tr>
<tr><td>Car Parking – minimise quantum of car parking spaces required.</td><td>The proposed development complies with car parking rates contained within THDCP as detailed in Section 7.6.2.</td></tr>
</table>
</td></tr>
</table>

Relevant SEPP	Response	
	Separation – for 25+ storeys increase from 24 metres to 30 metres	The proposed development does not exceed 25 storeys and therefore would not be affected by the development.
	Solar – Increase the number of apartments receiving solar access.	The EIE does not provide any details of the amendments. Three-hundred and ten (310) of the 431 (71%) of the apartments receive adequate solar access.
	Cross ventilation – increase the number of apartments with cross ventilation.	The EIE does not provide any details of the amendments. One-hundred and nineteen (119) of the 194 (61%) of the apartments on the first nine storeys of the proposed development receive natural cross ventilation.
	Increase size of apartments to accommodate families	The proposed development provides for a mix of 1, 2 and 3 bedroom apartments consistent with the UDGs.

5.4. The Hills Local Environmental Plan 2019

An assessment of The Hills Local Environmental Plan 2019 (THLEP 2019) is included at Table 17 below.

Table 17: Assessment against the relevant provisions of THLEP 2019

Clause	Provision/ Standard	Proposed Development	Compliance
Clause 2.3 - Zone objectives and Land Use Table	B2 Local Centre	The proposed development is shop-top housing, with 4 residential tower buildings located above a ground floor and podium comprising a mix of commercial and retail uses, including a supermarket and complementary shops. Other likely uses include a child care centre, medical centre, gym and food and beverage. Community spaces are also proposed. The proposed development is consistent with the objectives of the B2 Local Centre zone in that it provides for a mix of residential, retail/ commercial and community uses that are located directly opposite the Showground Station. Public transport patronage has been maximised and walking and cycling	✓

Clause	Provision/ Standard	Proposed Development	Compliance
		encouraged through the provision of on-site car parking in accordance with the Urban Design Guidelines, which limit residential car parking to 1 space per dwelling and no visitor parking, and the preparation of a Green Travel Plan (**Appendix 9**).	
Clause 4.3 - Height of buildings	68 metres	The proposed development has a maximum budling height of 68 metres at RL 165.050 metres AHD and is set entirely below the height limit. Refer to Section 7.1.1.2 of this EIS for further details.	✓
Clause 4.4 - Floor space ratio	4:1	Noting that for the purpose of calculating GFA, site area includes land that its be dedicated, the site area for Doran Drive Precinct is 15,856m^2 and includes the road (to the centre line) of Doran Drive and Andalusian Way and the entire road with of De Clambe Drive and Mandala Parade, resulting in an allowable GFA of 63,424m^2. The proposed development has a GFA of 51,064m^2.	✓
Clause 5.10 - Heritage Conservation	Consideration is to be given to the effect of the proposed development on the heritage significance of the item or area.	A Heritage and Archaeological Impact Statement has been prepared by Urbis and is included at **Appendix 38** of this EIS. A Preliminary Aboriginal Objects Due Diligence Assessment has also been prepared by Urbis and is included at **Appendix 39** of this EIS. Moreover, a letter summarising the findings of these reports is included at **Appendix 40** of this EIS. A detailed discussion on the findings of these reports is included at Section 7.9 of this EIS below.	✓
Clause 7.2 - Earthworks	Earthworks are not to have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.	The earthworks associated with the proposed development will not result in any adverse impacts that cannot be mitigated and managed. Refer to Section 7.14 of this EIS for further details.	✓

Clause	Provision/ Standard	Proposed Development	Compliance
Clause 9.1 - Minimum lot sizes for residential flat buildings and shop top housing	3,600m^2	The proposed development has a site area of 7,969m^2.	✓

Clause 9.5 - Design Excellence	Development is to exhibit design excellence.	Clause 9.5 of THLEP 2019 applies to development involving the erection of a new building or external alterations to an existing building on land within the Showground Station Precinct. In summary, clause 9.5 requires:
		▪ the consent authority to have regard to a range of matters that concern design excellence; and
		▪ if the development is in respect of a building that is, or will be, higher than 66 metres or 20 storeys (or both), an architectural design competition must be held and consent authority must take into account the results of that architectural design competition.
		▪ However, clause 9.5 also provides that the requirement for an architectural design competition can be waived by the Government Architect of NSW (GANSW) provided a design review panel reviews the development and the consent authority considers the findings of the design review panel. It should be noted that GANSW has waived the requirement for an architectural design competition for buildings up to 68 metres and 20 storeys in the Hills Showground Precinct.
		▪ The waiver is relevant to this application as the proposal exceeds 66 metres in height (but is less than 68 metres).
		▪ The waiver (**Appendix 14**) is conditional on the following:
		  ▪ waiver is limited to a building with a height of between 66m and 68m and up to 20 storeys, and not applicable to any building above 68m or 20 storeys. Comment: The proposal is not above 68m or 20 storeys and therefore satisfies this requirement.
		  ▪ detailed design applications for the sites being reviewed by design review panels prior to lodgement, and post lodgement
			✓

Clause	Provision/ Standard	Proposed Development	Compliance
		as a design integrity process, as endorsed in the Design Excellence Strategies. Comment: The proposal has been reviewed by the SDRP prior to lodgement in accordance with the Design Excellence Strategy for the Hills Showground Precinct and will be reviewed again following lodgment. ▪ demonstration of no additional impact to amenity of public and communal open space, public domain and private open space and living areas arising from any building height above 66m. Comment: The marginal building height above 66m causes a very minor increase in overshadowing that falls in places that cause no impact on amenity of public and communal open space, public domain and private open space and living areas and have no discernible visual impact. ▪ the Department of Planning, Industry and Environment's final assessment and approval of the Design Guidelines, and GANSW endorsement of Design Excellence Strategies. Comment: The Design Guidelines and Design Excellence Strategy have now been endorsed in accordance with the requirements of the concept development approval. The Design Integrity Report prepared by Turner (**Appendix 6)** demonstrates that the proposal is consistent with the Design Guidelines. ▪ developments subject to this waiver to be designed by architects with a demonstrated capacity to deliver design excellence, for example through the award of peer reviewed prizes. Comment: The project architects (Turner) have a demonstrated capacity to deliver design excellence. ▪ demonstration of commitment to design diversity for larger sites with multiple buildings subject to this waiver, for example through the use of 2 or more appropriately qualified architects. Comment: Unlike the larger Precinct	

Clause	Provision/ Standard	Proposed Development	Compliance
		East, the Doran Drive Precinct contains a single rather than multiple buildings.	
Clause 9.6 - Active frontages in Zones R1 and B2	The building is to have active street frontages to Doran Drive and Mandala Parade.	The proposed development provides activation to Mandala Parade, De Clambe Drive, Andalusian Way and Doran Drive Plaza as is discussed in detail within Section 7.3.1 of this EIS.	✓
Clause 9.8 - Maximum number of dwellings	5,000 dwellings within the Showground Station Precinct.	The concept approval set a maximum residential yield of 1,620 dwellings for the Hills Showground Station Precinct as a whole, with 440 of these dwellings in the Doran Drive Precinct. The proposed development provides for 431 residential dwellings within 4 tower buildings.	✓

5.4.1. Draft The Hills Local Environment Plan 2020

A planning proposal (PP) to amend THLEP 2019 was publicly exhibited from 10 July 2020 to 7 August 2020. The PP seeks to give effect to Councill's new LSPS (*Hills Future 2036)* and the District Plan. The PP does not propose any changes to the mapping for the site that would affect the proposed development, except for the introduction of a Built Character Map for the Showground Station Precinct. A comparison of the existing and proposed mapping for the precinct is included at Figure 30 and Figure 31.

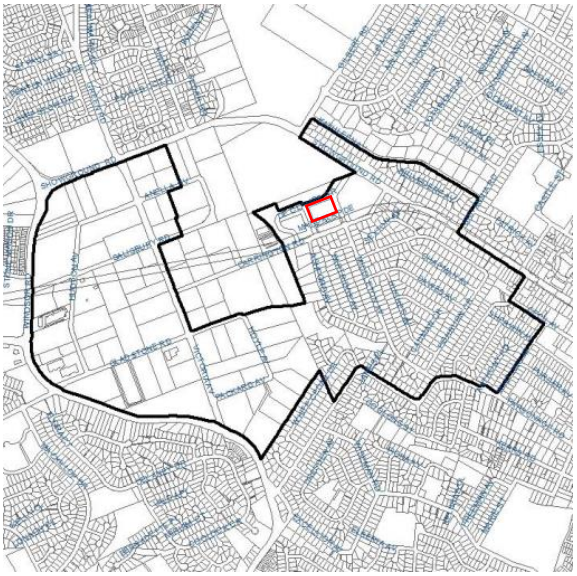

Figure 30: Existing LEP mapping (Source: The Hills Shire Council)

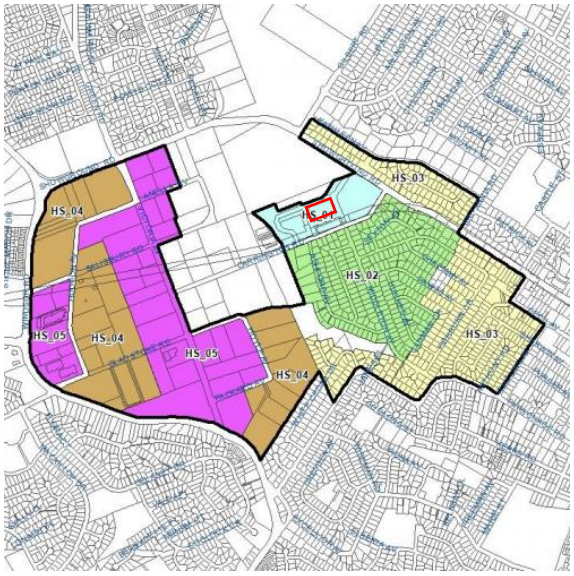

Figure 31: Proposed LEP mapping (Source: The Hills Shire Council)

Five areas have been identified for the Showground Station Precinct of which the site is in the 'Business' area.

Specific objectives related to established or desire future character have not been established for these areas, and as such an assessment of the proposed development against these provisions has not been undertaken.

5.5. The Hills Development Control Plan

The Hills Development Control Plan (THDCP) seeks to guide development outcomes within The Hills Shire. As detailed within the UDGs prepared by Cox Architecture and Oculus as part of the concept application, the UDGs supersede Part B (Land Use/ Zones) and Part D (Site Specific) of THDCP; however, the UDGs also note the guidelines should be read in conjunction with the following parts of THDCP:

- Part A - Introduction; and
- Part C - General Development:
  - Part C Section 1 - Parking;
  - Part C Section 2 - Signage;
  - Part C Section 3 - Landscaping;
  - Part C Section 4 - Heritage;
  - Part C Section 5 - Telecommunication Facilities; and
  - Part C Section 6 - Flood Controlled Land.

Despite the UDGs identifying the parts of THDCP applicable to the Hills Showground Station Precinct, clause 11 of the SRD SEPP states that development control plans do not apply to SSD. Nonetheless,

the proposed development has been assessed against the "applicable" parts of THDCP within Table 18.

Table 18: Assessment against the relevant provisions of THDCP

Part	Proposed Development	Compliance
Part A - Introduction		
Part A - Introduction	This part of THDCP details various administration matters, including development assessment pathways, advertising and notification procedures and lodging a development application. As this application is an SSDA that is to be lodged with the DPIE, the provisions of Part A of THDCP are generally not relevant. Nonetheless, in accordance with Section 5 of this part, the proposed development is considered to satisfy Councils ecologically sustainable development (ESD) objectives as demonstrated by the Environmental Performance and ESD Report that has been prepared by ARUP and is included at **Appendix 13**. Refer to Section 7.7 of this EIS for further details.	✓
Part B - General Development		
Section 1 - Parking	The car parking provision for the proposed development is based on the car parking rates that were established by the UDGs, which relate to residential, retail and commercial uses. It is only those uses that are not specified within the UDGs for which the car parking rates within this section of THDCP are to apply. A detailed assessment of the proposed development's car parking provision is included at Section 7.6.2 of this EIS. Nonetheless, it should be noted that a Section 4.55 (1A) Modification application has been concurrently lodged with this SSDA, which proposes to modify the car parking rates established by the concept approval for retail and commercial uses. The proposed car parking rate is 1 space/ 32m^2 of GFA, which is closer to the car parking rates included within THDCP.	✓
Section 2 - Signage	The proposed development is generally consistent with this part of THDCP through its demonstrated compliance with the objectives and design criteria of SEPP 64 as detailed in Section 5.3.	✓
Section 3 - Landscaping	Landscape Plans and a Landscape Report have been prepared by Urbis and are included within **Appendix 18** of this EIS. Landscaped areas for the proposed development include the publicly accessible Doran Drive Plaza and the various communal open space areas for residents of the buildings. No street trees are proposed as these were already planted as part of earlier works for the station precinct. However, the proposed development does propose the removal of some existing street trees to facilitate vehicular (including trucks) access to the site. As detailed within the Landscape Report at **Appendix 18**, the planting schedule for the proposed development has been established with reference to the provisions of this THDCP section. A detailed assessment of the landscaping associated	✓

Part	Proposed Development	Compliance
	with the proposed development is included at Section 7.4 of this EIS.	
Section 4 - Heritage	This section of THDCP applies to land within the Hills LGA that is: ▪ Listed in Schedule 5 of THLEP; ▪ Located in the vicinity of a heritage item or heritage conservation area that is listed within Schedule 5 of THLEP; or ▪ A building, relic or structure not listed in Schedule 5 of THLEP that is older than fifty years and considered to be of significance. The site does not contain a heritage item and is not part of a heritage conservation area that is listed in Schedule 5 of THLEP. However, the site is located within the vicinity of two houses that are listed as heritage items under THLEP. Castle Hill Showground also immediately adjoins the site to the north, which whilst not a listed heritage item under THLEP, has previously been identified as having local-level heritage significance. A Heritage and Archaeological Impact Statement has been prepared by Urbis and is included at **Appendix 38** of this EIS. The findings of this report are discussed in Section 7.9 of this EIS.	✓
Section 5 - Telecommunication Facilities	This section of THDCP applies to any fixed transmitter, its supporting infrastructure and ancillary development under legislation that includes the Telecommunications (Low-impact Facilities) Determination Act and Telecommunications Act 1997, as well as the Radiocommunications Act 1992. The proposed development does not include a fixed transmitter or its supporting infrastructure and ancillary development under the relevant section and therefore is not applicable to the SSDA.	N/A
Section 6 - Flood Controlled Land	A Flood Impact Assessment has been prepared by ACE and is provided at Appendix 42. The results of the flood modelling for the existing scenario indicate that potential flooding at the site results from overland flow from the upstream catchment in the immediate vicinity of the proposed development. Since the upstream catchment is small, the overland flooding is not significant. Comparison of pre and post development flood behaviour shows no significant impact in the 5% AEP and the 1% AEP flood events. The proposed on-site detention (OSD) for the development, near the intersection of Doran Avenue and Mandala Parade, is shown to overflow during the 1% AEP flood. However, the overflow depth is not significant, and the provisional flood hazard remains Low.	✓

6. ENGAGEMENT

Consultation was previously undertaken during the preparation, exhibition and assessment of SSD-9653, which established the built form parameters to guide the future development of the site. The proposed development has been designed to be consistent with the concept approval. Nonetheless, consultation has been undertaken with the following public authorities in accordance with the SEARs issued:

- The Hills Shire Council;
- GANSW;
- Endeavour Energy; and
- Sydney Water.

Consultation has also been undertaken with the surrounding community as is detailed within Section 6.2.

The following sections of this EIS provide details of the authorities and community consultation undertaken.

6.1. Authority consultation

6.1.1. Consultation with The Hills Shire Council

Formal consultation has been undertaken with The Hills Shire Council as the site is located within this LGA. This consultation included an initial meeting on Monday 22 March 2021 with the planning team. Table 19 provides a summary of the key issues raised during this meeting and a response to those issues.

Table 19: Response to issues raised by The Hills Council

Issue	Response
Apartment mix ▪ Reasoning behind the proposed apartment mix, noting non-compliance with THDCP provisions.	The apartment mix of the proposed development achieves the controls of the UDGs, which require a maximum 25% of 1-bedroom dwellings and minimum 10% of 3 or more bedroom dwellings. Notwithstanding that development control plans do not apply to applications for SSD, the UDGs supersede the dwelling mix provisions that are contained within Part B and D of THDCP. The proposed apartment mix is also consistent with the findings of the Housing Market Analysis prepared by Atlas and included at Appendix 44, which found that there was a shortfall of smaller dwellings within Castle Hill. There is also a lack of housing diversity across Castle Hill and the broader Hills LGA in terms of housing type, size and number of bedrooms. This limits housing choice for groups such as young residents or older residents wanting to downsize into smaller dwellings. The proposal assists in providing a mix of apartment types and sizes to increase housing

Issue	Response
	diversity and choice in the locality that responds to the market.
Setbacks ▪ Relationship to THDCP minimum setback requirements.	The proposed development complies with the setbacks established for Doran Drive Precinct by the concept approval as discussed in Section 7.1.1.5.
Car Parking ▪ Rates used to calculate car parking requirements.	Car parking has been provided in accordance with the rates established by the concept approval. However, it is noted that a Section 4.55 (1A) Modification has been lodged to modify these rates in relation to retail and commercial uses. An assessment of the proposed car parking provision is included at Section 7.6.2 of this EIS.
Northern façade ▪ Relationship between the façade and the showground.	The proposed development has been designed to be consistent with the building envelopes that were established by the concept approval. Furthermore, and in accordance with the concept approval, vehicular access to the basement car park has also been provided off De Clambe Drive. This location for the vehicular access was the result of a detailed design exercise to determine the best location for vehicular access to maximise activation of the ground level of the proposed development.
Contributions ▪ Contributions Plan No. 19 applies to the project.	The contributions plan applicable to the proposed development is discussed in Section 7.18 of this EIS.
Turntable ▪ Turntables generally not supported for waste collection.	A VSMP has been prepared by Varga Traffic Planning and is included at **Appendix 25** of this EIS. The VSMP identifies various benefits of providing a mechanical turntable for service vehicles and recommends safety measures to ensure the safe operation of the turntable. The Owners Corporation will maintain a contractual agreement with a suitably qualified turntable maintenance company to a maintain the turntable. However, the VSMP also identifies measures to be followed in the event of a system failure.

Additionally, JHA Consulting Engineers provided formal notification to Council on 7 April 2021 to review and make a submission in relation to the proposed installation of a new indoor chamber substation in accordance with the requirements of the Electricity Supply Act 1995 and the Infrastructure SEPP. Council did not provide any comments to this formal notification within the 40-day notification period, thereby indicating a non-contention of the proposed electricity upgrades required for the proposed development. A copy of the letter that sent to Council is included as an attachment to the letter at **Appendix 28**.

AECOM has also been corresponding directly regarding the OSD requirements for the proposed development. This correspondence is appended to the Stormwater Management Plan included at **Appendix 12**, which confirms that additional OSD is not required as part of the proposed development, noting that the Hills Showground Station Precinct is already serviced by an existing regional-sized basin.

6.1.2. Consultation with GANSW

Extensive consultation has been undertaken with GANSW in accordance with the requirements of the SEARs. An initial SDRP meeting was held on Thursday 22 April 2021 to discuss the proposed development. The following elements of the proposed development were identified as supported by the SDRP:

- Resolution of vehicle access and in particular the separation of the loading dock and car park entries;
- The townhouse approach is commended as a good variation to the architectural treatment; and
- The variety of the materials palette.

The SDRP's observations and recommendations for improving the design and amenity related to the following:

- Masterplan/ public space, including:
  - Thru site links;
  - Doran Drive Plaza; and
  - Amenity and activation;
- Architecture, including;
  - Built form and detailing; and
  - Unit mix and amenity;
- Sustainability; and
- Connecting with Country.

Refinements made to the design of the proposed development in response to these initial comments included:

- The reconfiguration of the ground floor plane at the south-western corner of the site to allow for the reorientation of the pedestrian access to better connect with the approach from the station entry;
- Increase the setback area between the building interface and Doran Drive Plaza to 6 metres; and
- An improved building interface to the community space at the ground level fronting De Clambe Drive with planting and seating adjacent to the external spaces to provide for spill out areas for visitors.

A summary of the outcomes of this initial SDRP meeting and the design response is provided at **Appendix 43**.

A second SDRP meeting was held on 26 May 2021 to discuss the design refinements to the proposed development. The following elements of the proposed development were identified as supported by the SDRP:

- The 5-star green star rating for sustainability;
- The realignment of the "thru-site link" to enter off the south-western corner;

- Reconfiguration of the Doran Drive Plaza to open up the north-western corner of the plaza; and
- The north-facing outdoor space to the community space.

The vehicular access and townhouse approach along the eastern elevation also continue to be supported.

The observations and recommendation from this second meeting reflect many of the SDRP's initial comments. A summary of the outcomes of this second meeting and the design response is provided at **Appendix 43**.

6.1.3. Endeavour Energy

JHA Consulting Engineers submitted an Application for Connection to Endeavour Energy for the site. Endeavour Energy has since provided a Design Brief indicating that Level 3 design for the substation infrastructure will be required to facilitate the required electrical load for the proposed development. This Design Brief will be used in the preparation of the design package that will be submitted for certification. A copy of the correspondence between JHA Consulting Engineers and Endeavour Energy is at **Appendix 28**.

6.1.4. Sydney Water

Opal Water Management have been engaged as the Water Servicing Coordinator for the proposed development. It is anticipated that the existing Sydney Water network within the locality can accommodate the requirements of the proposed development in terms of portable water. Subsequently, a feasibility application was submitted to Sydney Water on 24 April 2021 to receive an initial review and confirm the findings of the initial investigation that has been undertaken by Opal Water Management. A letter from Opal Water Management outlining its initial findings and correspondence is included at **Appendix 29**. A Feasibility Letter from Sydney Water (**Appendix 30**) confirms the requirements for the project.

6.2. Community consultation

A Community Consultation Report has been prepared by Heard Agency and is included at **Appendix 45**.

A community information session was held on Saturday 29 May 2021 at the Harvey Lowe Pavilion. Residents within 1 kilometre of the site were notified of this community information session via a letterbox drop. An ad was also placed in the local community magazine titled *Hills to Hawkesbury* to create further awareness. Furthermore, a landing page developed to provide further information on the event and to accommodate any enquiries or feedback that the community wanted to sure ahead of the information session. The landing page had 139 views up to 31 May 2021 and 35 left their details to receive project updates. A total of 12 comments were received during the community information session. These comments are included in full within the Community Consultation Report and identified the following concerns:

- Traffic congestion and parking (addressed in Section 7.6 of this EIS);
- Noise impacts (addressed in Section 7.13 of this EIS);
- Overshadowing (addressed in Section 7.5.7 of this EIS); and
- Height of buildings (addressed in Section 7.1.1.2 of this EIS).

7. ASSESSMENT OF IMPACTS

This section identifies and assesses the key environmental impacts of the proposed development and specifies any measures that are recommended to mitigate and management any of the potential impacts. The impacts have been assessed and mitigation measures recommended with regard to the following:

- Scope of the proposed development;
- SEARs;
- Findings and recommendations from technical studies;
- Consultation outcomes with public authorities and the community;
- Relevant statutory requirements; and
- Additional information and research.

7.1. Built form and urban design (SEAR 5)

The proposed site planning and design approach has been informed by the site's opportunities and constraints. These opportunities and constraints are illustrated in the Site Analysis extract at Figure 32 below. Importantly, the site planning and design approach has been largely informed by the concept approval, which established the building envelopes that this development is required to be consistent with.

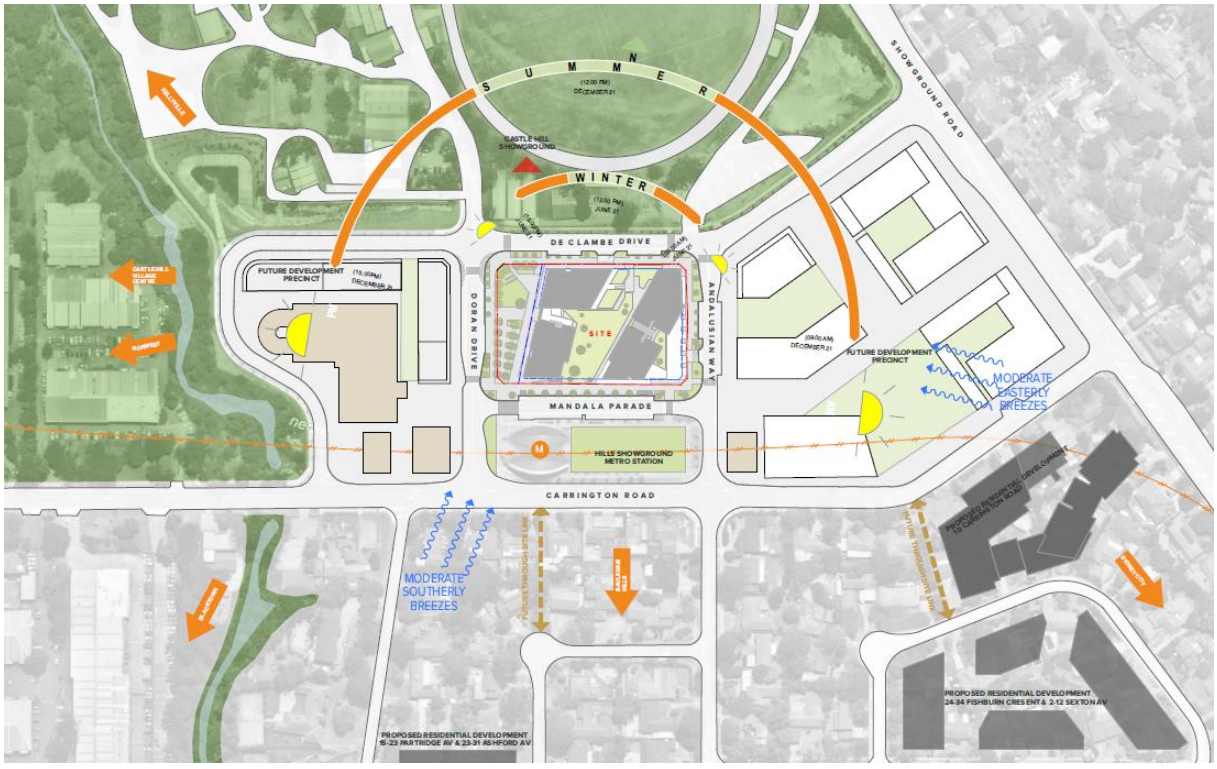

Figure 32: Site analysis (Source: Turner)

The following reports have been prepared by Turner that address the various architectural design elements:

- Architectural Statement (**Appendix 4**);
- Design Integrity Report (**Appendix 5**); and
- Design Excellence Report (**Appendix 6**).

7.1.1. Layout, height, bulk, scale, separation, setbacks, interface and articulation

7.1.1.1. Layout

The layout of the proposed development has been designed to be consistent with the concept approval which established the arrangement of uses and building envelopes for the Hills Showground Station Precinct, including the location of Doran Drive Plaza adjacent to the site's frontage to Doran Drive, the purpose of which is to provide a green link between the Hills Showground Station and Castle Hill Showground. Additionally, the building envelopes established for the site under the concept approval were designed to ensure that public domain areas such as Doran Drive Plaza receive adequate sunlight and that any residential development can readily achieve compliance with the ADG provisions. An overview of the structure of the site within the Hills Showground Station Precinct can be viewed at Figure 33.

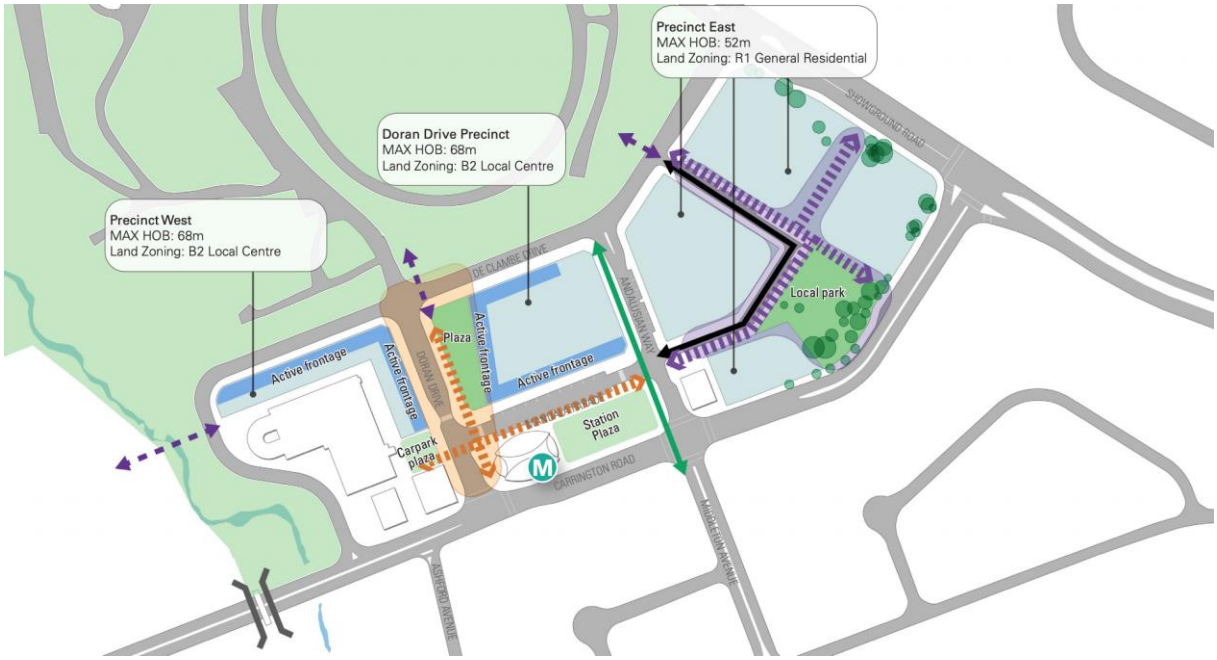

Figure 33: Hills Showground Station structure overview (Source: Cox Architecture)

Whilst the UDGs prepared by Cox Architecture and Oculus for the precinct supersede Part D of THDCP, the structure of the site has been designed to respond to the objectives of this part of THDCP in that it:

- Provides a mix of housing, retail, employment and services in an appropriate and logical location;
- Locates higher scale residential apartments and commercial uses closer to the Hills Showground Station and Castle Hill Showground to optimise access to station stations, outlook and amenity; and
- Creates a local centre and main plaza area immediately surrounding the Hills Showground Station to provide local shopping, employment opportunities and other services to support the future

population, as well as establish a vibrant and well-used public domain that can be easily accessed.

7.1.1.2. Height

The concept approval sets a maximum building height limit of 68 metres/ 20 storeys for the site, which is consistent with the 68-metre height limit that is prescribed for the site under clause 4.3 of THLEP 2019. The development has a maximum height of 68 metres at RL 165.050 metres AHD and is therefore compliant. The height plane diagram included at Figure 34 demonstrates this compliance with the height limit.

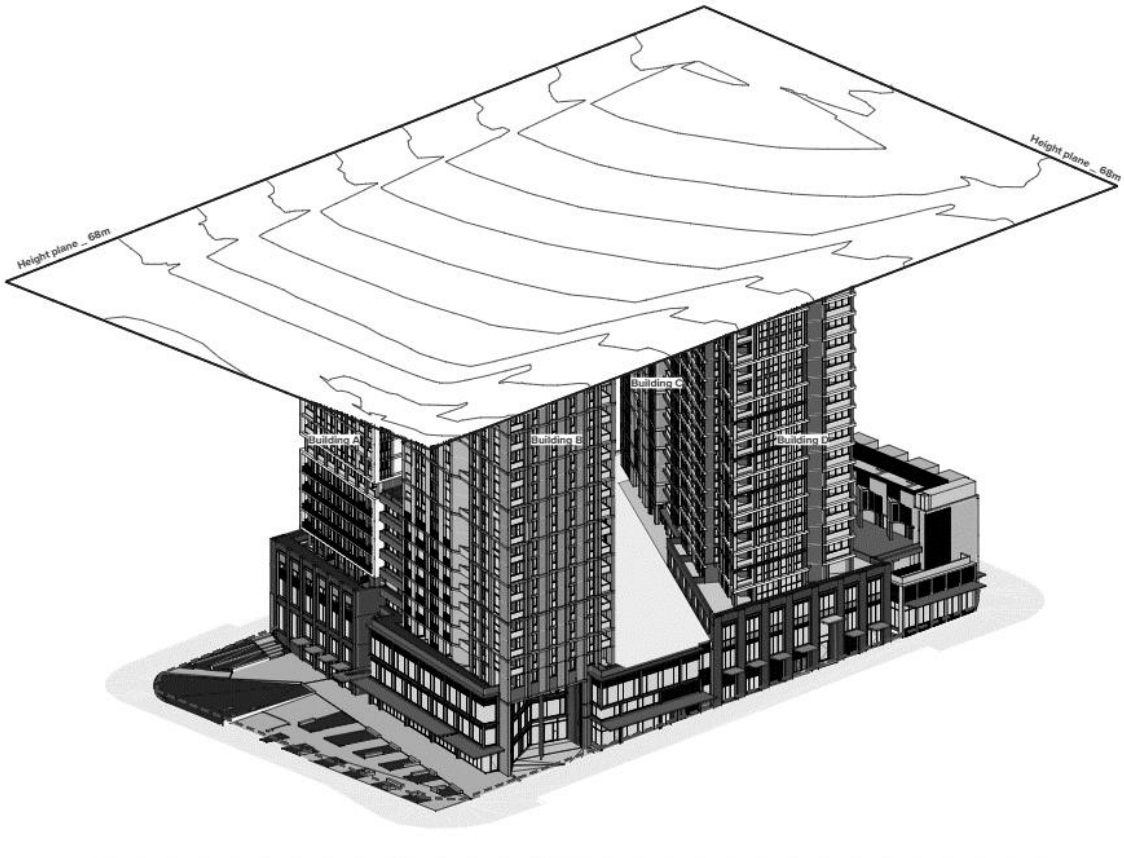

Figure 34: Height plane diagram (Source: Turner)

The design approach includes variations in the height of buildings that reflects the site's topography. Building B tops out at Level 19, Buildings A and D top out at Level 20 and Building C tops out at Level 21.

The UDGs that were prepared and endorsed as part of the concept application and approval also require a 4-storey street wall height to Doran Drive Plaza and a 2-4 storey street wall height to the other frontages. The proposed development has been designed to comply with the street wall height requirements as discussed within the Design Integrity Report prepared by Turner and included at **Appendix 5**.

7.1.1.3. Bulk and scale

The proposed development has been designed to incorporate a clearly defined ground floor street zone, podium and upper-level elements in accordance with the UDGs for the Hills Showground Station Precinct. This has been achieved with a 4.35-metre (floor to floor) ground floor height for non-residential uses, the design of the podium as a series of smaller scale buildings ranging in height from two to four storeys, the tower setbacks and building separation and the breakdown of the massing into 4 residential towers. Moreover, in complying with the building envelopes established for the site by the concept approval, the proposed development has sought to minimise, to the extent possible in a precinct anticipated to have a dense urban character, the perceived bulk and scale by ensuring towers are of a slender design and create an open, attractive and distinct skyline as is visible in the figures below.

Figure 35: North elevation (Source: Turner)

Figure 36: South elevation (Source: Turner)

Figure 37: East elevation (Source: Turner)

Figure 38: West elevation (Source: Turner)

Bulk and scale have been further managed through articulation as is discussed in detail in Section 7.1.1.6.

7.1.1.4. Separation

The building separation for the proposed development complies with the Urban Design Guidelines, which are reflected in the Building Envelopes Plan that was approved as part of the concept application. Refer to Figure 39 and Figure 40 for a comparison of the separation for the concept and the proposed development. The building separation for the proposed development complies with the ADG requirements.

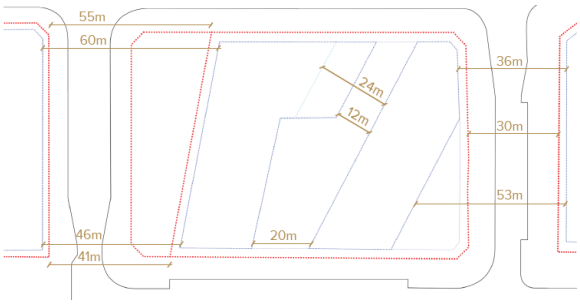

Figure 39: Concept separation (Source: Turner)

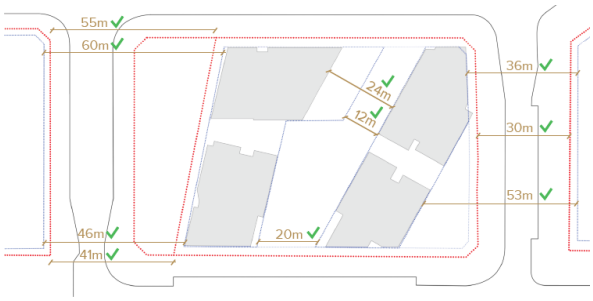

Figure 40: Proposed development separation (Source: Turner)

7.1.1.5. Setbacks

The setbacks of the proposed development comply with the setbacks established by the UDGs, which are reflected in the architectural plans approved as part of the concept application for the precinct. This includes a 0-metre ground floor primary setback for all interfaces including Doran Drive Plaza, a 3-metre secondary setback above the podium and a 3-metre setback within the public domain for outdoor dining. Refer to the Design Integrity Report prepared by Turner and included at **Appendix 5** of this EIS for further details.

7.1.1.6. Building articulation and façades

Articulation of the building façades has been achieved through the provision of two tower form types, with the buildings diagonally opposite each other sharing the same tower form as shown in the figures below. One tower form type has a horizontal emphasis while the other tower form type has a vertical emphasis. The two towers (Buildings A and D) with the horizontal emphasis sit above the podium, while the two towers (Buildings B and C) with the vertical emphasis anchor the corners by partly coming to ground.

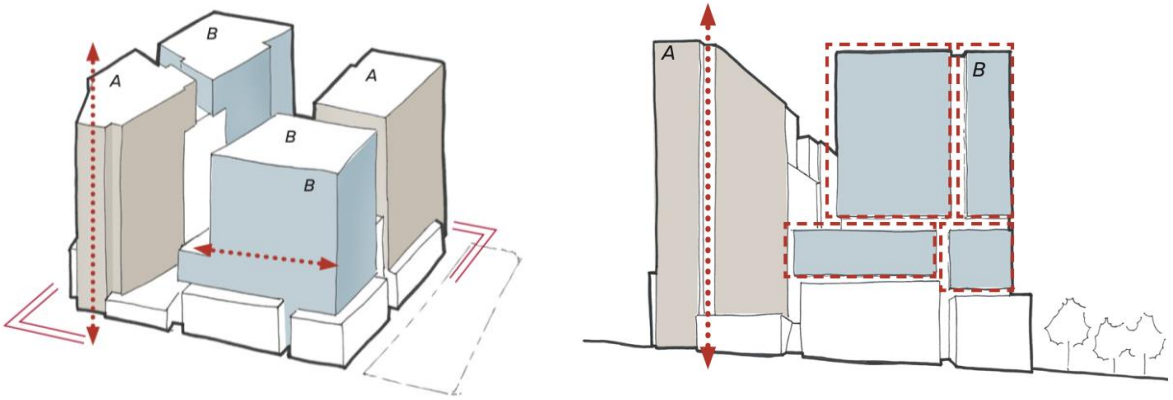

Figure 41: Tower form types (Source: Turner)

The building façades are then further articulated through individual expression and architectural character. The expression of each building is detailed within the Design Integrity Report included at **Appendix 5,** with the evolution of the facades from concept to realisation demonstrated in the figure below.

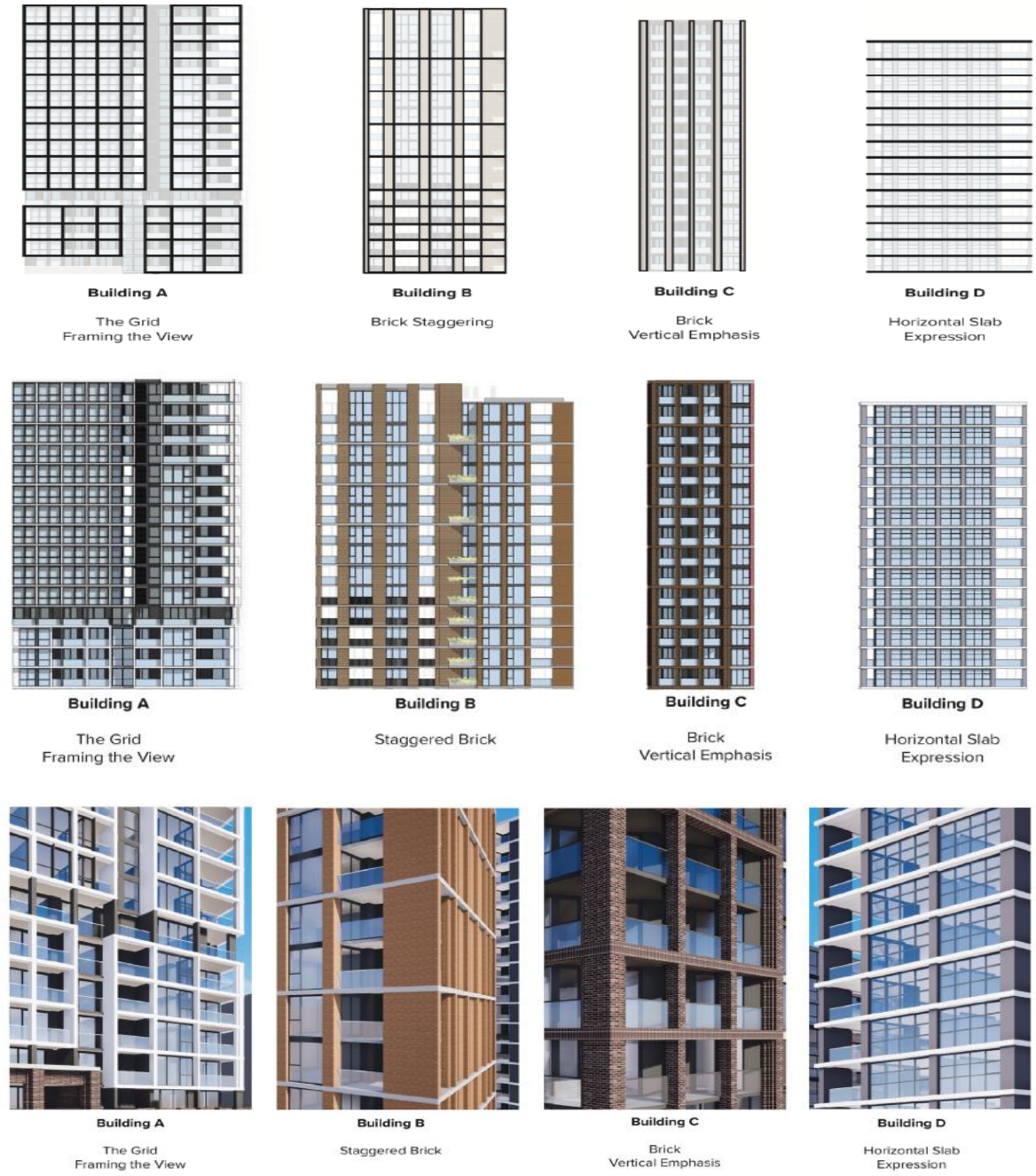

Figure 42: Façade evolution (Source: Turner)

7.1.2. Design Quality

The overall design quality of the proposed development is generally described within the following table.

Table 20: Consideration of design quality items

Design item	Response
Façade design Articulation	These items are addressed within Section 4.2.9 of the Design Integrity Report at **Appendix 5** and are also discussed in detail above within Section 7.1 of this EIS.
Activation	This item is addressed within Section 4.2.10 of the Design Integrity Report at **Appendix 5** and is also discussed in detail below within Section 7.3.1 of this EIS.
Roof design	Each of the four residential tower buildings has been designed with a flat roof, which is consistent with the common roof design for this type of mix-used development. Solar PV panels are to be installed on the rooftops of the buildings as detailed within the Environmental Performance and ESD Report by ARUP (**Appendix 13**).
Materials and finishes	This item is addressed within Section 4.1.2 of the Design Integrity Report at **Appendix 5**.
Integration of services	All services are to be integrated into the design of the proposed development as detailed within the Electrical, Mechanical and ASP3 Services and Infrastructure Report that has been prepared by JHA Consulting Engineers and included at **Appendix 31**.

7.1.3. Accessibility

An Access Review Report has been prepared by Morris Golding Access Consulting (**Appendix 10**), which provides advice and strategies to maximise reasonable provisions for people with disabilities. The design of the proposed development has been assessed under relevant provisions of the Disability Discrimination Act, BCA, Australian Standards and Disability (Access to Premises-Building) Standards 2010. Consideration has also been given to the relevant accessibility provisions contained in THDCP, as well as other additional advisory standards and relevant guidelines such the universal design principles.

Based on this review of the proposed development it has been concluded that the accessibility requirements pertaining to ingress and egress, paths of travel and facilities and amenities can be readily achieved, subject to the recommendations of this report being implemented into the design at a later stage. Morris Golding Access Consulting will work with the project team as the development progresses to ensure that appropriate outcomes are achieved both in terms of building design and external public domain. Compliance with the relevant provisions for access can also be conditioned as part of any consent.

Forty-three (or 10%) adaptable apartments have been provided to meet the requirements of the THDCP. Each of these adaptable apartments has been allocated an accessible car parking space in the basement. Eighty-six (or 20%) apartments have been designed as silver level liveable units in accordance with the objectives and design guidance for universal design that is contained within the ADG.

7.2. Visual impacts (SEAR 6)

A Visual Impact Assessment was previously prepared by Cardno to accompany the concept application. This report assessed the visual impacts on the site and its surrounds when viewed from key vantage points. The findings of this assessment for close, mid distance and distance views were summarised as follows:

View	Impact	Strategies to address impact
Close (0 to 1km from the site boundaries)	Moderate to high	▪ Strategically located plantings of large trees to provide human scale to the tall buildings and relieve views where there is potential for new buildings to read as continuous walls of the built form. ▪ Architectural quality and urban design practices leading to the provision of a high-quality public domain.
Mid distance (1 to 2km from the site boundaries)	Moderate to high	▪ The positioning of buildings to allow for visibility of sky between new towers and to avoid new buildings reading as continuous walls of built form. ▪ Implementation of the principles of design excellence in the development of the design of both, individual buildings and groups of buildings.
Distant (greater than 2km from the site boundaries)	Moderate	▪ Implementation of the principles of design excellence in the development of the design of both, individual buildings and groups of buildings.

The proposed development is consistent with the building envelopes as established by the concept approval and as such is commensurate with the visual impact that is anticipated for the development. Nonetheless, it seeks to implement the strategies identified in Cardno's Visual Impact Assessment as follows:

- Most of the existing street trees within the public domain surrounding the site are to be retained, with significant additional tree plantings proposed within Doran Drive Plaza at the ground level. These trees plantings will help to provide a human scale to the tall buildings of the proposed development.
- A high-quality public domain is provided through the generously landscaped Doran Drive Plaza and highly activated and permeable streetscapes to all frontages as discussed in detail in Section 7.3.
- In complying with the building envelope that was established for the site by the concept approval, the alignment of the buildings provides for a wide north-south view corridor through the site's centre. The development also improves on this by breaking down the built form massing further to create 4 (and not 2) buildings that allow sky to be seen between the buildings in an east-west direction.
- The development demonstrates design excellence as detailed in the Design Excellence Report (**Appendix 6**).

Moreover, a Visual Impact Assessment has been prepared by OG Urban and is included at **Appendix 46**. Some information for this assessment of the proposed development has been derived from the report prepared by Cardno for the Hills Showground Station Precinct to avoid any repetition. This Visual Impact Assessment provides an assessment of potential view impacts by comparing existing views with photomontages of the proposed development itself and with the building envelopes for the other development lots that were established within the concept approval Hills Showground Station Precinct. The conclusions of this assessment in terms of visual impact assessment are the same as Cardno's.

7.3. Public space (SEAR 7)

The development has been designed to be a welcoming and safe place for people to live, work and visit, with the public domain strategy utilising and leveraging the topography of the site to a create a site-specific response that delivers a 1,400m^2 publicly accessible plaza and an activated and permeable streetscape.

The publicly accessible Doran Drive Plaza is envisaged as the primary public domain offering within the precinct. This is reinforced by its role as the "connector" for the Hills Showground Station and Castle Hill Showground, and its design as a highly functional space as is discussed in detail in Section 7.4 of this EIS. Doran Drive Plaza will be supported by an activated and permeable streetscape along all street frontages, 543.06m^2 of community spaces available for use by the public at all times and a large retail mall.

A Design Integrity Report has been prepared by Turner and is included at **Appendix 5** of this EIS, which discusses the public domain strategy for the development and is summarised in the following sections.

7.3.1. Activation

The ground plane has been carefully designed to maximise the connectivity and activation of the public domain. The only areas of the ground plane not activated are along the site's De Clambe Drive and Andalusian Way frontages where access is provided to the basement car park and Level 1 loading area and services are located. The impact of parking/ loading areas and services on the ability to provide meaningful street activation has been minimised by pushing these elements into the centre of the site away from the street edge. Parking/ loading areas and services have also been designed to be consolidated and discrete, thereby minimising the potential for conflict between vehicles, bicycles and pedestrians at the ground plane.

The street-level activation at the ground plane and around the perimeter of the building has been achieved through the provision of retail tenancies, community rooms and residential/ commercial lobbies. Refer to the street level activation plans prepared by Turner (**Appendix 3**) for additional details.

Increased activation of the retail mall is encouraged by the placement of entries at the key nodes of Castle Hill Showground to the north, Hills Showground Station to the south and Doran Drive Plaza to the west.

7.3.2. Permeability and Connectivity

Permeability of the ground plane has been achieved through the skilful design of the retail mall, which is orientated north-south to provide direct sightlines to Hills Showground Station and Castle Hill Showground. This alignment of the main retail circulation assists with wayfinding and visual connectivity. A three-storey atrium is also located within the retail mall that contains the main vertical circulation. This atrium is fully glazed to Doran Drive Plaza to provide visual links from the retail levels to the adjoining plaza.

The ground plane has been carefully designed to maximise the connectivity of the public domain, with a seamless and level connection between the retail tenancies and the outdoor dining along the plaza's edge.

The angling of the retail entry at the south-west of the site towards the Showground Station entry, as well as the location of the retail entry to Doran Drive Plaza at the centre of the western building façade, further seek to improve connectivity by providing visual links and direct paths of travel to/ from public transport.

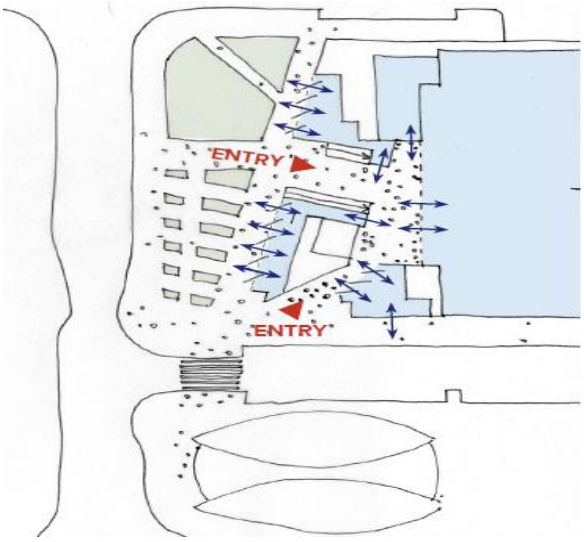

Figure 43: Permeability and operable facades (Source: Turner)

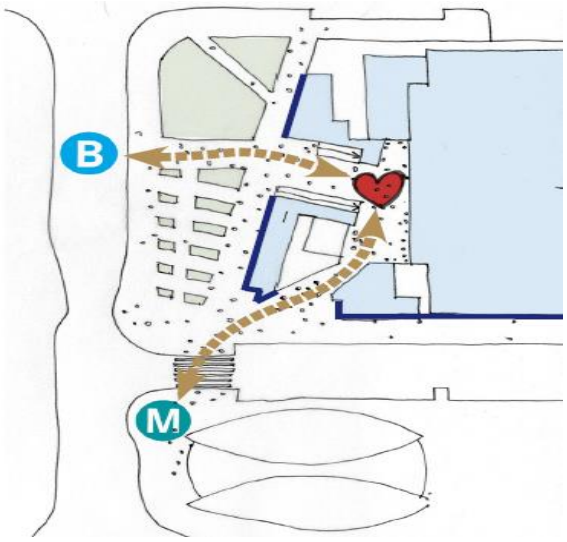

Figure 44: Sightlines to/from external (Source: Turner)

7.3.3. Amenity

Excellent amenity to the proposed public spaces has been achieved through the provision of awnings. Awnings are generally proposed along the length of the site's De Clambe Drive and Mandala Parade frontages, as well as along the length of the building's interface with Doran Drive Plaza as shown in Figure 45. Awnings along the site's Andalusian Way are limited to areas of the ground plane that are activated. These awnings will provide pedestrians with protection from the elements at all times of the year.

Doran Drive Plaza meets the area requirements set out for the plaza by the recent concept approval, and as such is of a size that is consistent with it being the primary public domain offering within the precinct. It also receives 100% solar access between from 12:25pm to 3pm at the winter solstice (21 June), which is consistent with the requirements of the Urban Design Guidelines prepared for the concept. However, parts of the plaza do receive solar access from as early as 9am at the winter solstice, with 73% (761m^2) of the principal usable part of Doran Drive Plaza receiving solar access by 11:25am.

Shadowing diagrams showing the plaza receiving 100% solar access are included at Figure 46 to Figure 49.

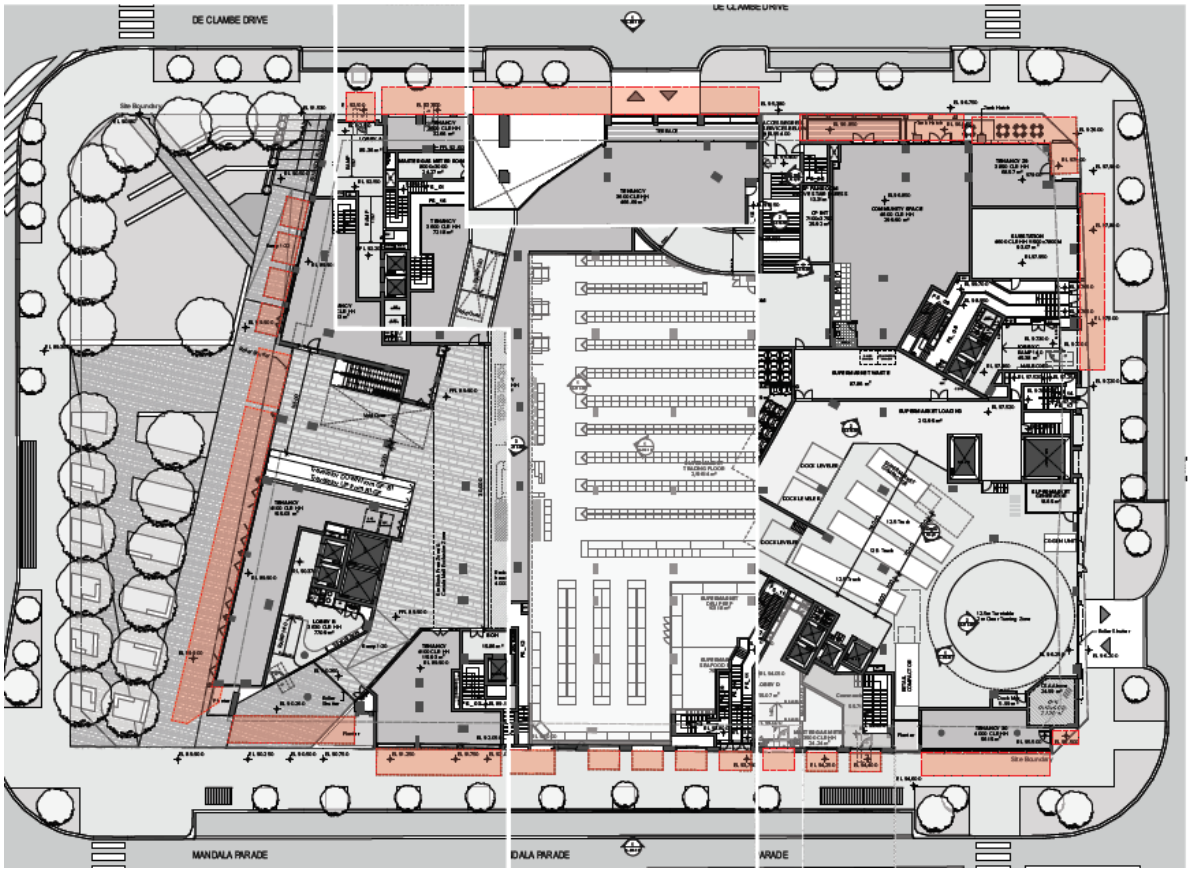

Figure 45: proposed awnings (Source: Turner)

Figure 46: Communal area shadow diagram - 12:25pm (Source: Turner)

Figure 47: Communal area shadow diagram - 1pm (Source: Turner)

Figure 48: Communal area shadow diagram - 2pm (Source: Turner)

Figure 49: Communal area shadow diagram - 3pm (Source: Turner)

7.3.4. Safety

A CPTED Assessment has been prepared by Barker Ryan Stewart and is included at **Appendix 15**, which assesses the development and recommends strategies in accordance with the principles of CPTED. Positive features of the development in relation to these principles are provided in Table 21 below.

Table 21: CPTED principles

CPTED Principle	Comment
Surveillance	▪ Opportunities exist for passive surveillance of site perimeters, internal access driveway and communal open space from balconies, windows and open space. ▪ Clear sightlines are facilitated by suitable canopy height along the site's Mandala Parade, Doran Drive, De Clambe Drive and Andalusian Way frontages. ▪ All residential lobbies are clearly visible from the existing surrounding road network.
Access Control	▪ The basement car park is limited to one entry/ exit point from De Clambe Drive.

CPTED Principle	Comment
	▪ Mailboxes are sited internal to lobbies to reduce opportunities for any mail theft. ▪ Separate commercial lobby to service commercial/ community space at Level 2. ▪ Secured residential lobby entries through swipe card/ keylock access control. ▪ Residential apartments within the development are located from Level 2 and above, which will assist with mitigating street level residential break and enter. ▪ Provision of removable bollards to limit residential visitors to lower basement levels. ▪ Secure roller door access control to back of house and Level 1 retail loading dock.
Territorial Reinforcement	▪ High quality communal open space areas will promote residential interaction. ▪ Entrance design to the residential lobbies delineates public and semi-private space. ▪ Roller shutters and signage to the retail mall entry points clearly define hours.
Space Management	▪ Management plans for waste, vandalism, toilets, community facilities, landscaping, fencing and lighting are to be implemented for the ongoing operations.

The assessment undertaken by Barker Ryan Stewart confirms the development can be managed to minimise the potential risk of crime and a re-design of the development is not required in terms of CPTED principles.

7.4. Landscaping and trees (SEAR 8)

Landscape Plans and a Landscape Report have been prepared by Urbis and are included at **Appendix 18**, with the landscape design and the principles that underpin it discussed within Section 4.8 of this EIS.

A planting schedule for the proposed landscaping for the project is included within the Landscape Report. This schedule details the size, species and spacing of plantings proposed in each landscaped area. The planting palette has been carefully selected in response to the site conditions and design principles.

The development will be set within a native bushland setting with a minimum 75% of indigenous planting species. This setting will provide a sensory connection to the Cattai Creek Corridor west of the site, while the proposed pedestrian crossing along De Clambe Drive at its intersection within Doran Drive, will provide opportunities for a physical connection to this corridor and the adjacent Castle Hill Showground. The urban setting of the site and its surrounds has also been considered in the proposed landscaping through the integration of the development with the existing landscaping in the public domain, and the creation of harmonious relationship between Doran Drive Plaza and the proposed retail.

Doran Drive Plaza is seen as forming the active "heart" of the wider Hills Showground Station Precinct, and as such has been designed with functionality in mind to cater to the various needs of its different users. The deciduous tree grove at the southern end of the plaza provides opportunities for passive recreation, while the central raised lawn and terraced plaza provide opportunities for informal and formal gatherings. The provision of a 6-metre-wide footpath to its east provides opportunities for outdoor dining.

The proposed landscaping seeks to achieve a minimum 40% tree canopy within Doran Drive Plaza. Additionally, it seeks to achieve a minimum 45% tree canopy within the communal open spaces. This tree canopy provision is consistent with the indicative targets set by *the Draft Green Places Design Guide*, which nominates a target for the Greater Sydney Region of 40% urban tree canopy by 2056. It is also a significant improvement on the 0% tree canopy cover currently present on the site as vacant land.

The sections extracted below demonstrate the extensive tree canopy achieved at the ground level and podium.

Figure 50: Section A through plaza (Source: Urbis)

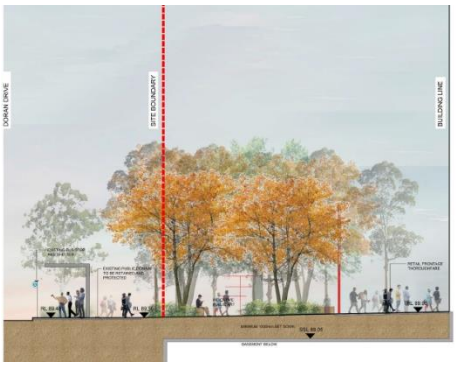

Figure 51: Section B through plaza (Source: Urbis)

Figure 52: Section through podium communal open space (Source: Urbis)

The 40-45% tree canopy cover in conjunction with the provision of under storey ground covers, selected paving materials and shade devices within the Level 2 BBQ pavilion seek to mitigate the heat island effect. A further measure for mitigating the heat island effect and maximising comfort levels on-site is the provision of awnings around the perimeter of the building's ground level as discussed in Section 7.3.3.

7.5. Environmental Amenity (SEAR 9)

There is a range of key considerations in determining whether the proposed development will result in any adverse impact on the amenity of the site and any surrounding existing and future residential uses, including:

- Lighting impacts;
- Solar access;
- Natural ventilation;
- Visual amenity;
- View loss and view sharing;
- Overshadowing;
- Wind impacts; and
- Acoustic impacts.

Each of these key environmental amenity considerations is discussed in detail within the following sections.

7.5.1. Lighting impacts

A Lighting Report has been prepared by JHA Consulting Engineers and included at **Appendix 11** of this EIS. The provision of low-level and downward lighting within the proposed development's lighting strategy is intended to minimise the potential for any adverse impacts associated with light spill. The proposed lighting is to be in accordance with the relevant technical requirements and performance standards, which will regulate luminance levels and further minimise any potential impacts from lighting.

7.5.2. Solar access

The orientation of the site to the north assists in maximising solar access to the development. The residential towers have been appropriately setback from the street, Doran Drive Plaza and each other to allow for direct sunlight to the primary private living areas and open space and communal open spaces.

The ADG requires that living rooms and private open spaces of at least 70% of apartments in a building receive at least 2 hours direct sunlight between 9am and 3pm at mid-winter in the Sydney Metropolitan Regional. The ADG also requires no more than 15% of apartments receive no direct sunlight in this time.

The solar access diagrams and sun eye views prepared by Turner and included at **Appendix 3** of this EIS demonstrate that 310 of the 431 (71%) apartments that are proposed receive adequate solar access, while 30 of the 431 (7%) apartments that are proposed do not receive any direct sunlight. Subsequently, and as further detailed within the Architectural Statement also prepared by Turner (**Appendix 4**), the development complies with the solar access requirements contained within the ADG.

The ADG also requires that developments achieve a minimum of 50% direct sunlight to the principal usable part of the communal open space for a minimum of 2 hours between 9am and 3pm at mid-winter. Usable communal open space shadow diagrams have been prepared by Turner (**Appendix 3**), which demonstrate that the principal useable parts of both the proposed public and private communal open space areas receive well in excess of the of the minimum 50% solar access that is required by the ADG.

7.5.3. Natural Ventilation

The ADG requires that at least 60% of apartments are naturally cross ventilated in the first nine storeys. Apartments that are ten storeys above are deemed to be naturally cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed. The Natural Cross Ventilation Study at Appendix 47 confirms the development can achieve a total of 66.5% (129 out of 194) of residential apartments that satisfy the ADG requirements for natural cross-ventilation through locating openings in significantly different pressure regions. Refer to the cross-ventilation diagrams prepared by Turner and included at **Appendix 3** and the Architectural Statement at **Appendix 4** for further detail.

7.5.4. Visual privacy

The proposed development seeks to maximise visual privacy within the site and to future neighbouring developments. This has been achieved through the provision of setbacks and building separation distances that mostly comply with the concept approval building envelope and fully comply with the ADG requirements. The proposed layouts have also been designed to avoid direct sightlines between buildings. Additional design elements to ensure that visual privacy is achieved within the development include angles windows orientations and opaque glazing when a secondary window to a habitable room.

Additionally, landscaping has been utilised to provide screening between the podium communal open space and the private open spaces of the residential apartments of Buildings A and B that back onto it.

7.5.5. Visual amenity

The visual impacts associated with the proposed development are assessed in Section 7.2 of this EIS.

7.5.6. View loss and view sharing

There are no significant or iconic views that currently exist across the site and could be affected by the development.

A Visual Impact Assessment was previously prepared by Cardno to support the concept application. The findings of this assessment in relation to visual impacts is discussed within Section 7.2 of this EIS.

The orientation of buildings and apartments within the development have been designed to leverage outlook onto the new (and existing) public domain and district views that allow residents to connect to nature. The location of communal open spaces on rooftops also provides further access to district views.

7.5.7. Overshadowing

Shadow diagrams have been prepared by Turner and (**Appendix 3**) and are extracted in the figures overleaf.

These diagrams show that at 9am at mid-winter that the shadows cast by the development generally lie to the north-western corner of the Showground Station entry, the existing commuter car park and bicycle parking, the south-eastern corner of the future development of the Showground Precinct West and parts of Carrington Road, Cattai Creek and the R4 High Density Residential zoned land located past Ashford Street. Some shadows are also cast on the Doran Drive and Mandala Parade and adjacent public domain, as well as the development itself and the publicly accessible Doran Drive Plaza west of the building.

By 12pm the shadows cast by the development generally relate to the station and its plaza, Mandala Parade and a small part of the R4 zoned land on Carrington Road between Middleton and Ashford Avenues, noting that this land currently comprises single-detached dwelling houses of 1-2 storeys. The proposed development still casts some shadows on itself at 12pm at mid-winter but to a lesser extent, and by 12:25pm 100% of the principal useable space of Doran Drive Plaza receives direct solar access.

By 3pm the shadows cast by the development generally relate to the development itself, Mandala Parade and Andalusian Way, the central and eastern portions of the Showground Station Plaza area, a small portion of the south-western corner of the future development of Showground Station East and the R4 zoned land south of Carrington Road and to the east and west of Middleton Road up to Partridge Road.

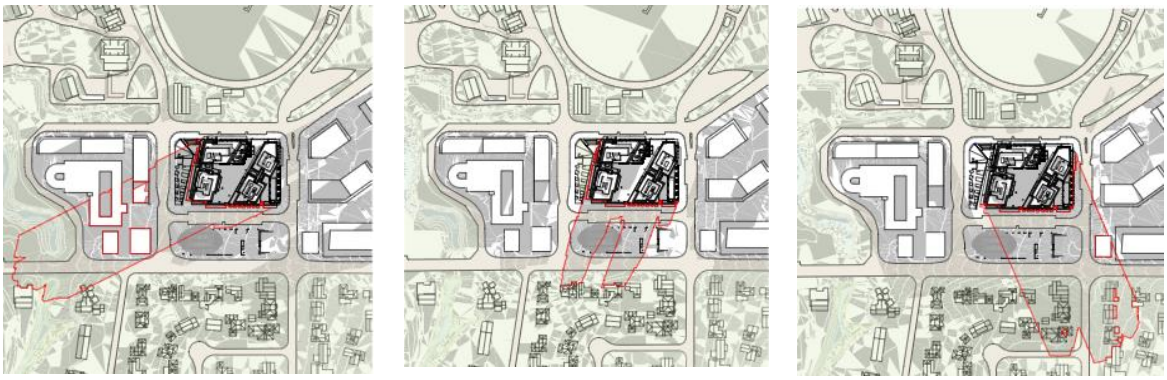

Figure 53: 9am (left), 12pm (centre) and 3pm (right) shadow diagrams (Source: Turner)

Noting that the proposed development sits within the building envelope of the concept approval, the potential shadow impacts would have been assessed as part of the previous application. Nonetheless, the proposed development is considered to have acceptable overshadowing impacts to adjacent properties in that it does not preclude the Showground Station Plaza from receiving its required solar access, and the majority of the residential properties south of Carrington Road are not affected until 3pm.

7.5.8. Wind impacts

A Pedestrian and Wind Environment Study has been prepared by Windtech and is provided at Appendix 48. Testing was performed at Windtech's boundary layer wind tunnel facility. The wind tunnel has a 3.0m wide working section and a length of 14m. Measurements were taken from 16 wind directions at 22.5 degree increments and testing was carried out using a 1:300 detailed scale model of the development. The effects of nearby buildings and land topography have been accounted for through the use of a proximity model which represents an area with a radius of 375m.

Peak gust and mean wind speeds were determined at selected critical outdoor trafficable locations within and around the subject development. Wind velocity coefficients representing the local wind speeds are derived from the wind tunnel and are combined with a statistical model of the regional wind climate (which accounts for the directional strength and frequency of occurrence of the prevailing regional winds) to provide the equivalent full-scale wind speeds at the site. The wind speed measurements are compared with criteria for pedestrian comfort and safety, based on Gust-Equivalent Mean (GEM) and annual maximum gust winds, respectively.

The model was tested in the wind tunnel without the effect of any forms of wind ameliorating devices such as screens, balustrades, etc., which are not already shown in the architectural drawings. The effect of vegetation was also excluded from the testing.

The results of the study indicate that wind conditions for all trafficable outdoor locations within and around the development will be suitable for their intended uses.

7.5.9. Acoustic impacts

The acoustic impacts associated with the proposed development are assessed in Section 7.13 of this EIS.

7.6. Transport, traffic, parking and access (SEAR 10)

A Traffic and Parking Assessment Report has been prepared by Varga Traffic Planning and included at **Appendix 49**.

7.6.1. Traffic

Peak period traffic surveys were undertaken at six key intersections within the vicinity of the site, with the results of the traffic surveys and the existing traffic conditions during the peak periods provided below.

Table 22: Existing peak traffic volumes

Intersection/ Road	Peak period*	Vehicle per hour (vph)
Showground Road/ De Clambe Drive	Both	2,300
Showground Road/ Carrington Road	Both	1,900
Carrington Road (Between Showground Rd and Andalusian Way)	AM	1,300
	PM	2,100
De Clambe Drive (Between Showground Rd and Andalusian Way)	Both	330-370
De Clambe Drive past Andalusian Way	Both	200-255
Andalusian Way	Both	100-200
Doran Drive	Both	100-200

Source: Varga

**Note: The morning (AM) and evening (PM) peak periods were surveyed to be 8am-9am and 5:15pm-6:15pm.*

Using the Roads and Maritime Services (RMS) publication *Guide to Traffic Generating Developments* (October 2002) and the updated traffic generation rates in *RMS Technical Direction* (TDT 2013/04a) document, the Traffic and Parking Assessment Report identifies the following traffic generation for this SSDA:

Table 23: Projected traffic generation

Element of proposed development	AM	PM

Residential (431 apartments)	82 vph	65 vph
Retail shops and supermarket (8,200m^2 GLFA*)	362 vph^	756 vph^
Total traffic generation potential	444 vph	821 vph

Source: Varga

The projected increase in traffic from the proposed development is consistent with approved concept. The implications of this increase in traffic on key intersections is included within Table 3 of the report, which demonstrate that the surrounding road network will generally operate at satisfactory Levels of Service, except for the Showground Road and Carrington Road intersection that requires upgrading. This is consistent with the findings of the Traffic and Transport Assessment prepared by SCT Consulting, which was prepared to accompany the concept application for the Hills Showground Station Precinct.

Subject to the upgrade works to the Showground Road and Carrington Road intersection road being implemented, the proposed development has been found to not result in any unacceptable traffic implications.

A Road Safety Audit Report has also been prepared by MU Group Consulting Pty Ltd and included at **Appendix 50**, which identifies potential road safety risks associated with the proposed development. In order for the road safety audit process to be completed this report recommends further steps to be taken, including the preparation of a corrective action plan and the implementation of the corrective actions.

7.6.2. Parking

The off-street car parking rates in relation to the proposed development are set out in the table at Figure 54.

The proposed development provides for a total of 772 off-street car parking spaces across 6 levels, comprising 431 residential car parking spaces and 341 retail/ commercial car parking spaces. The basement car park has been designed to accommodate 38 x electrical charging stations and 8 x share spaces.

The proposed provision of 431 residential parking spaces for 431 apartments are considered satisfactory for the requirements of the residential component of the development for the reasons set out in the report.

The proposed provision of 341 retail spaces for 10,939m^2 GFA of non-residential floor space equates to a car parking rate of approximately 1 space per 32m^2 and is considered necessary for the following reasons:

- the proposed provision of 341 retail car parking spaces is more in line with the minimum parking requirements set out in many other Sydney council DCPs that typically require 1 space per 25m^2 GFA.
- whilst constraining parking in transit-oriented areas is a key planning policy, it is not always practical. For example, customers undertaking a full grocery shop at the proposed on-site supermarket will not carry a trolley-load of groceries in bags on the train or bus and will seek to drive.
- the above constraining of the provision of retail car parking may be viable in CBD centres where the supermarket is smaller than a suburban supermarket (e.g. Woolworths Metro or similar); however, for a full-sized supermarket such as that proposed by this application, constraining

parking for retail will severely limit the supermarket operation/ tenant options and render it unviable.

- strictly complying with the retail car parking rates specified in the UDGs endorsed as part of the concept approval would likely result in insufficient on-site car parking being available for visitors, which may result in commensurate increases in on-street parking demand in the surrounding streets. This has the potential to affect the surrounding residential amenity for existing and future residents.

The reasons identified above are based on the Retail Car Parking Assessment prepared by HillPDA (**Appendix 51**), with analysis showing that for any time over the foreseeable future (at least 5 years), a full-line supermarket could not be supported by residents and workers within a walkable catchment alone.

Land Use		Proposed Units/Floor Area	Parking Rate Applied	Required Parking
Residential	1-bedroom	77	1/dwelling (max)	77
	2-bedroom	311	1/dwelling (max)	311
	3-bedroom	43	1/dwelling (max)	43
Residential Sub-Total		431		431
Retail/Commercial		10,935m²	1 space per 32m² GFA	341
Retail/Commercial Sub-Total				341
TOTAL OFF-STREET PARKING REQUIREMENT				772

*Assuming GLFA: GFA=0.75:1 (refer to Section 3.6.1, Guide to Traffic Generating Development)

Figure 54: Off-street car parking requirement (Source: Varga Traffic Planning)

7.7. Ecologically sustainable development and climate change (SEAR 11)

An Environmental Performance and ESD Report has been prepared by ARUP and is included at **Appendix 13**.

Clause 7(4) of Schedule 2 of the EP&A Reg identifies the following principles of ecologically sustainable development:

1. The precautionary principle;
2. Intergenerational equity;
3. Conservativity of biological diversity and ecological integrity; and
4. Improved valuation, pricing and incentive mechanisms.

The proposed development's alignment with these principles is discussed in detail within the ESD Report. In incorporating these principles into the design, construction and operation of the proposed development, the relevant industry benchmarks and best practice management strategies targeted include a 5-star NABERS energy and water rating for non-residential component of the development

and a 5-star Green Star Design and As-Built rating for both the residential and non-residential components. Some of the sustainability initiatives proposed to meet these industry benchmarks include:

- A robust site planning, layout and urban design strategy;
- Responsible construction practices;
- High-performance buildings;
- Integrating on-site renewable energy generation;
- Reducing greenhouse gas emissions;
- Reducing potable water usage;
- Embedding climate adaption and resilience into design;
- Biodiversity enhancement through landscaping and species selection;
- Mitigating urban heat island effects using a combination of strategies;
- Integrating water sensitive urban design;
- Implementing an integrated water cycle management strategy;
- Encouraging recreation and active lifestyles;
- Community development initiatives;
- Residential affordability and social housing;
- Minimising construction and operational waste;
- Supporting sustainable transport that include providing electric vehicle charging infrastructure);
- Selecting building materials that are responsibly sourced or have a sustainable supply chain; and
- Sustainable supply chain practices that include not engaging in modern slavery.

Refer to the ESD Report for the full details of all the sustainability initiatives to be incorporated in the development.

7.8. Contamination (SEAR 12)

A Detailed Site Investigation has been prepared by EI Australia and is included at **Appendix 36** of this EIS.

7.8.1. Existing Environment

The ground surface of the site was observed during an inspection to be covered by exposed fill materials. No visual evidence of gross contamination, underground petroleum storage systems (UPSS) and underground storage tanks (USTs) were observed on the site during this same inspection of the site. A detailed history of the site is included within Section 4 of EI Australia's Detailed Site Investigation; however, prior to the site's current configuration and its use during the construction of Showground Station, the site contained The Hills Centre performing arts centre from 1994 to 2013 when it was demolished. Before this it was utilised as public open space and for rural residential and agricultural purposes. Moreover, the site and surrounding lands were not listed in any of the EPA records that were reviewed.

7.8.2. Assessment

The findings of soil sampling and groundwater monitoring undertaken for the Detailed Site Investigation include:

- The sub-surface layers observed comprise fill materials that overlay natural clay and sandstone bedrock;
- Laboratory results of the soil samples that were collected from the site reported concentrations below the most conservative human health and ecological based Soil Investigation Levels (SILs);
- Laboratory results indicated that the natural soils on-site were non-saline and only slightly acidic, with the exception of a soil sample from one of the boreholes drilled that reported a pH level at 9.4.
- Standing Water Levels (SWL) were observed between 2.58 and 4.48 metres below ground level.
- Concentrations of Polycyclic Aromatic Hydrocarbons (PAHs), Benzene, Toluene, Ethylbenzene, Xylene (BTEX), Total Recoverable Hydrocarbons (TRHs) and Volatile Organic Compounds (VOCs) from the groundwater monitoring wells installed were reported below the adopted criteria.
- Concentrations of heavy metals were reported below the adopted freshwater criteria for the project, with the exception of chromium, copper, lead, nickel and zinc in some groundwater samples. However, the detected concentrations are considered to be indicative of background conditions.
- Groundwater concentrations are not considered to present concern for human health or the environment.
- The fill materials on the site were classified as General Solid Waste (Non-Putrescible). Additionally, underlying natural soils on the site were classified as virgin excavated natural material.

Based on these findings it has been concluded that the site is suitable for the proposed development, provided the recommendations of the Detailed Site Investigation detailed in the section below are implemented, and therefore the proposed development satisfies the provisions of Clause 7 within SEPP 55.

7.8.3. Mitigation Measures

Based on the findings of the Detailed Site Investigation the following mitigation measures are recommended:

- Any fill or natural soil materials that are required to be removed from the site as surplus materials (including virgin excavated materials) as part of any excavation and foundation works are to be classified for off-site disposal in accordance with the EPA's Waste Classification Guidelines; and
- A material that is imported to the site should be validated as suitable for the intended use of the site.

7.9. Heritage (SEAR 13)

7.9.1. Aboriginal Heritage

A Preliminary Aboriginal Objects Due Diligence Assessment has been prepared by Urbis (**Appendix 39**). This report provides a high-level analysis of the opportunity and risk relating to Aboriginal archaeology. The conclusions drawn by Urbis from this high-level analysis can be summarised as follows:

- An Aboriginal Heritage Information Management System (AHIMS) search identified no Aboriginal objects and/ or places within the site but did identify 97 Aboriginal objects within the vicinity of the site.
- Most Aboriginal objects identified are concentrated along waterways such as nearby Cattai Creek.

- The alignment of Cattai Creek was moved 30 metres west in the late twentieth century, which suggests that the waterway was originally located closer towards the site. Whilst proximity to an historical creek line is generally indicative of Aboriginal archaeology sensitivity, the site has been the subject of high levels of disturbance that likely removed the natural soil horizon.
- The eastern component of the site is located on soil landscapes that are shallow and subject to erosion. Erosion and high levels of disturbance are likely to have removed the shallow soil profile, which significantly reduces the potential for Aboriginal archaeology on the site the subject of the development.
- Geotechnical investigations have corroborated the historical development of the site, which indicated the site was subject to significant disturbance the removed natural soil profiles and resulted in the deposition of large quantities of fill to facilitate the construction of the old Council depot.

Based on these conclusions this assessment agrees with the findings of heritage consultant GML's Aboriginal and Non-Aboriginal Heritage Impact Statement (2019) submitted with the concept application, which concluded that the site had nil to low potential for Aboriginal archaeological sites and places, and therefore any proposed works are unlikely to impact upon Aboriginal archaeological remains or heritage.

Nonetheless, the Preliminary Aboriginal Objects Due Diligence Assessment makes the following recommendations:

1. Induction materials be prepared in consultation with the Deerubbin Local Aboriginal Land Council (LALC) and other relevant parties to identify the types of sites and objects most relevant to the site, as well as provide an overview of and requirements for an 'archaeological chance find procedure'.
2. If an Aboriginal object is uncovered than all works on-site must stop and Heritage NSW must be notified. An appropriately qualified archaeologist should be consulted for the purpose of implementing best practice protection and management measures while relevant approvals are sought.
3. In the unlikely event that human remains are uncovered on-site during the proposed works, the steps identified within this Preliminary Aboriginal Objects Due Diligence Assessment must be followed.

7.9.2. Non-Aboriginal Heritage

A Heritage and Archaeological Impact Statement (HAIS) has been prepared by Urbis and is included at **Appendix 38**.

The site is not listed as a heritage item under THLEP 2019 but is located in the vicinity of the following items:

Table 24: Heritage items in the vicinity of the site

Suburb	Item name	Address	Property description	Significance	Item no.
Castle Hill	House	107 Showground Road	Lot 1, DP 578072	Local	I68
Castle Hill	House	128-132 Showground Road	Lot 406, DP 860609	Local	I69

The location of these heritage items in relation to the site is demonstrated by the map included at Figure 55.

Figure 55: Heritage map - site outlined in red (Source: Urbis)

Whilst Castle Hill Showground is not currently listed under any statutory instrument as a heritage item, a heritage assessment previously prepared did identify it has having heritage significance at a local level.

The HAIS includes a detailed assessment of the proposed development resulting in the following findings:

- No impact on local heritage item 'House' at 107 Showground Hill, Castle Hill (item no. 168) on the grounds it would have no impact on its physical and visual curtilage or historical heritage values;
- A minor but acceptable impact on local heritage item 'House' at 1281-32 Showground Road, Castle Hill (item no. I69) as the proposed development would be visible from the item; however, impacts to its setting and views are reduced by its location uphill and setback from the road. The proposed development would not have an impact on its physical curtilage or historical heritage values;
- A minor but acceptable impact on the heritage significance of the Castle Hill Showground. Whilst the proposed development would alter the setting and visual curtilage of the showgrounds, this impact is reduced by the carefully designed podium and the reinvigoration of the area it would afford. The proposed development would also generate opportunities for communication and public awareness of Castle Hill Showground and its historical value within the Castle Hill area; and
- Nil to low potential for the proposed development to impact on significant archaeological resources.

Based on the above conclusions it is recommended the proposed development be approved subject to:

1. A Heritage Interpretation being prepared for the site by a suitably qualified heritage consent. This Heritage Interpretation should reference the Heritage Interpretation previously prepared by GML, which was prepared to support the concept application for the Hills Showground Station Precinct, the preparation of which can be conditioned as part of any development consent that is granted; and
2. An Unexpected Finds Protocol should be implemented in the event an archaeological resource is uncovered.

7.10. Flooding (SEAR 14)

A Flood Impact Assessment has been prepared by ACE and is provided at Appendix 42. The results of the flood modelling for the existing scenario indicate that potential flooding at the site results from overland flow from the upstream catchment in the immediate vicinity of the proposed development. Since the upstream catchment is small, the overland flooding is not significant. The existing scenario flooding can be summarised as:

- The flooding is contained in the road reserve up to the 1% AEP event
- The sag at the Doran Avenue (near the bus stop) is flooded to a significant depth
- The peak flood velocity varies from 0.5-1.0 m/s along the surrounding roads of the site
- The provisional flood hazard is low on the surrounding roads of the site, except for a small area on De Clambe Drive, adjacent to the north-western part of the site.

Comparison of pre and post development flood behaviour shows no significant impact in the 5% AEP and the 1% AEP flood events. With the proposed development the runoff from the site would be directed to OSD and only a small part of the site would directly contribute runoff to Doran Avenue. The proposed OSD for the development, near the intersection of Doran Avenue and Mandala Parade, is shown to overflow during the 1% AEP flood. However, the overflow depth is not significant and the provisional flood hazard remains Low. Further downstream, within the flood detention basin and the Cattai Creek there is reduction in flood levels and hence no adverse impact.

The Flood Impact Assessment concludes that the development will not have any potential adverse impact of overland flooding.

7.11. Stormwater drainage and water quality (SEAR 15)

A Stormwater Management Plan has been prepared by AECOM and is included at **Appendix 12** of this EIS.

7.11.1. Existing environment

The existing site features depressed swales along both the northern and southern boundaries of the site, with inlet pits situated within these swales to collect stormwater run-off generated by the site. There are currently four pits in total which discharge to the drainage in the roads surrounding the sites. Two pits in the northern swale connect into existing public drainage infrastructure on De Clambe Drive. The other two pits in the southern swale connect into existing public drainage infrastructure on Mandala Parade.

The remaining uncaptured catchment predominantly exhibits overland flow sheet flow to the western boundary and appears to be collected by inlet pits located within a dish drain on Doran Drive's western side.

The existing public drainage infrastructure eventually discharges to Cattai Creek as shown in Figure 56 below.

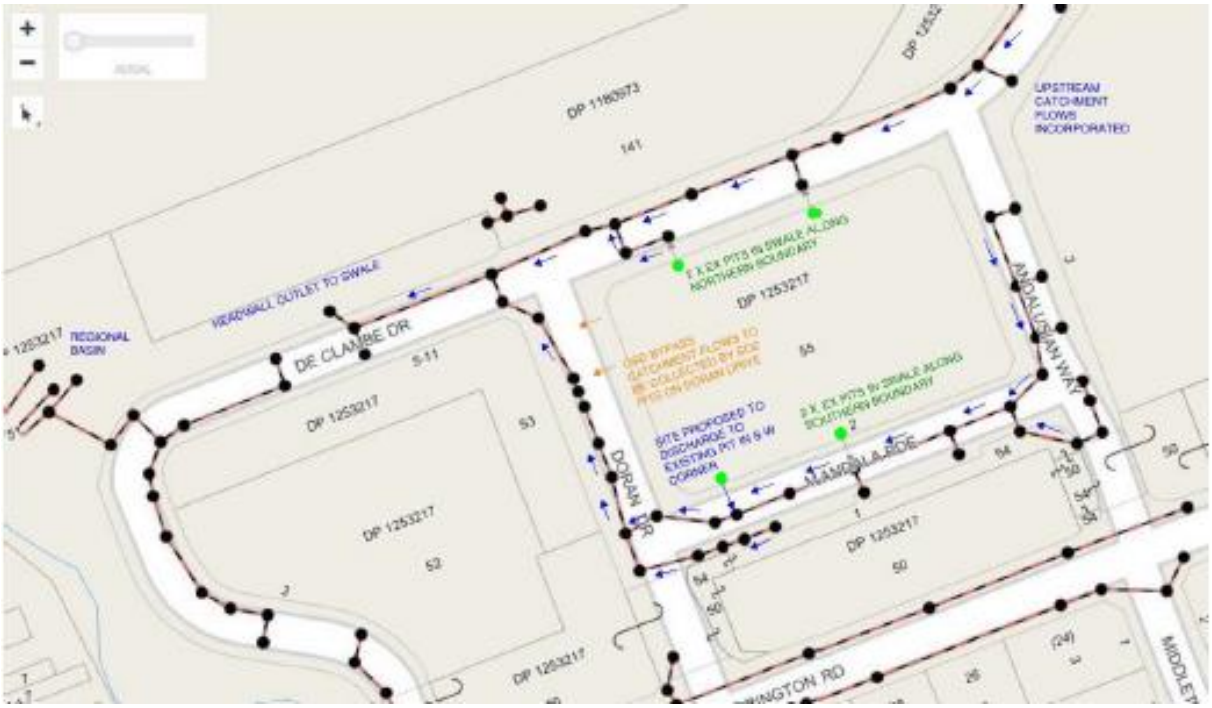

Figure 56: Existing Council stormwater drainage network (Source: AECOM)

7.11.2. Assessment

A Stormwater Management Plan has been prepared by AECOM and is included at **Appendix 12** of this EIS, which has been designed in accordance with Council's requirements and is described within Section 4.16. Given that the Hills Showground Station Precinct is serviced by an existing regional basin, Council have provided in-principle agreement that the OSD facility provided is acceptable for the development. Mandala Parade has been nominated as the point of discharge for the proposed development.

The OSD tank has been designed to provide sufficient storage volume for attenuation to ensure that the proposed development for events up to the 1% AEP flood event are piped without any pits surcharging.

A Water Sensitive Urban Design (WSUD) strategy has been prepared to support the proposed development and ensure it complies with Council's pollution reduction targets as shown in the table below.

Pollutant (kg/yr)	Source Load	Residual Load	Reduction in Pollutant Sources (%)	Reduction Target (%)	Reduction Target Achieved
Total Suspended Solids	353	52.8	85	85	Yes
Total Phosphorus	0.965	0.234	76	65	Yes
Total Nitrogen	10.8	4.99	54	45	Yes
Gross Pollutants	122	0	100	90	Yes

Figure 57: Pollution reduction model results (Source: AECOM)

Compliance with the pollution reduction targets is reliant on the treatment train outlined in the section below.

7.11.3. Mitigation measures

The following treatment devices are proposed to achieve the required pollutant reduction targets by Council:

- Water quality chamber and stormfilter cartridges;
- Rainwater tanks and re-use;
- Gross pollutant litter baskets; and
- Tree pits.

7.12. Air quality (SEAR 16)

An Air Quality Management Plan (AQMP) has been prepared by EI Australia and is included at **Appendix 52**.

7.12.1. Existing environment

The 90th percentile concentrations for background air quality pollutants were reviewed to be as follows:

- PM10: 26.8 µg/m3 over 24 hours and 17.2 µg/m3 annual;
- PM2.5: 11 µg/m3 over 24 hours and 7 µg/m3 annual;
- CO: 0.3 µg/m3 per hour or 0.3 µg/m3 over 8 hours; and
- NO_2: 24.4 µg/m3 over 1 hour and 11.3 µg/m3 annual.

Using the average annual concentrations for the above Particulate Matter of PM10 and PM2.5, the AQMP notes that GHD as the consultant that previously prepared an Air Quality Assessment for the concept, found these background concentrations to be high and indicated poor air quality on a regional level.

Identified local emission sources include Environmental Protection Authority (EPA) licensed industry, although these are of low concern as they are regulated by their environmental protection licenses. The most significant contributors to local emissions have been identified as road transport and household activities.

The nearest sensitive receptors identified for the site in relation to potential adverse air quality impacts, include:

- Residential users to the north, south and east of the site;
- Users of the childcare centre 110 metres to the site's south-west;
- Recreational and ecological users of Cattai Creek;
- Users of the Showground Station and its associated infrastructure; and
- Site works and any external work areas immediately adjacent to the site boundaries during construction.

7.12.2. Assessment

The construction activities identified within the AQMP as being of most concern to local air quality include:

- Soil disturbance activities (e.g. bulk excavation);
- Importation and stockpiling of material and uncovered loads;
- Cutting, grinding and sawing activities and the operation of concrete/ asphalt agitators;
- Wind erosion and areas of exposed soil within an open environment; and
- Operation of mobile plant equipment.

The primary contaminate of concern for air quality from the above activities has been identified as dust, with mobile plant emissions considered to be short term and minimal compared to those of local road transport.

Refer to the AQMP for the acceptance limits for air quality in terms of dust and odour for the proposed development.

7.12.3. Mitigation measures

The AQMP recommends measures in relation to site preparation and bulk earthworks, haulage and mobile plant operations and constructions works to mitigate any potential adverse impacts on air quality. Refer to the AQMP included at **Appendix 52** for the full list of the mitigation measures that are recommended.

The AQMP also recommends management measures be implemented at site in relation to air quality, including:

- Limiting construction hours;
- Induction and training for all staff; and
- Monitoring, including:
  - Weather;
  - Visual surveillance; and
  - Review of the AQMP.

Additionally, the AQMP recommends contingency measures for the mitigation of expected non-conformances.

7.13. Noise and Vibration (SEAR 17)

A Construction Noise and Vibration Management Plan has been prepared by Koikas Acoustics (**Appendix 53**). This Construction and Noise Management Plan has been prepared in accordance with the:

- Interim Construction Noise Guidelines (NSW DECCW, 2009) - ICNG; and
- Sydney Metro - Technical Services.

An operational Acoustic Report has also prepared by Koikas Acoustics is included at **Appendix 54** of EIS.

7.13.1. Existing environment

The management plan notes prevailing ambient noise conditions on-site and in the locality are generally the result of typical environmental noise such as traffic and localised commercial/ domestic noise sources.

Existing external ambient noise levels were measures by conducting an unattended ambient noise survey. The locations of the unattended noise loggers used for this survey are identified in the Acoustic Report. A summary of the noise logger results at the various locations on-site is provided in Table 25 below.

Table 25: Summary of noise logger results

Location	Period LAeq	Ambient noise level LA90	Rating background level	Traffic noise level LAeq
Monitoring Location A	Day	55	49	54
	Evening	51	42	
	Night	47	32	47
Monitoring Location B	Day	57	49	56
	Evening	52	44	
	Night	47	34	47
Monitoring Location C	Day	60	52	59
	Evening	57	46	
	Night	52	35	52
Monitoring Location D	Day	60	50	59
	Evening	57	44	
	Night	52	33	52

Source: Koikas Acoustics

Attended rail noise and vibration surveys were also conducted to establish background noise levels. Rail noise was not audible above the road traffic noise levels and therefore was not measurable. Furthermore, no vibrations were measurable from metro train pass-bys from the locations of the survey.

7.13.2. Assessment

This section of the EIS identifies and assesses the potential noise sources against the relevant noise criteria.

Construction

The Construction Noise and Vibration Management Plan identifies typical construction noise sources, including circular saws, angle grinders, hand tools (pneumatic), trucks, excavators and concrete pumps. Estimated construction noise levels for these sources on the nearest sensitive receivers are at Table 26.

Table 26: Estimated construction noise levels to surrounding receivers - LAeq 15 min [dB]

Noise Source	Noise assessment receiver location		
	Showground Station	Hills Showground Station Precincts East and West and Castle Hill Showground	Residential properties along Carrington Road
Circular saw	78	74	65
Angle grinder	74	70	62
Hand tools (pneumatic)	82	78	70
Trucks (dump)	83	79	71
22 tonne excavator	65	61	53
Excavator loading truck	73	69	61
Concrete pump	69	65	57
Concrete truck and pump	61	57	49

Source: Koikas Acoustics

Whilst the estimated levels in the table may be lower when taking into account any existing boundary fences, noise from construction is predicted to exceed the Noise Affected Level of the ICNG at nearby receivers. Therefore, it is recommended that mitigation measures be implemented during construction. Refer to Section 7.13.3 below for the recommended construction noise and vibration mitigation measures.

The highest anticipated vibration levels as detailed in the Construction Noise and Vibration Management Plan, will result from rock breaking or other impulsive-type excavation works depending on the local geology. Based on the minimum working distances identified for particular types of plant equipment, it is concluded that vibration from an excavator removing soil during the earthworks for the basement car park is not expected to result in any structural damage or human annoyance at the nearby sensitive receivers.

Operational

In accordance with Council guidelines and other standard planning instruments in relation to noise and vibration, the Acoustic Report prepared by Koikas Acoustics assesses the following acoustic components:

<u>Future occupants of development</u>

- Road traffic along Carrington Road and the surrounding local road network;
- Rail vibration from Showground Station;
- Inter-tenancy noise; and
- Noise from the existing car park across Dorian Drive.

Occupants of neighbouring development

- Mechanical noise emission from the proposed development on neighbouring dwellings; and
- Noise arising from increased road traffic due to the development.

These acoustic components have been assessed with respect to the acceptable noise levels established, resulting in the following conclusions being made by Koikas Acoustics in its assessment report:

- The building can be sufficiently insulated against existing external sources of noise in the area such as road and rail traffic through the use of acoustic glazing within the construction of the building.
- Rail vibration was not measurable at the nearest boundary and thus no mitigation measures are required.
- A detailed assessment of mechanical plant noise is normally assessed at Construction Certificate stage.
- Acoustic treatment options for the common floors and services partitions included within this report would be adequate for satisfying the sound insulation provisions contained within the BCA.
- The future project road traffic noise level is expected to achieve a less than 2 dB increase in noise levels to surrounding and existing residential properties to the north, south and east of the site. The additional road traffic noise on these surrounding residential properties due to the proposed development is expected to achieve the acoustic requirement of the NSW Road Noise Policy document.
- Predicted noise levels from the existing Showground Station commuter car park is expected to achieve compliance in accordance with the EPA's Noise Policy for Industry to the site. Therefore, no further acoustic treatments are required to be incorporated into the design of the proposed development.

Refer to Section 7.13.3 below for the recommended operational noise and vibration mitigation measures.

Clauses 85, 86 and 87 of the Infrastructure SEPP refer to guidelines that must be taken into consideration by a consent authority for any proposed development in or adjacent to a rail corridor. For the purpose of these clauses this is the *Development Near Rail Corridors and Busy Roads: Interim Guideline*. In assessing the various acoustic components identified for the proposed development, the Acoustic Report prepared by Koikas Acoustics (**Appendix 54**) does take into consideration this Interim Guideline.

7.13.3. Mitigation Measures

The Construction Noise and Vibration Management Plan recommends several mitigation measures to be implemented during the construction of the proposed development to manage noise and vibration, including:

- The use of moveable screens for specific work practices;
- Provision of an acoustic type hoarding along the site boundary;
- Exhaust silencers on motorised plant and equipment such as the excavators;
- The undertaking of construction works during standard hours as defined in the ICNG;
- The use of appropriately sized plant and equipment;

- Identification and undertaking of likely high noise-generating activities during times of least noise sensitivity;
- The use of a hydraulic a hydraulic hammer attachment with a pointed 'cone' type hammer;
- Observation of minimum work distances at all times;
- Continuous vibration monitoring surveys during excavation;
- Progress noise monitoring during construction works; and
- Complaints handling.

The Acoustic Report recommends the following mitigation measures for the operation phase of the development:

External noise and vibration intrusion

- External wall construction (double-brick or concrete) in accordance with Table 5 of the Acoustic Report.
- All ceiling/ roof areas within the development are to be constructed of a 150 millimetre concrete slab.
- Glass windows and doors to habitable spaces fronting surrounding roads and all other spaces as follows:
  - Rw 34 for 10.38mm laminated glass - habitable spaces fronting the surrounding roads; and
  - Rw 31 for 6.38mm laminated glass – all other spaces;
- Any timber entry doors to the residential apartments should be a minimum 35-40 millimetres thick solid-core timber with acoustic perimeter seals and door bottom seals or an approved equivalent.
- A window or sliding door to a room may be opened to provide natural ventilation where the outdoor noise level does not exceed the 10dB above the "windows open" criteria as detailed within the report. For rooms that require an alternative ventilation system the following may be considered:
  - Borrowed air elsewhere in the dwelling/ unit;
  - Incorporating a component of fresh air into a ducted air conditioning system; and
  - Installing a small air supply fan and acoustically treated duct into a ceiling bulkhead.

Mechanical plant and building use

- A detailed assessment of mechanical plant noise is required at the Construction Certificate stage.

Inter-tenancy noise

- Inter-tenancy walls separating adjoining apartments to achieve an Rw + Ctr not less than 55 and be of discontinuous construction where a habitable rooms in one apartment adjoins a wet area in another.
- Corridor walls separating apartments from a common area are to achieve an RW not less than 55.
- Floor/ ceiling assemblies for balconies/ terraces as detailed within Table 10 of the Acoustic Report.
- Any main entry door to a residential apartment should be a minimum 40 millimetre thick solid-core timber with suitable acoustic perimeter and door bottom seals as identified within the report.
- Where a duct, soil waste or water supply pipe is located within a wall or ceiling cavity of an apartment, appropriate separation is required in accordance with Table 11 of the Acoustic Report.

- A flexible coupling must be used at the connection point between a service's pipes and another pump.
- In-situ testing is conducted on a representative and fully installed floor/ ceiling assembly to ensure adequate acoustic insulations and isolated is achieved prior to installing all floors on all floor levels.

7.14. Ground conditions (SEAR 18)

A Geotechnical Investigation has been prepared by EI Australia and is included at **Appendix 55** of this EIS.

7.14.1. Geotechnical

Based on geological mapping the site is identified as being underlain by Hawkesbury Sandstone, which typically comprises very coarse-grained sandstone, minor laminated mudstone and siltstone lenses. This was confirmed by the stratigraphy observed during the borehole testing as summarised in the table below.

Unit	Material[2]	Depth to Top of Unit (m BEGL)[1]	RL of Top of Unit (m AHD)[1]	Observed Thickness (m)	Comments
1	**Fill**	0.00	90.80 to 98.00	0.60 to 4.00	Gravelly sand fill was observed at the surface of BH4M and BH5M overlying low to medium plasticity silty clay fill. Low plasticity silty clay fill with sandstone and igneous gravels was observed at the surface of BH1, BH2, BH3M and BH6. Fill was assessed, based on our observations during drilling and SPT N Values to be variably compacted with values ranging from 8 to refusal indicated by hammer bounced;
2	**Residual Soil**	0.60 to 4.00	88.40 to 95.90	0.20 to 1.90	Medium plasticity, very stiff to hard silty clay and sandy clay with trace ironstone gravels, grading into weathered sandstone with depth. SPT values ranged from 21 to refusal indicated by hammer bounced;
3	**Class IV/V Sandstone**	2.00 to 4.60	91.80 to 94.40	0.40 to 0.90	Extremely to distinctly weathered, low strength sandstone.
4	**Class II/I Sandstone**	1.50 to 5.00	88.10 to 93.50	-[3]	Slightly weathered to fresh, high strength sandstone with Laminite beds. Laminite consisting of fine to medium grained sandstone interbedded with dark grey shale was encountered in all the boreholes at depths ranging from 23.33m BEGL (RL of about 67.67m) and 28.89m BEGL (RL of about 69.11m) with thickness of up to 3.70m.

Figure 58: Summary of subsurface conditions (Source: EI Australia)

No groundwater or significant seepage was observed during or after auger drilling of the boreholes. However, groundwater monitoring wells were installed in some boreholes with the results in the following table.

Borehole ID	Measurement Date	Depth to Groundwater (m BEGL)	Groundwater RL (m AHD)
BH3M	14/7/20	15.4	75.6
BH4M	14/7/20	20.5	77.5
BH5M	29/7/20	4.04	90.5

Figure 59: Groundwater levels (Source: EI Australia)

The permeability of the site's sandstone bedrock is estimated to be between $5.2x10^{-7}$ m/s to $5.2x10^{-8}$ m/s.

Further testing of soil samples found the results of pH, chloride and sulfate content and electrical conductivity provided a 'non-aggressive' exposure classification for buried concrete and steel structural elements.

Based on the results of the Geotechnical Investigation the following main geotechnical issues have been identified:

- Basement excavation and retention to limit lateral deflections and ground loss;
- Rock excavation;
- Groundwater within the depth of excavation;
- Existing Sydney Metro assets; and
- Foundation design for building loads.

The following measures as detailed in the Geotechnical Investigation Report are proposed to mitigate impacts:

- Use appropriate methods and equipment during excavation to keep ground vibrations at a suitable level.
- Any groundwater seepage that does occur us to be controlled by a conventional sump and dump system.
- A suitable retention system will be required to support Units 1, 2 and 3 during excavation, including an anchored and/ or propped soldier pile wall with mass concrete in between the piles. It is recommended that this pile wall be founded into the medium to high strength sandstone (Unit 4). The retention system may vary slightly to the south of the site adjacent the Sydney Metro tunnel.
- All footings for the building are to be founded within the sandstone bedrock of similar strength to Unit 4 or better to provide uniform support and reduce the potential for differential settlements; and
- Underfloor drainage is to be provided for the basement floor slab of the proposed development, comprising a strong, durable, single sized washed aggregate such as 'blue metal gravel'. Joints in the concrete floor slab are to be designed to accommodate shear forces but not bending movements. The basement floor of the development should also be designed to be isolated from columns.

- A system of sub-soil drains of a durable single sized aggregate with perforated drains leading to sumps.

Based on the results of the field work it is also recommended the following additional works are carried out:

- Stability assessment of temporary batters and seepage modelling (if required);
- Long term groundwater monitoring and seepage modelling (if required);
- Dilapidation surveys;
- Design of working platforms for construction plant by an experienced and qualified geotechnical engineer;
- Classification of all excavated mater transported off site;
- Geotechnical inspections of all new footings/ piles by an experienced geotechnical professional at depth intervals of 1.5 metres or less within medium to high strength bedrock if vertical cut adopted;
- Geotechnical inspections of all new footings/ piles by an experienced geotechnical professional before concrete or steel are place to verify bearing capacity and in-situ nature of the founding strata.
- Witnessing installation of support measures and proof-testing of anchors (if required); and
- Ongoing monitoring of groundwater inflows into the bulk excavation.

A Pre-Dilapidation Report as a record of the condition of surrounding council and the neighbouring properties prior to the commencement of the proposed development has already been prepared (**Appendix 56**).

7.14.2. Erosion and sediment control

An Erosion and Sediment Control Plan has also been prepared by AECOM and included at **Appendix 12** in accordance with Landcom's Managing Urban Stormwater – Soils and Construction "Blue Book", to minimise land disturbance and sediment pollution control of downstream waterways such as Cattai Creek. The erosion and sediment control measures that are proposed for the construction phase include:

- Sediment and security fencing around the perimeter of the site;
- Stabilised site entrance and wash down location;
- Installation of mesh filters for pits within dish drains; and
- Installation of mesh and gravel inlet filters on nearest downstream pits.

An extract of the Erosion and Sediment Control Plan prepared by AECOM is included at Figure 60 overleaf.

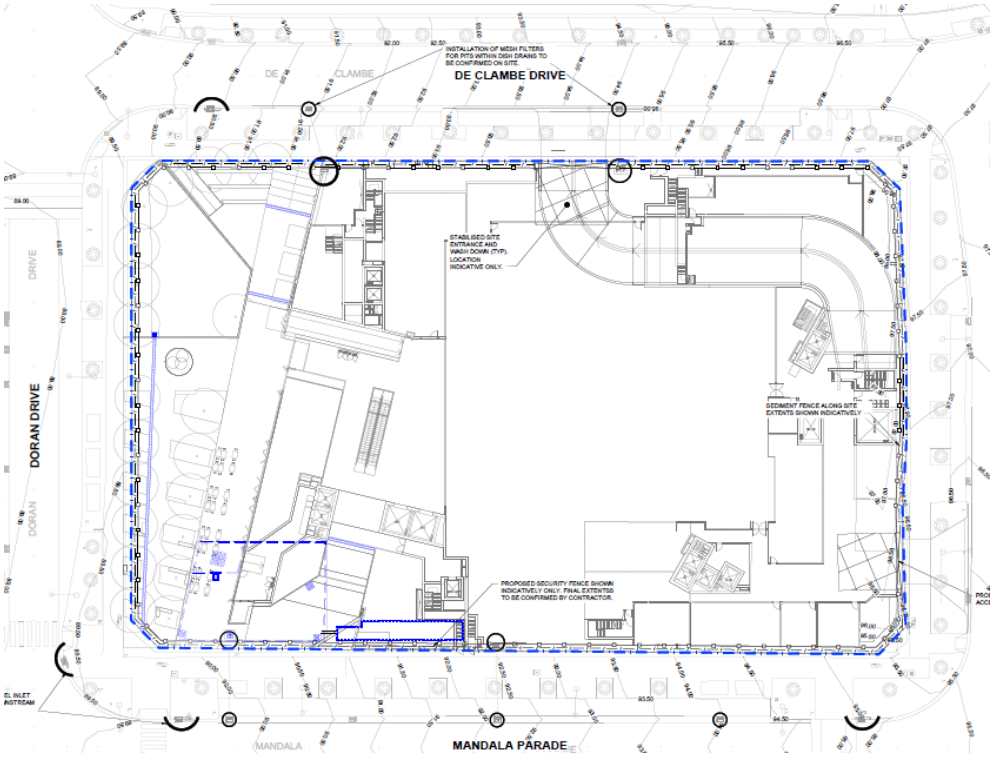

Figure 60: Erosion and sediment control plan (Source: AECOM)

7.15. Biodiversity (SEAR 19)

A BDAR was previously prepared by WSP for the concept application for the Hills Showground Station Precinct. This report found no recorded remnant vegetation or associated Plant Community Types (PCT), noting that the absence of any remnant native vegetation is the result of clearing for urban development. No threatened flora species, ecological communities or their habitat listed under the BC Act were determined to be affected by the concept proposed although one threatened fauna species (i.e. the Grey-headed Flying-fox) was recorded flying over the adjoining Cattai Creek to the west of the site. The BDAR also found the concept proposal to have the potential to have indirect impacts on Cattai Creek but concluded that these impacts (e.g. stormwater run-off) could be managed through mitigation measures. Moreover, given that the concept proposal was found not to have any direct impacts on PCTs and only minor impacts on Cattai Creek the Biodiversity Offset Scheme (BOS) is not applicable for the development.

The proposed development is not considered to alter any of the conclusions of the BDAR prepared by WSP which is provided at **Appendix 34**.

7.16. Waste and servicing (SEAR 20)

7.16.1. Construction Waste

The Construction Management Plan (CMP) prepared by Barker Ryan Stewart and included at **Appendix 26** includes a Construction Waste Management Plan (CWMP) to be implemented through the project's construction. Refer to the CWMP for estimated quantities of waste materials to be generated on the site. It is estimated that 94.5% of construction waste generated can be reused, recycled or diverted from landfill.

7.16.2. Operational Waste

An OWMP for the development has been prepared by Elephants Foot and is included at **Appendix 27**, which establishes the waste management procedures for the future operation of the proposed development.

Waste, recyclables and food waste generation estimates for the residential, retail/ commercial and supermarket components of the proposed development are detailed within the appended OWMP. Based on these waste generation estimates the following waste storage and collection areas have been allocated:

Level	Waste Room Type	Equipment	Bins	Estimated Area Required (m^2)	Actual Area Provided (m^2)
B4	Core A Waste Room	Dual chute Dual 2-bin 1100L linear track system Ceiling-mounted compactor	4 x 1100L MGBs for general waste 4 x 1100L MGB commingled recyclables 2 x 1100L service bins	42	46
B5	Core B Waste Room	Dual chute Dual 2-bin 1100L linear track system Ceiling-mounted compactor	3 x 1100L MGBs for general waste 3 x 1100L MGB commingled recyclables 2 x 1100L service bins	36	36
B4	Core C Waste Room	Dual chute Dual 2-bin 1100L linear track system Ceiling-mounted compactor	3 x 1100L MGBs for general waste 3 x 1100L MGB commingled recyclables 2 x 1100L service bins	36	44
B4	Core D Waste Room	Dual chute Dual 2-bin 1100L linear track system Ceiling-mounted compactor	3 x 1100L MGBs for general waste 3 x 1100L MGB commingled recyclables 2 x 1100L service bins	36	43
1	Residential Waste Holding Room	NA	13 x 1100L MGBs for general waste 13 x 1100L MGB commingled recyclables	75	79
1	Residential Bulky Goods Room	NA	Bulky cardboard bins (as needed)	35	46
1	Retail Waste Room	1100L MGB single-bin compactor Cardboard baler & pallet jack	6 x 1100L MGBs for general waste 7 x bales paper/cardboard 13 x 1100L MGBs for commingled recyclables 25 x 120L MGBs for food waste	90	106

Figure 61: Waste room areas (Source Elephants Foot)

A detailed discussion in relation to the waste disposal and collection procedures for the proposed development, construction requirement and stakeholder roles and responsibilities, source separation, education (signage and pollution prevention) are included within the OWMP prepared by Elephants Foot.

The waste management procedures for the future operation of the proposed development are based on basic waste principles that include waste avoidance, recovery and the reuse of discarded materials. The OWMP identifies targets to quantify and measure this sustainable approach to waste management, including:

- Diverting 70% residential municipal solid waste from landfill; and
- Diverting 70% commercial solid waste from landfill.

However, there is an aspirational target for the site to divert 90-100% of solid waste to be diverted from landfill. Baseline data for the volume of waste and recyclables once the development becomes operational will be developed by building management to ensure that these that these targets are met. This data will be used to calculate a waste diversion rate that that can be monitored over time by management, with new strategies able to be implemented to improve waste diversion if considered required.

The collection methods and systems that are to be used for waste management for the retail/ commercial component will comply with the *Work Health and Safety Act 2011* and any associated regulations.

7.17. Infrastructure and Utilities (SEAR 22)

An Electrical, Mechanical and ASP3 Services and Infrastructure Report has been prepared (**Appendix 31**), which provides a written description of the infrastructure services to be developed for the site. In addition to the statutory standards and regulations (e.g. Australian Standards) that must be complied with, the proposed development is also required to adhere to the design criteria set out in the following:

- Greenstar Design;
- Climate Change and Community Resilience Assessment; and
- Schedule 7 - Report on Infrastructure Assets.

The preliminary maximum demand calculations for each component are included within the table below.

	Maximum Demand (Amps)	Maximum Demand (kVA)
Residential	3072 A	2208 kVA
Retail/ Childcare/Medical Centre	1273 A	1430 kVA
Supermarket	791 A	548 kVA
Common Areas	1309 A	613 kVA
Total Maximum Demand	6445 A	4798 kVA
Diversity Factor	0.8	0.8
Diversified Maximum Demand	5314 A	3839 kVA

Figure 62: Preliminary maximum demand (Source: JHA Consulting Engineers)

In order to cater for the new electrical load expected for the proposed development as detailed above, new substation infrastructure is proposed and will be located in the north-eastern corner of the site. The substation has been integrated into the overall design of the proposed development as demonstrated in Figure 63.

Refer to the Electrical, Mechanical and ASP3 Services and Infrastructure Report for further details of the proposed precinct/ apartment electrical arrangements, tenancy electrical provisions and mechanical services.

A fibre to the building (FTTP) connection is proposed to the building to provide for telecommunication services. The required head end infrastructure will be provided in the main communications room at B1.

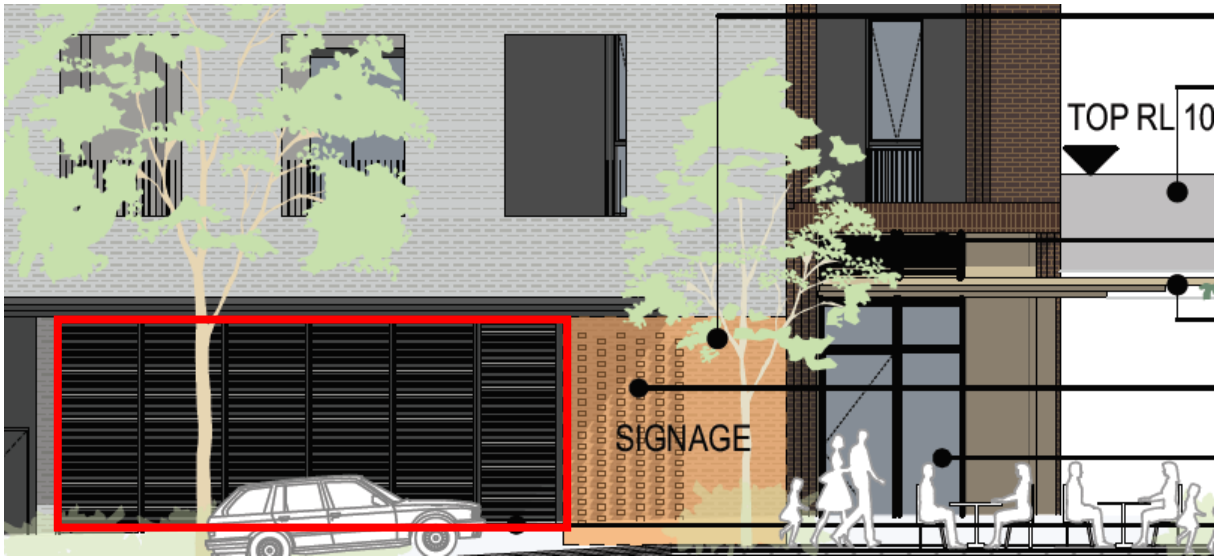

Figure 63: East elevation extract - substation outlined in red (Source: Turner)

A letter has also been prepared by Opal Water Management (**Appendix 29**) in relation to the proposed development, having been engaged as the Water Servicing Coordinator to facilitate Sydney Water's requirements. Initial investigations have indicated that a waste water extension is required (see Section 4.18). This requirement has been confirmed in writing by Sydney Water as included in **Appendix 30**. The preferred design option for the required waste water extension is still under investigation. This letter also confirms the site has frontage to a water main that can sufficiently service the proposed development. However, this will be confirmed by the project hydraulic engineer at a later stage. A Building Plan Approval will also be required to ensure the development does not impact Sydney Water infrastructure.

7.18. Development contributions and public benefit (SEAR 23)

The Hills Section 7.11 Contributions Plan (CP) No. 19 - Showground Station Precinct applies to the site. The contributions received from this Plan provided for both active and passive open space, transport and traffic works (including pedestrian/ cycle links), water management works and administration costs. For mixed-use development that is located within the 'Showground Sydney Metro Northwest Station Precinct', the contributions payable will relate to both the residential and non-residential components. This will be calculated based on the application of the residential contribution rate to the residential yield proposes and the application of the non-residential contribution rate to the area of new non-residential component. A summary of the residential and non-residential contribution rates is provided in the tables below. These contribution rates are effective until 30 June 2021 and may be subject to change after this date.

Table 27: Residential contribution rate

Dwelling type	$ rate (Per dwelling)
Subdivision/ dwelling house/ dual occupancy	$20,000.00
Medium and high-density dwellings	-
1 bedroom	$9,665.21

Dwelling type	$ rate (Per dwelling)
2 bedroom	$13,531.30
3 bedroom	$16,753.04
4+ bedroom	$19,974.78

(Source: The Hills Shire Council)

Table 28: Non-residential contribution rate

Facility type	$ rate (m^2 floor area)
Open space - Land	$0.00
Open space - Capital	$0.00
Transport and traffic - Land	$44.28
Transport and traffic - Capital	$69.13
Water Management - Capital	$12.03
Administration	$1.09
Total (2018/2019)	$126.67

(Source: The Hills Shire Council)

Additionally, the concept approval for the Hills Showground Station Precinct included a condition that required the proposed development of the site to provide a community facility with a GFA of 500m^2, including an appropriate mechanism to dedicate ownership/ control to a public authority or non-profit organisation. The proposed development complies with this provision as detailed in Section 4.12 of this EIS, through the provision of two community spaces with a total combined GFA of 543.06m^2. Deicorp has entered into any agreement with local community services provider (Hills Community Aid) to operate the community spaces.

7.19. Construction (SEAR 24)

A Construction Management Plan (CMP) has been prepared by Barker Ryan Stewart and is included at **Appendix 26**. This CMP addresses the following matters in relation to the construction of the proposed development:

- Construction traffic management;
- Public safety, amenity and site security;
- Operating hours, noise and vibration controls;
- Air and dust management;
- Geotechnical;
- Contamination management;
- Stormwater management and sediment control;
- Waste and material reuse management;
- Management responsibility;
- Communication protocols;

- Work site monitoring and inspection;
- Training; and
- Specific emergency responses, contact details and emergency preparedness,

The following documents have also been prepared by Barker Ryan Stewart and form appendices to the CMP:

- Appendix A - Materials Handling Plans;
- Appendix B - Crane Radial Plans;
- Appendix C - Construction Pedestrian and Traffic Management Plan;
- Appendix E - Soil and Water Management Plan; and
- Appendix F - Excavation Plan.

The application is also accompanied by a AQMP prepared by EI Australia that is included at **Appendix 52**, and a Construction Noise and Vibration Management Plan prepared by Koikas that is included at **Appendix 53**.

7.20. Other

Other issues	Assessment
Solar reflectivity	A Solar Light Reflectivity Study has been prepared by Windtech (**Appendix 57**). The results of this study indicate that avoid any adverse glare impacts on motorists, pedestrians and the occupants of neighbouring buildings, and to comply with the solar glare requirements contained within the ADG, the following limitations to the maximum normal specular reflectance of visible light of the external façade glazing and treatment strategies are recommended: ▪ Building AB - Western aspect main building façade Level 1 and above - 11%; ▪ Building CD - Western aspect main building façade Level 1 and above - 11%; ▪ Building CD - Eastern aspect main building façade Level 1 and above - 11%; ▪ All other glazing (windows and balustrades) - 20%; ▪ The proposed metal rail balustrades along the eastern aspect of Building CD on Levels 2 to 4 are to have a non-polished surface finish; ▪ The inclusion of the proposed solid columns/ finds along the building edge on the northern aspect of the tower component of the buildings; and ▪ The inclusion of the proposed/ existing densely foliating trees on the streets. With the incorporation of these recommendations into the development, the results of this study indicate that the proposed development will not cause any adverse solar glare impacts and will comply with the ADG requirements.
Building Code of Australia	A Regulatory Compliance Report has been prepared by Mondan Consulting (**Appendix 34**). This report identifies that the proposed development can achieve compliance with the deemed-to-satisfy provisions of the BCA. The

Other issues	Assessment
	report does identify some deviations from the deemed-to-satisfy provisions but notes that compliance can still be achieved through a design amendment to achieve compliance with the deemed-to-satisfy provisions, Alternatively, compliance can also be achieved through a performance solution demonstrating compliance with the BCA's performance requirements.
Fire engineering	A statement has been prepared by Affinity Fire Engineering (**Appendix 58**), the purpose of which is to provide confidence to the consent authority that the proposed development will be formally assessed by a suitability qualified fire engineer and demonstrated to comply with the relevant BCA provisions. In undertaking a preliminary assessment of the proposed development, Affinity Fire Engineering have confirmed the building design incorporates design features that do not fully meet the BCA's deemed-to-satisfy provisions. However, compliance can still be achieved via performance solutions demonstrating compliance with the BCA's performance requirements. Based on this it is considered by Affinity Fire Engineers that the building design for the proposed development will not compromise the expected fire safety strategy, fire brigade intervention or regulation conformance. Therefore, Affinity Fire Engineers expect that the fire safety engineering assessment to be conducted as part of the Construction Certificate stage will achieve compliance with the relevant performance requirements of the BCA.
Energy efficiency	A Section J Report has been prepared by SLR and included at **Appendix 59**, which assesses the proposed development for compliance with the National Construction Code (NCC) 2016 Section J provisions for energy efficiency, the overarching objective of which is to reduce greenhouse emissions. The verification method used to demonstrate compliance with Section J is utilised by determining that the annual energy consumption of the proposed building with its services is not more than the annual energy consumption of a reference building when modelled using an appropriate computer program. Refer to the Section J Report for the results of this modelling, which demonstrate annual energy consumption of the proposed building with its services is not more than the annual energy consumption of the reference building. In order to achieve compliance with Section J as per the NCC 2016, the following requirements are to be incorporated within the design of the development: ▪ All external walls are to have a total R-value of R2.8; ▪ All internal walls to unconditioned space are to have a total R-value of R1.8; ▪ All glazing requirements as listed within Table 2 of the Section J Report; ▪ Roof/ ceiling system is to have a total a R-value of 3.2; ▪ Upper ground concrete roof under the loading dock to have an R-value R2.0;

<table>
<tr><th>Other issues</th><th>Assessment</th></tr>
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Suspended concrete floors above unconditioned space without floor insulation, except for Level 2 commercial tenancy and community room; and
120kW of PV solar system installed on roofs to generate 166.1Meh per annum.

</td></tr>
<tr><td>Lift traffic</td><td>
A Lift Traffic Study (Retail) has been prepared by JHA Services (Appendix 60), which determines the efficiency of the proposed vertical transport system for the car park and retail levels of the proposed development. The Charted Institution of Building Services Engineers (CIBSE) Guide 2020 D recommends a waiting time of 40-60 seconds for this type of the development. Traffic simulations of the proposed development were found to meet the guidelines of the CIBSE Guide 2020 D as shown in the table below.
<table>
<tr><th></th><th colspan="2">Morning (two-way)</th></tr>
<tr><th></th><th>Recommended</th><th>Simulated</th></tr>
<tr><td>Car Park to Retails Lifts</td><td>40-60 s</td><td>38 s ✓</td></tr>
</table>
Figure 64: Lift traffic study (retail) results (Source: JHA Services)

A Lift Traffic Study (Residential) has also been prepared by JHA Services (Appendix 60), which determines the efficiency of the proposed vertical transport system for the residential component of the proposed development. The CIBSE Guide 2020 D recommends a waiting time of less than 60 seconds for the morning and evening periods in both directions. Traffic simulations of the proposed development were found to meet the guidelines of the CIBSE Guide 2020 D as demonstrated in the table below.
<table>
<tr><th></th><th colspan="2">Morning (two-way)</th><th colspan="2">Evening (two-way)</th></tr>
<tr><th></th><th>Recommended</th><th>Simulated</th><th>Recommended</th><th>Simulated</th></tr>
<tr><td>Building A</td><td>< 60 s</td><td>55 s ✓</td><td>< 60 s</td><td>55 s ✓</td></tr>
<tr><td>Building B</td><td>< 60 s</td><td>42 s ✓</td><td>< 60 s</td><td>42 s ✓</td></tr>
<tr><td>Building C</td><td>< 60 s</td><td>55 s ✓</td><td>< 60 s</td><td>53 s ✓</td></tr>
<tr><td>Building D</td><td>< 60 s</td><td>43 s ✓</td><td>< 60 s</td><td>35 s ✓</td></tr>
</table>
Figure 65: Lift traffic study (residential) results (Source: JHA Services)
</td></tr>
<tr><td>Structural</td><td>
A Consultant Design Brief has been prepared by ABC Consultants (Appendix 61), outlining the structural design criteria and performance requirements for all elements within the project designed by ABC Consultants. A concrete pad foundation system is proposed for the building due to the depth of excavation reaching the high strength rock. However, the final design will be confirmed after further design development has occurred. The various structural elements of the proposed development will be designed to comply with the BCA and Australian Standards in relation to:

Design loading
Structural movements
Fire resistance
Floor vibrations
Construction materials

</td></tr>
</table>

Other issues	Assessment
	▪ Crack control ▪ Connection requirements/ ties ▪ Column and slab stiffness ▪ Durability maintenance requirements ▪ Concrete roof slabs over living spaces Compliance with the relevant provisions of the BCA and Australian Standards will ensure that the proposed development is structurally sound.
Electrolysis and stray traction	An Electrolysis and Stray Traction Current Report has been prepared by Cathodic Protection Services and is included at **Appendix 62** of this EIS. This report has been prepared to identify any measures required to ensure stray traction current does not present a corrosion hazard to the proposed development. The conclusions of this investigation can be summarised as follows: ▪ Stray traction current can be expected to present on the site of the development. ▪ The proposed methods of construction as outlined within this report will essentially prevent the entry of stray traction current into the development. ▪ There is the potential for corrosion of the water service or electrical earth. This hazard can be eliminated through the installation of insulating fitting in the water service or the use of non-metallic water meter. ▪ Data logging should be carried out both prior to and after construction to identify the stray traction current signature across the site in accordance with the Sydney Metro Technical Services Guidelines (2018).
Rail corridor protection	A letter has been prepared by AECOM and is included at **Appendix 63**, which the protections zones that apply to the adjacent rail corridor. This letter identifies the proposed as sitting outside the relevant protection zone. Due to the distance of the proposed development the following is concluded: ▪ The proposed development is not located within the protection zone; and ▪ The proposed development does not have the potential to cause design and construction related to safety, engineering, maintenance and operational impact on the at-grade and elevated railway infrastructure.

7.21. Site Suitability

Noting the proposed development's demonstrated consistency with the concept approval (SSD-9653), the conclusions in Elton Consulting's EIS for the concept in relation to site suitability remain unchanged. Nonetheless, the technical studies prepared in support of the proposed development re-confirm its suitability. The proposed development is suitable for the site with reference to the concept approval as follows:

- It ceases on a key opportunity to take advantage of the now operational MNWL and Hills Showground Station to create a vibrant TOD community that provides for a mix of compatible uses.
- Detailed urban design analysis has demonstrated that the Doran Drive Precinct can be created to cater for the building types and designs required to be consistent with the density and height envisaged, which meet the requirements contained within the ADG and achieve design excellence.
- The site's location is well suited to provide a mix of retail and commercial uses and other non-residential uses (e.g. community) to support the future community of this new local centre and its surrounds.
- The proposed scale and density of the proposed development is highly appropriate in the context of other identified transit-orientated centres throughout the Central City District and Greater Sydney and in line with current controls and desired future character of the site as a mixed-use precinct.
- It would result in minor environmental impacts that can be appropriately mitigated and/ or managed.
- The supporting technical studies demonstrate the site can be readily serviced and developed, subject to the recommendations of the technical studies accompanying this EIS being implemented.

7.22. Public Interest

The proposed development is in the public interest as it involves the first stage of development of the Hills Showground Station Precinct in accordance with various strategic plans and policies and statutory requirements.

Specifically, the proposed development is considered to be within the public interest for the following reasons:

- It provides four-hundred and thirty-one (431) additional dwellings in a location that reinforces the Greater Sydney Commission's concept of a '30-minute city' as established within the Region Plan, and the role of the Hills Showground Station as a TOD development site along the NWRL urban corridor, locating dwellings and jobs in a location close to each other, services, open space and transport.
- Provides for a vibrant, high-quality and mixed-use precinct comprising a mix of complementary uses that will promote activity during the day and night and create a safe, attractive and welcoming environment.
- Contributes to the delivery of new public domain areas through the provision of Doran Drive Plaza, which has been planned and designed for as the main public domain area within the wider precinct.
- It is consistent with the urban design framework established for the precinct by the concept approval, and through this demonstrated consistency is able to achieve design excellence, as well as deliver a high-quality architectural, built form and landscape design outcome for the site.
- Provides new business and employment opportunities that can contribute to economic growth and support the ongoing viability of the Hills Showground Station Precinct as an identified local centre.
- Promotes ecologically sustainable development by embedding sustainability initiatives in its design.

8. EVALUATION OF THE PROJECT

This EIS provides a comprehensive assessment of the environmental, social and economic impacts of the subject SSDA for the proposed development of Doran Drive Precinct as a high-density mixed-use locality.

The proposed development has been designed to minimise the impacts of the proposed development by:

- Establishing project-specific and objectives;
- Demonstrating consistency with the concept approval for the Hills Showground Station Precinct, including building envelopes and the UDGs have been prepared by Cox Architecture and Oculus;
- Limiting the project area to the site and some very minor works within the surrounding public domain;
- Providing a mix of compatible land uses that are permitted with consent in the B2 Local Centre zone;
- Staging the construction of the proposed development; and
- Proposing mitigation measures in accordance with the recommendations of the various technical studies.

This EIS has also demonstrated the proposed development's consistency with the site's strategic context, including the Region Plan, Central City District Plan and The Hill Shire Council's LSPS. In demonstrating consistency with these and various other government strategies, policies or plans, the proposed development seeks to reinforce the role of the Hills Showground Station as a TOD site and enhance the utilisation of the MNWL as one of biggest infrastructure projects undertaken within Australia. The site comprises a vacant lot of land and therefore is not significantly environmentally constrained. There is a level change of up to 8.89 metres across the site falling from east to west; however, the proposed development has been skilfully designed to address the local topography of the site. Economic benefits of the proposed development include the creation of jobs during its various phases and attraction of new residents and businesses to support the viability of the precinct as a local centre. Subsequently, the proposed development is considered to be highly suitable for the subject site.

Further, this EIS has demonstrated the proposed development is compliant with relevant statutory requirements. For the purpose of this EIS the relevant statutory requirements have been categorised by:

- Power to grant approval;
- Permissibility;
- Other approvals;
- Pre-conditions to exercising the power to grant approval; and
- Mandatory matters for consideration.

In addressing these statutory requirements this EIS has given consideration to the following legislation:

- *Environmental Planning and Assessment Act 1979*;
- *Environmental Planning and Assessment Regulation 2000*;
- *State Environmental Planning Policy No. 55 - Remediation of Land*;
- *State Environmental Planning Policy No. 65 - Design Quality of the Residential Apartment Development*;
- *State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004;*

- *State Environmental Planning Policy (Infrastructure) 2007*;
- *State Environmental Planning Policy (State and Regional Development) 2011*;
- *Draft Sydney Metro Northwest SRD SEPP amendment;*
- *Draft Design and Place State Environmental Planning Policy;*
- *The Hills Local Environmental Plan 2019*;
- *Draft The Hills Local Environmental Plan 2020*; and
- *The Hills Development Control Plan*.

This EIS has addressed through its assessment of the potential impacts of the proposed development, the issues that have been raised through the community consultation that has been undertaken, including:

- Traffic congestion and parking;
- Noise impacts;
- Overshadowing; and
- Height of buildings.

Traffic congestion and parking, overshadowing and the heights of buildings have been addressed through the proposed development's general compliance with the concept approval for the wider precinct, which established the building envelopes and car parking rates for the proposed development. Noise impacts are to be managed through the implementation of mitigations during construction and operation.

Based on the detailed environmental impact assessment that has been undertaken as part of this EIS, it is considered the proposed development on its own or in conjunction with other development in the locality, does not give rise to any cumulative environmental impacts that cannot be appropriately managed through the implementation of the mitigation measures that are identified within the technical studies.

The proposed development is consistent with the concept approval for the Hills Showground Station Precinct, which has already considered potential cumulative impacts of the proposed and surrounding development. A Section 4.55 (1A) Modification Application has been lodged concurrently with this SSDA, which proposes to modify the retail/ commercial car parking established by the endorsed UDGs. Whilst this modification will increase the number of retail/ commercial car parking spaces provided on-site, its traffic generation is less than that which was assumed for the whole Hills Showground Station Precinct.

Considering the above and the evident public benefits and suitability of the site of the proposed development, it is recommended that development consent be granted to this SSDA for the Doran Drive Precinct.