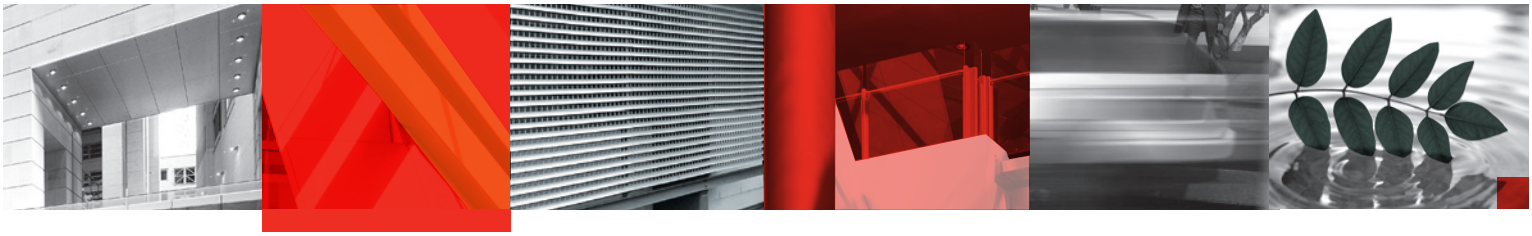
Environmental Assessment Report

Project Application



Discovery Point, 1 Princes Highway, Wolli Creek

Stage 1 Mixed Use Development (MP10_0030)

Submitted to Department of Planning & Infrastructure
On Behalf of Discovery Point Pty Ltd

June 2011 ▪ 10619

JBA Planning Pty Ltd ABN 84 060 735 104 ACN 060 735 104 w jbaplanning.com.au
Level 7, 77 Berry Street North Sydney NSW 2060 t +61 2 9956 6962 ▪ 29 Beach Street Wollongong NSW 2500 t +612 4225 7680

JBA Urban Planning Consultants Pty Ltd operates under a Quality Management System. This report has been prepared and reviewed in accordance with that system. If the report is not signed below, it is a preliminary draft.

This report has been prepared by: Lindsey Gray

Signature  Date 24/06/11

This report has been reviewed by: Clare Swan

Signature  Date 24/06/11

Contents

Contents

Figures

Contents

Tables

Appendices

Contents

Appendices – Under Separate Cover

Statement of Validity

Prepared under Part 3A of the Environmental Planning and Assessment Act, 1979 (as amended)

Environmental Assessment prepared by		
Name	Clare Swan	Lindsey Gray
Qualifications	BA MEnvPl MPIA CPP	BPlan (Hons) MPIA
Address	Level 7, 77 Berry Street, North Sydney	
In respect of	Project Application	
Concept Plan		
Applicant name	Discovery Point Pty Ltd	
Applicant address	Discovery Point Office	
Land to be developed	1 Princes Highway, Wolli Creek ▪ Lots 199, 200, 201, 202, 203 in DP 1103650; ▪ Lot 12 and 13 DP 1062413; and ▪ Lot 2 DP 1048491.	
Proposed development	Construction of the first stage of residential and retail development for 130 dwellings, 2,197m^2 of retail floor space, new neighbourhood park and associated landscaping, car park and infrastructure works.	
Environmental Assessment	An Environmental Assessment (EA) is attached	
Certificate	I certify that I have prepared the content of this Environmental Assessment and to the best of my knowledge: ▪ It is in accordance with the Environmental Planning and Assessment Act and Regulation. ▪ It is true in all material particulars and does not, by its presentation or omission of information, materially mislead.	
Signature		
Name	Clare Swan	
Date	24 June 2011	
Signature		
Name	Lindsey Gray	
Date	24 June 2011	

Executive Summary

Purpose of this Report

This submission to the Department of Planning comprises an Environmental Assessment for a Project Application under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP& A Act). It relates to the development of Discovery Point, Wolli Creek, for the Stage 1 mixed use development in accordance with Concept Plan (MP10_0003) approved by the Department of Planning & Infrastructure on 5 May 2011.

The proponent for this development is Discovery Point Pty Ltd.

Overview of Project

The proposal seeks approval for the construction of:

- Buildings 1B and 1C including:
  - 130 apartments;
  - ground floor retail uses, including a supermarket. Total retail floor space 2,197m^2;
  - roof top courtyard with residents gym, community room and pool (Building 1B) and green roof (Building 1C);
  - basement car parking for 246 car spaces;
  - basement water recycling plant;
- public open space in the form of the new Neighbourhood Park;
- associated landscaping and infrastructure works;
- demolition of existing minor structures;
- a portion of the basement structure for future stages 2, 4, 5 and 14 due to ease of construction methodology. Approval of actual parking numbers would be subject to future application;
- new roads (Spark Lane south and Discovery Point Place including bus stops along Discovery Point Place);
- resurfacing and landscaping of Brodie Spark Drive;
- extension of Brodie Spark Drive north towards Cooks River; and
- stratum subdivision of the buildings.

The proposal also includes the following temporary works:

- construction of open space fronting Magdalene Terrace (in the location of the building envelope for future Building 3);
- temporary pedestrian access to Wolli Creek Railway Station;
- road works to the north of the station to provide bus access and turning to Wolli Creek Railway Station; and
- temporary bus stop along Brodie Spark Drive.

The site

The Discovery Point Concept Plan site is located in Wolli Creek. The Stage 1 Project Application site (the site) applies to part of the south-west portion of Discovery Point. The site is approximately 9,716m^2 in area and is irregular in shape, which also reflects the area to which temporary infrastructure will be provided as part of this Stage 1 application.

The site is accessed by Brodie Spark Drive to the east, Magdalene Terrace to the south, the future Discovery Point Place to the north and the future Spark Lane to the west. The site of Buildings 1B and 1C is legally described as Lot 200 DP 1103650 as shown in the Survey Plan at **Appendix A**. The land is owned by Discovery Point Pty Ltd.

Planning context

Section 5.1 of this EAR addresses all applicable legislation, strategies and planning instruments. As per the Concept Plan assessment, the proposal complies with a range of strategic planning objectives and relevant State Environmental Planning Policies.

In particular, the proposal is consistent with the principles of the State Environmental Planning Policy No. 65 – Design Quality of Residential Development and the design quality objectives and design principles of the Residential Flat Design Code.

The proposal is permissible with consent under the Rockdale LEP 2000 and meets the objectives of the zoning. The relationship between the Concept Plan and Rockdale City Council's draft local environmental plan and development control plan (recently exhibited) is addressed within the Concept Plan's Preferred Project Report (PPR).

Concept Plan

The proposed development is consistent with the Discovery Point Concept Plan, including building envelopes for Buildings 1B and 1C, parking rates, dwelling sizes and Statement of Commitments. The Project Application has also been designed to be consistent with the Development Design Guidelines updated by JBA to reflect the Concept Plan Conditions of Approval (June 2011).

Environmental Impacts

All environmental impacts are considered in Section 5 of this EAR. The proposed works do not raise any adverse environmental impacts and will provide a high quality mixed use development with active ground floor uses providing service retail and pedestrian amenity.

Conclusion

The proposal is also consistent with the Discovery Point Concept Plan, the Concept Plan Statement of Commitments and Concept Plan Conditions of Approval.

Draft Statement of Commitments for the Stage 1 Project Application have been prepared to supplement the Concept Plan Statement of Commitments and to manage construction and on-going environmental impacts. The environmental impacts of the proposal can be satisfactorily managed.

The project is of significance in that it commences the first stage of the Discovery Point Concept Plan. The proposal will create the first stage of a vibrant village centre with a supermarket and other retail services interfacing with the public domain along Discovery Point Place, Brodie Spark Drive, the new Neighbourhood Park and pedestrian pathways linking Wolli Creek Railway Station to Magdalene Terrace (via Neighbourhood Park). The Neighbourhood Park will act as a 'village centre', attracting residents of Discovery Point and Wolli Creek to shop, meet and relax in the public space and improve linkages within the site, to the developments to the south along Magdalene Terrace and to the railway station.

1.0 Introduction

This Project Application and Environmental Assessment Report (EAR) is submitted to the Minister for Planning pursuant to Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Project Application seeks approval for the first stage of the Concept Plan development at Discovery Point, 1 Princes Highway, Wolli Creek. This EAR fulfils the Director-General Requirements (DGRs) issued on 23 March 2010 (**Appendix B**) and amended on 9 December 2010.

The report has been prepared by JBA Planning, for the proponent, Discovery Point Pty Ltd and is based on information provided by Bates Smart (provided under separate cover), and supporting technical documents provided by the expert consultant team.

This EAR describes the site, its environs and the proposed development, and includes an assessment of the proposal in accordance with the DGRs under Part 3A of the EP&A Act. It should be read in conjunction with the information contained within and appended to this report.

1.1 Project Background

Concept Plan

The Discovery Point Concept Plan for the Discovery Point site, Wolli Creek was approved on 5 May 2011 (refer to Conditions of Approval at **Appendix Q**). The Concept Plan includes:

- A maximum of 132,000m^2 total GFA for the mixed use development (excluding car parking GFA, existing approved buildings and heritage buildings);
- A minimum of 9,000m^2 non-residential GFA;
- A maximum of 123,000m^2 residential GFA;
- A maximum of 8,000m^2 above ground car parking GFA (in addition to maximum GFA above);
- A residential unit mix across the site of:
  - Maximum 45% studios and one bedroom apartments;
  - Minimum 45% two bedroom apartments;
  - Minimum 10% three + bedroom apartments.
- Total parking numbers across Discovery Point (including existing developed stages) to be capped at 2,240 parking spaces.
- Parking rates to be utilised across the Concept Plan site in future applications for development of:
  - Maximum 1 space per studio and one bedroom unit;
  - Minimum 1 space and maximum of 2 spaces per two bedroom unit;
  - 2 spaces per three + bedroom units;
  - Minimum 1 visitor space per 20 residential units;
  - Minimum 1 space per 50m^2 of non-residential GFA (commercial); and
  - Minimum 1 space per 35m^2 of non-residential GFA (retail).
  - Minimum 1 bicycle space per 15 residential units;
  - Minimum 1 motorcycle space per 15 residential units;
  - Minimum 1 bicycle space/200m^2 non-residential GFA, with 15% accessible by visitors; and
  - Minimum 1 motorcycle space/20 non-residential car spaces.

- New plazas, common open space, Station Park, Waterfront Park and Neighbourhood Park;
- Minimum residential apartment size of:
  - Minimum 40m^2 for studio dwellings
  - Minimum 50m^2 for one bedroom dwellings
  - Minimum 70m^2 for two bedroom/one bathroom dwellings
  - Minimum 80m^2 for two bedroom/two bathroom dwellings
  - Minimum 100m^2 for three bedroom (plus) dwellings
- A network of streets, open space areas and through-site links generally as shown on the Indicative Design Scheme Site Plan, to facilitate reintegration of the site into the wider urban context including upgrade of the access to the Wolli Creek station.
- Provision of an alternative sewer water treatment facility in the form of a water recycling facility.

1.2 Overview of Approval Sought

This Project Application seeks approval for the Stage 1 Mixed Use Development of the Discovery Point site. In summary the development involves the construction of:

- Building 1B, including:
  - 9 apartments;
  - retail area of 1,506m^2;
  - roof top courtyard on the podium including residents gym, community room and pool;
- Building 1C, including:
  - 121 apartments;
  - retail area of 691m^2;
- combined basement of Buildings 1B and 1C;
  - public car park for 133 cars and 7 motorcycles;
  - 11 bicycle spaces on street level;
  - residents car park for 113 cars, 10 motorcycles and 10 bicycles;
  - water recycling facility;
- Neighbourhood Park and temporary park fronting Magdalene Terrace (in the location of the building envelope for future Building 3) until such time as construction works on Buildings 2 or 3 commence;
- temporary access to Wolli Creek Railway Station from Discovery Point Place and Brodie Spark Drive;
- road infrastructure, including:
  - replacing the existing temporary east-west cul-de-sac running south of Wolli Creek Railway Station with Discovery Point Place;
  - removing the existing temporary bus turning loop south of Wolli Creek Station and construction of a temporary road, bus stop and turning loop to the north of Wolli Creek Station;
  - resurfacing and landscaping works along Brodie Spark Drive and extension of the road to the north towards Cooks River;
  - construction of Spark Lane between Magdalene Terrace and Discovery Point Place; and
  - construction of Discovery Point Place between Spark Lane and Brodie Spark Drive.

- associated landscaping and infrastructure works;
- demolition of existing structures, gabion wall and existing road access to Wolli Creek Station (i.e. north-south road from Magdalene Terrace and east-west road south of Wolli Creek Railway Station); and
- construction of part of the basement structure for future stages 2, 3, 4, 5 and 14 due to ease of construction methodology. Approval of actual parking numbers would be subject to future application.

1.3 Project Team

An expert project team has been formed to deliver the project and includes:

Proponent	Discovery Point Pty Ltd
Co-venture Partners	Australand Holdings Limited and Landcom
Project Manager	Australand Holdings Limited
Architecture and urban design	Bates Smart Architects
Urban Planning	JBA Planning and Krason Planning
Landscape	Turf Design
Surveyor	Lockley Land Title Solutions
Environmentally Sustainable Design	Cundall Design Consultants
Stormwater, Erosion and Sediment Control	Bonacci
Traffic and Transport	Traffic and Transport Planning Associates
European Heritage	Tanner Architects and Associates and Casey and Lowe
Indigenous Heritage	Jo McDonald Cultural Heritage Management Pty Ltd
Wind	Heggies
Noise and Vibration	Heggies
Electrolysis Analysis	Cathodic Protection Services
Shadow Studies	Bates Smart Architects
Drainage, Groundwater and Flooding	Bonacci
Structural	Bonacci
Access	Morris Goding Accessibility Consulting
Services	Donnelly Simpson Cleary Consulting Engineers

2.0 Site Analysis

2.1 Site Location and Context

The Discovery Point Concept Plan site is located in Wolli Creek, approximately 8 kilometres south-west of the Sydney CBD. The Stage 1 Project Application site (the site) applies to part of the south-western portion of Discovery Point.

The site of the permanent building works is approximately 9,716m^2 in area and is irregular in shape, reflecting the area to which permanent infrastructure will be provided as part of this Stage 1 application. The site is accessed by Brodie Spark Drive to the east, Magdalene Terrace to the south, the future Discovery Point Place to the north and the future Spark Lane to the west.

The site to which the permanent building works is proposed is identified in **Figure 1**, a location plan is shown in **Figure 2** and an oblique aerial photo of the site is shown in **Figure 3**.

Figure 1 – Locality Plan

Source: *Bates Smart*

Figure 2 – Location Plan

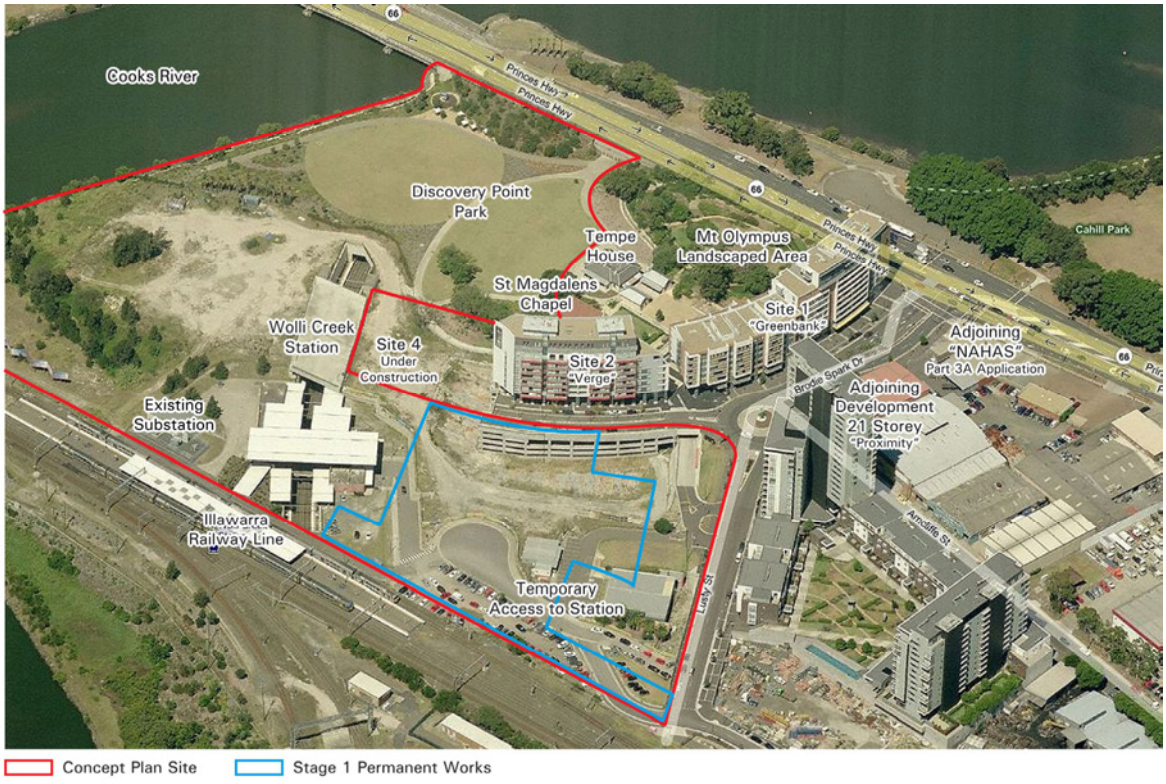


Figure 3 – Aerial Photograph (Stage 1 site in blue)

2.2 Site Description

Existing Development

The site currently contains several minor structures. The site also includes the diaphragm wall installed during the construction of the adjoining Greenbank building, providing waterproofing to three levels of basement car parking under part of the site. There is currently a gabion wall in the north-east corner of the site, providing temporary flood protection to the Wolli Creek Station.

The existing structures and gabion wall are proposed to be demolished as part of this application.

Heritage

The site subject to the Stage 1 Project Application is not within (or immediately adjacent to) the land identified on the State Heritage Register as the Tempe House Estate. As discussed in Section 5.8, the site is identified as having potential indigenous and non-indigenous archaeology.

Landform / Vegetation

The site is relatively flat and low lying and, as shown in **Figure 3**, the site is highly modified with little vegetation or other environmental constraints.

Levels

The site is located on relative low lying land and site levels vary markedly, from RL 6.5 as Brodie Spark Drive crosses the railway line, to RL2.0m outside the station entrance, down to RL 6.0m at the bottom of the basement excavation.

Acoustic Environment

The site is currently affected by a range of external noise sources, including traffic noise along the Princes Highway, rail noise along the overland Illawarra Railway Line into Wolli Creek Railway Station and aircraft noise from Sydney Airport.

Aspect and Views

The long northern boundary of the site faces almost due north, providing optimum solar aspect for apartments facing the station. Residents at upper levels will experience views towards Waterworth Park, Wolli Creek, Sydney CBD, Kogarah Golf Course, the Sydney Airport and Botany Bay. From lower levels there are glimpses of Discovery Point Park and Cooks River.

2.3 Land Ownership and Legal Description

The Discovery Point Concept Plan relates specifically to the following lots:

- Lots 199, 200, 201, 202, 203 in DP1103650;
- Lot 12 DP1062413; and
- Lot 2 DP1048491 & Lot 13 1062413 (Discovery Point Park and foreshore).

Building 1B and 1C are located within Lot 200 DP 11033650. The temporary works and enabling works for Stage 1 apply across the Concept Plan area, and therefore all lots listed above. A survey plan is provided at **Appendix A**. The land is owned by Discovery Point Pty Ltd.

2.4 Surrounding Development

The land uses and development surrounding the site include the following as shown in **Figures 4** to **9**:

To the north

To the north of Discovery Point is Cooks River, Kendrick Park and residential areas on the opposite side of the River. To the immediate north of the Stage 1 site is Wolli Creek Railway Station and the future northern precinct of the overall Discovery Point Concept Plan site.

To the south

Adjoining Discovery Point to the south is a mixed use development known as "Proximity", (refer to **Figure 5**) which was developed by Multiplex. The Proximity development comprises around 290 apartments with a maximum building height of 21 storeys. To the south is also a vacant industrial site (known as 'NAHAS") which is previously subject to a Part 3A Concept Plan application with a Stage 1 Project Application approval for a mixed use development, including a supermarket.

Existing or under construction stages of Discovery Point adjoin the site to the south-east.

To the east

To the east of Discovery Point is the Princes Highway and the Cooks River, Cahill Park, Tempe Recreation Reserve (refer to **Figure 8**) and Cooks Cove development site. To the east of Stage 1 are the Greenbank, Verge and Vine (under construction) developments within Discovery Point.

To the west

To the west is the Illawarra Railway line, with higher density mixed use development located further to the west in the suburb of Turrella (**Figure 9**).

Figure 4 – View to the north of the site

Figure 5 – View of development to the south*

Figure 6 – View of development to the south*

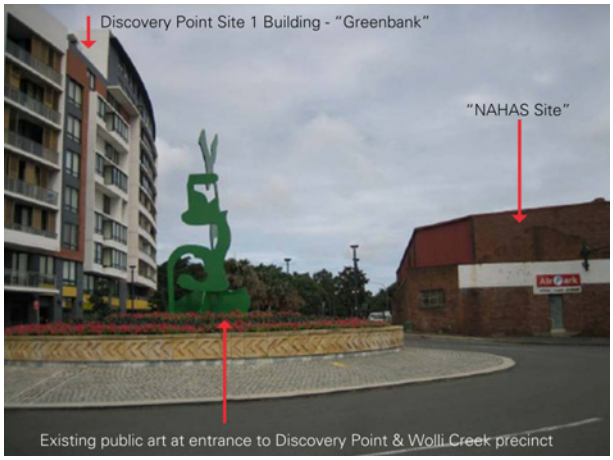


Figure 7 – Adjacent 'NAHAS Constructions'

Figure 8 – View to the east*

Figure 9 – Development located to west

* Source: *Concept Plan Preliminary Environmental Assessment (Australand, February 2010)*

3.0 Description of Development Proposal

This section of the report provides a detailed description of the proposed development. Whilst the entire mixed use development has been declared a Part 3A project, the first phase of development is proposed in the Southern Precinct, to the south of the railway station.

3.1 Overview

The project involves the Stage 1 Mixed Use Development of the Discovery Point site, Wolli Creek (see **Figure 10**).In summary this Project Application seeks approval for:

- Building 1B, including:
  - 9 apartments;
  - retail area of 1506m^2;
  - roof top courtyard on the podium including residents gym, community room and pool;
- Building 1C, including:
  - 121 apartments;
  - retail area of 691m^2;
- combined basement of Buildings 1B and 1C;
  - public car park for 133 cars and 7 motorcycles;
  - 11 bicycle spaces on street level;
  - residents car park for 113 cars, 10 motorcycles and 10 bicycles;
  - water recycling facility;
- Neighbourhood Park and temporary park fronting Magdalene Terrace (in the location of the building envelope for future Buildings 3 and 5);
- temporary access to Wolli Creek Railway Station from Discovery Point Place and Brodie Spark Drive;
- road infrastructure, including:
  - replacing the existing temporary east-west cul-de-sac running south of Wolli Creek Railway Station with Discovery Point Place;
  - removing the existing temporary bus turning loop south of Wolli Creek Station and construction of a temporary road, bus stop and turning loop to the north-east at Wolli Creek Station;
  - upgrading Brodie Spark Drive and extension of the road to the north towards Cooks River;
  - construction of Spark Lane between Magdalene Terrace and Discovery Point Place; and
  - construction of Discovery Point Place between Spark Lane and Brodie Spark Drive.
- associated landscaping and infrastructure works;
- demolition of existing structures, gabion wall and existing road access to Wolli Creek Station (i.e. north-south road from Magdalene Terrace and east-west road south of Wolli Creek Railway Station); and
- construction of a portion of the basement structure for future stages 2, 4, 5 and 14 due to ease of construction methodology. Approval of actual parking numbers would be subject to future application; and
- stratum subdivision of the buildings.

Architectural drawings of the proposed development prepared by Bates Smart Architects and landscape plans prepared by Turf Design are provided under separate cover. Engineering drawings prepared by Bonacci at **Appendix C**. **Figure 10** identifies the extent of the permanent Stage 1 works.

The following enabling and temporary works are proposed outside the Stage 1 permanent works boundary, including:

- temporary bus turning loop and associated earthworks described in the Civil engineering report;
- excavation and earthworks adjacent the stage 1 boundary to enable construction (mainly on sites 2, 3 and 5) described in civil and structural engineer's drawings;
- underground services described in the services engineers drawings; and
- temporary park to sites 3 and 5.

Figure 10 – Stage 1 permanent works

Source: *Bates Smart*

3.2 Design Principles

The Bates Smart *Stage 1 Project Application Design Report* provided under separate cover provides a detailed overview and rationale for the Building 1B and 1C urban design response to existing and proposed site conditions. The planning and design objectives adopted for the proposed development of the site are as follows:

- to create a vibrant residential neighbourhood with a permeable network of streets and courtyards;
- to extend the public domain with the introduction of Neighbourhood Park linking directly to Discovery Point Park and Wolli Creek Railway Station;
- to create an active and legible built form through ground floor retail and pedestrian laneways;
- to create a high quality environment for future residents;

- to maintain and enhance access to Wolli Creek Railway Station to encourage public transport patronage by future residents; and
- to establish early in the development process the main elements of the southern precinct, which includes residential and a small retail village precinct surrounding the neighbourhood park.

3.3 Building 1B

Building 1B consists of a two storey mixed use building with ground floor retail development. The ground floor of Building 1B consists of 1506m^2 retail floor space, residential foyer, loading dock and waste room (as identified in **Figure 11**).

The ground floor of Building 1B will consist of retail premises' with frontage to the Neighbourhood Park and the pedestrian thoroughfare facing Building 1C. The plans depict 'Supermarket / Retail / Cafes' as this generally covers a range of land uses including a supermarket, specialty retail, food and drink premises and the like. It is not proposed to further demark the plans with detailed and specific uses, as the detailed configuration of tenancies is not known until the building is put to the market. Separate development applications will be made for use and fit-out of these spaces.

The applicant commits to providing an active retail frontage on either side of the walkway, which can be achieved through specialty shop fronts, café dining or clear visual links into a supermarket tenancy. This would be required to be included on the fit-out plans and is included in the Statement of Commitments.

The first floor of Building 1B contains nine residential apartments above the supermarket and a large plant room in the internal area (as identified in **Figure 12**). The apartments are to be located within the eastern side of the first floor, in a u-shape on the eastern, northern and part of the southern perimeter of the building. The roof or podium level of Building 1B will be used as a landscaped rooftop terrace with residents' facilities, including swimming pool, gym, change rooms, community room, barbeque facilities and pergola.

Building 4 will later be constructed above the western side of Building 1B (above the loading dock) and will include additional dwellings on the first floor and above. Building 4 will be subject to a separate development/project application.

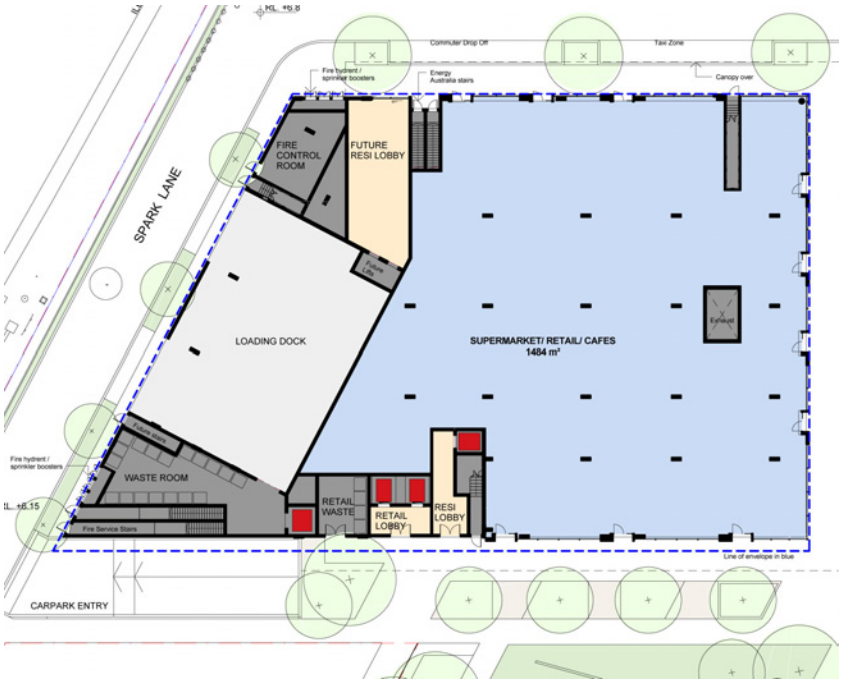


Figure 11 – Ground Floor Plan of Building 1B

Source: *Bates Smart*

Figure 12 – First Floor Plan of Building 1B

Source: *Bates Smart*

3.4 Building 1C

Building 1C is a 14 storey mixed use building located within the north-east corner of the Stage 1 site, along Brodie Spark Drive. The ground floor consists of 691m^2 of retail floor space and the residential foyer for the dwellings above (as shown on **Figure 13**). The retail floor space on the ground floor will consist of retail premises for the purposes of retail premises or food and drink premises (use and fit out to be subject to future development applications). Active frontages will be provided along all four frontages of Building 1C, including the pedestrian thoroughfare facing Building 1B.

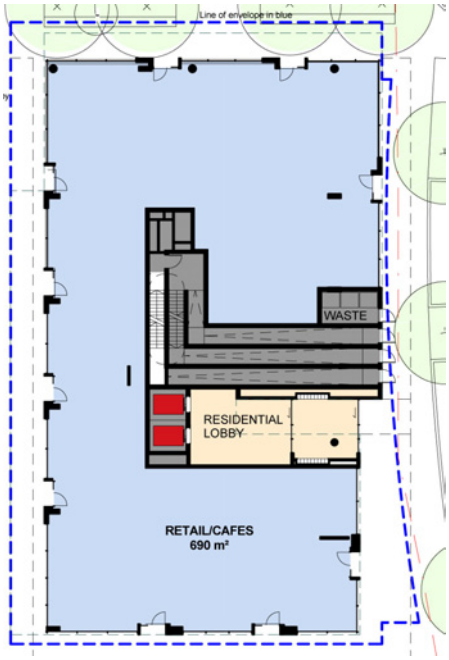


Figure 13 – Ground Floor Plan of Building 1C

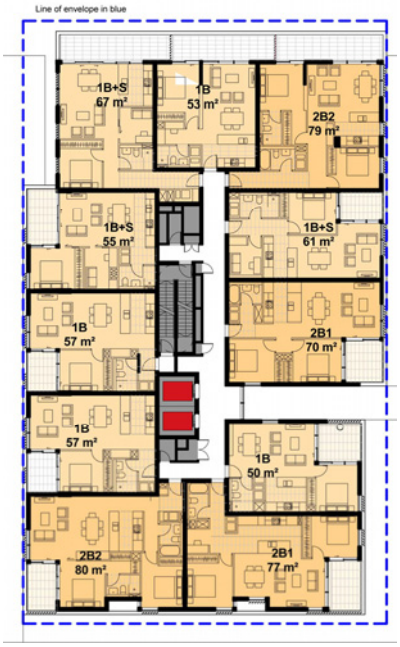


Figure 14 – First Floor Plan of Building 1B

Source: *Bates Smart*

Storeys 1-13 include 121 residential apartments overall, with six to eleven apartments on each floor. A typical floor plan is provided at **Figure 14**. The roof top level of Building 1C is accessible to residents and will be used as a green roof including lawn, shade trees and kitchen garden.

3.5 Retail Kiosks

Two small retail kiosks (11m^2 each) are proposed within the pedestrian walk between Buildings 1B and 1C to further encourage pedestrian and retail activity along the pedestrian walk, between the Wolli Creek Railway Station and the Neighbourhood Park. These kiosks are identified in **Figure 15**.

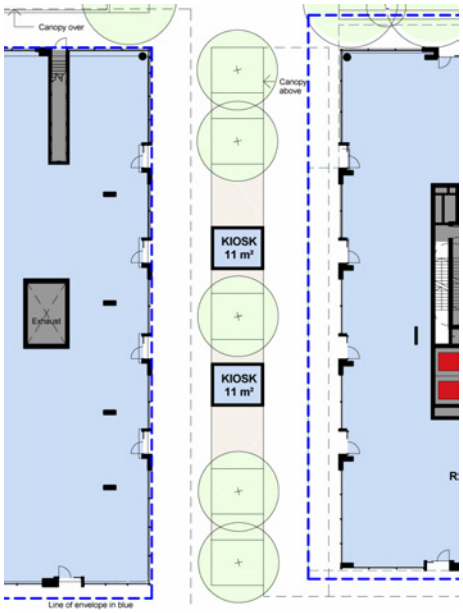


Figure 15 – Kiosk locations between Building 1B and 1C

Source: *Bates Smart*

3.6 Basement Levels

There are four basement levels proposed as part of the Stage 1 development:

- Basement Level B0 extends below Buildings 1B, 1C and Spark Lane and includes:
  - 133 public car spaces for shoppers and visitors, including disabled parking;
  - 7 motorcycle spaces for shoppers and visitors;
  - 8 residential car spaces for Building 1B;
  - service, waste and storage rooms for Buildings 1B and 1C, and future Building 4;
  - access via Spark Lane;
- Basement Level B1 extends below Building 1C and includes:
  - 34 residential car spaces (including 10 spaces to be located within the Verge, Vine and Greenbank basement) and bicycle parking;
  - 3 motorcycle spaces;
  - storage areas and service rooms;
  - part of B1 will be utilised for parking in future stages;
- Basement Level B2 extends below Building 1C and includes:
  - 40 residential car spaces (including 10 spaces to be located within the Verge, Vine and Greenbank basement) and bicycle parking;
  - 3 motorcycle spaces;
  - storage areas and service rooms;
  - water recycling facility (described in more detail in Section 3.11);
- Basement Level B3 extends below Building 1C and includes:
  - 31 residential car spaces (including 1 space to be located within the Verge, Vine and Greenbank basement) and bicycle parking;
  - 3 motorcycle spaces;
  - storage areas and service rooms;
  - water recycling facility (described in more detail in Section 3.11).

Six accessible car spaces are provided across the basement levels including one for each of the accessible apartments (totalling three spaces) and three provided for visitors/residents (i.e. 2% of all retail/visitor car spaces).

The Architectural Plans included in the Bates *Smart Stage 1 Project Application Design Report* (provided under separate cover) show how the proposed Stage 1 basement levels access the existing basement levels associated with the Verge, Vine and Greenbank development. The Architectural Plans also indicate where future access will be provided to future basement levels to the south of Stage 1.

3.7 Dwelling Mix and Size

Buildings 1B and 1C will accommodate 130 apartments in a range of types and sizes. **Table 1** identifies the overall dwelling mix and size of dwellings within both Buildings 1B and 1C.

Table 1 – Dwelling Mix

Type of Dwelling	Dwelling Size	No. of Dwellings	% of Dwellings
1 Bedroom	50m^2	10	42%
	53m^2	6	
	57m^2	13	
	59m^2	9	
	61m^2	10	
	67m^2	6	
	82m^2	1	
	Total	**55**	
2 Bedroom, 1 Bathroom	70m^2	10	50%
	77m^2	4	
	78m^2	1	
2 Bedroom, 2 Bathrooms	80m^2	22	
	84m^2	7	
	85m^2	13	
	88m^2	3	
	92m^2	4	
	108m^2	1	
	Total	**65**	
3+ Bedroom	100m^2	2	8%
	110m^2	4	
	111m^2	2	
	120m^2	1	
	124m^2	1	
	Total	**10**	
Stage 1	**TOTAL**	**130**	**100%**
Adaptable Units	*Total*	*3*	*2.5%*

It is noted that the Concept Plan set a unit mix across the site of (across the whole completed Concept Plan development):

- Maximum 45% of dwellings as 1 bedroom / studio apartments;
- Minimum 45% of dwellings as 2 bedroom apartments; and
- Minimum 10% of dwellings as 3+ bedroom apartments.

Table 2 provides a schedule of proposed dwelling mix provided within the Stage 1 Project Application. As shown in **Table 2**, the proposed development generally accords with the Concept Plan dwelling mix, with full compliance achieved through a relevant tally kept in subsequent applications.

Table 2 – Stage 1 Dwelling Mix

Type of Dwelling	No. of Dwellings	% of Dwellings
1 Bedroom		
Total	55	42%
2 Bedroom		
Total	65	50%
3+ Bedroom		
Total	10	8%
TOTAL Dwellings	***130***	***100%***

3.8 Landscaping and Public Domain

The proposed landscape works are illustrated within the Landscape Report included in the Bates Smart *Stage 1 Project Application Design Report*. The key features of the proposed landscaping treatments are:

- the construction of Neighbourhood Park, 1,452m^2 in area, to the south of Building 1B forming the Village Square and linking a number of pedestrian thoroughfares between future buildings. The majority of Neighbourhood Park includes a deep soil planting zone;
- the construction of a temporary park adjoining Neighbourhood Park (an area of 1,600m^2), in the location of the future Buildings 3 and 5, to provide access and interface with Magdalene Terrace to the south, until such time that a Building 3 or 5 Project/Development Application is lodged or construction of Building 2 commences whichever is first;
- the landscaping of the roof top podium terrace above Building 1B and roof top garden of Building 1C; and
- the street planting and landscaping of Brodie Spark Drive, Discovery Point Place and Spark Lane.

Key features of the Stage 1 landscape strategy include (and ground level works are depicted on **Figure 16**).

Figure 16 – Proposed landscape plan

Source*: Turf Design*

The Neighbourhood Park

Key features include:

- Contrasting tones, textures and patterns to be used to identify the park area as different from the general streetscape;
- High finish landscape elements and materials are proposed with custom design furniture to define a unique landscape character;
- An area of deep soil zone enables the provision of extensive shade tree plantings;
- A large central lawn with feature tree plantings and surrounding pedestrian walks;
- A 'play' focused water feature with fountain elements set below trafficable grill covers;
- A deck terrace comprised of deciduous trees along the future Building 3 site /south edge of park;
- A seating area on the western edge interspersed by native trees; and
- Internal pedestrian network connections, with feature trees and seating elements.

A temporary park along Magdalene Terrace

The Temporary Park located within the future Building 3 and 5 sites (south of the Neighbourhood Park includes the following temporary amenities;

- Pedestrian connections to the Neighbourhood Park, Railway Station and Proposed stage 1 development; and
- Extensive lawn areas for adjoining building breakout space.

Landscape for Building 1B and Building 1C rooftops

The building 1B podium is proposed as a shared community space for Discovery Point residents. The podium features a Gym, pool and sundeck area, community function space, lawns, garden beds, tree plantings, shade structure, seating and BBQ facilities for the residents.

The pool and sun deck are proposed to the southern side of the rooftop overlooking the neighbourhood park. A dense hedge is proposed to the eastern side of the pool to screen views and noise from the adjacent building 1C. A secure fence will enclose the pool and sun deck from the surrounding shared gardens.

A space is proposed to the centre of the rooftop, located under a pergola. Seating and BBQ facilities will be provided within this area. Lush planters will surround the space adding colour, texture and accent to the garden.

Building 1C is proposed as a 'residents only' green roof, featuring allotment gardens, shade structures and BBQ facilities for small group gatherings.

Upgrade of existing Brodie Spark Drive and extension of streetscape works

Brodie Spark Drive will be resurfaced to remove the median traffic islands and improve the planting schedules. A combination of additional tree planting, lighting design and street furniture has been designed to upgrade and enhance the amenity of the Stage 1 roads and enhance pedestrian amenity.

Temporary Bus stop to Brodie Spark Drive

A temporary bus stop will be built on the bridge over the railway line along Brodie Spark Drive. This provides a single bus stop with shelter as temporary bus access to the station, while the permanent double bus stop along Discovery Point Place is constructed under this Project Application.

More details regarding the landscaping proposed within Stage 1 is provided within the Bates Smart *Stage 1 Project Application Design Report* provided under separate cover.

3.9 Transport, Access and Parking

Road Network

Stage 1 includes the following road works:

- replacing the existing temporary east-west cul-de-sac running south of Wolli Creek Railway Station with Discovery Point Place;
- removing the existing temporary bus turning loop south of Wolli Creek Station and construction of a temporary road, bus stop and turning loop to the north at Wolli Creek Station;
- upgrading Brodie Spark Drive and extension of the road to the north towards Cooks River;
- construction of Spark Lane between Magdalene Terrace and Discovery Point Place;
- construction of Discovery Point Place between Spark Lane and Brodie Spark Drive;
- upgrading Brodie Spark Drive to provide space for new lighting improved drainage, landscaping and cycle paths and extension of the Drive to the north towards Cooks River; and
- planted verges on the Spark Lane frontage.

Discovery Point Place will be a key transport hub with a bus stop, taxi zone, kiss and ride and pedestrian links, combined with trees, planting and seating to create a high quality public realm at the entrance to Wolli Creek Station

The proposed road network will provide access to the site, as well as a number of future development stages within Discovery Point.

Vehicle Access

Vehicle access to the site will be via Magdalene Terrace to the south (accessing the proposed Spark Lane) and Brodie Spark Drive to the east (accessing Discovery Point Place).

Vehicle access to level B0 the basement car park of both Buildings 1B and 1C and the supermarket loading dock will be via Spark Lane.

Levels B1 - B3 will be accessed using the existing ramps on Brodie Spark Drive and Magdalene Terrace.

Car Parking

Table 3 identifies the number of car parking spaces within Stage 1 (and are described in Section 3.6 above). As described in Section 3.6, one basement level underneath both Buildings 1B and 1C, and under Spark Lane, will be constructed.

This basement level will be used primarily for residents; Level B0 will provide some public parking. Three additional basement levels will be constructed under Building 1C.

No additional on-street parking is proposed as part of this application.

Table 3 – Stage 1 Car Parking

Location	No. of Car Spaces
On-street	0
Basement B0 – Public Car Spaces	133
Residential B1	42
Residential B2	40
Residential B3	31
Total	**246**

The application also seeks consent for the construction of a portion of the basement structure for future stages 2, 4, 5 and 14 due to ease of construction methodology. Approval of these actual parking numbers would be subject to future application. The areas of basement constructed for future car parking spaces are identified in Architectural Plans DA2.101-DA2.202.

Service Vehicles

The residential refuse and recycling strategy for the southern precinct involves the collection of waste from storage rooms in the basement of each building and transfer to a centralised store in the ground floor of Building 1B. Retail waste collection will occur in the loading dock of Building 1B.

Adjacent to the central waste store is a loading dock which will accommodate waste collection vehicles in addition to deliveries vehicles for retail and commercial tenants, including the supermarket.

Emergency vehicles will gain access to all buildings and open spaces directly from the proposed street network

Bicycle Parking

Bicycle parking is provided both within the basement car park and on footpaths. As part of Stage 1, 21 bicycle parking spaces are provided, 11 on-footpath for use by non-residential patrons and 10 spaces within the basement for residents.

Wolli Creek Station Access

The station access to Wolli Creek Railway Station is via stairs and a lift from the temporary access road to the south of the station. The existing station access will be replaced as part of the Stage 1 Project Application.

To ensure station access is maintained throughout construction, Stage 1 early works will include temporary station stairs and ramp from Brodie Spark Drive, immediately to the north of the proposed Discovery Point Place alignment. To ensure bus access is also maintained to the station, Stage 1 early works will also include a temporary bus stop on the bridge over the railway line and temporary bus turning loop north of the railway station. The temporary bus stop will be located adjacent to the temporary stairs and access ramp to the station and a footpath will be provided from the bus turning loop to the station access.

The early works will be constructed prior to the demolition of the existing station access (including existing bus turning loop). The location of the Stage 1 early works are indicated on **Figure 17**.

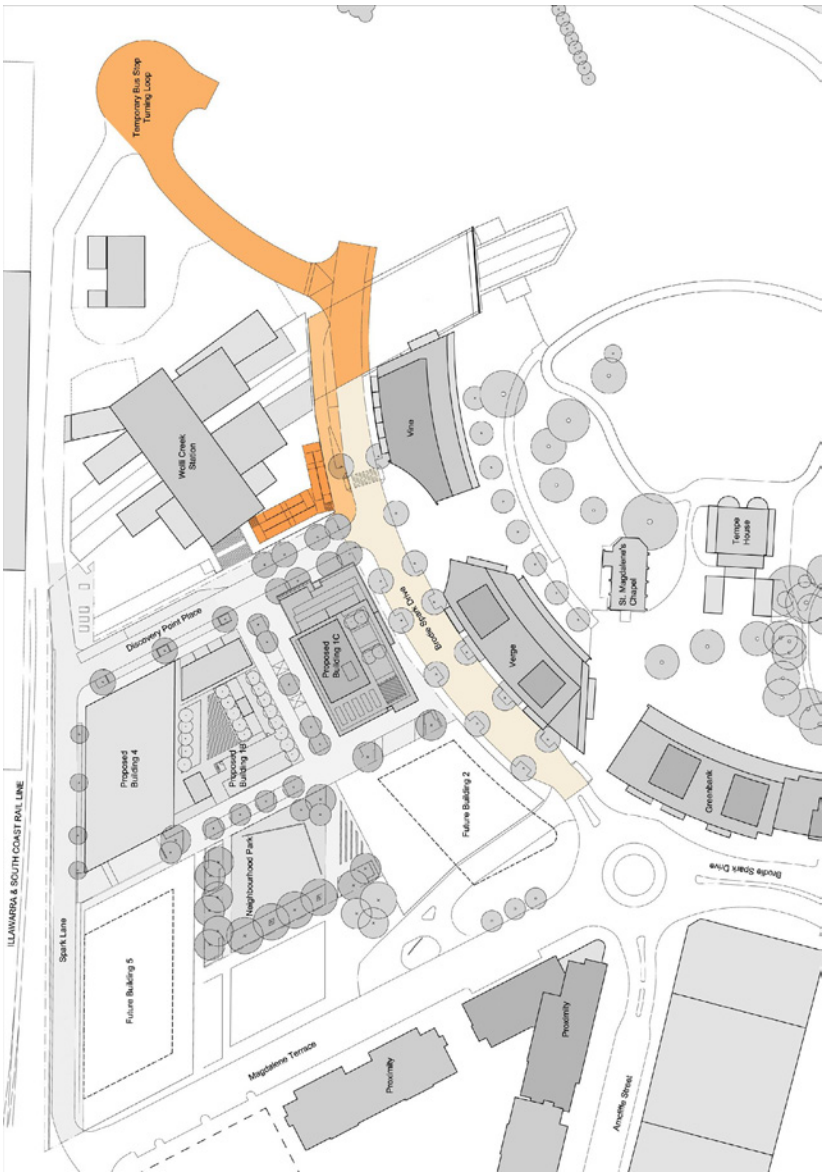


Figure 17 – Proposed early works

Source: *Bates Smart*

New pedestrian station access will be constructed immediately north of Discovery Point Place and will include stairs and a lift from Discovery Point Place, opposite the pedestrian walk between Buildings 1B and 1C. The station entry will connect the existing station entrance at RL2.0m with Discovery Point Place RL 6.3m.The pedestrian access is considered temporary as it will be incorporated into the future Building 14 (when constructed).

Vehicular access to the station will be provided via Spark Lane and Discovery Point Place (when constructed). A permanent bus stop for two buses will be provided along the northern side of Discovery Point Place, immediately west of the proposed station access, and two bays will be provided for taxi pick up and drop off on the southern side of the road.

With the construction of the new station access, Spark Lane and Discovery Point Place (including new bus stop), the temporary station access, bus stop and bus turning loop will be demolished. Pedestrian access between the station, Neighbourhood Park and Magdalene Terrace is addressed below.

Bus Services

Bus services will stop on Discovery Point Place, adjacent to Wolli Creek railway station. A taxi and commuter drop off is also provided in this location.

Pedestrian and circulation

Pedestrian access will be made available to the site via:

- Magdalene Terrace to the temporary park located in the future footprint of Building 3;
- Magdalene Terrace to footpaths along Spark Lane;
- Brodie Spark Drive to footpaths and public domain areas immediately to the south of Building 1C;
- Brodie Spark Drive to Discovery Point Place.

Pedestrian access will also be provided through the site, north-south via the Neighbourhood Park, Temporary Park and pedestrian thoroughfare between Buildings 1B and 1C, and east-west along the southern facade of Building 1B and 1C.

Pedestrian access into the buildings will be via:

- Building 1C residential lobby along Brodie Spark Drive;
- Building 1B residential lobby adjacent to the north-west corner of the Neighbourhood Park;
- Ground floor retail frontages along Brodie Spark Drive, Discovery Point Place and the pedestrian link between Buildings 1B and 1C, and Neighbourhood Park; and
- Building 4 residential lobby on Discovery Point Place (part of a separate future application).

Pedestrian links and residential access is indicated in **Figures 18** and **19**.

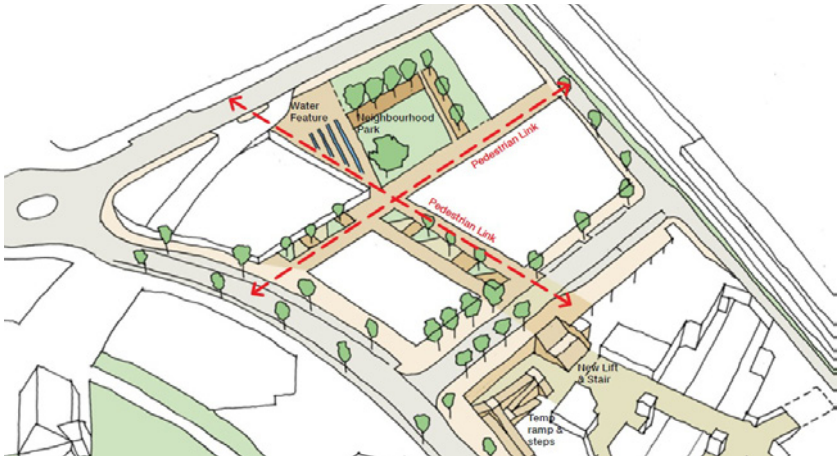


Figure 18 – Pedestrian links

Source: *Bates Smart*

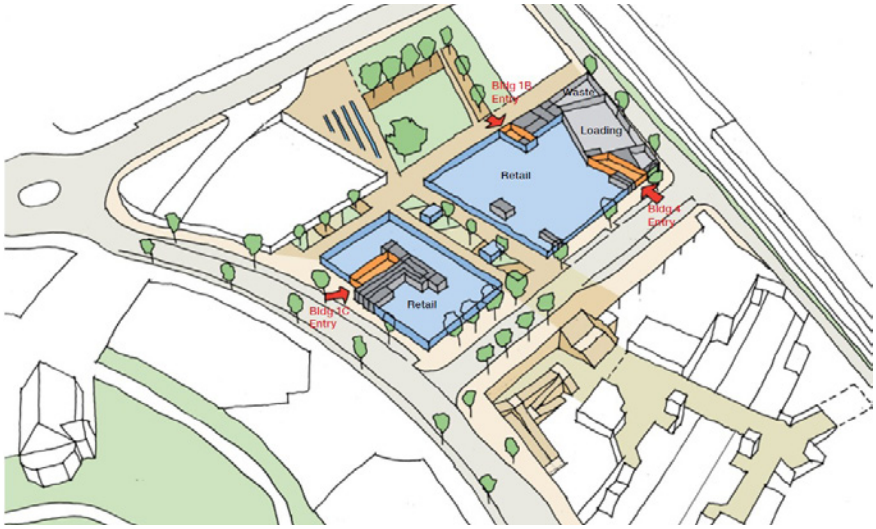


Figure 19 – Residential Pedestrian Access

Source: *Bates Smart*

Disabled access

The following measures will be implemented to provide disabled access to the site, common areas, accessible parking, sanitary facilities, retail development and residential accommodation:

- 2% parking for retail services provided as accessible parking (i.e. 3 car spaces);
- 1 adaptable parking bay for every adaptable apartment (i.e. 3 car spaces);
- 3 adaptable apartments provided within Buildings 1B and 1C (combined);
- accessible paths into each residential lift lobby and retail tenancy;
- accessible paths from residential lift lobbies to all upper floor apartments;
- accessible paths from the temporary bus stop to the railway station (via the proposed ramp and lift);
- accessible paths to roof top terrace, including all common facilities, from the lift.

3.10 External Materials and Finishes

Bates Smart Architects have prepared a palette of external materials and finishes for the proposed development that complement and enhance the existing character of Wolli Creek and Discovery Point. The Bates Smart Design Report (provided under separate cover) provides the External Finishes Schedule that illustrates the typical materials detailing of various building elements and includes:

- concrete spandrels;
- aluminium louvres;
- painted sheet solid panels;
- aluminium windows; and
- metal balustrades.

The rationale for the detailed elevation approach is provided at Section 5.4 of the Bates Smart Design Report. In summary the Bates Smart design rationale is as follows:

Building 1C

- Regular, repetitive horizontal bands act as the primary ordering device while the windows and infills shift and stagger between them. The expressed spandrels unify the overall composition and act as a scaling device.
- To break up the composition, a set of large scale gestures break the repetition of the bands including
  - a full height slot which provides light and ventilation to the common areas
  - a high level pop-out on the north-west corner provides the western apartments with larger balconies and glimpses of Discovery Point Park;
  - a high-level pop-out on the south-east corner gives several apartments a view back to the Neighbourhood Park.
- Between these horizontal bands, a family of 4 elements – balconies, windows, louvered screens and solid panels – provides outdoor space, light and ventilation, shading and protection to the apartments within.
- On the Northern and Southern elevations where the overall massing is subject to the large scale gestures, the arrangement of secondary elements is fairly ordered with little differentiation by level.
- In contrast, the east and west elevations have a simpler massing so the secondary elements shift and stagger responding to the various apartment conditions within. This provides a field effect which allows the building to read as a singular whole at the same time expressing the smaller details of each apartment and individual rooms.

Building 1B

- The language of strong horizontals is carried through to the lower three-storey building.
- A thin projecting canopy separates the glazed ground floor from the residential floors above, which are contained by tall spandrels at floor and ceiling level. Between these is a family of elements similar to Building 1C: balconies, windows, louvered screens and solid balustrades.
- At the western end of the building, where the first floor level will be unoccupied until Building 4 is completed, a system of timber battens on plywood hoarding will ensure a similar approach to infill is completed on all four facades.

Retail Frontages

- The residential floors float above a predominantly glazed retail base which in most locations is aligned with the building above.
- Between the residential floors and the glazed retail facade is a metal canopy. The canopy has a thin leading edge to emphasise its lightness and is made of metal to provide a visual buffer between the retail facades and residential floors above.
- The glazed retail facade is broken at each structural bay by a full height solid panel and recessed entrance door, breaking down the long expanse of glazing. Providing a entrance door in each structural bay brings two clear benefits: It allows the retail floor level to step down following the fall of the site; and encourages smaller tenancies with multiple entry points.

- Between each entrance bay, the retail facade incorporates a 600mm signage zone with a 600mm clerestory window above. Lowering the signage zone into the glazing increases the sense of openness of the facade and provides a common background onto which each of the retailers can project their branding.

3.11 Water Cycle Management

A Water Recycling Facility is proposed to be located in basement levels B2 and B3 of Building 1C. Waste water will be taken from the Sydney Water sewerage system mains located at the intersection of Magdalene Terrace and Brodie Spark Drive and fed into a Flow Balance Tank (to be located within the development site), future buildings within Discovery Point will be fed directly into the Flow Balance Tank. From the Flow Balance Tank, waste material will be treated in the Water Recycling Facility producing water suitable for a range of uses, including irrigation, clothes wasting, car washing and toilet flushing purposes.

Recycled water will be utilised, with all apartments fitted with recycled water pipes to toilets and washing machines. In the initial stages of the Discovery Point Concept Plan implementation, surplus recycled water will also be utilised by Marrickville Council to irrigate parks and open space along the Cooks River.

3.12 Services and Infrastructure

An Infrastructure Planning Considerations Report has been prepared by DSC (see **Appendix D**) and to address the provision of servicing for the Stage 1 Project Application. Stage 1 includes all internal services/infrastructure installations to support Buildings 1B, 1C and the associated public domain, and also some infrastructure and utility upgrades to support future stages of the Discovery Point development.

Approval is sought for the extension/augmentation of physical infrastructure/utilities as required below:

Potable Water

A ringmain extension is proposed from the existing Authorities 300mm DICL water main in Brodie Spark Drive connecting to the existing Authorities 200mm uPvc water main in Magdalene Terrace via Discovery Point Place and Spark Lane.

Sewerage

As described in Section 3.11, a Water Recycling Facility is proposed in Basement levels B2 and B3 of Building 1C. All sewer lines will be diverted to the Water Recycling Facility, including those for existing buildings in Discovery Point (i.e. Greenbank, Vine, Verge). Overflow from the Water Recycling Facility will be diverted to the existing Sydney Water sewer main at the corner of Magdalene Terrace and Brodie Spark Drive.

Gas

A 210kPa pressure Authority gas main is available in Brodie Spark Drive and will be extended to reticulate down Discovery Point Place and Spark Lane. Natural gas will be made available to Building 1B and 1C, including the supermarket and retail tenancies.

Electricity

The existing high voltage infrastructure associated with existing developments Greenbank, Vine and Verge will be upgraded and extended to service Buildings 1B and 1C. An accredited service provider will provide the design of the high voltage in accordance with Energy Australia's requirements.

Communications

New communications fibre or copper services will be installed in accordance with Telstra, NBN and the Australian Communications Authority requirements.

Stormwater

The proposed stormwater drainage system is shown in the Civil Report prepared by Bonacci Group Pty Ltd at **Appendix C**. Stormwater pipes are proposed along Spark Lane, Discovery Point Place, between Buildings 1B and 1C and underneath Neighbourhood Park. The Stage 1 Project Application works will integrate with the Magdalene Terrace and Brodie Spark Drive networks.

3.13 Site Preparation Works

Demolition

To prepare the site for the proposed development, the demolition of several minor structures. An existing wall in the north-east corner of the site that provides flood protection (and will no longer be required) will also be demolished as part of the proposed development.

Earthworks

Bulk earthworks to be undertaken as part of the proposed development will require cut of approximately 25,000m^3 and fill of approximately 8,600m^3, resulting in the following:

- the finished level of the basement levels under Building 1C is RL -6.4m AHD (with excavation down to RL -6.7m AHD), with some localised deeper excavation to allow for construction of the water recycling facility;
- the finished level of basement B0 under Building 1B is RL 1.8m AHD (with excavation down to RL 1.4m AHD); and
- fill will be associated with the construction of the neighbourhood park, construction of Spark Lane, temporary road and bus turning loop) and fill placed on concrete slabs (which form basement carparking levels).

The bulk earthworks are identified in detail within Plans 20 0119301/ CSK04 and CSK05 appended to the Civil Report prepared by Bonacci Group Pty Ltd (**Appendix C**). The excavation will be carried out by experienced bulk excavation contractors using standard earth moving equipment to remove the predominant fill and clay materials.

Site Retention Systems

Retention systems adjacent to the rail corridors are proposed as follows (and identified in Figure 1 of the Bonacci Structural report (**Appendix E**):

- cantilevel contiguous pile walls up to the natural ground levels along the western boundary alongside the Illawarra Line rail corridor; and
- a permanent concrete wall to separate the Basement BO from the rail corridor along the northern boundary alongside Wolli Creek Railway Station and the Airport Line rail corridor.

Basement Construction and Utilities

The following enabling works are proposed as part of the Stage 1 Project Application:

- the construction of a portion of the basement structure for future stages 2, 3, 4, 5 and 14 due to ease of construction methodology. Approval of actual parking numbers would be subject to future development/project applications;
- access to existing sewer lines, providing temporary access to the existing substations and truck movements (across much of the Concept Plan area); and
- the construction of a bund to protect the temporary entrance to the Stage 6 basement (proposed under separate Project Application).

3.14 Temporary Works

The following temporary works are proposed as part of the Stage 1 Project Application (and area to which they apply identified in **Figure 20**):

- a park constructed at the site of the future Building 3 to provide a pedestrian link from Magdalene Terrace to Neighbourhood Park, the supermarket, other retail premises' and Wolli Creek Railway Station;
- access stairs and ramp from Brodie Spark Drive into the Wolli Creek Railway Station concourse;
- a bus stop along Brodie Spark Drive (on the bridge over the railway line), providing temporary bus access to the railway station; and
- a bus turning loop to the north of the railway station (linking to Brodie Spark Drive) to maintain bus access to Wolli Creek Railway Station (as depicted in **Figure 20**).

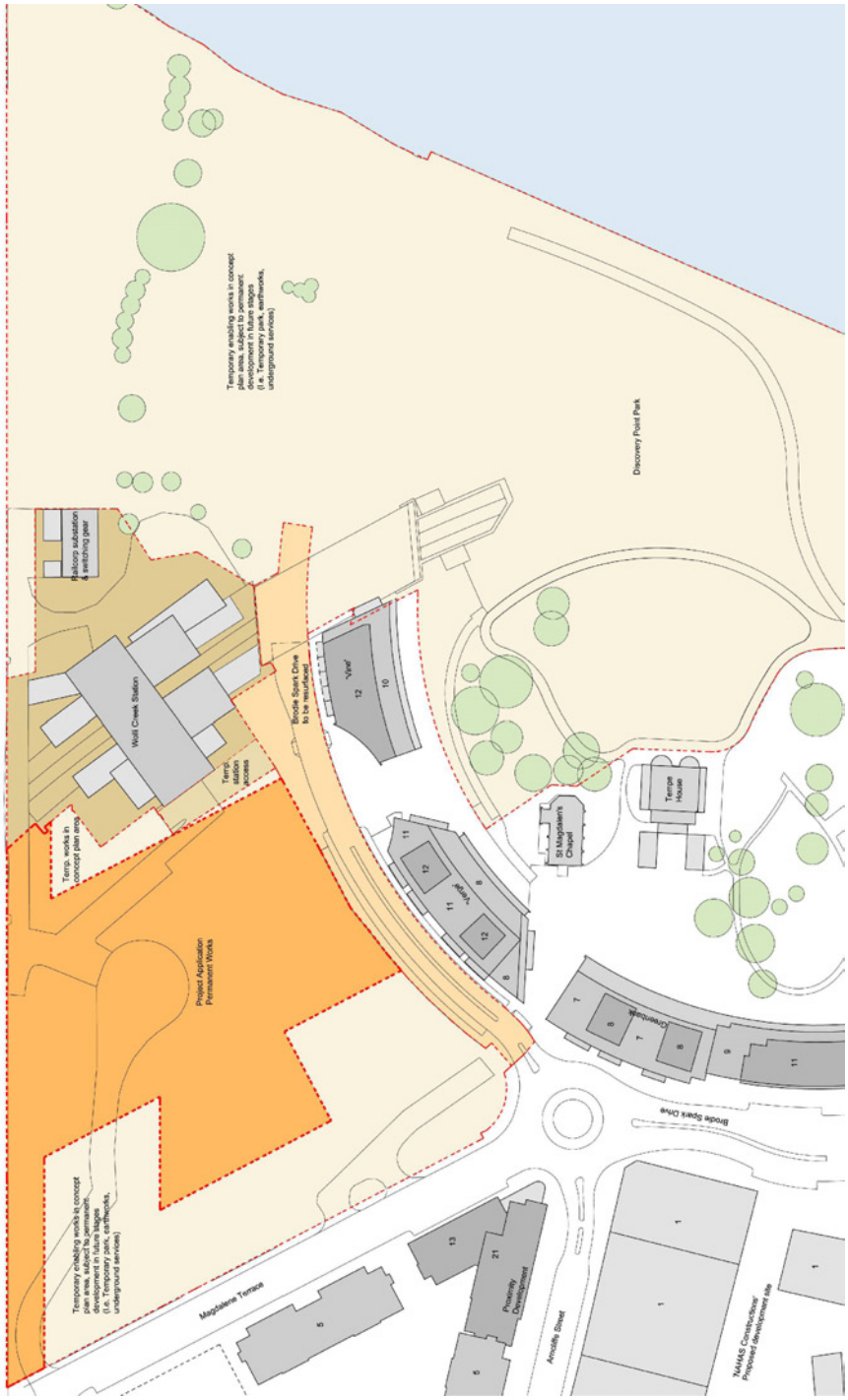


Figure 20 – Extent of Temporary Works

Source: *Bates Smart*

3.15 Developer Contributions

As per the Discovery Point Pty Ltd offer to enter into a Voluntary Planning Agreement with Rockdale City Council (refer to JBA Planning's Concept Plan Preferred Project Report dated December 2010), contributions payable under Rockdale City Council Section 94 Plan 2004 will be payable for the Stage 1 Project Application.

3.16 Schedule of GFA and Car Parking

The Concept Plan includes:

- A maximum of 132,000m^2 total GFA for the mixed use development (excluding car parking GFA, existing approved buildings and heritage buildings);
- A minimum of 9,000m^2 non-residential GFA;
- A maximum of 123,000m^2 residential GFA;
- A maximum of 8,000m^2 above ground car parking GFA (in addition to maximum GFA above); and
- Total parking numbers across Discovery Point (including existing developed stages) to be capped at 2,240 parking spaces.

The amount of GFA for the existing buildings on the Discovery Point site is excluded from the above figures.

Table 4 identifies the car parking spaces currently approved or constructed on the Discovery Point site which are included in the overall cap, and the remaining GFA and car spaces available to be developed on the site.

Table 4 – Schedule of GFA and Parking to date (Stage 1)

Site	Standard Instrument GFA	Parking Spaces
Greenbank	N/A *(excluded from Concept Plan maximum floor space)*	147
Verge		92
Vine		104
Building 1B	1,240m^2 residential 1,506m^2 non-residential 0m^2 above ground parking	246
Building 1C	9,991m^2 residential 691m^2 non-residential 0m^2 above ground parking	
GFA Parking / Remaining	111,769m^2 residential 6,803m^2 non-residential (minimum) 8,000m^2 above ground parking **118,572m^2 Total GFA**	1,651 car spaces

4.0 Director-General's Requirements

On 23 March 2010, in accordance with Section 75F of the EP&A Act, the Director-General of the Department of Planning issued the requirements for the preparation of an Environmental Assessment to accompany a Concept Plan, Stage 1 and Stage 2 Project Applications for the project. On 9 December 2010, the Director-General issued a revised set of requirements to accompany a Concept Plan, Stage 1 and Stage 6 Project Applications (with the requirements no longer applying to Stage 2). A copy of the revised DGRs is included in **Appendix B**.

Table 5 provides a detailed summary of the individual matters listed in the DGRs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 5 – Director-General's Requirements

Requirement	Location in Environmental Assessment
General	
Executive Summary	Page 1
Site Analysis	Section 2.0
Description of the proposed development	Section 3.0
Assessment of key issues	Section 5.0
Assessment of potential impacts	Section 5.0
Draft Statement of Commitments	Section 6.0
Statement of Validity	Page 2
Quantity Surveyor's Certificate	**Appendix F**
Plans and Documents	
Site Survey Plan	**Appendix A**
Site Analysis Plan	Provided under separate cover
Locality / Context Plan	Section 2.1
Architectural Drawings	Provided under separate cover
Model	Addressed in Concept Plan
Geotechnical and Structural Report	Section 5.10 and **Appendix E**
Stormwater Concept Plan	**Appendix C**
Erosion and Sediment Plan	Addressed in Concept Plan
View Analysis	Addressed in Concept Plan
Landscape Plan	Section 3.8 and provided under separate cover
Shadow Diagrams	Provided under separate cover
Construction Management Plan and Traffic Management Plan	Addressed in Concept Plan and Statement of Commitments
Construction Methodology	Addressed in Concept Plan and Statement of Commitments
Key Issues	
Address relevant EPIs, policies and guidelines	Section 5.1
Built form and height	Section 5.5

Requirement	Location in Environmental Assessment
Urban Design	
▪ The design quality with specific consideration of the facade, massing, setbacks, building articulation, use of appropriate colours, materials/finishes, landscaping, safety by design (CPTED) and public domain.	Sections 5.5 and 5.6
▪ The EA shall also provide:	
- Active retail frontages should be provided to Brodie Spark Drive, Magdalene Terrace and adjacent to the railway station;	Addressed in Concept Plan
- All weather protection to be provided on retail streets;	Shown in Architectural Plans provided under separate cover
- Pedestrian access to Discovery Point Park, the Cooks River foreshore and the train station to be improved.	Section 3.9
Economic Impact Assessment	Addressed in Concept Plan
Environmental and Residential Amenity	
▪ Solar access, acoustic privacy, visual privacy, view loss and wind impacts and achieve a high level of environmental and residential amenity. In this regard, consider appropriate separation distances to any adjacent residential buildings.	Section 5.4 and provided under separate cover.
▪ The issue of noise from the airport and railway line and provide details of how this will be managed and ameliorated through the design of the building, in compliance with relevant Australian Standards.	Section 5.11 and **Appendix G**
Noise and Vibration Assessment The issue of noise and vibration impacts from the railway corridor and provide detail how this will be managed and ameliorated through the design of the building, in compliance with relevant Australian Standards and the Department's Development near Rail Corridors and Busy Roads – Interim Guidelines.	Section 5.11 and **Appendix G**
Transport & Accessibility Impacts (Construction and Operational)	
▪ Traffic and Accessibility Impact Study prepared in accordance with the RTA's Guide to Traffic Generating Developments, considering:	

Requirement	Location in Environmental Assessment
- Traffic generation and any required road/intersection upgrades (including but not limited to the intersection of Princes Highway/Brodie Spark Drive),	Addressed in Concept Plan
- The adequacy of on-site car parking for the proposal having regard to local planning controls, RTA guidelines and the high public transport accessibility of the site (Note: the Department supports reduced car parking rates in areas well-serviced by public transport),	Addressed in Concept Plan
- The ability of buses to maintain services during construction and once completed;	Sections 3.9 and 5.7 and **Appendix H**
- Access, loading dock(s) and service vehicle movements;	Section 5.7 and **Appendix H**
- The potential for implementing a location-specific sustainable travel plan (e.g. "Travelsmart" or other travel behaviour change initiative)	Addressed in Concept Plan
- The implications of the proposed development for non-car travel modes (including public transport use, walking and cycling) and the provision of facilities to increase the non-car travel share, including bicycle connections from the site to the surrounding bicycle network and bicycle parking in both residential and commercial/retail portions of the proposed development (including the provision of amenities for cyclists), and	Section 5.7 and **Appendix H**
- How the proposal integrates with the Wolli Creek Railway Station and how the proposal would impact upon the operation of the existing railway lines.	Section 3.9 and **Appendix H**
Ecologically Sustainable Development	
▪ How the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development.	Section 5.14 and **Appendix I**

Requirement	Location in Environmental Assessment
▪ Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice.	Section 5.14 and **Appendix I**
Contributions	Addressed in Concept Plan
Staging	Addressed in Concept Plan
Contamination	Addressed in Concept Plan
Public Domain The interface between the proposed uses and public domain, and the relationship to and impact upon the existing public domain and address the provision of linkages with and between other public domain spaces, including Cahill Park and Waterford Park. The EA shall consider the provision of a public art strategy	Sections 3.8 and Landscape Report (provided under separate cover).
Drainage and Groundwater	
▪ Address drainage/flooding issues associated with the development/site, including: stormwater infrastructure and incorporation of Water Sensitive Urban Design measures.	Sections 5.15 and 5.16 and **Appendix C**
▪ An Assessment of any flood risk on site in consideration of any relevant provisions of the NSW Floodplain Development Manual (2005) including the potential effects of climate change, sea level rise and an increase in rainfall intensity.	Addressed in Concept Plan
▪ Impacts upon groundwater resources, and when impacts are identified, provide contingency measures to remediate, reduce or manage potential impacts.	Addressed in Concept Plan
Heritage	
The EA shall provide an Heritage Impact Assessment of the site, and a Statement of Heritage Impact, that is to include:	
▪ Detailed evaluation an any impacts that the development would have on the heritage significance of the site, in particular the heritage significance and setting of Tempe House and St Magdalen's Chapel	Section 5.8 and **Appendix J**
▪ Consideration of the cumulative impacts of the proposed works on the heritage items and their curtilage	Section 5.8 and **Appendix J**

Requirement	Location in Environmental Assessment
▪ Awareness of the possible existence of any archaeological relics which may be disturbed during the works that may require an archaeological assessment to be undertaken; and	Section 5.8 and **Appendix K**
▪ The EA shall provide an Archaeological Assessment of Aboriginal and non-Indigenous archaeological resources, including an assessment of the significance and potential impact on the archaeological resources.	Section 5.8 and **Appendix L**
Electrolysis Risk A report by an electrolysis expert on the Electrolysis Risk to the development from stray currents.	Section 5.13 and **Appendix O**
Statement of Commitments A draft Statement of Commitments detailing measures for environmental management, mitigation measures and monitoring for the project.	Section 6
Land Ownership	Addressed in Concept Plan
Development Agreements	Addressed in Concept Plan
Consultation Undertake an appropriate and justified level of consultation in accordance with the Department's *Major Project Community Consultation Guidelines October 2007* (including demonstrating discussions with Rockdale City Council, RailCorp, State Transit, Sydney Airport Corporation, Civil Aviation Safety Authority and Air Services Australia).	Addressed in Concept Plan

5.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the Project Application proposal. It addresses the matters for consideration set out in the Director-General's Environmental Assessment Requirements (DGRs).

The draft Statement of Commitments complements the findings of this section.

5.1 Relevant Strategy and Statutory Plans and Policies

The DGRs require the following legislation, strategies and planning instruments, which are relevant to the proposed development to be addressed:

- Objects of the EP&A Act 1979;
- NSW State Plan;
- Draft South Subregional Strategy;
- SEPP 55 - Remediation of Land;
- SEPP 65 - Design Quality of Residential Flat Development;
- SEPP (Building Sustainability Index: BASIX) 2004;
- SEPP (Infrastructure) 2007;
- Rockdale Local Environmental Plan 2000 and relevant Rockdale Development Control Plans and policies;
- Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996;
- Metropolitan Transport Plan 2010;
- Integrating Land Use and Transport policy package;
- Development Near Rail Corridors and Busy Roads - Interim Guideline; and
- Planning Guidelines for Walking and Cycling.

It is noted that the DGRs were issued as a combined set of assessment requirements for the Concept Plan, Stage 1 and Stage 6 Project Applications. As such, the strategic assessment regarding the suitability of the proposal is provided in detail in the Concept Plan EAR.

The Project Application's consistency with the relevant strategic and statutory plans and policies is located in **Table 6** below. Since the original DGRs were issued in March 2010, Rockdale Council has exhibited a new Draft Local Environmental Plan and Development Control Plan. The project's response to the draft LEP and DCP is addressed within the Concept Plan Preferred Project Report.

Table 6 – Consistency with key strategic and statutory plans and policies

Instrument / Strategy	Comments
Objects of the EP&A Act 1979	Addressed in Concept Plan.
NSW State Plan	Addressed in Concept Plan.
Draft South Subregional Strategy	This Project Application is consistent with the Strategy in that it will: ▪ provide greater housing supply and housing choice; ▪ contributes to achieving the targets for Rockdale LGA which require 7,000 additional dwellings and 13,000 additional jobs by 2031; ▪ fulfils the objectives by providing significant housing opportunities and services within a transit oriented locations; and ▪ improves connections to Wolli Creek Railway Station, encouraging use by residents in Discovery Point and the surrounding areas.
SEPP 55	The suitability of the site to support residential development under the provisions of SEPP 55 has been demonstrated in the Concept Plan. Addressed in **Section 5.1.7.**
SEPP 65	An assessment of the proposal against the 10 design principles of SEPP 65 is included within the Bates Smart Design Report provided under separate cover.
SEPP (BASIX)	BASIX Certificates are being prepared and will be issued under separate cover with the preferred project report. An ESD Statement by Cundall demonstrates the measures that will be employed to ensure BASIX compliance.
SEPP (Infrastructure)	The project is to be referred to Railcorp as required under Division 15 of the SEPP.
Rockdale LEP 2000	Addressed in Concept Plan.
Draft Rockdale LEP 2011	Addressed in Concept Plan PPR.
Rockdale DCP	Addressed in Concept Plan.
Draft Rockdale DCP 2011	Addressed in Concept Plan PPR.
Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996	Addressed in Concept Plan.
Metropolitan Transport Plan 2010	Addressed in Concept Plan.
Integrating Land Use and Transport	Addressed in Concept Plan.
Development Near Rail Corridors and Busy Roads - Interim Guideline	Addressed in Concept Plan.
Planning Guidelines for Walking and Cycling	Addressed in Concept Plan.

5.2 Consistency with the Concept Plan

On 5 May 2011, the Department of Planning & Infrastructure approved the Discovery Point Concept Plan - a mixed use residential development including open space, supermarket and associated facilities/infrastructure. The Conditions of Approval are provided at **Appendix Q**. Tables of Compliance for the Conditions of Approval are provided at **Appendix R**.

5.3 Concept Plan

The Stage 1 PA is consistent with the structure of the approved Concept Plan as follows:

- proposes the construction of Buildings 1B and 1C in accordance with the Concept Plan building envelope (including building height) as demonstrated in Section 5.5, with maximum RLs less than 20.8m and 55.3m (i.e. RL20.3m for Building 1B and RL55.2m for Building 1C);
- will not result in the Discovery Point site exceeding the overall maximum number of dwellings, GFA (including above ground car parking), parking spaces or dwelling mix and size standards as demonstrated in the GFA and Parking Schedule at **Table 4**;
- contributes to the overall non-residential component of the Concept Plan;
- proposes the construction of Neighbourhood Park in accordance with the size, sun access and deep soil standards as demonstrated in the Concept Plan;
- adopts the same design principles as those used for the Concept Plan development; and
- is consistent with the Discovery Point Concept Plan Development Design Guidelines, updated to reflect the Concept Plan Conditions of Approval (June 2011).

5.3.1 Statement of Commitments

All relevant Concept Plan Statement of Commitments are met through the Project Application and no variations to the Concept Plan Statement of Commitments are required.

5.4 State Environmental Planning Policy No. 65 – Design Quality of Residential Flat Development

An assessment of the proposed development's consistency with the design quality principles of SEPP 65 demonstrates that the design quality of the proposal is consistent with the principles of the SEPP. A design verification statement is included with the *Bates Smart Stage 1 Project Application Design Report* provided under separate cover.

The proposed development also complies with all of the design quality objectives and design principles of the Residential Flat Design Code. However, as outlined in the Concept Plan EAR and PPR, the proposed development does not fully achieve some of the "rules of thumb", set out in the Code.

As demonstrated below, the proposed development relies on better design practice to ensure that the amenity of the proposed development is not compromised in any way or that an inability to achieve some of the rules of thumb is generally related to the context of the site. The proposed development has been designed to provide apartments with a high quality of internal amenity and outlook. The elements that warrant consideration in respect of amenity are discussed below.

Building Depth

With a building depth of 23-25m, Building 1C exceeds the building depth 'Rule of Thumb' identified in RFDC (i.e. 18m), although are consistent with the Concept Plan building envelopes. As described in the Concept Plan EAR and PPR, although there are buildings within the Discovery Point Concept Plan that exceed the building depth 'Rule of Thumb' these buildings (including Building 1C) meet the objectives behind the RFDC in that they are functionally well organised and provide good access to natural light and ventilation.

The proposed building depth of Building 1C is acceptable as it does not exceed the building envelopes proposed within the Concept Plan and the proposed floor plans demonstrate the following positive design measures (as shown in **Figure 21**):

- the substantive parts of living areas within the building are at the 'Rule of Thumb' (18m), with private open space (balconies) accounting for the remaining building depth. The buildings will therefore be articulated on their facades;
- open plan living arrangements and suitable balcony depths (minimum 2 metres) are provided for all apartments;
- living areas and bedrooms are located to maximise solar access and natural ventilation;
- many bedrooms are adjacent to balconies; and
- kitchens comply with the RFDC 'Rule of Thumb' for the maximum distance from a window (i.e. 8 metres).

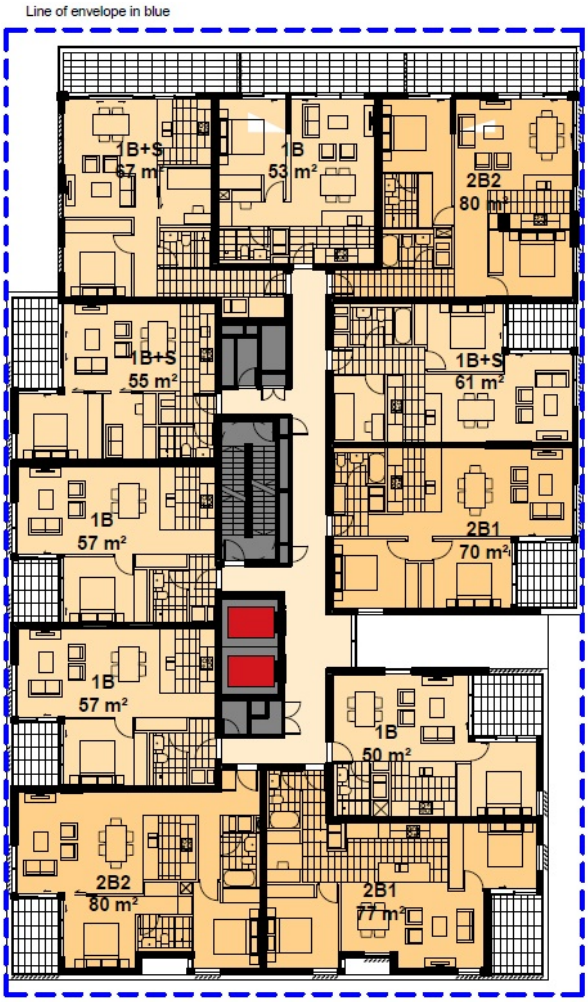


Figure 21 – Building Floor Plate Building 1C

Source: *Bates Smart*

The dwellings proposed within Building 1B are perimeter dwellings with a maximum depth of 9.5m from a window, they are provided with good access to day light and ventilation.

Sunlight and Daylight Access

The proposed development maximises the receipt of natural daylight to each apartment, within the constraint of ensuring suitable levels of privacy for residents in future apartment buildings and to the existing Verge and Vine apartment buildings to the south east.

Of the 130 proposed apartments within Buildings 1B and 1C, 91 apartments will receive the RFDC recommended 2 hours of sunlight to their principal living areas between 9am and 3pm in mid winter (as shown level by level in **Table 7**). This equates to 70% of apartments and complies with the RFDC 'Rule of Thumb'. Floor by floor plans demonstrating compliance have been prepared and included in the Bates Smart Project Application Design Report.

In addition, only two of all proposed apartments (across both Buildings 1B and 1C) will achieve single aspect between south-east and south-west, equating to 1.5% of all apartments. This is well below the RDFC 'Rule of Thumb' for single aspect apartments (maximum 10%) of apartments.

It is noted that although the RFDC does not apply to dwellings in Building 1B (as the building is less than three storeys), the dwellings in Building 1B have been included **Table 7** and have been incorporated into the overall Stage 1 calculations for daylight access. Even with the inclusion of Building 1B, the Stage 1 precinct complies (70%). The calculation of RFDC 'Rules of Thumb' on a precinct basis is consistent with approach on other infill residential sites such as the CUB site in Broadway.

With the calculation of solar access on the actual residential flat building of Building 1C, the percentage achieved is 70.2%.

In order to protect units from solar gain during the summer months, the proposed development incorporates balcony overhangs, louvers/screens, performance glazing, blinds and insulation.

Table 7 – Apartments achieving the RFDC 'Rule of Thumb' for daylight access

	Apartments achieving RFDC Rule of Thumb	Total Apartments	%
Level 1 (Building 1B)	6	9	66%
Level 1 (Building 1C)	7	11	63%
Level 2	8	11	73%
Level 3	9	11	82%
Level 4	9	11	82%
Level 5	9	11	82%
Level 6	9	11	82%
Level 7	6	9	66%
Level 8	6	9	66%
Level 9	6	9	66%
Level 10	6	9	66%
Level 11	4	7	57%
Level 12	3	6	50%
Level 13	3	6	50%
Total	**91**	**130**	**70%**
Building 1C only	*85*	*121*	*70.2%*

Views

As the first stage of the Discovery Point Concept Plan, views will be available from Building 1C to the north over the Cooks River, to the west and to the south. With the completion of the Concept Plan construction within Discovery Point, views will be available from some apartments towards the Cooks River to the north and between Verge and Vine buildings towards Discovery Point Park in the north-east. Those apartments with western and southern aspects will also achieve positive outlooks over the Building 1B rooftop courtyard and the Neighbourhood Park to the south-west.

Circulation and Storage

The proposed development provides open plan living areas and generous room sizes to provide efficient circulation spaces within each apartment. In conformity with SEPP 65 and the RFDC, all habitable spaces have at least 2.7 metre high ceilings. Furthermore, all dwellings have secure internal storage areas and designated areas within the basement that comply with SEPP65 and the RFDC.

Cross Ventilation

The proposed development is designed to promote cross ventilation, through corner aspects, open plan living spaces and introducing vertical light at strategic locations on the facade. Seventy-five units have a layout that provides natural cross ventilation, equating to 58% of apartments.

To improve natural ventilation, five apartments (three in Building 1B and two in Building 1C) will be provided with a dedicated natural ventilation duct from above the kitchen out through the roof or common corridor. The duct will be open even if the common corridor is closed. The RFDC acknowledges the use of such innovative techniques to further naturally ventilate internal areas. This allows 80 of the 130 proposed apartments achieving natural ventilation (i.e. 62%), thereby achieving compliance with the RFDC 60% 'Rule of Thumb' (as shown in **Table 8**). Floor by floor plans demonstrating compliance have been prepared and included in the Bates Smart Project Application Design Report.

It is noted that although the RFDC does not apply to dwellings in Building 1B (as the building is less than three storeys), the dwellings in Building 1B have been included in **Table 8** and have been included in the overall calculations for cross ventilation across the Stage 1 development. Even with the inclusion of Building 1B, the Stage 1 precinct complies (62%).

With the calculation of solar access on the actual residential flat building of Building 1C, the percentage achieved is 61%, thereby complying with the RFDC 'Rule of Thumb'

Table 8 – Apartments achieving the RFDC 'Rule of Thumb' for cross ventilation

	Apartments achieving RFDC Rule of Thumb	Total Apartments	%
Level 1 (Building 1B)	6 (including 3 dwellings with natural ventilation duct from the roof)	9	67%
Level 1 (Building 1C)	6	11	55%
Level 2	6	11	55%
Level 3	6	11	55%
Level 4	6	11	55%
Level 5	6	11	55%
Level 6	6	11	55%
Level 7	6	9	67%
Level 8	6	9	67%
Level 9	6	9	67%
Level 10	6	9	67%
Level 11	4	7	57%
Level 12	4	6	67%
Level 13	6 (including 2 dwellings with natural ventilation duct from the roof)	6	100%
Total	**80**	**130**	**62%**
Building 1C only	*74*	*121*	*61%*

Figure 22 – Cross ventilation of typical Building 1C floor plate

Source: *Bates Smart*

Kitchen Ventilation

The proposed development will achieve 17 apartments with windows in the kitchen, equating to 13% of all apartments. An additional 23 apartments are naturally ventilated with the cross ventilation air flow path via the kitchen (identified in **Figure 22**). The approach allows air to be drawn through windows in the apartments at a different orientation, the air then flows through the apartment (and kitchens) and then flows again out of the apartments. As a result, 40 apartments (or 31% of all apartments) will achieve natural ventilation to the kitchen. Furthermore, all apartments will have externally ducted kitchen exhaust.

Dwelling Size and Dimensions

The proposed dwelling sizes are identified in **Table 1** at Section 3.7. The Concept Plan specific minimum apartment sizes for the range of dwelling types of:

- Minimum 40m^2 for studio dwellings;
- Minimum 50m^2 for one bedroom dwellings;
- Minimum 70m^2 for two bedroom/one bathroom dwellings;
- Minimum 80m^2 for two bedroom/two bathroom dwellings; and
- Minimum 100m^2 for three bedroom + dwellings.

As identified in **Table 1**, all dwellings comply with the minimum apartment sizes stipulated in the Concept Plan Statement of Commitments.

The minimum dimensions for rooms within apartments and external areas (e.g. balconies) comply with the Discovery Point Concept Plan Development Design Guidelines (JBA, updated June 2011 to be consistent with the Concept Plan Conditions of Approval), and are as follows:

- external area of studio and one bedroom apartments - 6m^2;
- external area of two bedroom apartments - 8m^2;
- external area of three + bedroom apartments - 10m^2; and
- balcony depth of 2m.

Visual and Acoustic Privacy

In accordance with the Concept Plan, the proposed building separation distance between Buildings 1B and IC is 12m, which complies with the RFDC building separation 'Rule of Thumb'. The proposed building separation between the proposed buildings with the existing and future buildings is shown at **Figure 23**.

The proposed building separation between Building 1C and the Verge building is 18m (above 25m) which varies from the RFDC 'Rule of Thumb' for building separation distance of 24m. The building separation distance is consistent with the Concept Plan and is justified in detail in the Concept Plan EAR and PPR.

As described in the Concept Plan PPR, due to the offset arrangements of Building 1C and Verge variation to the building separation distance only occurs at the northern end of Verge, potentially affecting two apartments per floor within the Verge building and three apartments per floor in Building 1C. Balconies are offset where possible and separation is afforded by Brodie Spark Drive.

Apartments with a variation also have oblique outlook towards the Discovery Point Park (for Building 1C) or towards the Neighbourhood Park (for Verge) thereby ensuring these apartments do not simply face onto adjoining buildings wall/balconies/living spaces.

The proposed building separation distances comply with the Concept Plan building envelopes.

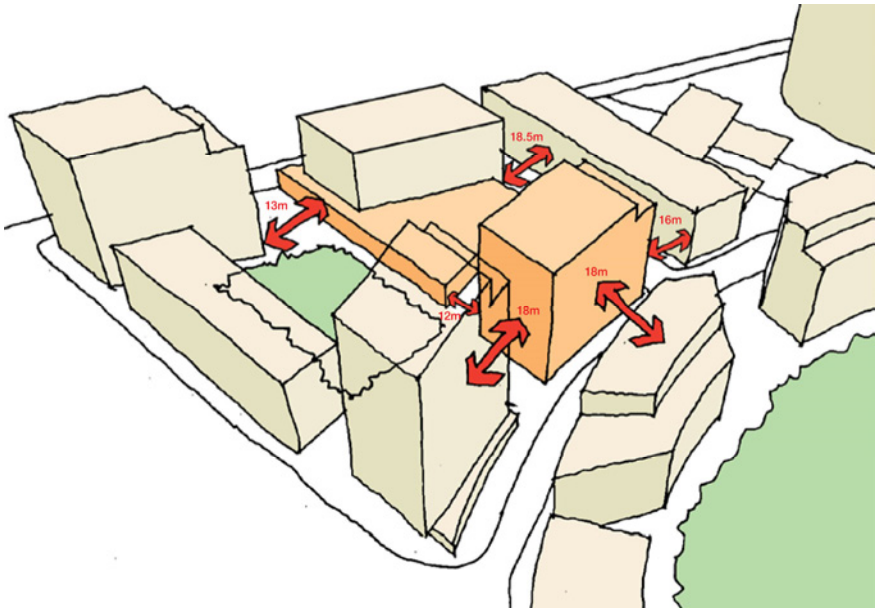


Figure 23 – Proposed building separation

Source: *Bates Smart*

Private Open Space

As described above, the proposed dwellings achieve the minimum balcony size and depths to comply with the Discovery Point Concept Plan Development Design Guidelines (JBA, updated June 2011). All balcony depths also comply with the RFDC balcony depth 'Rule of Thumb' minimum of 2 metres.

Communal Open Space

Communal open space is provided for Discovery Point residents in the form of a rooftop courtyard (including community room, pool and gym) above Building 1B and a green roof above Building 1C (featuring gardens, shade structures and barbeque facilities). The landscaped podiums will contribute to the overall level of amenity by offering resident facilities and an injection of vegetation within the built fabric.

Furthermore, communal open space is provided throughout the Discovery Point site in the form of a series of existing and proposed parks including the Neighbourhood Park, Station Park, Waterfront Park and Discovery Point Park. The areas and location of the proposed communal areas are consistent with the Concept Plan.

Acoustic Performance

As discussed in Section 5.11, an Acoustic and Vibration Report (**Appendix G**) was prepared by SLR Consulting Australia Pty Ltd for the Stage 1 Project Application. The Acoustic and Vibration Report identifies the measures integrated into the building design to ensure the relevant acoustic criteria for dwellings are achieved.

To ensure the proposed development complies with the relevant rail, aircraft, noise and mechanical noise criteria, the use of attenuators, acoustic louvres, barriers, enclosures, and the appropriate location and orientation of air inlets / outlets and items of plant, have been incorporated into the building design, where relevant, and will be detailed on construction certificate plans.

5.5 Built Form

The following outline of the Stage 1 design rationale is drawn from the Bates Smart Urban Design Report provided under separate cover.

Height, Bulk and Scale

The proposal's built form has been designed to respond to the urban design parameters designed by the Concept Plan and its Statement of Commitments, the site conditions, and to provide retail and residential amenity.

Buildings 1B and 1C envelopes are within the maximum development parameters of the Concept Plan (see **Table 9** and **Figures 24** and **25**) and are consistent with the urban design principles set out in SEPP 65. The GFA and Parking Schedule at **Table 4** demonstrates that the proposed development will not exceed the overall GFA for the site.

As demonstrated in **Figures 24** and **25**, the proposed building envelopes are within the Concept Plan building envelopes, with the exception of minor protrusions for architectural features such as a balcony external spandrel panel and balustrades. Drawing No DA3-001 C within the Concept Plan drawings envisaged minor encroachments beyond the building envelopes for these minor architectural features. No floorspace or balcony areas are proposed outside the Concept Plan building envelopes. Refer to Drawings DA11-101 to DA12-213 which indicate the Concept Plan building envelopes in the context of the proposed Buildings 1B and 1C envelopes.

Building 1C (the taller building within the application) has been designed as two interlocking boxes, prised slightly apart to draw closer to the optimum views, and to respond to the close proximity of Verge and future Building 2.

A light and ventilation slot has been introduced at the intersection of the two masses, to emphasise the impression of one block disengaging from the other. A 'step' or reduction in height of 3 storeys has been expressed at the northern end of the building (nearest the station), consistent with the Concept Plan, breaking up the building and reducing the apparent bulk and scale of the building.

Table 9 – Compliance with Concept Plan

	Maximum Height	Proposed Height
Building 1B	RL20.8	RL20.3
Building 1C	RL55.3	RL55.2

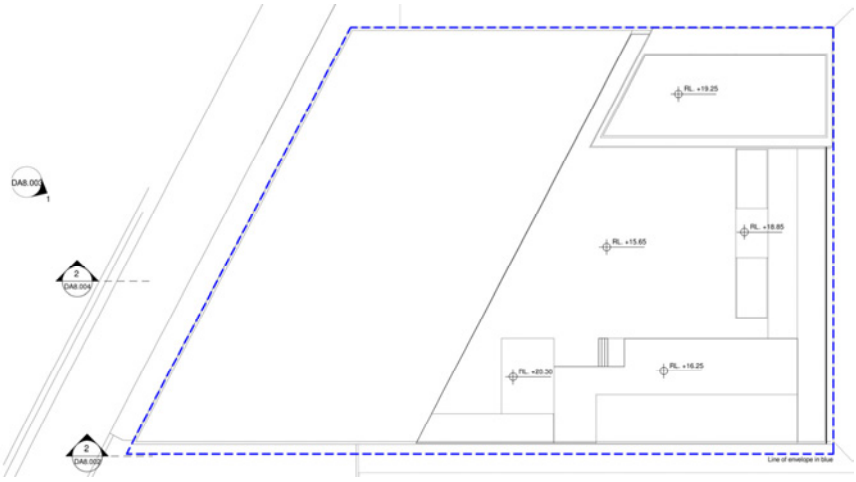


Figure 24 – Proposed roof heights (Building 1B)

Source: *Bates Smart*

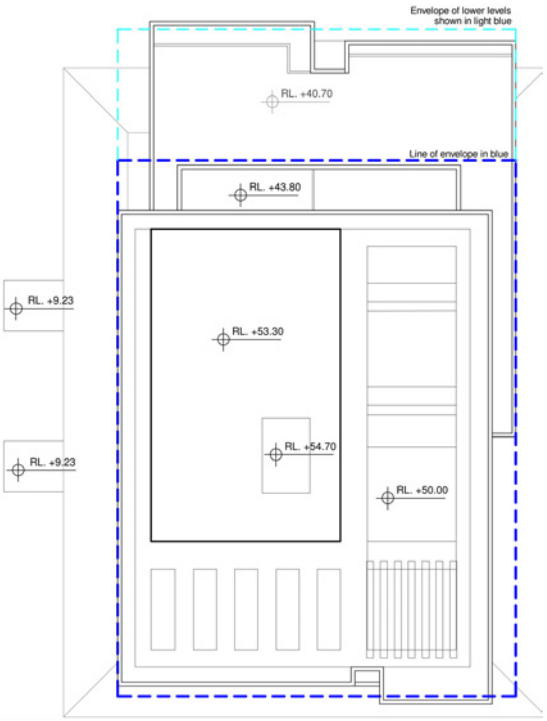


Figure 25 – Proposed roof heights (Building 1C)

Source: *Bates Smart*

5.6 Safety and Security

In accordance with the Concept Plan Statement of Commitments, Safety Management principles are required to be considered with each Project Application. Bates Smart Architects have prepared the following audit of the proposal's security in accordance with CPTED principles:

The proposed scheme has been designed to minimise the opportunity for crime in accordance with the four CPTED principles of surveillance, access control, territorial reinforcement, and space management.

The proposal will significantly improve safety and security in the local area, particularly around Wolli Creek Station, by providing at ground level a mix of active retail frontages and residential entrances, which will combine to increase pedestrian activity both day and night. The residential apartment buildings have living rooms and balconies located on all facades. These provide passive surveillance of the existing train station, proposed bus stop, surrounding streets, and the proposed Neighbourhood Park.

Spark Lane, conceived primarily as a traffic and services route, is passively surveilled from the adjacent station platform, the bus loop and apartments above. Access into service areas such as the car parks and loading dock will have appropriate access control.

The channeling of the vehicular traffic to three main streets – Brodie Spark Drive, Spark Lane, Discovery Point Place – ensures pedestrian amenity and safety is maximised. Walking and cycling paths along Brodie Spark Drive will connect to the Cooks River as Brodie Spark Drive continues northwards in future stages.

Both of the primary landscaped areas are designed to encourage community ownership. The Neighbourhood Park is flanked by retail on the northern edge and in the northeast corner, while future stages will add additional retail activation to the east, west and southern sides.

A water feature in the south east corner of the park will provide an interactive feature in the centre of the open space.

The landscaped podium offers a range of activities for private use by residents including swimming pool, barbecue facilities, gymnasium and a community room. Both spaces will be managed and maintained by the Discovery Point residents' association.

5.7 Transport and Accessibility

Traffic and Transport Planning Associates (TTPA) prepared an assessment of the traffic, transport and accessibility implications of the Concept Plan, and have prepared an updated report for the Stage 1 Project Application (**Appendix H**).

Traffic Generation

Traffic assessments have been undertaken in the past to determine the traffic impact of the Concept Plan, and prior to that, the previously approved Masterplan. The traffic assessment for the Concept Plan (prepared by TTPA) concluded that the Concept Plan traffic generation outcome would be significantly less than the previous Masterplan outcome and the traffic implications of the Concept Plan on all access intersections would be better than under the Masterplan. As a result, the traffic generation outcome of the Concept Plan does not require any additional road/intersection upgrade works.

The Stage 1 TTPA report concludes that given the proposed car parking spaces within the proposed development, the traffic implications of the Stage 1 Project Application are entirely compatible with the Concept Plan, and traffic generation of the proposal is therefore acceptable.

Road Network

The proposed Stage 1 road network has been designed according to the Concept Plan, reflecting contemporary urban design principles for road widths, with the following guiding principles:

- provision for an amenable pedestrian environment with connectivity, convenient road crossings, low vehicle speeds and 'vehicle free' corridors;
- provision for bus access, circulation and interchange of passengers in accordance with STA requirements;
- provision for cyclists; and
- provision for kerb side parking including kiss'n'ride, taxi and service vehicles.

In addition, the proposed road widths comply with the requirements of STA and RTA, contemporary design guidelines including AUSTROADS and the Discovery Point Concept Plan Conditions of Approval.

As described in the Concept Plan, the proposed road, pedestrian and cyclist network will integrate with the existing surrounding network (including the upgrade of the existing portion of Brodie Spark Drive).

Vehicular Access

Residential and visitor vehicle access to the basement levels of Buildings 1B and 1C, and loading dock access to the supermarket, will be via Spark Lane through the following measures:

- a 5.5m combined ingress/egress driveway; and
- separate ingress and egress driveways for the retail loading dock.

Concentrating vehicle access along Spark Lane will reduce conflict caused by vehicles along highly pedestrian and cyclist routes, particularly Discovery Point Place. Furthermore, Spark Lane will be relatively straight and level at the access locations and there will be adequate sight distances available. The proposed driveways will comply with AS2980.1 and AS2980.2 and will satisfactorily accommodate all vehicles requiring access.

As described in Section 3.9, temporary pedestrian and bus access to the Wolli Creek Railway Station will be constructed as part of the early works within the Stage 1 Project Application, ensuring access is retained to the railway station as the new station access is constructed, including the new road access to the railway station (i.e. Spark Lane and Discovery Point Place).

Car Parking

The Concept Plan seeks approval for the parking rates to be adopted, including:

- Maximum 1 space per studio and one bedroom unit;
- Minimum 1 space and maximum 2 spaces per two bedroom unit;
- Maximum 2 spaces per three bedroom unit;

- Minimum 1 visitor space per 20 residential units;
- Minimum 1 space per 50m^2 of non-residential GFA (commercial);
- Minimum 1 space per 35m^2 of non-residential GFA (retail);
- Minimum 1 bicycle space per 15 residential units;
- Minimum 1 motorcycle space per 15 residential units;
- Minimum 1 bicycle space/200m^2 non-residential GFA, with 15% accessible by visitors); and
- Minimum 1 motorcycle space/20 non-residential car spaces.

Table 10 compares the proposed parking spaces against the parking rates of the Concept Plan, and shows that the proposed parking rates are in accordance with the Concept Plan parking rates.

As identified in **Table 4** (in Section 3.16), the proposed Stage 1 car parking spaces do not result in the overall maximum car parking spaces (of 2,240 spaces) being exceeded across the Discovery Point site.

The internal circulation arrangements within the basements have been designed in accordance with AS 2890.1 and AS2890.6 criteria, including ramps, aisles, bays, height clearance, grades and manoeuvring.

Table 10 – Proposed Parking Spaces and Concept Plan Parking Parameters

	Concept Plan Parameters		Proposed
	Minimum	Maximum	parking spaces
Car Spaces			
55 x 1 bedroom units	0	55	28
65 x 2 bedroom units	65	130	65
10 x 3+ bedroom units	0	20	20
Residential visitors	7		7
Retail	63		126
TOTAL	**135**	**275**	**246**
Bicycle spaces			
Residential	10		10
Retail	11		11
TOTAL	21		21
Motorcycle spaces			
Residential	9		9
Retail	7		7
TOTAL	16		16
Adaptable car spaces (included in car spaces total)			
Residential	*3*		*3*
Retail	*3*		*3*
TOTAL	*6*		*6*

Pedestrian and Cycle Access

The TTPA report identifies the following provisions for pedestrians within the Stage 1 Project Application:

- a 'vehicle free' pedestrian corridor connecting north-south to the station between Buildings 1B and 1C;
- reduced road crossing widths at intersections and along Discovery Point Place adjacent to the bus/rail interchange;
- 'vehicle free' plaza areas including the Neighbourhood Park to the south of the Building 1B;
- streetscaped footways along the Brodie Spark Drive and Discovery Point Place frontages;
- a high level of surveillance, lighting and landscaping, improving the environment for pedestrians;
- limited vehicle accesses, particularly on streets traversed by pedestrians and cyclists (Discovery Point Place);
- pedestrian access to the railway station is maintained during construction; and
- the provision of covered walkways to/from the station.

The TTPA report identifies the following provisions for cyclists within the Stage 1 Project Application:

- the bicycle lanes along Brodie Spark Drive, allowing for connection to shared footway facilities within the internal and surrounding networks;
- basement bike parking for residents; and
- bicycle racks for staff and shoppers.

Public Transport

The TTPA report identifies the following provisions for public transport access within the Stage 1 Project Application:

- provision to satisfactorily maintain access, standing and interchange for bus services (including temporary bus stop) during the construction process;
- provision for taxis and 'kiss'n'ride' vehicles to stand on the southern side of Discovery Point Place;
- provision for buses to suitably access via Magdalene Terrace, Spark Lane and Discovery Point Place and depart via Brodie Spark Drive;
- provision of segregated standing on Discovery Point Place adjacent to the station access including shelter, lighting and other facilities;
- provision of footways and internal links to facilitate travel to/from the convenient bus and rail services; and
- reducing the need for resident trips by providing retail services on site.

Servicing

The proposed loading dock associated with the supermarket, will provide adequate manoeuvrability and space for refuse removal. The TTPA report concludes that access will be undertaken in a forward direction at all times.

There will also be some loading zone provision on Brodie Spark Drive for deliveries to other retail tenancies, consistent with the Concept Plan.

Conclusion

The TTPA report makes the following conclusions regarding the traffic, transport and access services proposed as part of the Stage 1 Project Application:

- it (as part of the Concept Plan) will comply with Rockdale Council's objectives of a 50% mode split to other transport modes for work related trips and precludes commuter parking;
- it will comply with the objective of providing sufficient parking to adequately service the development while at the same time managing the supply of parking to discourage excessive private car usage;
- it will comply with the objective of providing for and facilitating pedestrian and cyclist movements;
- it (as part of the Concept Plan) will not have any adverse implications and will in fact have a traffic generation which is significantly less than that within development under the former Masterplan;
- it will have suitable and appropriate vehicle access, internal circulation and servicing arrangements;
- it will provide vehicle free pedestrian corridors;
- it will suitably provide for bus access and interchange with the railway including temporary arrangements during construction;
- it will be consistent with the Director-General's Requirements, the Concept Plan Statement of Commitments and the Concept Plan Conditions of Approval; and
- it will comply with the relevant Australian Standards AS2890.1, 2, 3 and 6.

5.8 Heritage

Heritage Reports relating to European Heritage, Indigenous Archaeology and Non-Indigenous Archaeology were prepared by Tanner Architects, Jo McDonald Cultural Heritage Management Pty Ltd and Casey and Lowe Pty Ltd, respectively, during the Concept Plan process. Subsequent reports have been prepared specifically relating to the Stage 1 Project Application (refer to **Appendix J**, **K** and **L**).

European Heritage

A Statement of Heritage Impact was prepared by Tanner Architects for the Stage 1 Project Application (refer to **Appendix J**). The assessment concludes that the proposed Stage 1 Project Application presents two building elements, landscaping and site works, which are considered to be sympathetic with the heritage items, their curtilage and are appropriate from a heritage perspective.

The report concludes that the Stage 1 Project Application is consistent with the approved Concept Plan and the proposed development does not adversely impact on the significance of Tempe House, St Magdalen's Chapel nor the Discovery Point Precinct as set in the endorsed Conservation Management Plan.

Non-Indigenous Archaeology

A Statement of Heritage Impact for Non-Indigenous Archaeological Remains was prepared by Casey and Lowe for the Stage 1 Project Application (refer to **Appendix K**).

The proposed works within the Stage 1 Project Application overlap two archaeological areas – i.e. Areas 5 and 6 (as defined by Casey and Lowe). The areas are identified on **Figure 26**.

The report identifies that there are potential archaeological remains of the Gardener's Cottage and Pine House (which belonged to the 1840s development of Alexander Brodie Spark's estate and garden) as well as 'Vine Trellis Walk' as being within the Stage 1 Project Application site.

The garden belongs to a rare example of a mid-nineteenth century planned estate and is closely associated with Spark and his vision of his Tempe Estate. Because of the likely limited nature of any archaeological remains, they have a local level of heritage significance.

The archaeological items are not listed on any heritage register and are outside the Tempe Housing State Heritage Register area. They do, however, fall under the relics provisions of the NSW *Heritage Act 1977*.

Any surviving archaeological remains of the garden or its buildings within the Stage 1 site area will be impacted by the proposed Stage 1 works, but are no greater impact than those caused under the approved sub-podium (masterplan) consent. The Casey and Lowe report reiterates the following recommendation included in the Concept Plan report:

- the management of the potential archaeological remains of the Gardener's Cottage and Pine House should be in line with the approved Archaeological Management Plan which covered Area 6 (Casey and Lowe 2002). As such, the likely location of these buildings should be determined through triangulation of historic plans and any remains be recorded in detail using archaeological excavation, detailed planning and GIS survey and mapping.

This recommendation has been incorporated into the draft Statement of Commitments at Section 6.

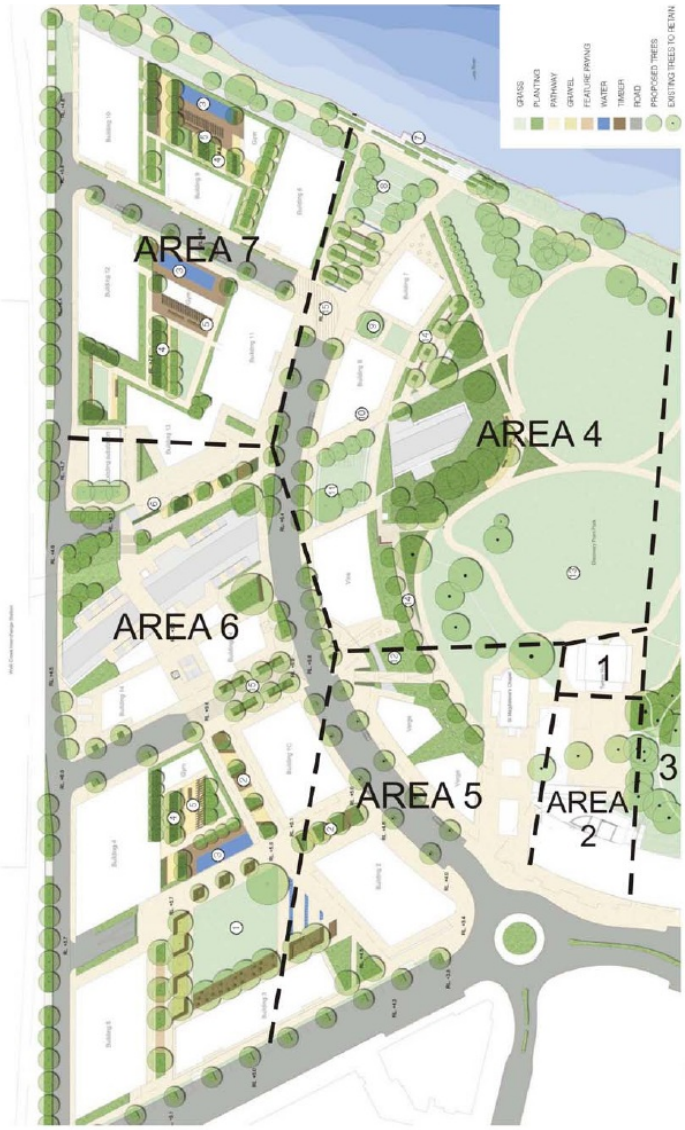


Figure 26 – Non-Indigenous Archaeological Areas across Concept Plan site

Source: *Casey and Lowe and Turf Design*

Indigenous Archaeology

An Aboriginal Heritage Report was prepared by Jo McDonald Cultural Heritage Management Pty Ltd for the Stage 1 Project Application (refer to **Appendix L**).

As identified in the Concept Plan report, the land to which the Stage 1 Project Application applies has a mix of low and moderate archaeological potential or has been subject to a previous Indigenous Archaeological Study (see the zones identified in **Figure 27**).

As concluded in the Concept Plan Aboriginal Heritage Report (and reiterated in the Stage 1 Project Application report), the areas identified as having low archaeological potential do not require further archaeological work and should be considered developable without constraint. However, pockets of intact Aboriginal archaeological deposit (part of registered site AHIMS #45-6-2737) are likely to exist within the areas identified as having moderate archaeological potential.

All further recommendations of the Aboriginal Heritage Report prepared for the Concept Plan were reiterated in the report prepared for the Stage 1 Project Application and are reflected in the Statement of Commitments at Section 6, these recommendations include:

- further archaeological investigation is required in the Zone 2 area of the Stage 1 development area. This part of the Precinct has not been investigated previously. Prior to commencement of construction works in this area a test excavation programme should be carried out to ascertain whether intact archaeological material is present here; and
- Aboriginal archaeological excavation should be co-ordinated with any proposed investigation of non-Indigenous material, since intact Aboriginal archaeological deposit will be located below any historical materials.

The Aboriginal Heritage Report prepared for Stage 1 also recommends that the MLALC be consulted in relation to the Stage 1 Project Application. These recommendations have been incorporated in the Statement of Commitments at Section 6.

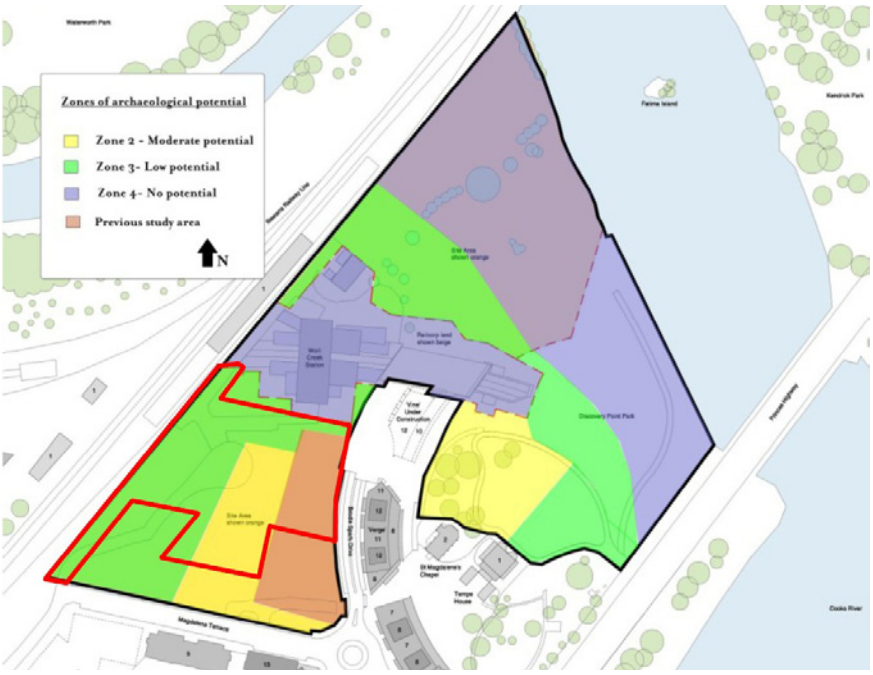


Figure 27 – Zones of Archaeological potential - Stage 1 (in red outline)

Source: *Jo McDonald Cultural Heritage Management Pty Ltd*

5.9 Accessibility

An Accessibility Report was prepared by Morris Goding Accessibility Consulting (refer to **Appendix M**) to assess the suitability of the proposed development from an access perspective.

The Accessibility Report prepared for the Concept Plan identified that the Concept Plan was capable of achieving the relevant accessibility Standards and Regulations. The Concept Plan Accessibility Report (and Statement of Commitments) also included a number of specific recommendations to be incorporated into the detailed design of future project applications.

These specific recommendations, listed below, are accommodated within the Stage 1 Project Application:

- 1 adaptable unit car bay for each adaptable unit;
- an accessible toilet with every bank of male and female toilets in retail and commercial area. The accessible toilet to have internal dimensions in accordance with AS1428.1:2008;
- retail accessible car bays will be 2% of total retail car bays and commercial accessible car bays will be 1% of total commercial car bays; and
- 2% adaptable units will be provided across the Discovery Point Concept Plan site upon completion of development.

The Accessibility Report prepared for the Stage 1 Project Application assessed the proposed entry doorways, circulation areas, doorway clearance and threshold, paths of travel into and within buildings, emergency stair wells, corridors, internal door widths, lift access, common facilities, residential units, adaptable units, car parking and signage.

The following recommendations of the Accessibility Report are to be incorporated into the detailed design prior to the issue of the construction certificate:

- ensure an active leaf of entry doors to Buildings 1B and 1C provides at least 850mm internal clearance to comply with AS1428.1:2009;
- ensure all widths of fire doors comply with AS1428.1:2009;
- ensure emergency alarm systems have provision for visual and audio warnings and signals;
- provide 510mm internal and external latch side clearance to the door to the Building 1B residents' gym as required by AS1428.1:2009 and DDA Premises Standards;
- ensure at least 850mm clear width for active leaf door to building 1C waste room on each residential elvel as required by AS1428.1:2009 and DDA Premises Standard;
- lift car components (grabrails, control buttons, lighting) and lift lobby call button and arrival indicators to comply with AS735.12;
- ensure access to and within the community facility and to and within required common use areas for people with disabilities, comply with DDA Premises Standard and AS1428.1:2009;
- ensure 1:30 ramp on the podium courtyard has appropriate level landings, compliant with AS1428.1:2009;
- ensure stairway has handrails on both sides and is compliant with AS1428.1:2009;
- where common-use male and female change facilities are provided, ensure an equivalent unisex accessible change facility, compliant with AS1428.1:2009 is provided in line with DDA Premises Standard;
- ensure all mail boxes have a clear circulation area of 1550mm, suitable for use by wheelchair users, located on an accessible path of travel, compliant with AS1428.1: 2009;
- ensure each accessible/adaptable car bay provides a height clearance of 2.5 metres;
- ensure the approach to each accessible/adaptable car parking bay provides a height clearance of at least 2.3metres;

- signage for required accessible features to comply with the BCA clause D3.6;
- ensure an accessible path of travel to and within common-use facilities in line with DDA Premises Standards and AS1428.1:2009; and
- ensure the designs of the three adaptable units are compliant with AS4299 and AS1428.1:2009.

The three adaptable units will be adapted to incorporate the following design features to ensure compliance with AS4299 and AS14281:2009:

- the entry door to have 850mm clear width (920mm door leaf) and provide a 510mm latch side clearance on the internal and external side of the door;
- internal doors (main bedroom, bathroom, laundry) require 820mm clear width with 515mm latch side clearance;
- provisions for internal door circulation areas to comply with AS1428.1:2009;
- the bedroom requires internal dimensions of 3.6m x 3.6m, outside the robe area;
- bathroom (shower, toilet, wash basin) to comply with circulation area requirements of AS1428.1:2009 ie. provide an area of 2300mm x 1900mm around the WC pan. The wash basin to sit outside this area, and if needed only encroach into this area by 100mm (max). The shower area requires 2500mm x 1600mm;
- the kitchen is required to have a clearance of 1550mm between base cabinets (post adaptation). Provision for a separate cook top and wall mounted oven. Provide a work bench space (800mm min. width) adjacent to refrigerator, cook top, oven & sink which could be replaceable/adjustable in height;
- the living area should have clear area of 2250mm minimum diameter after the furniture has been placed will satisfy this requirement; and
- the laundry area to have a circulation area in front of the laundry appliances of 1550mm in diameter.

Compliance with the Access Report is included in the Statement of Commitments at Section 6). As a result, the proposed development will meet the relevant accessibility Standards and Regulations and the Concept Plan Statement of Commitments.

5.10 Structural

A Structural Report was prepared by Bonacci Group Pty Ltd (**Appendix E**) to describe the structural systems adopted within the Stage 1 Project Application, relating to development within the vicinity of the rail corridors within the Discovery Point site.

Structural Systems

The Stage 1 proposed development will be constructed of a concrete frame consisting of reinforced load bearing columns and walls with structural slab systems. The buildings will be founded on load bearing piles that extend down to rock, and therefore no loads will be transferred into the rail corridor.

Structural materials to be used will include a combination of steel, concrete masonry and timber. Bonacci's Structural Report concludes that the proposed materials are appropriate to suit the applied loads, BCA and Australian Standard requirements.

Geotechnical and Groundwater

The Coffeys Geotechnics Groundwater Impacts Report (June 2010) prepared for the Concept Plan identified that the proposed Concept Plan (including Stage1) would have no adverse impacts of a geotechnical nature upon structures within the rail corridors provided good practice excavation, basement shoring and service trenching are employed.

In addition, the Concept Plan Report recommended that a geotechnical engineer reviews the basement design and undertakes site observations at project application stages to confirm construction methods for basement excavation and trenching will have no adverse impact. This recommendation was included in the Concept Plan Statement of Commitments.

The basement design and groundwater levels were addressed in the Structural Report prepared by Bonacci for the Stage 1 Project Application (**Appendix E**). Groundwater testing in December 2010-January 2011 found that the groundwater levels below the Stage 1 site (outside the diaphragm wall) is RL +1.25m and is below the Basement Level B0. Therefore the recommendation of the Concept Plan Structural Report is satisfied.

The Bonacci Structural Report also concludes that the proposed site retention systems (as indicated on Civil drawings 20 01193/CSK04 and CSK05 (**Appendix E**)) are consistent with the recommendations of the Concept Plan Structural Report.

Bonacci recommends that excavation method statements are to be prepared by the excavation contractor prior to the issue of the Construction Certification for Stage 1 early work. This recommendation has been incorporated into the Statement of Commitments at Section 6.

Excavation Near Rail Corridors

As described in Section 3.11, site retention systems are proposed to provide an interface with the rail corridors adjacent to the site. The Structural Engineering Report concludes that the temporary and permanent structural systems proposed adjacent to rail boundaries will be designed in accordance with:

- RailCorp Document "Brief for review of geotechnical and structural design for developments adjacent to or above rail corridor for external third party works performed under the NSW Environmental Planning Policy (Infrastructure) 2007;
- "Development Near Rail Corridors and Busy Roads – Interim Guideline" by NSW D of P, in particular Section 6 – "Excavation, earthworks and other construction related issues";
- the BCA;
- relevant Australian Standards; and
- the Structural Report (June 2010) prepared by Robert Bird Group for the Concept Plan.

The Bonacci Structural report also notes that the existing diaphragm wall retention system already has authority approval for the installation of temporary anchors required during the excavation of the Stage 1 basement works.

Structures Near Rail Corridors

The structural system along the Illawarra Line rail corridor consists of primary structure (piles and slabs) below the existing ground level. Building will be founded on load bearing piles designed in accordance with BCA and relevant Australian Standards that extend down to rock and no vertical building loads will be transferred into the rail corridor.

Spark Lane will be constructed higher than the rail boundary and will be supported by a small independent retaining wall. The Bonacci Structural Report concludes that if impacted, the retaining wall will not cause structural failure of the primary building structure.

Rail Impact Assessment and Track Monitoring

The Bonacci Structural Report (**Appendix E**) makes the following recommendations to be undertaken prior to the issue of Construction Certificate:

- additional detailed Stage 1 specific geotechnical analysis and impact assessment reports are to be produced and provided to Railcorp. These geotechnical impact reports will follow the requirements of:
  - RailCorp Document "Brief for review of geotechnical and structural design for developments adjacent to or above rail corridor for external third party works performed under the NSW Environmental Planning Policy (Infrastructure) 2007; and
  - "Development Near Rail Corridors and Busy Roads – Interim Guideline" by NSW Department of Planning, in particular Section 6 – "Excavation, earthworks and other construction related issues".
  - the monitoring of critical rail infrastructure for vibration and movements will be developed as a comprehensive set of procedures, safety plans and methodologies and submitted to Railcorp prior to the issue of the Construction Certificate for early works and excavation.

The preparation of the required procedures, safety plans, methodologies and assessment reports mentioned above have been incorporated into the Statement of Commitments at Section 6.

5.11 Noise and Vibration

A detailed Acoustic and Vibration Assessment was prepared by SLR Consulting Australia Pty Ltd (refer to **Appendix G**) for the Stage 1 Project Application to address the relevant noise and vibration criteria identified in the DGRs and the recommendations of the Acoustic and Vibration Assessment prepared for the Concept Plan.

The Acoustic and Vibration Assessment prepared for the Concept Plan made the following recommendations (relevant to the Stage 1 Project Application) to be undertaken at detailed design stages:

- selection and extent of glazing solutions;
- explore laminated and/or secondary glazing to control aircraft noise in certain locations;
- project specific noise criteria to be reviewed to take into account potential shielding from the built environment;
- further assess the potential for mechanical noise associated with the development; and
- a detailed assessment of aircraft, road traffic and rail traffic, including regenerated structure borne noise.

These recommendations were undertaken as part of the preparation of the Stage 1 Acoustic and Vibration Assessment, and therefore comply with the requirements of the Concept Plan Statement of Commitments.

The Stage 1 Acoustic and Vibration Assessment identifies that rail traffic (Building 1B only due to proximity to the railway line), road traffic and aircraft noises are potential sources of intrusive noise on the site. Potential noise emitters associated with the development may include air-conditioning plant, ventilation plant and parking/vehicle movements. The car parking/vehicular movement noise caused by the proposed development will not adversely affect the proposed or surrounding developments for the following reasons:

- the car parking is underground;
- the loading dock is oriented away from development; and
- traffic caused by the Stage 1 development will not lead to an increase of more than 2dB from the existing traffic noise levels from Princes Highway.

Given the location of the site, approximately 45m from the Illawarra and East Hills-Airport Lines, the Acoustic and Vibration Assessment states that an assessment against railway vibration (including groundborne railway vibration) is not required for the Stage 1 Project Application.

To ensure the proposed development complies with the relevant noise criteria, set out in the Concept Plan Acoustic and Vibration Report, relating to all noise sources, the following mitigation measures have been incorporated into the design of Buildings 1B and 1C:

- laminated glazing will be appropriate for rooms where the majority of the facade is glazed; and
- Lower specification glazing is suitable for rooms with small windows.

As the site is affected by external noise sources, the mechanical plant noise caused by the proposed development will be adequately mitigated through standard use of attenuators, acoustic louvres, barriers, enclosures, and the appropriate location and orientation of air inlets / outlets and items of plant, which will be detailed on construction certificate plans. These recommendations are included in the Statement of Commitments at Section 6.

5.12 Wind Impact

A Wind Report was prepared by Heggies Pty Ltd (**Appendix N**) for the Concept Plan and a more detailed report for the Stage 1 Project Application has been prepared to assess the impact of the proposed development on the local wind environment.

The Wind Report prepared for the Concept Plan concluded that with a number of recommended mitigation measures, including landscape works and shielding of the outdoor cafe areas, the Concept Plan would contain wind levels at or below the 16m/second walking comfort criterion.

The Wind Report prepared for the Stage 1 Project Application (**Appendix N**) assesses the detailed wind mitigation detailed on the Bates Smart drawings which are proposed to meet the recommendations of the Concept Plan Wind Report (and contain wind levels at or below the 16m/second walking comfort criterion).

The Wind Report includes the results of a detailed wind tunnel test for Building 1C, including the following mitigation measures incorporated into Stage 1:

- landscape works proposed within the Neighbourhood Park; and
- undercroft design and proposed awnings of Buildings 1C.

The test results were concentrated around Building 1C, as it would be expected that the highest localised wind impacts would occur close to the surfaces of the taller of the Stage 1 buildings, and therefore specific wind testing was not required to be undertaken immediately adjacent to Building 1B.

The Wind Report concludes that with the proposed landscaping and facade designs (including undercroft design and awnings), the Stage 1 proposed development will comply with standard wind acceptability criteria for all public areas surrounding the site. Therefore, the Stage 1 development complies with recommendations of the Concept Plan Wind Report.

5.13 Electrolysis

An Electrolysis Report was prepared by Cathodic Protection Services (CPS) specific for Buildings 1B and 1C (**Appendix O**). The Electrolysis Report concludes that with the measures outlined below, the potential electrolysis hazards from any stray traction current from the railway lines and electrical substation/switch room to the north of the station will be eliminated.

The recommendations of the Electrolysis Report include (and are reflected in the Statement of Commitments at Section 6):

- floor or basement slabs are laid on a moisture barrier to act as an electrical insulator;
- underground walls are reinforced concrete walls provided with water barriers or air gaps to prevent the entry of stray current;
- one of the following methods is to be utilised to avoid corrosion hazard on footing reinforcement:
  - excavation provided with a moisture barrier;
  - starter bars of the footing can be electrically insulated from the slab reinforcement by applying insulating sleeving to the connection points between the footing starter bars to the slab reinforcement; and
  - the footings are constructed from high strength concrete (minimum 32 mpa) and provided with adequate cover (50mm).
- steel reinforced piers are to be constructed out of 40 mpa concrete and provided with 70mm concrete cover;
- insulating fittings, or non-metallic sections of metallic service infrastructure are insulated in the sections at or close to the property boundary; and
- a review of any metallic fences will need to be made at construction certificate stage to determine whether any fences are subject to a corrosion hazard from stray traction current.

5.14 Environmentally Sustainable Development

The Bates Smart Stage 1 Project Application Design Report (provided under separate cover) identifies a number of sustainability measures that have been incorporated into the proposed development:

- the Water Recycling Facility proposed in the Building 1C basement will process blackwater generated by all of the Concept Plan development and non-potable water will be provided by the facility for toilet flushing, laundies and irrigation for common area landscaping;
- water efficient fixtures and fittings will be incorporated into all the apartments;
- the deep soil zone proposed within the Neighbourhood Park enables rainwater to enter the ground and replenish the water table;
- apartment orientation and layout will maximise opportunities for cross ventilation and solar access, allowing for less energy to be used on lighting and air conditioning;
- building form and facade design have been carefully considered to balance solar heat gains, daylight, glare and views to the outside;
- passive design strategies (such as external shading, well insulating walls and ceilings, and performance glazing) are used to reduce the need for air conditioning;
- gas bayonets in living areas will help to reduced energy used for heating, while energy efficient dishwashers and clothes dryers will be installer to reduce energy consumption; and
- a variety of landscaped areas will be planted with a range of vegetation to offer a variety of environments to improve residential amenity and to reduce heat gain at podium and roof level.

In addition, Cundall was commissioned to prepare an ESD report for the Stage 1 Project Application (refer to **Appendix I**). The residential ESD initiatives listed below have been incorporated into the detailed design and as a result (and shown at **Appendix I**) will allow the dwellings to be BASIX certified. Certificates will be provided under separate cover prior to determination.

- Energy conservation strategies:
  - Building form and fabric carefully considered to balance solar heat gains, daylight, glare and views to outside. Passive design strategies include external shading, insulation for walls and ceilings, and performance glazing where necessary;
  - An efficient common area lighting design and control strategy will reduce artificial lighting energy consumption and allow maximum advantage to be taken of daylight;
  - Residential units have individual fans but centralised ducting of bathrooms as opposed to a centralised continually operating system therefore reducing energy;
  - Car park ventilation will be fitted with CO_2 monitoring and VSD control to vary fan speeds based on usage;
  - Day/night zoned air conditioning;
  - Energy efficient dishwashers and clothes dryers; and
  - All common area lighting and ventilation to be centrally controlled through motion sensors and/or time clocks.

- Water conservation strategies:
  - Water efficient fixtures and fittings are used throughout including 3 star WELS shower heads, 4 star WELS toilets, 4 star WELS kitchen taps and 4 star WELS bathroom taps; and
  - Connection will be made to the site-wide recycled water for toilet flushing, laundry connections and irrigation of common area landscaping.
- a portion of small car spaces;
- operable windows and doors with draught sealing;
- natural ventilation for common areas;
- recycling facilities and chutes;
- communal garden, composting strategy at podium; and
- roof garden.

The BCA 2010 Section J sets minimum energy performance requirements for all new development, which cover air-conditioning, ventilation, lighting, power and hot water, as well as building fabric considerations including thermal construction and insulation, building sealing, glazing and shading. The proposed retail component of the Stage 1 Project Application will be developed to meet the BCA energy efficiency requirements.

Site wide ESD initiatives have also been incorporated into the Concept Plan design, and some of which are implemented in the Stage 1 proposal, including:

- variable speed car park ventilation with CO monitoring and motion sensors for car park lighting;
- cool coloured paving broken up with the planting;
- native planting and grass verges are incorporated into the landscape design;
- cycle paths are provided to encourage non-motorised forms of transportation;
- low VOC and low formaldehyde, recycled and acoustic rated materials are incorporated into proposed buildings.

The proposed ESD initiatives are consistent with the recommendations of the ESD Report prepared for the Concept Plan, and compliance with the Stage 1 specific design measures has been incorporated into the Statement of Commitments.

5.15 Infrastructure and Servicing

The Infrastructure Planning Considerations Report (**Appendix D**) and the Civil Engineering Report (**Appendix C**) prepared by DSC and Bonacci Group Pty Ltd, respectively, indicate that the Stage 1 mixed use development can be adequately serviced by potable water, sewer, electricity, gas, telecommunications and stormwater through the infrastructure works proposed as part of the Stage 1 Project Application.

Hydraulic Services

DSC makes the following recommendations regarding the detailed design of the services, to be confirmed at the issue of a Construction Certificate:

- street fire hydrants are to be provided on the Authorities water main, in accordance with Sydney Water requirements;
- fire hydrants and fire sprinklers are to be provided as required by the BCA and relevant Australian Standards (all as confirmed with the NSW Fire Brigades);
- supplementary hydrants and hose reels will be installed to provide sufficient coverage to all areas as required by the relevant Australian Standards; and
- each building will have a fire control centre to comply with BCA.

These recommendations have been incorporated into the Statement of Commitments at Section 6.

Electrical Services

DSC makes the following recommendations regarding the detailed design of the services, to be confirmed at the issue of a Construction Certificate:

- new communications fibre or copper services are to be installed in accordance with Telstra, NBN and the Australian Communications Authority Requirements; and
- the external roadway and public lighting will be installed in accordance with AS1158.

These recommendations have been incorporated into the Statement of Commitments at Section 6.

Stormwater

The Bonacci Civil Report states that the stormwater drainage system has been designed:

- based on relevant national design guidelines, Australian Standard Codes of Practice, and acceptable engineering practice;
- in accordance with AS 3500.3 National Plumbing and Drainage Code Part 3 – Stormwater Drainage;
- Institute of Engineers "Australian Rainfall and Runoff";
- to convey the 100 year ARI flow in pipes to the existing stormwater system; and
- to reduce the volume of water flowing into the existing stormwater systems, and proposed works will reduce the catchment flowing into the existing Magdalene Terrace and Brodie Spark Drive systems.

Additional stormwater sumps and grates will be constructed to limit surface stormwater depths, and the locations of these will be determined during detailed design prior to the issue of the Construction Certificate.

Waste

A Waste Master Plan has been prepared by GHD (**Appendix P**) for all buildings in the Concept Plan (including Buildings 1B and 1C). The Waste Master Plan identifies how residential, retail and commercial waste will be disposed and stored:

- residential garbage – placed in chutes by residents, then into 1100L bins, then taken to central storage area for collection three times per week;
- residential recycling – placed in bins on each floor by residents, then collected by cleaners and taken to central storage area for collection twice a week;
- retail garbage – placed in bins in central storage area by retailers for collection by contractor at agreed frequency;
- retail recycling – placed in bins in central storage area by retailers for collection by contractor at agreed frequency;
- commercial garbage – collected by cleaners and placed in bins in central storage area for collection by contractor at agreed frequency; and
- commercial recycling – collected by cleaners and placed in bins in central storage area for collection by contractor at agreed frequency.

The preparation of the Waste Master Plan satisfies the Concept Plan Statement of Commitments requiring the preparation of a Waste Management Plan and requiring an allowance to be made for the collection of waste by waste contractors.

5.16 Flooding

A Flood Assessment was prepared for the Concept Plan by Parsons Brinckerhoff. In accordance with the Concept Plan, Buildings 1B and 1C will incorporate a 2.5m freeboard, setting the building levels above the Probable Maximum Flood (PMF). As a result, the Stage 1 development is consistent with the Concept Plan's flood related Statement of Commitments.

A further assessment of flooding issues, specific to Stage 1, has been undertaken as part of the Civil Report by Bonacci Group Pty Ltd, included at **Appendix C**. The Bonacci Report found that the Stage 1 site is protected from the 200 year Average Recurrence Interval (ARI) flood event as the ground level on all sides of Stage 1 is above RL 2.4 AHD.

The Stage 1 works will, however, include the construction of a bund to protect the temporary entrance to the Stage 6 basement (proposed under a separate Project Application). This bund will protect the future temporary Stage 6 basement entrance to the probable maximum flood level.

The level of flood protection (to a level of RL 4.3m AHD) provided to the Wolli Creek interchange remains unchanged as a result of the Stage 1 development.

5.17 Contamination

The Concept Plan Environmental Assessment by Coffey Environments Australia Pty Ltd provided an assessment of the development suitability of land at Discovery Point as part of the Concept Plan Application. They found that the site can be made suitable for the proposed use, subject to the following recommendations:

- works should compliant with the Site Management Plan (MPL 2006a) in light of residual contamination remaining on the site; and
- an appropriate capping system should be provided in the Neighbourhood Park.

In accordance with these recommendations, the Stage 1 Project Application includes a Statement of Commitment that the fill material for the Neighbourhood Park is suitable for open space land uses in accordance with relevant guidelines. If it were proposed to use soils sourced from the site these would need to be validated to confirm they are of suitable quality.

5.18 Acid Sulphate Soils

A Soil and Water Management Plan was prepared by Smart Civil for the Discovery Point Concept Plan. The Smart Civil report found that potential acid sulphate soils (PASS) have been found at various locations and depths across the Concept Plan site (which may include the Stage 1 site).

The Civil Report prepared by Bonacci for the Stage 1 Project Application (**Appendix C**) found that the depth of excavation for Stage 1 indicates that it is expected that PASS will be encountered during drilling for piers but that the volume of PASS which would be removed during this activity is small.

Furthermore, if any material suspected to be Acid Sulfate Soils is discovered, then the material will be tested on site.

The management of any Acid Sulfate Soils that might be encountered will be dealt with in an Acid Sulfate Soils Management Plan, which will be prepared prior to construction as per the Concept Plan Statement of Commitments.

5.19 Sediment and Erosion Control

In accordance with the Concept Plan Statement of Commitments, a Sediment and Erosion Control Plan will be implemented during construction. The design of this plan will be in accordance with the Landcom "Blue Book". The Plan is to be developed prior to construction.

6.0 Statement of Commitments

In accordance with the Director-General's Environmental Assessment Requirements, the proponent is required to include a Draft Statement of Commitments in respect of environmental management and mitigation measures on the site.

The majority of environmental commitments for the site are covered by the Statement of Commitments included as part of the Concept Plan. The following are additional commitments made by Discovery Point Pty Ltd to manage and minimise potential impacts arising from the Stage 1 project.

Table 11 – Draft Statement of Commitments

Subject	Commitments	Approved by Whom	Timing
ESD	The Stage 1 Project Application will include those ESD measures identified in the Cundall Design Consultants ESD report (dated February 2011).	Department of Planning.	No Timing. General Statement of Commitment.
Non Indigenous Archaeology	The management of the potential archaeological remains of the Gardener's Cottage and Pine House should be in line with the approved Archaeological Management Plan which covered Area 6 (Casey and Lowe 2002). As such, the likely location of these buildings should be determined through triangulation of historic plans and any remains be recorded in detail using archaeological excavation, detailed planning and GIS survey and mapping.	Department of Planning	No Timing. General Statement of Commitment
Electrolysis	The recommendations of the Stage 1 Electrolysis Analysis prepared by CPS and dated January 2011 will be implemented.	Department of Planning	No Timing. General Statement of Commitment
Active Frontages	Active frontages will be provided on both sides of the pedestrian thoroughfare between Buildings 1B and 1C through either specialty shops, cafe dining or clear visual links into a supermarket tenancy.	The relevant consent authority.	On the detailed fit out plans.
Environmental and Construction Management	The following Management Plans will be issued prior to works commencing for each stage: ▪ Construction Management Plan ▪ Construction Traffic Management Plan ▪ Erosion and Sediment Control Plan ▪ Waste Management Plan ▪ Dust Control Plan. ▪ Acid Sulphate Soil Management Plan.	-	Prior to issue of CC

Subject	Commitments	Approved by Whom	Timing
Railcorp requirements	The preparation of the required procedures, safety plans, methodologies and assessment reports required by Railcorp will be submitted prior to those specific works commencing.	Railcorp	Prior to construction commencing
Contamination	The fill material for the neighbourhood park is to be suitable for open space land uses in accordance with relevant guidelines. If it were proposed to use soils sourced from the site these would need to be validated to confirm they are of suitable quality.	Relevant Certifying Authority	Prior to works commencing
Indigenous Archaeology	Further archaeological investigation is required in the Zone 2 area of the Stage 1 development area. This part of the Precinct has not been investigated previously. Prior to commencement of construction works in this area a test excavation programme should be carried out by a suitably qualified archaeologist to ascertain whether intact archaeological material is present here.	-	During construction
Excavation	Excavation method statements are to be prepared by the excavation contractor.	Relevant Certifying Authority	Prior to issue of CC
Accessibility	Ensure an accessible path of travel to and within common-use facilities in line with DDA Premises Standards and AS1428.1:2009. Ensure the designs of the three adaptable units are compliant with AS4299 and AS1428.1:2009.	Relevant Certifying Authority	Prior to issue of CC
Infrastructure and Services	▪ New communications fibre or copper services are to be installed in accordance with Telstra, NBN and the Australian Communications Authority Requirements; and ▪ The external roadway and public lighting will be installed in accordance with AS1158. ▪ Street fire hydrants are to be provided on the Authorities water main, in accordance with Sydney Water requirements. ▪ Fire hydrants and fire sprinklers are to be provided as required by the BCA and relevant Australian Standards (all as confirmed with the NSW Fire Brigades);	Relevant Certifying Authority	Prior to issue of CC

Subject	Commitments	Approved by Whom	Timing
	▪ Supplementary hydrants and hose reels will be installed to provide sufficient coverage to all areas as required by the relevant Australian Standards; and ▪ Each building will have a fire control centre to comply with BCA.		
Stormwater	Additional stormwater sumps and grates will be constructed to limit surface stormwater depths.	Relevant Certifying Authority	Prior to issue of CC
Acoustic and Vibration	The following measures are required to mitigate noise impacts from road and aircraft noise: ▪ laminated glazing will be appropriate for rooms where the majority of the facade is glazed; and ▪ Lower specification glazing is suitable for rooms with small windows. Mechanical plant noise is to be mitigated through standard use of attenuators, acoustic louvres, barriers, enclosures, and the appropriate location and orientation of air inlets / outlets and items of plant.	Relevant Certifying Authority	Prior to issue of CC
Public Domain	Details of Rights of Way and Easements will be provided as part of future subdivision applications.	The relevant consent authority	With future application.

7.0 Conclusion

The proposed Project Application will commence the first stage of the Discovery Point Concept Plan. This will bring significant public benefit in the form of providing the new Neighborhood Park as well as providing a component of the Concept Plan non-residential floor space in the form of a supermarket and specialty retail framing the Neighbourhood Park. The Neighbourhood Park will act as a 'village centre', attracting residents of Discovery Point and Wolli Creek to shop, meet and relax in the public space and improve linkages within the site, to the developments to the south along Magdalene Terrace and to the railway station.

The Project Application seeks approval for Buildings 1B and 1C and associated landscaping, car parking, infrastructure works and new roads. Approval for temporary infrastructure works within the Concept Plan site and a temporary park on the site of Buildings 3 and 5 are also sought as part of this first Stage PA. This environmental assessment report provides assessment and justification for the development, consistent with the Concept Plan.

The preceding environmental assessment demonstrates that the matters for which approval is sought are consistent with Director General's Requirements, and will have no adverse environmental impacts.

Furthermore, the development is of a high architectural standard and provides a range of apartment types, promoting housing affordability and choice.

The Draft Statement of Commitments has been prepared to inform the detailed design of the development and manage construction and on-going environmental impacts. These will continue to be supplemented by the overall site Statement of Commitments approved with the Concept Plan.

As such, we have no hesitation in recommending this Project Application be approved.