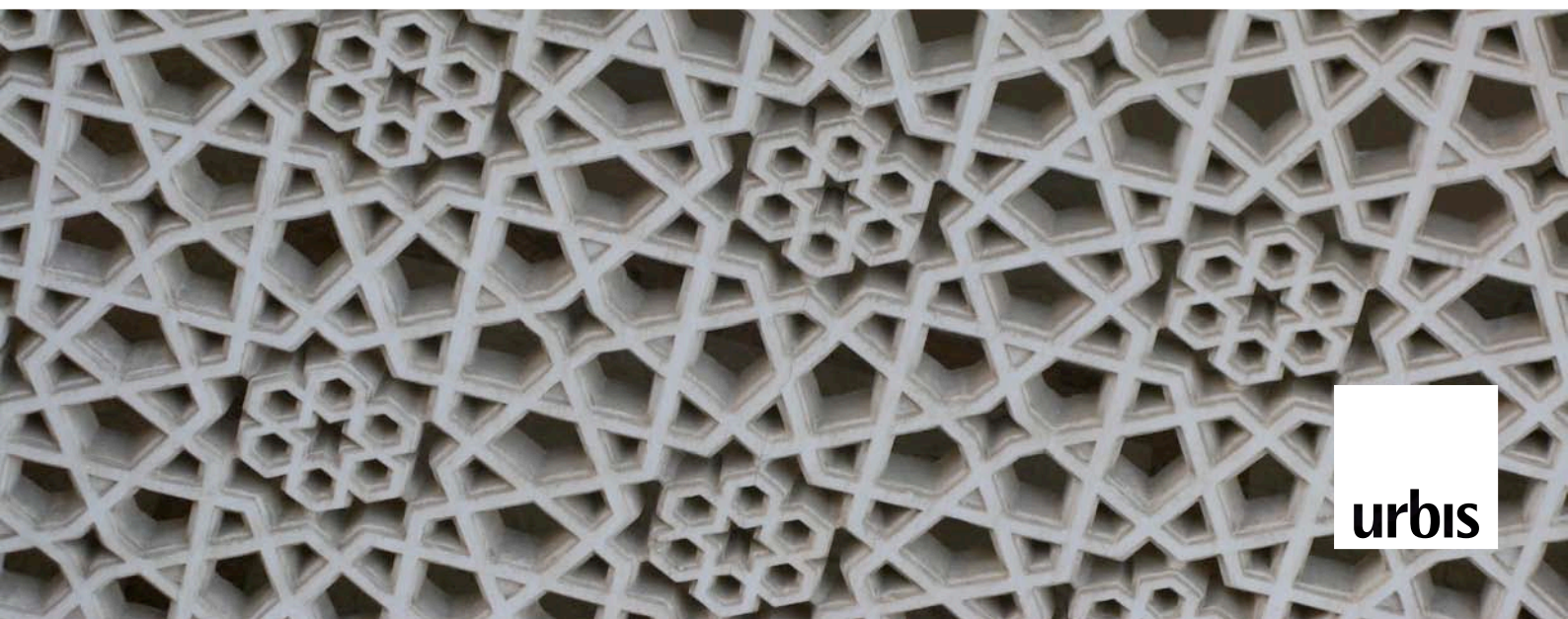


Riverwood North Estate Residential Renewal Project

ENVIRONMENTAL ASSESSMENT

Prepared for Housing NSW

November 2010



urbis

URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:

Director	John Wynne
Associate Director	Jennifer Cooper
Job Code	SA4721
Report Number	SA4721-EA

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Statement of Validity

Submission of Environment Assessment:

Prepared under Part 3A of the Environmental Planning and Assessment Act 1979.

Environmental Assessment prepared by:

Name/s:	Jennifer Cooper (Associate Director)
Address:	Urbis Pty Ltd. Level 21, 321 Kent Street Sydney NSW 2000
In respect of:	Riverwood North Residential Renewal Project

Applicant and Land Details

Applicant:	Housing NSW
Applicant Address:	Level 10, 234 Sussex Street, Sydney NSW 2000
Land to be Redeveloped:	Riverwood North – Washington Avenue, Kentucky Road and Vermont Crescent, Riverwood
Lot and DP	Lots 445-446, 450, 459-460 and 464 and Part of Lots 449 and 458 in DP243672
Project Summary:	<p>The Riverwood North Residential Renewal Project seeks approval for a Concept Plan Application to enable the physical redevelopment of properties owned by Housing NSW to accommodate a mixture of private and public dwellings.</p> <p>The application seeks approval for the staged construction of modern well-designed residential flat buildings accommodating approximately 650 dwellings, including 150 social housing units suitable for seniors and approximately 500 residential dwelling units to be made available for private purchase.</p> <p>The proposed buildings will be sited and designed to be compatible with the local context and landscape character. The proposed buildings will vary in height up to nine storeys, responding to the site topography, the surrounding built form and proximity to open space.</p> <p>Public infrastructure upgrades and site works are also proposed, including an upgrade of the existing public open space, improved pedestrian/cycle connections to Salt Pan Creek Reserve and other public domain improvements, such as street tree planting.</p>

Declaration

I certify that the contents of the Environmental Assessment to the best of my knowledge, has been prepared as follows:

- In accordance with the requirements of the Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulations 2000; and
- The information contained in this report is true in all material particulars and is not misleading.



Signature

Name: Jennifer Cooper

Date: 11 November 2010

Executive Summary

This report has been prepared on behalf of Housing NSW and in association with the renewal of the existing social housing dwellings at Riverwood North through a Public Private Partnership between Housing NSW and Payce Communities Pty Limited.

The renewal site comprises approximately 3.55 hectares of land in Washington Avenue, Kentucky Road and Vermont Crescent, Riverwood. The site is currently occupied by single, two and three storey residential flat buildings. It is surrounded by residential development of varying density and height to the east, south and west and public open space and community centre to the north.

The Concept Plan application seeks approval for the renewal of the site for residential purposes. The proposal comprises the following key components:

- Staged construction of a mixture of social and privately owned dwellings, including:
 - 150 social housing units suitable for seniors and approximately 500 dwelling units available for private purchase.
 - The proposed dwellings will be in the form of residential flat buildings, up to nine storeys in height.
 - Ancillary car parking will be provided on-site for residents, either above and partially below ground level or in a basement configuration. Visitor car parking will be accommodated within the local road network.
 - Communal open space areas will be for the exclusive use of residents and their guests, with appropriate landscaping and site works to provide visual privacy and residential amenity.
 - Private open space will be provided in the form of courtyards (at ground floor) and balconies adjacent to the principal living areas.
- Public domain improvement works, including:
 - Retention and upgrade of the existing central park within Vermont Crescent to provide active and passive recreation opportunities.
 - Provision of additional public open space to improve the existing north-south and east-west connections between the Riverwood residential area and Salt Pan Creek Reserve, Riverwood Community Centre and Riverwood Indoor Sports and Fitness Centre (currently under construction).
 - Stormwater management works, including water quantity and quality treatment, and site remediation works (if required, to be confirmed).
 - Improvements to the existing road network, including construction of north-south access streets between Kentucky Road and Washington Avenue to improve through-site connections and pedestrian permeability from the residential area to the south.
 - Construction of a garden square on Kentucky Road with a raised threshold, paving treatments, street furniture and the like, to provide a community focal point and public space for community events (eg markets, etc).
 - Supplementary street tree planting along the existing local road network to enhance the existing landscape character and provide additional shading for on-street car parking.

The proposal is entirely consistent with State and subregional strategic planning policies, which seek to provide additional housing within 30 minutes of Strategic Centres by public transport. The development has been designed to be compatible the surrounding development, including the social housing units to the west and south and the community and recreation uses to the north and east.

The proposed development is permissible under the provisions of the Canterbury Planning Scheme Ordinance and Part 3A of the Environmental Planning and Assessment Act 1979. The proposed non-compliances with the local planning controls are considered entirely appropriate and have been fully justified within the report.

The environmental, economic and social impacts of the proposal have been comprehensively assessed. The proposed renewal will result in a number of positive impacts, including the provision of improved social housing that better meets the needs of tenants and the provision of increased diversity of housing for the private market. Further, the Draft Statement of Commitments include a range of measures to mitigate any potential significant detrimental impacts.

Overall, it is considered that the development proposed in the Concept Plan application is in the public interest and approval is recommended.

1 Introduction

1.1 Background to Proposal

The Riverwood North Renewal Project is a public-private partnership between Housing NSW and Payce Communities Pty Ltd to replace existing social housing stock with modern, architecturally designed dwellings in a vibrant community of social housing and privately owned dwellings. The proposed redevelopment is anticipated to be undertaken within nine years.

The site was chosen as it contains many older style social housing units which no longer meet tenant needs and/or Housing NSW requirements. The project objectives are to create a liveable integrated residential community, which delivers quality residential apartments, revitalised public open spaces and improved access to community facilities, creating a strong sense of place and belonging in a new, clean, safe and welcoming environment. Riverwood North is located close to public transport, providing access to Bankstown and Hurstville. The site is also located within close proximity of the M5 Motorway and is within ten minutes walk of Riverwood Railway Station and local shopping facilities.

1.2 Project Objectives and Need

The aim of the project is to provide modern and safe accommodation which meets the needs of Housing NSW tenants and to introduce private housing at an affordable price point, as well as improved facilities and open space for residents. The Project objectives are to:

- Create a liveable integrated residential community
- Deliver quality residential apartments
- Create a strong sense of place and belonging
- Revitalise community open spaces and improve connectivity to community facilities
- Create new, clean, safe and welcoming environments

(www.riverwoodnorth.com.au)

1.3 Value of Project

Capital investment value (CIV) is defined in the Environmental Planning and Assessment Regulation 2000 as follows:

capital investment value of a development or project includes all costs necessary to establish and operate the project, including the design and construction of buildings, structures, associated infrastructure and fixed or mobile plant and equipment, other than the following costs:

- (a) *amounts payable, or the cost of land dedicated or any other benefit provided, under a condition imposed under Division 6 or 6A of Part 4 of the Act or a planning agreement under that Division,*
- (b) *costs relating to any part of the development or project that is the subject of a separate development consent or project approval,*
- (c) *land costs (including any costs of marketing and selling land),*
- (d) *GST (within the meaning of A New Tax System (Goods and Services Tax) Act 1999 of the Commonwealth).*

The CIV of the development proposed in the Concept Plan application is \$221,072,000. A Quantity Surveyors Certificate of Cost report certifying CIV of the development is attached as **Appendix A**.

1.4 Director-General's Environmental Assessment Requirements

The following table provides a summary of the Director-General's Environmental Assessment Requirements issued by the Department of Planning on 4 November 2010.

The table identifies where each requirement relevant to the Concept Plan application has been addressed within the Environmental Assessment report. A copy of the DGRs is attached as **Appendix B**.

Table 1 – Response to Director General's Environmental Assessment Requirements

REQUIREMENT	REFERENCE
KEY ISSUES	
1. Relevant EPI's policies and Guidelines to be Addressed Planning provisions applying to the site, including permissibility and the provisions of all plans and policies including: <ul style="list-style-type: none"> ▪ Objects of the EP&A Act; ▪ State Environmental Planning Policy (Major Development) 2005; ▪ State Environmental Planning Policy (Infrastructure) 2007; ▪ State Environmental Planning Policy No 55 – Remediation of Land; ▪ State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development; ▪ NSW State Plan; ▪ Sydney Metropolitan Strategy 'City of Cities'; ▪ Draft South Subregional Strategy; ▪ Canterbury Planning Scheme Ordinance; ▪ Nature and extent of any non-compliance with relevant environmental planning instruments, plans and guidelines and justification for any non-compliance. 	Section 4.1
2. Built Form and Urban Design <ul style="list-style-type: none"> ▪ Height, bulk and scale of the proposed development within the context of the locality and adjoining residential development; and ▪ Details of proposed open space and landscaped areas. 	Section 4.2
3. Environmental and Residential Amenity <ul style="list-style-type: none"> ▪ Impacts of the proposal on solar access, acoustic privacy, visual privacy, view loss and wind impacts (within the site and surrounding development); and ▪ Details of the measures to be implemented to achieve a high level of environmental and residential amenity. 	Section 4.3
4. Staging Details regarding the staging of the proposed development, including information regarding the current and future Project Applications and the extent of works proposed for each application.	Section 4.4
5. Transport and Accessibility Impacts Provide a Transport & Accessibility Study prepared with reference to the Metropolitan Transport Plan – Connecting the City of Cities, the NSW State Plan, the NSW Planning Guidelines for Walking and Cycling, the Integrated Land Use and Transport policy package, the NSW BikePlan and the RTA's Guide to Traffic Generating Development, considering the following: <ul style="list-style-type: none"> ▪ Detail the existing pedestrian and cycle movements within the vicinity of the site and determine the adequacy of the proposal to meet the likely future demand for increased public transport and pedestrian and cycle access; ▪ Describe the measures to be implemented to promote sustainable means of transport to support and achieve relevant State Plan targets including public transport usage and pedestrian and bicycle linkages in addition to addressing the potential for implementing a location specific sustainable travel plan; ▪ Daily and peak traffic movements likely to be generated by the proposed development, including the impact on nearby intersections and the need / associated funding for upgrading or road improvement works (if required). The traffic impact assessment should consider base models with future traffic generated by the proposal; 	Section 4.5

REQUIREMENT	REFERENCE
<ul style="list-style-type: none"> ▪ Details of the proposed access, parking provisions and service vehicle movements associated with the proposed development; and ▪ Minimal levels of on site car parking for the proposed development having regard to the high public transport accessibility of the site, opportunities for car sharing, local planning controls and RTA guidelines (note: The Department supports reduced parking provisions, if adequate public transport is available to access the site). 	
<p>6. Social Impact Statement</p> <p>Social considerations with respect to both the existing surrounding residents and the potential new residents which may be more vulnerable members of the community. The Social Impact Statement should include but not be limited, to a consideration of:</p> <ul style="list-style-type: none"> ▪ Population characteristics – existing and expected changes; ▪ Cultural diversity and any specific measures / services required; ▪ Distribution of Housing NSW tenants and private residents and how this will be managed; ▪ Adequacy of existing services, social infrastructure, employment opportunities and open space – and what new services etc will be required as a result of the incoming residents; and ▪ How the existing community has been consulted regarding these future changes, and what their perceptions are regarding any impacts on existing social, health and safety issues and how this will be managed. 	Section 4.6
<p>7. Ecologically Sustainable Development (ESD)</p> <p>Detail how the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development.</p>	Section 4.7
<p>8. Contributions</p> <p>Address Council's Section 94 Contribution Plan and/or details of any Voluntary Planning Agreement.</p>	Section 4.8
<p>9. Heritage</p> <p>A statement of significance and an assessment of the impact on the heritage significance of any heritage items and/or conservation areas should be undertaken in accordance with the guidelines in the NSW Heritage Manual, if required.</p>	Section 4.9
<p>10. Aboriginal Heritage</p> <p>The EA shall address Aboriginal Heritage in accordance with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005.</p>	Section 4.10
<p>11. Drainage</p> <p>Drainage issues associated with the proposal including stormwater and drainage infrastructure.</p>	Section 4.11
<p>12. Flooding</p> <p>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.</p>	Section 4.12
<p>13. Utilities</p> <p>In consultation with relevant agencies, the EA shall address the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure works.</p>	Section 4.13
<p>14. Noise and Vibration</p> <p>Provide a quantitative assessment of the potential demolition, construction, operation and traffic noise impacts of the project.</p>	Section 4.14
<p>15. Waste</p> <ul style="list-style-type: none"> ▪ Identify, quantify and classify the likely waste streams to be generated during construction and operation; and ▪ Describe the measures to be implemented to managed, reuse, recycle and safely dispose of this waste. 	Section 4.15
<p>16. Consultation</p> <p>Undertake an appropriate and justified level of consultation in accordance with the Department's Major Project Community Consultation Guidelines October 2007.</p>	Section 4.16

REQUIREMENT	REFERENCE
GENERAL	
The Environmental Assessment (EA) must include:	Page iii-iv
1. An executive summary;	
2. A thorough site analysis including site plans, aerial photographs and a description of the existing and surrounding environment;	Section 2
3. A thorough description of the proposed development;	Section 3
4. An assessment of the key issues specified above and a table outlining how these key issues have been addressed;	Section 4
5. An assessment of the potential impacts of the project and a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures to be implemented to minimise any potential impacts of the project;	Section 5
6. The plans and documents outlined below;	Lodgement Documents
7. A signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading;	Page i
8. A Quantity Surveyor's Certificate of Cost to verify the capital investment value of the project (in accordance with the definition contained in the Major Projects SEPP; and	Appendix A
9. A conclusion justifying the project, taking into consideration the environmental impacts of the proposal, the suitability of the site, and whether or not the project is in the public interest.	Section 6
PLANS AND DOCUMENTS	
1. An existing site survey plan drawn at an appropriate scale illustrating;	Appendix C
<ul style="list-style-type: none"> the location of the land, boundary measurements, area (sq.m) and north point; the existing levels of the land in relation to buildings and roads; location and height of existing structures on the site; and location and height of adjacent buildings and private open space. all levels to be to Australian Height Datum. 	
2. A Site Analysis Plan must be provided which identifies existing natural elements of the site (including all hazards and constraints), existing vegetation, footpath crossing levels and alignments, existing pedestrian and vehicular access points and other facilities, slope and topography, utility services, boundaries, orientation, view corridors and all structures on neighbouring properties where relevant to the application (including windows, driveways, private open space etc).	Appendix D
3. A locality/context plan drawn at an appropriate scale should be submitted indicating:	Appendix D
<ul style="list-style-type: none"> significant local features such as parks, community facilities and open space and heritage items; the location and uses of existing buildings, shopping and employment areas; traffic and road patterns, pedestrian routes and public transport nodes. 	
4. Architectural drawings at an appropriate scale illustrating:	Appendix D
<ul style="list-style-type: none"> the location of any existing building envelopes or structures on the land in relation to the boundaries of the land and any development on adjoining land; location of proposed building envelopes; indicative elevation plans; the height (AHD) of the proposed development in relation to the land; indicative changes to the level of the land by excavation, filling or otherwise; 	
5. Other plans (to be required where relevant):	Appendix F
<ul style="list-style-type: none"> Stormwater Concept Plan - illustrating the concept for stormwater management; 	
<ul style="list-style-type: none"> Geotechnical Report – prepared by a recognised professional which assesses the risk of Geotechnical failure on the site and identifies design solutions and works to be carried out to ensure the stability of the land and structures and safety of persons; 	Appendix R
<ul style="list-style-type: none"> View Analysis - Visual aids such as a photomontage must be used to demonstrate visual impacts of the proposed building envelopes in particular having regard to the 	Appendix D

REQUIREMENT	REFERENCE
siting, bulk and scale relationships from key areas;	
<ul style="list-style-type: none"> ▪ Landscape plan - illustrating treatment of open space areas on the site, screen planting along common boundaries and tree protection measures both on and off the site. 	Appendix E
<ul style="list-style-type: none"> ▪ Shadow diagrams showing solar access to the site and adjacent properties at summer solstice (Dec 21), winter solstice (June 21) and the equinox (March 21 and September 21) at 9.00 am, 12.00 midday and 3.00 pm. 	Appendix D
DOCUMENTS TO BE SUBMITTED	
<ul style="list-style-type: none"> ▪ 1 copy of the EA, plans and documentation for the Test of Adequacy; ▪ 8 hard copies of the EA (once the EA has been determined adequate); ▪ 8 sets of architectural and landscape plans to scale, including one (1) set at A3 size (to scale); and ▪ 8 copies of the Environmental Assessment and plans on CD-ROM (PDF format), not exceeding 5Mb in size. 	Lodgement Documents

1.5 Proponent and Project Team

The Environmental Assessment has been prepared on behalf of Housing NSW, the proponent of the project. Key members of the consultant team include:

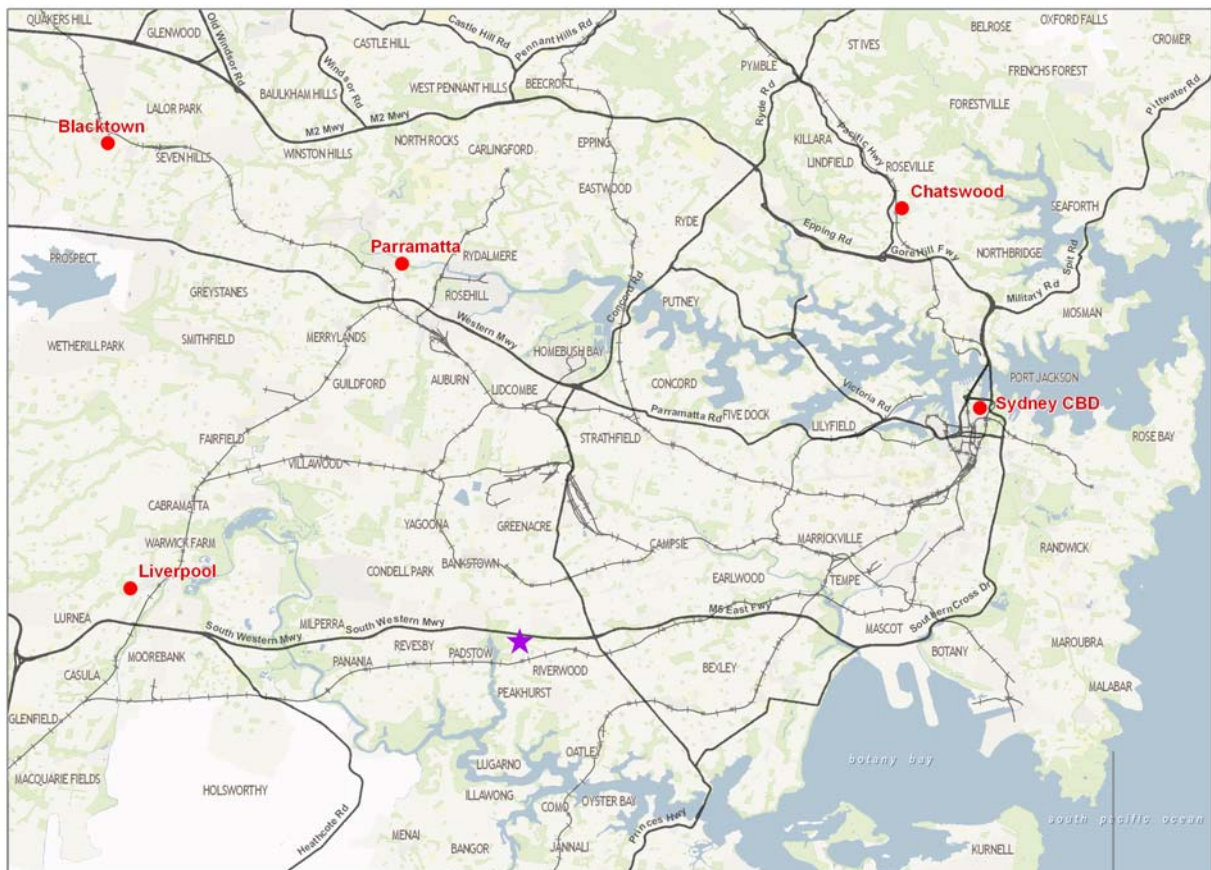
- Urban Planning and Social Planning – Urbis Pty Ltd
- Architecture – Turner + Associates Pty Ltd
- Landscape Architecture – Turf Design
- Stormwater Management – Warren Smith and Partners Pty Limited
- Transport, Traffic and Car Parking – Varga Traffic Planning Pty Ltd
- Acoustic Impacts – Acoustic Logic Consultancy Pty Ltd
- Site Contamination – JBS Environmental Pty Ltd
- Ecologically Sustainable Design and Wind Impacts – Windtech Consultants Pty Ltd
- Electrical and Communications Infrastructure – Shelmerdines Consulting Engineers
- Waste Management – Dasco Australia Pty Ltd
- Site Surveying - Denny Linker & Co
- Quantity Surveying – Davis Langdon
- Project Manager – M Projects Pty Ltd
- Development Manager (and Private Partner) – Payce Communities Pty Limited

2 Site Context

2.1 Regional Context

Riverwood is located approximately 14 kilometres south west of the Sydney Central Business District and approximately four kilometres south east of Bankstown.

Figure 1 – Regional Context Plan (Urbis)



The key features of the regional context are described below:

- The site is located within the South subregion, which comprises the Canterbury, Hurstville, Kogarah, Marrickville, Rockdale and Sutherland local government areas. It is within close proximity to the Central West subregion, which includes the Bankstown local government area.
- The M5 Motorway is provided in close proximity of the development site, approximately 200 metres to the north. The existing on and off ramps are to the west, with provision for future on and off ramps to the east, if required. Belmore Road runs in a north-south direction and provides access to the M5 and the sub-arterial road network, including Canterbury Road to the north and Henry Lawson Drive to the south.
- Riverwood railway station is located approximately 600 metres south and provides access to the Sydney Central Business District, Sydney Airport and stations along the Airport and East Hills line.
- The Major Centres in closest proximity of the site are Bankstown and Hurstville, each of which is easily accessible by local bus services and within 30 minutes travelling by public transport. The development site is also located in close proximity of the Specialised Centres of Sydney Airport, which is accessible by rail, and Bankstown Airport-Milperra, which is accessible by private vehicle.

2.2 Local Context

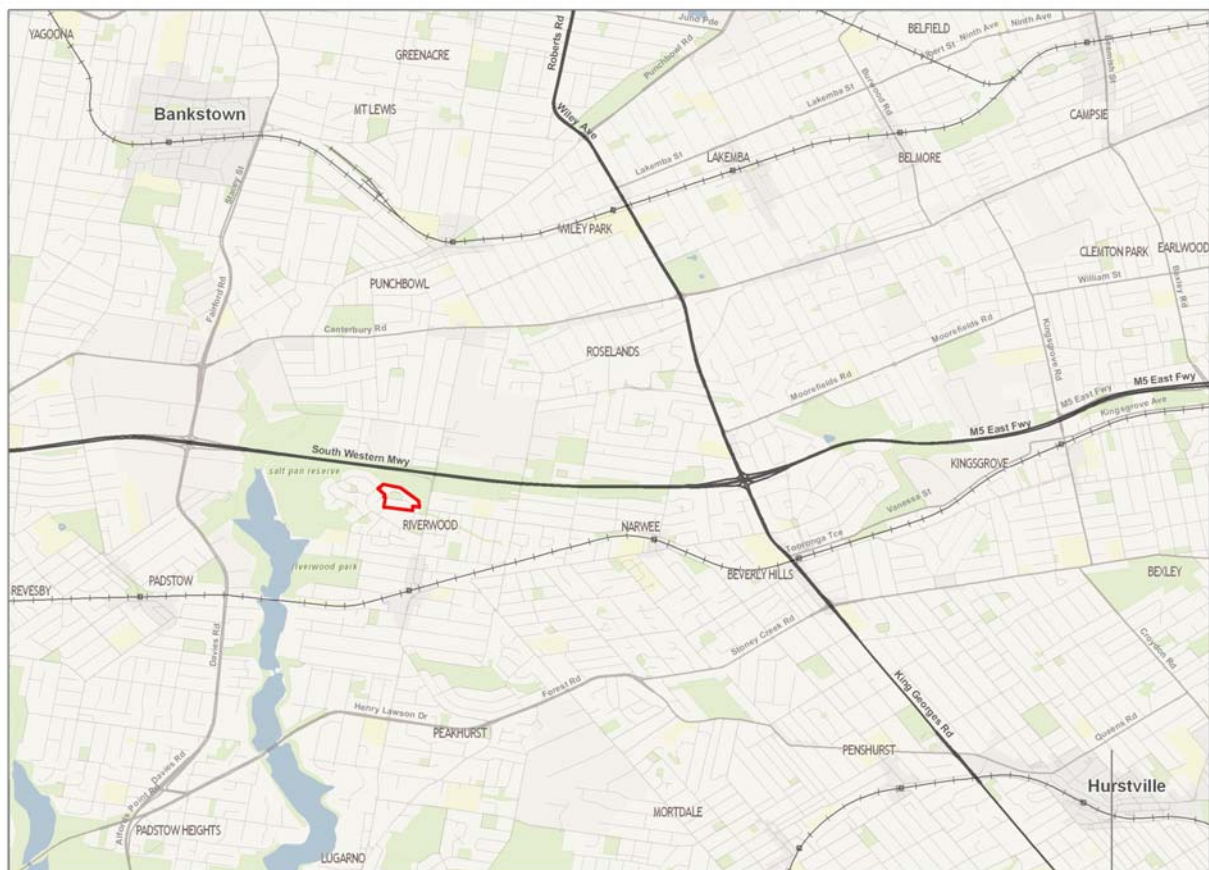
The development site is centrally located within the suburb of Riverwood, approximately four kilometres south east of Bankstown and six kilometres north west of Hurstville.

Riverwood is located within the south western part of the Canterbury local government area (LGA), near the border with the Hurstville and Bankstown LGAs. The development of Riverwood is described in the Community Profile link on Canterbury City Council's website as follows:

Settlement of the area dates from 1810 when the first land grant was made. The US Army had a hospital in the area from 1942 to 1945, which was taken over by the Royal Australian Navy. After the Second World War the site passed to the NSW Housing Commission and the army's timber huts were used to ease the post-war housing shortage. Significant development occurred during the 1950s when the Housing Commission began to build medium and high density housing complexes. The population has been relatively stable since the early 1990s, a result of few dwellings being added to the area.

(Reference: Canterbury City Council Community Profile – Riverwood, prepared by id consulting pty ltd, dated 4 July 2008)

Figure 2 – Local Context Plan (Urbis)



The key features of the local context are described below:

- The land immediately to the south and west is also owned by Housing NSW and accommodates social housing tenants. Two residential flat buildings with eight residential storeys and undercroft car parking (providing a total building height of nine storeys) are located immediately to the south on the opposite side of Washington Avenue. The development to the west generally comprises residential flat buildings, similar to the existing development on the subject site. The residential areas to the east on the opposite side of Belmore Road comprise predominantly one and two storey detached dwellings.

- The Canterbury City Community Atlas indicates that Riverwood has the highest percentage of older lone person households. Overall, there were 39.2% of lone person households within Riverwood, compared with 23.1% for Canterbury City. Further, 26.4% of all residents within Riverwood were aged 60 years and over, compared with 17.7% for Canterbury City. (Reference: Canterbury City Council Community Profile – Riverwood, prepared by id consulting pty ltd, dated 4 July 2008).
- Riverwood shops are located approximately 300 metres to the south at its closest point on the northern side of the railway line. This traditional retail strip provides access to a range of local convenience based retail, personal and commercial services. Riverwood Plaza is located on the southern side of the railway line on the corner of Webb Street and includes Woolworths and Coles supermarkets, Go-Lo discount outlet, Australia Post and specialty shops.
- The site benefits from excellent access to public transport, with Riverwood railway station located approximately 600 metres to the south (refer to **Section 2.1**) and local bus services providing links to Major and Town Centres, as outlined below:
 - Route 940 – Hurstville to Bankstown via Penshurst, Narwee, Riverwood and Punchbowl (seven days per week).
 - Route 944 –Hurstville to Bankstown via Penshurst, Mortdale, Peakhurst Heights, Riverwood, Narwee, Roselands and Punchbowl (seven days per week).
 - Route 945 - Hurstville to Bankstown via Penshurst, Mortdale, Riverwood and South Bankstown (seven days per week).

Routes 940 and 945 travel along Belmore Road, within less than 200 metres walking distance, while Route 944 travels through the development site, with bus stops located along Kentucky Road.

Figure 3 – Aerial Photograph – Local Context (Urbis)



- The site benefits from excellent access to active and passive recreation opportunities, with Salt Pan Creek Reserve located immediately adjacent to the north and Riverwood Park and Lance Hutchinson Oval within close walking distance. The Salt Pan Creek Wetlands are described on Council's website as follows:

Salt Pan Creek Wetlands have been transformed from a once under-used paddock into a vibrant, interactive parkland for our community to enjoy.

Since 2004, work on the Riverwood Wetlands has been steadily transforming what was once an old and under-used paddock into a site that is fast becoming a popular recreation site for people of all ages, from toddlers to seniors.

It is now an ideal place to picnic with your family or take a leisurely stroll around the pond. Our aim was to turn this under utilised open space into a vibrant, interactive parkland for local families to enjoy. The reserve features a wetland with fish, turtles, birdlife and other animals. Enjoy the wetlands and come and have a picnic while you enjoy watching your children playing, riding their bikes and feeding the ducks and other birdlife that is returning to the area.

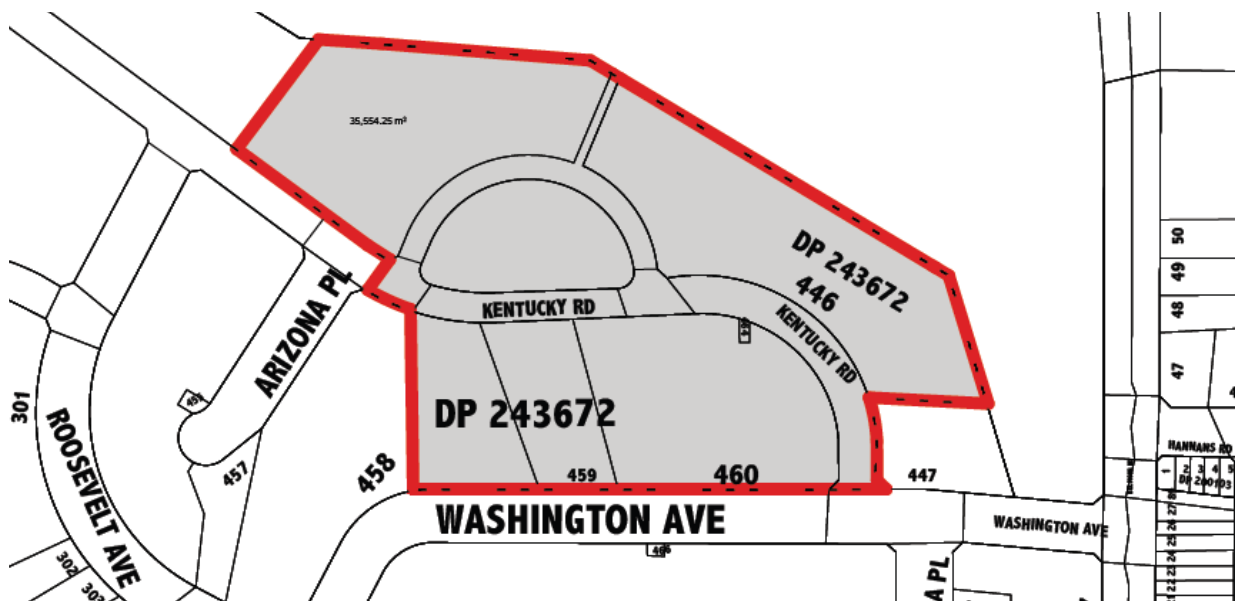
(Reference: <http://www.canterbury.nsw.gov.au/www/html/562-salt-pan-creek-wetlands.asp>)

- The site also benefits from close proximity to a number of existing and future community facilities. The Riverwood Senior Citizens Centre is located adjacent to the site on the corner of Washington Avenue and Kentucky Road. The Riverwood Community Centre is located immediately to the north at 151 Belmore Road, Riverwood. The Riverwood Indoor Sports and Fitness Centre, which is currently under construction, is located opposite the Community Centre on Belmore Road.

2.3 Site Description

The proposed residential renewal project is located within the area of land shown in **Figure 4** below. The subject site is generally bound by Salt Pan Creek Reserve to the north and east, Washington Avenue to the south and residential development to the west. A site survey plan prepared by Denny Linker & Co is attached as **Appendix C**.

Figure 4 – Site Plan (Turner + Associates)



The land included within the Concept Plan Application comprises the following key features:

- Total site area of approximately 3.55 hectares.

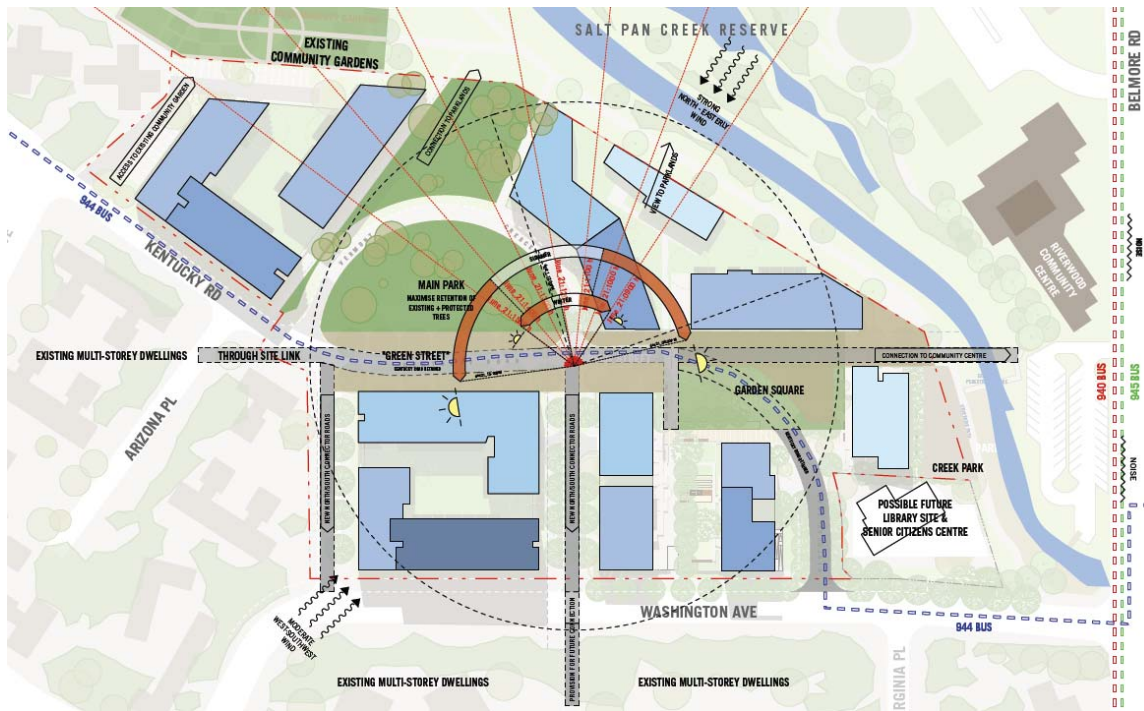
- The legal description of the site is Lots 445-446, 450, 459-460 and 464 and Part of Lots 449 and 458 in Deposited Plan 243672.
- The site benefits from access and frontage to Washington Avenue, Kentucky Road and Vermont Crescent.
- The site has been developed for residential purposes, comprising predominantly two and three storey walk-up residential flat buildings. Some single storey garden-style apartments are located to the north, along Vermont Crescent and Kentucky Road. The existing dwellings comprise:
 - 86 bedsitter units.
 - 24 one bedroom units.
 - 45 two bedroom units.
 - 21 three bedroom units.
- A large area of public open space (Lot 450) is located within the central part of Vermont Crescent. The public open space currently comprises turf with a few scattered trees – there is no street furniture, play equipment or other embellishments.
- The ownership of the land within the development site is described as follows:
 - Housing NSW – the majority of land within the development site area is owned by Housing NSW.
 - Canterbury City Council – Lots 450 and 459 are owned by Canterbury City Council with a caveat stating that they are public reserves. A land swap arrangement is currently being negotiated between the relevant parties to facilitate the proposed residential redevelopment of Lot 459. Canterbury City Council is also the local roads authority.
 - Energy Australia - Lot 464 comprises an electricity substation that is owned by Energy Australia.

A Site Aerial Plan is provided as **Figure 5** and a Site Analysis Plan is shown as **Figure 6**.

Figure 5 – Site Aerial Plan (Turner + Associates)



Figure 6 – Concept Plan - Site Analysis Plan (Turner + Associates)



3 Development Description

The Concept Plan application includes the staged construction of approximately 650 dwelling units with ancillary car parking, landscaping, stormwater management, site works and services. A reduced sized copy of the overall Concept Plan is provided as **Figure 8** below.

The Concept Plan architectural drawings prepared by Turner + Associates are attached as **Appendix D**. The Landscape Proposal Concept Report prepared by Turf Design is attached as **Appendix E**. The Concept Application design Report (which includes the Stormwater Management Plan) prepared by Warren Smith & Partners is attached as **Appendix F**.

The proposal comprises the following key components as summarised below:

- Construction of a mixture of social and privately owned dwellings, including:
 - 150 social housing units suitable for seniors and approximately 500 dwelling units available for private purchase.
 - The proposed dwellings will be in the form of residential flat buildings, up to nine storeys in height.
 - Ancillary car parking will be provided on-site for residents, either above and partially below ground level or in a basement configuration. Visitor car parking will be accommodated within the local road network.
 - Communal open space areas will be for the exclusive use of residents and their guests, with appropriate landscaping and site works to provide visual privacy and residential amenity.
 - Private open space will be provided in the form of courtyards (at ground floor) and balconies adjacent to the principal living areas.

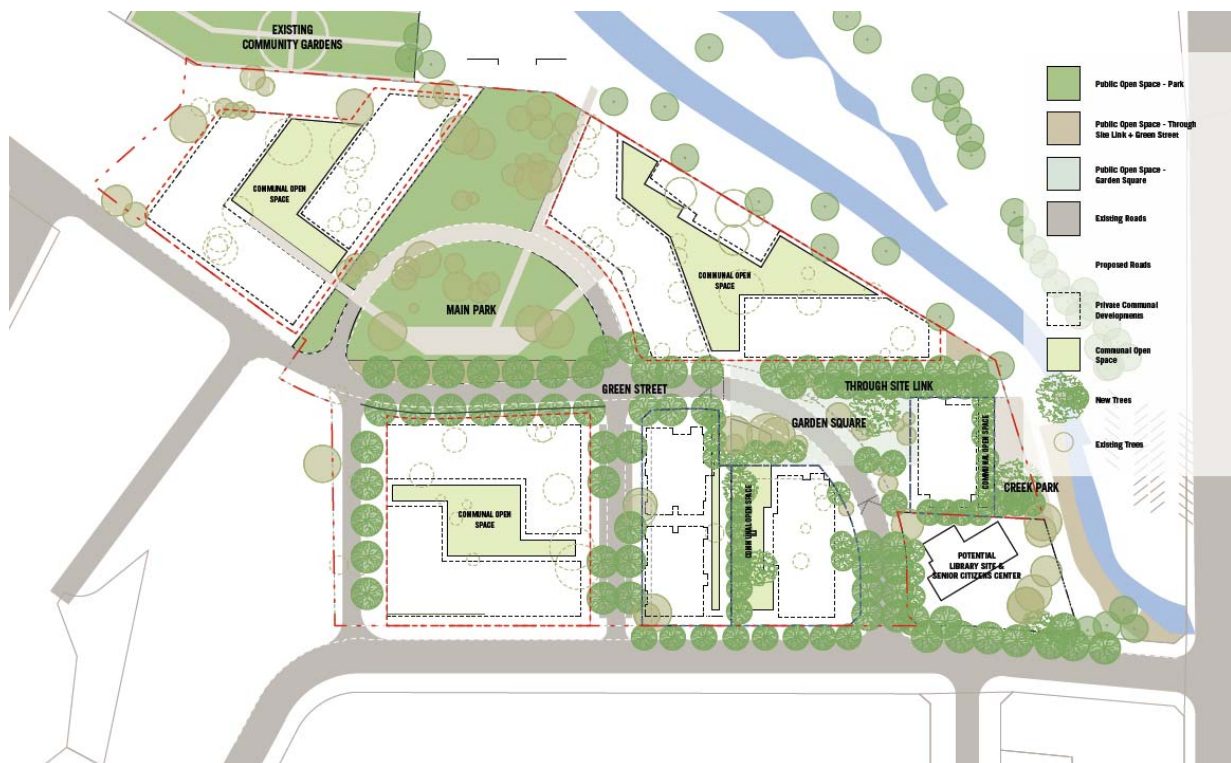
Figure 7 – Concept Plan (Turner + Associates)



- Public domain improvement works, which will include:
 - Retention and upgrade of the existing central park within Vermont Crescent to provide active and passive recreation opportunities.
 - Provision of additional public open space to improve the existing north-south and east-west connections between the Riverwood residential area and Salt Pan Creek Reserve, Riverwood Community Centre and Riverwood Indoor Sports and Fitness Centre (currently under construction).
 - Construction of a garden square on Kentucky Road with a raised threshold, paving treatments, street furniture and the like, to provide a community focal point and public space for community events (eg markets, etc).
 - Supplementary street tree planting along the existing local road network to enhance the existing landscape character and provide additional shading for on-street car parking.
 - Construction of north-south access streets between Washington Avenue and Kentucky Road to improve through-site connections and pedestrian/cyclist permeability from the residential area to the south of the renewal area and Salt Pan Creek Reserve to the north.
 - Stormwater management works that include Water Sensitive Urban Design measures that incorporate water quantity and quality treatment

A land swap arrangement has been negotiated to facilitate the inclusion of Lot 459 and its redevelopment for residential purposes. The lot is currently owned by Canterbury City Council and vested as a public reserve. It will be compulsorily acquired by Housing NSW and off-set by the dedication of two new public open space areas to Council. The new public open spaces are located on land that is currently owned by Housing NSW (Part of Lot 446 in DP 243672).

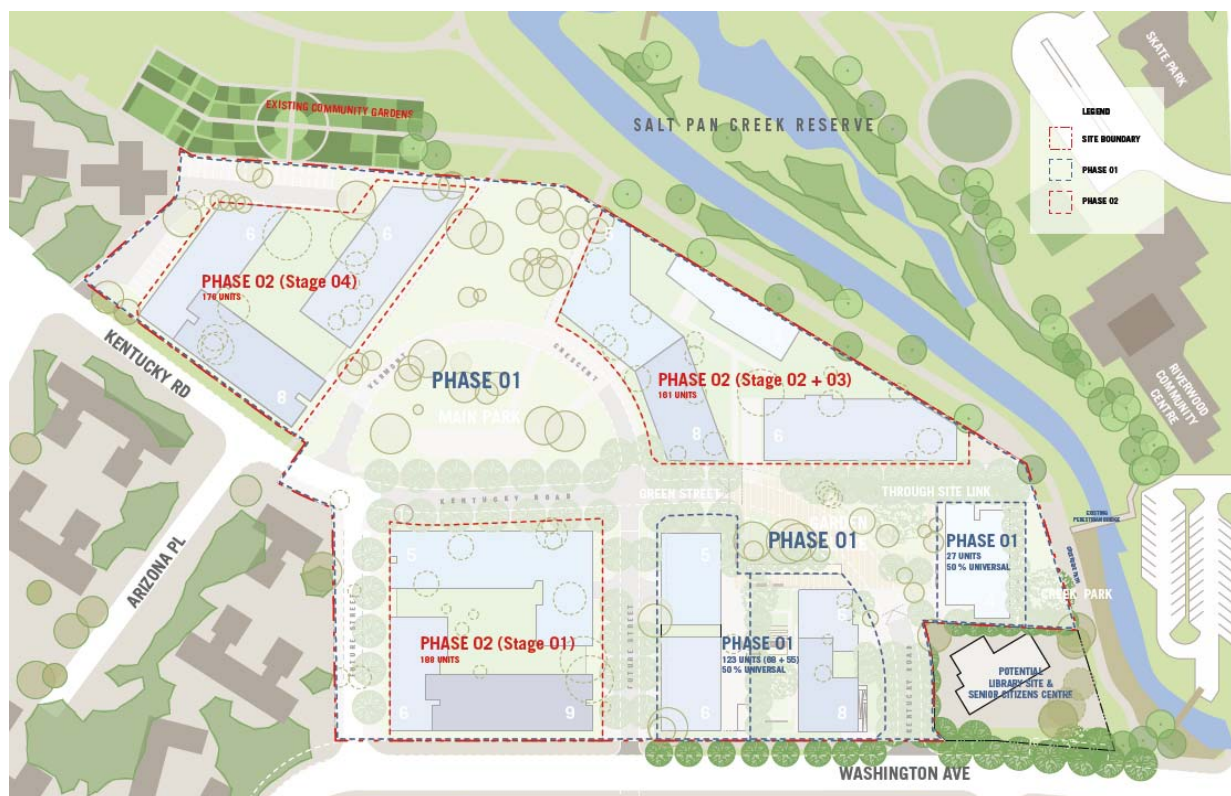
Figure 8 – Street Layout and Public Domain Plan (Turner + Associates)



- Construction of the proposed dwellings and the associated public domain improvements will be staged. The first phase of works will include construction of the 150 social housing dwellings and the majority of the public domain improvements including:
 - Land swap with Council to facilitate improved pedestrian and bicycle connections from Riverwood to Salt Pan Creek Reserve.
 - Embellishment of the existing and proposed public open spaces, including landscaping and stormwater management.
 - Construction of garden square, including local roadworks within Kentucky Road, and the east-west accessway to the existing pedestrian bridge.
 - Street tree planting and landscaping along Washington Avenue, Kentucky Road and Vermont Crescent.
 - Construction of the north-south access streets between Washington Avenue and Kentucky Road.
 - Any required infrastructure and services upgrades and site remediation (to be confirmed).

Future phases will be constructed in response to market demand with all development proposed in the Concept Plan application expected to be completed within nine years.

Figure 9 – Phasing Diagram (Turner + Associates)



4 Key Issues

4.1 Environmental Planning Instruments, Policies and Guidelines

4.1.1 Environmental Planning and Assessment Act 1979

The proposed residential renewal satisfies the objects of the Environmental Planning and Assessment Act 1979 as summarised below:

- It will encourage the efficient and economic use of existing urban land, contributing to meeting local and subregional housing targets, while making a contribution to reducing demand for land on the urban edge.
- Existing housing at the end of its lifecycle will be replaced with modern, architecturally-designed buildings that will meet the needs of the existing and likely future community.
- Improved public open spaces will be provided as a result of the proposed land swap with Council, with enhanced connections to existing district open space.
- Existing communication and utility services will be upgraded to facilitate improved services to the site, with the potential for further extensions as additional social housing properties are renewed.
- Ecologically sustainable development initiatives are proposed to limit the demand for services and reduce car reliance.
- The residential buildings have been designed to accommodate housing types and sizes that can be made available at an affordable price point.
- Ongoing public involvement and participation in the planning process through the consultation undertaken by the proponent and the formal public exhibition of the Concept Plan application by the Department of Planning.

Further, the Concept Plan application and the Environmental Assessment have been prepared in accordance with the provisions of Part 3A of the *Environmental Planning and Assessment Act 1979* (the Act) as outlined below:

- The Executive Director of Major Projects Assessment within the Department of Planning, as a delegate of the Minister for Planning, authorised the preparation of a Concept Plan application on 17 October 2010.
- The Environmental Assessment has addressed each of the matters listed in the Director-General's Environmental Assessment requirements that were issued on 4 November 2010. A Draft Statement of Commitments has been provided with this report.
- It is acknowledged that a permit under Part 3A of the Rivers and Foreshores Improvement Act 1948 is not required, however, consent will be required for any relevant works under Section 138 of the Roads Act 1993.

4.1.2 State Environmental Planning Policy (Major Development) 2005

The Major Development SEPP lists the types and classes of development that may be considered as Part 3A projects. Group 5 of Schedule 1 includes:

13 Residential, commercial or retail projects

- (1) *Development for the purpose of residential, commercial or retail projects with a capital investment of more than \$100 million.*

The proposed development comprises a residential project with a capital investment value of \$221,072,000. Accordingly, the proposed works exceed the minimum threshold prescribed within the Major Development SEPP.

The Executive Director of Major Projects Assessment within the Department of Planning, as a delegate of the Minister for Planning, declared the proposal to be a Major Project under the provisions of Part 3A of the Environmental Planning and Assessment Act 1979 on 17 October 2010.

4.1.3 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 aims to facilitate the efficient delivery of infrastructure across NSW. The relevant clauses of the SEPP applying to the Concept Plan application include:

- **Section 45** – a development application proposing works that are likely to affect an electricity transmission or distribution network (as listed in Section 45(1)) requires consultation with the relevant electricity authority prior to the determination of the application to establish the likely safety risks.

Initial feedback from Energy Australia has suggested the three existing substations within the site will need to be decommissioned and removed. The existing Riverwood zone substation and high voltage network is near full capacity and the existing high voltage network will need to be upgraded to meet the expected electrical load for the development. All new infrastructure will be underground and the development will be served from three padmount substations located within the site. Further confirmation will be sought from Energy Australia with regard to the proposed approach once the application has been progressed.

- **Section 104** – the proposed development includes over 300 dwellings and accordingly, the Concept Plan application will need to be referred to the NSW Roads and Traffic Authority (RTA) for comment, taking into account accessibility, opportunity for multi-purpose trips, measures to reduce car reliance and potential traffic safety, road congestion or parking implications.

Consultation was undertaken with the RTA during the preparation of the Concept Plan application to confirm the appropriateness of the proposed traffic impact analysis. The relevant intersections identified by the RTA (and also by Canterbury City Council) have been assessed in accordance with their requirements. This matter is addressed in greater detail in **Section 4.5**.

4.1.4 State Environmental Planning Policy No 55 – Remediation of Land

State Environmental Planning Policy No 55 – Remediation of Land (SEPP 55) seeks to ensure remediation of contaminated land is undertaken to minimise the risk of harm to human health. Clause 7 of SEPP 55 requires that a consent authority must consider whether land is contaminated prior to issuing development consent.

JBS Environmental Pty Ltd was engaged to prepare a State 1 Environmental Site Assessment for the renewal area. A copy of the report is attached as **Appendix G**. The key findings and recommendations are provided below:

- The investigation aimed to document the site history, assess the potential for on and off-site sources of contamination and draw preliminary conclusions about the potential contamination status.
- The scope of the work comprised a review of historical documentation, a detailed inspection of the site and immediate surrounds and preparation of a preliminary site investigation report.
- The site inspection found that the site was currently occupied by free standing multi-storey residential apartment blocks. The areas between the residential buildings were covered in grass or vegetation and appeared to be used as communal open space. Each of the lots had frontage onto Washington Avenue, Vermont Crescent and/or Kentucky Road.

- The site has been owned by the Housing Commission of NSW since 1946. Prior to 1946 the site was owned by private citizens and used as rural/residential land and also a wartime hospital.
- The report concludes that while previous wartime hospital activities may not have directly impacted the site, it is likely that the hospital buildings that were constructed and later demolished contained asbestos. As such, the material present on the site may be impacted with asbestos. Further, there is a minor potential for shallow imported fill to be present on the site, which could be contaminated.
- It is recommended that an intrusive investigation is completed to assess the suitability of the site for continued residential and recreational use and determine the potential presence of contaminated media or residual asbestos in soils.

An appropriate Statement of Commitment has been included in **Section 5.2** requiring a Phase 2 Environmental Assessment to be undertaken prior to approval of the Project/Development Applications for individual stages.

4.1.5 State Environmental Planning Policy No 65 – Design Quality of Residential Flat Buildings

The Concept Plan application includes over four dwellings within buildings that are three storeys or more. As such, the provisions of *State Environmental Planning Policy No 65 – Design Quality of Residential Flat Buildings* (SEPP 65) apply to the proposal.

The Concept Plan application has been assessed in accordance with the relevant design principles listed in Part 2 of SEPP 65 as summarised in the following table:

Table 2 – SEPP 65 Design Principles

Design Principle	Comments	Complies (Y/N)
Principle 1: Context Good design responds and contributes to its context. Context can be defined as the key natural and built features of an area. Responding to context involves identifying the desirable elements of a location's current character or, in the case of precincts undergoing a transition, the desired future character as stated in planning and design policies. New buildings will thereby contribute to the quality and identity of the area.	The siting and design of the proposed development has been designed in response to the existing features of the site and local area. The height of the proposed residential buildings is comparable to the existing residential flat development to the south of the renewal area. The proposed buildings will be architecturally designed to maximise the northern orientation of the site and provide a high quality residential amenity for future residents. The buildings have been oriented to maximise the visual links and physical connections to Salt Pan Creek Reserve and the community facilities to the north. The existing public open space area in the centre of Vermont Crescent has been retained, enabling the existing stand of trees to be protected. Further, the proposed additional public open space area to the north will enable the retention of other significant trees.	Yes
Principle 2: Scale Good design provides an appropriate scale in terms of the bulk and height that suits the scale of the street and the surrounding buildings. Establishing an appropriate scale requires a considered response to the scale of existing development. In precincts undergoing a transition, proposed bulk and height needs to	The bulk and height of the proposed development is considered to be entirely appropriate, taking into account the size of the renewal area, the stepping of the proposed development from the north to the south and the compatibility of the proposal with the scale of the existing residential development to the south. The scale of the proposed buildings is	Yes

Design Principle	Comments	Complies (Y/N)
achieve the scale identified for the desired future character of the area.	considered to be consistent with the future local planning controls anticipated for the site and surrounding area.	
Principle 3: Built form Good design achieves an appropriate built form for a site and the building's purpose, in terms of building alignments, proportions, building type and the manipulation of building elements. Appropriate built form defines the public domain, contributes to the character of streetscapes and parks, including their views and vistas, and provides internal amenity and outlook.	The proposed built form responds to the existing site features. The buildings have been located to respond to the site boundaries, provide frontage to the local road network and maximise the northern orientation.	Yes
Principle 4: Density Good design has a density appropriate for a site and its context, in terms of floor space yields (or number of units or residents). Appropriate densities are sustainable and consistent with the existing density in an area or, in precincts undergoing a transition, are consistent with the stated desired future density. Sustainable densities respond to the regional context, availability of infrastructure, public transport, community facilities and environmental quality.	The proposed density is considered appropriate, taking into account the site context. The site is of a significant size and is physically separated from other privately owned properties, enabling a new planning regime to be established, which takes advantage of the site's proximity to established public transport services (rail and bus) and local retail and commercial and services. The site is located directly opposite a large area of public open space and benefits from excellent proximity to community services. This high level of amenity enables a higher residential dwelling density to be achieved than what may otherwise be considered for a more remote suburban location. The proposed renewal is considered entirely consistent with State and subregional strategic planning policies which seek to increase dwelling densities on land in close proximity to public transport and services, including renewal of outdated social housing estates. The holistic approach to the planning and design will provide a high level of amenity for future residents. The indicative layouts have been designed to enable future compliance with SEPP 65 requirements, including solar access, natural ventilation, etc. Further, the proposed dwelling density will enable housing to be delivered at an affordable price point, enabling people to enter the market who would not otherwise be able to afford to purchase a home.	Yes
Principle 5: Resource, energy and water efficiency Good design makes efficient use of natural resources, energy and water throughout its full life cycle, including construction. Sustainability is integral to the design process. Aspects include demolition of existing structures, recycling of materials, selection of appropriate and sustainable	A number of ecologically sustainable development measures have been incorporated into the design, as outlined in Section 4.7 of this report. These measures will be further detailed and implemented in the detailed design phase associated with the future Project/Development Applications for the future phases, including compliance with BASIX.	Yes

Design Principle	Comments	Complies (Y/N)
materials, adaptability and reuse of buildings, layouts and built form, passive solar design principles, efficient appliances and mechanical services, soil zones for vegetation and reuse of water.		
<p>Principle 6: Landscape</p> <p>Good design recognises that together landscape and buildings operate as an integrated and sustainable system, resulting in greater aesthetic quality and amenity for both occupants and the adjoining public domain.</p> <p>Landscape design builds on the existing site's natural and cultural features in responsible and creative ways. It enhances the development's natural environmental performance by co-ordinating water and soil management, solar access, micro-climate, tree canopy and habitat values. It contributes to the positive image and contextual fit of development through respect for streetscape and neighbourhood character, or desired future character.</p> <p>Landscape design should optimise useability, privacy and social opportunity, equitable access and respect for neighbours' amenity, and provide for practical establishment and long term management.</p>	<p>An integrated approach to architectural and landscape design has been undertaken in the planning for the planned renewal of the site.</p> <p>There is a strong inter-relationship between the buildings, the proposed site works and the landscape concept to ensure that the potential environmental impacts and appropriately managed and/or mitigated (eg water quality and quantity treatment). Significant existing trees have been retained, where possible, and supplementary tree planting will enhance the streetscape and provide for additional shading and potential fauna habitat.</p> <p>The landscape concept design has also given particular consideration to the clear delineation between the public open spaces and private open spaces for residents. It is anticipated that these matters will be further detailed in the future Project/Development Applications.</p>	Yes
<p>Principle 7: Amenity</p> <p>Good design provides amenity through the physical, spatial and environmental quality of a development.</p> <p>Optimising amenity requires appropriate room dimensions and shapes, access to sunlight, natural ventilation, visual and acoustic privacy, storage, indoor and outdoor space, efficient layouts and service areas, outlook and ease of access for all age groups and degrees of mobility.</p>	<p>The proposed layout of the future buildings has been specifically designed to achieve a high level of amenity for future residents, taking into account the existing site features and the surrounding development (ie public open spaces). The future detailed design phase will demonstrate compliance with the relevant controls, including solar access, natural ventilation, storage and the like.</p>	Yes
<p>Principle 8: Safety and security</p> <p>Good design optimises safety and security, both internal to the development and for the public domain.</p> <p>This is achieved by maximising overlooking of public and communal spaces while maintaining internal privacy, avoiding dark and non-visible areas, maximising activity on streets, providing clear, safe access points, providing quality public spaces that cater for desired recreational uses, providing lighting appropriate to the location and desired activities, and clear definition between public and private spaces.</p>	<p>As noted above, the architectural and landscape concept design has been developed through an integrated approach, to ensure that the concept design provides an appropriate response to each of the key principles, including density, amenity, safety and security and the like.</p> <p>Particular consideration has been given to safety and security issues, taking into account the issues identified in the social impact review. While the detailed design phase will resolve many of the design issues, the following points are noted:</p> <ul style="list-style-type: none"> ▪ Buildings are oriented to the existing and proposed streets and the public open space network with excellent opportunities for natural surveillance of the public domain. ▪ The upgrade of existing under-utilised 	Yes

Design Principle	Comments	Complies (Y/N)
	<p>public open spaces and the provision of additional public open spaces, including the garden square, will provide increased activation of the local road network and increased natural surveillance of the key paths of travel to nearby recreation and community facilities.</p> <ul style="list-style-type: none"> ▪ The landscape concept design has also given particular consideration to the clear delineation between the public open spaces and private open spaces for residents. <p>A Crime Prevention Through Environmental Design assessment will be lodged with the future Project/Development Applications.</p>	
<p>Principle 9: Social dimensions and housing affordability</p> <p>Good design responds to the social context and needs of the local community in terms of lifestyles, affordability, and access to social facilities.</p> <p>New developments should optimise the provision of housing to suit the social mix and needs in the neighbourhood or, in the case of precincts undergoing transition, provide for the desired future community.</p> <p>New developments should address housing affordability by optimising the provision of economic housing choices and providing a mix of housing types to cater for different budgets and housing needs.</p>	<p>A review of the potential social impacts has been undertaken and is submitted with the Environmental Assessment. This report provides a comprehensive identification and assessment of the social dimensions of the project, taking into account the proposed mix, dwelling types, services provision, community engagement and the like.</p> <p>Overall, the proposal is considered to provide a number of significant social benefits, including:</p> <ul style="list-style-type: none"> ▪ Improved social housing that meets the demands of the local community. ▪ Provision of housing for private sale that is affordable price point. ▪ Improved access to existing and future community facilities. ▪ Greater diversity in the existing population profile, potentially benefitting local school enrolments and resident mix. 	Yes
<p>Principle 10: Aesthetics</p> <p>Quality aesthetics require the appropriate composition of building elements, textures, materials and colours and reflect the use, internal design and structure of the development. Aesthetics should respond to the environment and context, particularly to desirable elements of the existing streetscape or, in precincts undergoing transition, contribute to the desired future character of the area</p>	<p>The future Project/Development Applications will provide further design detail regarding the individual buildings, however, the photomontages and other visual aids within the architectural package submitted with the Concept Plan application demonstrate the potential visual impact of the proposed development and the integration of the building and landscape design.</p>	Yes

The applications for the future phase(s) will include detailed architectural drawings prepared by an appropriately qualified architect. In the meantime, a high-level assessment of the proposed layout and conceptual design proposed in the Concept Plan application has been undertaken, taking into account each of the relevant provisions of the Residential Flat Design Code.

A copy of the architectural documentation, including SEPP 65 compliance assessment, is attached as **Appendix D**. A copy of the planning compliance assessment in accordance with the 'rules of thumb' in the Residential Flat Design Code is attached as **Appendix H**.

4.1.6 NSW State Plan

The *NSW State Plan* includes eight key action areas, of which three are relevant to the proposed development. The compliance of the proposal with each of these matters is described below:

- **Better transport and liveable cities** – the site is well located in close proximity of Bankstown and Hurstville via regular bus services. The proposed increase in the density and diversity of housing within walking distance of local services, public transport and public open space is considered entirely appropriate and consistent with the State Plan objectives.
- **Green state** – the proposed development is anticipated to incorporate a variety of environmental initiatives to facilitate an efficient use of resources, as well as the minimisation and management of waste in the construction and occupation phases of the development.
- **Keeping people safe** – it is anticipated that the proposed development will incorporate a variety of Crime Prevention Through Environmental Design measures to minimise the opportunity for crime.

Overall, it is considered that the proposed development aligns with the policy objectives outlined in the NSW State Plan.

4.1.7 Sydney Metropolitan Strategy – City of Cities

The proposed development will contribute to achieving a number of key aims outlined in the *Sydney Metropolitan Strategy*, including:

- **Containing Sydney's urban footprint** – the renewal of an existing residential area will provide for the additional dwellings required to house Sydney's growing population while avoiding impacts on non-urban land.
- **Providing fair access to housing, jobs, services and open space** – the proposal will increase the number of dwellings within close proximity of existing infrastructure and services, which is also a key component of the NSW State Plan.

The Metropolitan Strategy established a target of 35,000 additional homes within the South subregion by 2031. This equates to 7.8% of housing growth within Sydney and a significant decrease in the sub-region's share of total housing within Sydney from 16% in 2004 to approximately 6% on 2031.

4.1.8 Draft Subregional Strategy for South Subregion

The Canterbury local government area (LGA) is scheduled to accommodate 7,100 of the 35,000 additional homes to be located within the South subregion. All dwellings are to be located within existing urban areas, taking into account the absence of new release areas within the subregion.

The proposal is entirely consistent with the provisions of the *Draft Subregional Strategy for South Subregion* as summarised below:

- The site is located within walking distance of high frequency bus services along Belmore Road, including Routes 940 and 945 – Bankstown to Hurstville. An additional service travels through the development site along Kentucky Road (Route 944). The site is located within 30 minutes by public transport of two Strategic Centres (Bankstown and Hurstville) via these bus services.
- The proposal will provide for a mixture of dwellings, including social housing units for seniors, to meet the changing demands of the local population. The provision of housing at an affordable price will benefit the local community and create the potential to meet the needs of a range of occupations and households.
- Redevelopment of Housing NSW properties is encouraged to better match tenant needs in terms of dwelling size, location and special requirements while implementing best practice urban design.

Riverwood is nominated as a 'Small Village' in terms of the Centres hierarchy within the Draft Subregional Strategy.

A 'Small Village' is defined in the Draft Subregional Strategy as 'A small strip of shops and adjacent residential area within a 5 to 10 minute walk. Contain between 800 and 2,700 dwellings'.

The South subregion has identified three Strategic Centres – the Major Centres at Hurstville and Kogarah and the Specialised Centre at Sydney Airport. The site is also located within close proximity of the Strategic Centres of the Central West subregion, including the Major Centre of Bankstown and the Specialised Centre of Bankstown Airport-Milperra.

4.1.9 Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment

Greater Metropolitan Regional Environmental Plan No 2 – Georges River Catchment became a deemed State Environmental Planning Policy (SEPP) under Division 2, Part 3 of the *Environmental Planning and Assessment Act 1979* on 1 July 2009, and applies to the Concept Plan.

The Environmental Assessment will have regard to the Planning Principles contained within Part 2 of the deemed SEPP, including:

- Acid sulphate soils.
- Flooding.
- Land degradation.
- Urban/stormwater runoff.
- Urban development areas.
- Wetlands.

Consideration will also need to be given to the 'Housing Development' measures listed in the Planning Control Table, including:

- Compliance with the goals and key principles of the Metropolitan Strategy.
- Adequacy of existing services.
- Compliance with Council stormwater management plans and erosion and sediment controls during constructions.
- Treatment of urban runoff including preventing nutrients, oils and greases, animal wastes, detergents and other pollutants from car washing and general litter entering into the Georges River or its tributaries.
- Landscaping and minimisation of hard surface areas to reduce urban runoff, reuse of treated waste water and the utilisation of appropriate water conservation practices.
- Cumulative environmental impact of urban runoff on the Georges River or its tributaries.

4.1.10 Canterbury Planning Scheme Ordinance

The site is zoned Residential 2(c4) under the provisions of the *Canterbury Planning Scheme Ordinance* (PSO). The proposed development is classified as 'multiple unit housing' which is defined as:

"Multiple unit housing" means a group of 3 or more dwellings (whether or not attached), but does not include multiple dwellings comprising town houses or villa homes.

Multiple unit housing is permitted in the Residential 2(c4) zone with the development consent of Council in accordance with the provisions of the PSO.

A table summarising the compliance of the development with each of the above matters listed within the PSO is provided as **Appendix I**. Further consideration of the non-compliance with the FSR control is provided in **Section 4.1.12**.

4.1.11 Relevant Development Control Plans

The site is affected by a number of Development Control Plans and local planning codes and policies that are relevant to the site and the proposed development. These include:

- *Development Control Plan No 13 - Multiple Unit Housing*
- *Development Control Plan No 37 - Energy Smart Homes Policy*
- *Development Control Plan No 51 – Access and Mobility and Disability Access Checklist*
- *Development Control Plan No 20 - Car Parking*
- *Development Control Plan No 29 - Crime Prevention through Environmental Design*
- *Development Control Plan No 45 – Landscaping and Front Fences Code, Stormwater Management Manual and Stormwater Management Manual - Specification 9 A Guide for Stormwater Drainage Design*
- *Development Control Plan No 30 - Subdivision of Land*
- *Development Control Plan No 48 - Waste Management*
- *Contaminated Lands Policy*

A table summarising the compliance of the development with each of the above matters is provided as **Appendix I**. Further consideration of the identified non-compliances is provided in **Section 4.1.12** below.

4.1.12 Nature and Extent of any Non-Compliances

Each of the proposed non-compliances is considered entirely reasonable and can be fully justified, taking into account the key objectives for the residential renewal project, the proximity of the site to public transport and local services and the level of residential amenity likely to be achieved in the future detailed design of the individual phases of the project. Each of these is discussed in greater detail below:

- **Street Setbacks** (*SEPP 65 – Residential Flat Design Code*) and **Front Boundary Setbacks** (*Development Control Plan No 13 – Multiple Unit Development Code*) –

The 'rules of thumb' in the Residential Flat Design Code indicate that a street setback of 5-9 metres is generally considered appropriate for suburban areas. Council's DCP requires a setback of 8.5 metres for buildings which exceed two storeys. The principal building lines provide a street setback of approximately 1-3m on Kentucky Road and approximately 3m on Washington Avenue. While the setbacks are less than what would usually be anticipated for a suburban area, the proposed setbacks are considered appropriate based on the following:

- The proposal fully complies with State and subregional strategic planning policies which seek to increase dwelling densities on land in close proximity to public transport and services, including renewal of outdated social housing estates.
- The location, size, road layout, lot configuration and physical separation of the renewal area from other properties (under separate ownership) enables site-specific street setbacks to be set without compromising the existing streetscape or any established setbacks or impacting on the amenity of adjoining land.
- Holistic site planning provides a high level of amenity for future residents. The indicative layouts have been designed to enable future compliance with SEPP 65 requirements, including solar access, natural ventilation, etc.
- High levels of natural surveillance of the local road network and the existing and proposed public open spaces within the renewal area.

- The proposed setbacks enable a dwelling density to be achieved that will facilitate the delivery of housing at an affordable price point, enabling people to enter the market who may not otherwise be able to afford to purchase a home.

- **Floor Space Ratio** (*Canterbury Planning Scheme Ordinance*), **Density** (*Development Control Plan No 13 – Multiple Unit Development Code*) and **Landscaped Open Space** (*Development Control Plan No 13 – Multiple Unit Development Code*)

The local planning controls envisage a relatively low residential density for the site, taking into account the maximum floor space ratio (0.75:1), the minimum site area per dwelling density (110-175m²) and the minimum landscaped open space per dwelling (47-72m²). While the proposal departs from the PSO and DCP controls, the proposed density is considered to be entirely appropriate for the site taking into account:

- The proposal fully complies with State and subregional strategic planning policies which seek to increase dwelling densities on land in close proximity to public transport and services, including renewal of outdated social housing estates.
- The location, size, road layout, lot configuration and physical separation of the renewal area from other properties (under separate ownership) enables higher densities to be achieved without compromising amenity of adjoining land.
- Holistic site planning provides a high level of amenity for future residents. The indicative layouts have been designed to enable future compliance with SEPP 65 requirements, including solar access, natural ventilation, etc.
- The proposed dwelling density will enable housing to be delivered at an affordable price point, enabling people to enter the market who would not otherwise be able to afford to purchase a home.

- **Building Height** (*Development Control Plan No 13 – Multiple Unit Development Code*) – the Concept Plan application includes residential flat buildings of up to nine storeys. While Council's DCP does not envisage buildings of this height, the built form proposed in the Concept Plan application is considered to be entirely acceptable, taking into account the reasons outlined above with regard to density and the following additional matters:

- The proposed buildings are comparable in height to the existing residential flat development to the south of the renewal area.
- The building heights are varied across the site to maximise the amenity afforded by views and solar access to the north.
- Public open spaces are provided with optimal solar access, arising from the proposed land swap and the improved integration with Salt Pan Creek Reserve.

- **Car Parking and Vehicle Access** (*Development Control Plan No 13 – Multiple Unit Development Code*) – Council's DCP requires off-street parking to be provided at the following rates:

- Small dwelling - 1 space
- Medium dwelling - 1.2 spaces
- Large dwelling - 2 spaces (may be stacked)
- Visitor: 1 space per 5 dwellings Off-street car parking is to be provided for private dwellings as follows:

The Concept Plan application seeks to apply the following car parking rates:

- Social housing - 1 space per 10 dwellings
- Private dwellings: 1 bed dwelling – 1 space, 2 bed dwelling – 1.5 spaces and 3 bed dwellings – 2 spaces

- Visitors – 1 space per 6 apartments

While the proposed car parking does not comply with Council's controls, it is considered to be satisfactory taking into account the following matters:

- The site benefits from excellent access to public transport, including both rail and bus services. High frequency bus services travel along Belmore Road, enabling travel within 30 minutes by public transport of two Strategic Centres (Bankstown and Hurstville). An additional service travels through the development site along Kentucky Road (Route 944). Riverwood railway station is within walking distance of the site providing access to the Sydney CBD and suburban centres.
- Housing NSW has a clear understanding of the demand for car parking within social housing to accommodate seniors. The proposed car parking rates are considered to be entirely satisfactory to meet the projected demand and having regard to the actual demand at other similar sites.
- Sustainable transport measures are to be implemented as part of the renewal process, including:
 - Establishment of high quality and efficient pedestrian and cycle links to existing routes.
 - Incorporate fibre/internet to the home for premises in an early stage.
 - Community education to support public transport initiatives, including information packs for residents that identify walking, cycling and public transport options.

Overall, it is considered that the proposed car parking arrangements are satisfactory and will enable the anticipated demand to be met on-site, while encouraging the use of alternative forms of transport, including walking, cycling and public transport.

4.2 Built Form and Urban Design

A comprehensive package of architectural documentation has been prepared in support of the Concept Plan application and to demonstrate the appropriateness of the proposed built form and design (refer to **Appendix D**). This documentation package includes illustrative layouts of the apartments that could be accommodated within the proposed indicative development concept. While this documentation is only illustrative, it has been provided to enable a preliminary assessment of the proposed built form in accordance with the SEPP 65 design principles. However, it should be realised that the detailed design phase for the future Project/Development Applications will confirm whether the proposed internal layouts can be achieved and the final number and mix of dwellings. The detailed design phase shall incorporate additional feedback arising from the ongoing community consultation and local market feedback to confirm the appropriateness of the final proposal.

The height, bulk and scale of the proposed development have been assessed in detail in the planning compliance assessment and justification in **Section 4.1**. Overall, it is considered that the proposed built form is entirely appropriate for the site, taking into account the site context, consistency with strategic planning policy, access to public transport and services and the positive benefits arising from the renewal, including provision of modern architecturally designed social housing dwellings and dwellings to be available to the private market, including those at an affordable price.

An integrated approach was undertaken with regard to the development of the indicative built form and associated landscaping treatment. The landscape masterplan prepared by Turf Design is provided in **Figure 10** on the following page. The Landscape Proposal Concept Report is attached as **Appendix E**.

The key features of the landscape masterplan as labelled on the masterplan are described by Turf Design as follows:

1. **Central Park** - activate the central park through provision of greater recreational opportunities, such as; play equipment, seating, shade structure, irrigated lawns, mass planted garden beds, basketball hoops. etc.

2. **Green Streets** - incorporate current Green Street principles throughout existing streets via supplementary street tree and front garden planting to:
 - a) reduce the urban heat island effect,
 - b) increase carbon sequestration,
 - c) extend the rich and diverse vegetation of the area, and
 - d) create shaded corridors for vehicles and pedestrians.
3. **Garden Square** - embrace informal road alignment within a formalised 'Garden Square' with geometries relating to new building arrangements strengthening open space relationships, convert Kentucky Rd into a paved raised threshold to reduce speed limits and blend with the formal square aesthetic and provide seating, tree planting, gardens and irrigated lawns.
4. **Library Plaza** - create a series of quiet external reading spaces and small gravel plazas to connect with library uses and incorporate lawn and gardens with overhanging shade trees.
5. **Through-Site Connections** - provide open space connections maximising neighbourhood permeability and community facility usage and induce usage of larger areas through the provision of shaded seating and picnicking opportunities.

Figure 10 – Landscape Masterplan (Turf Design)



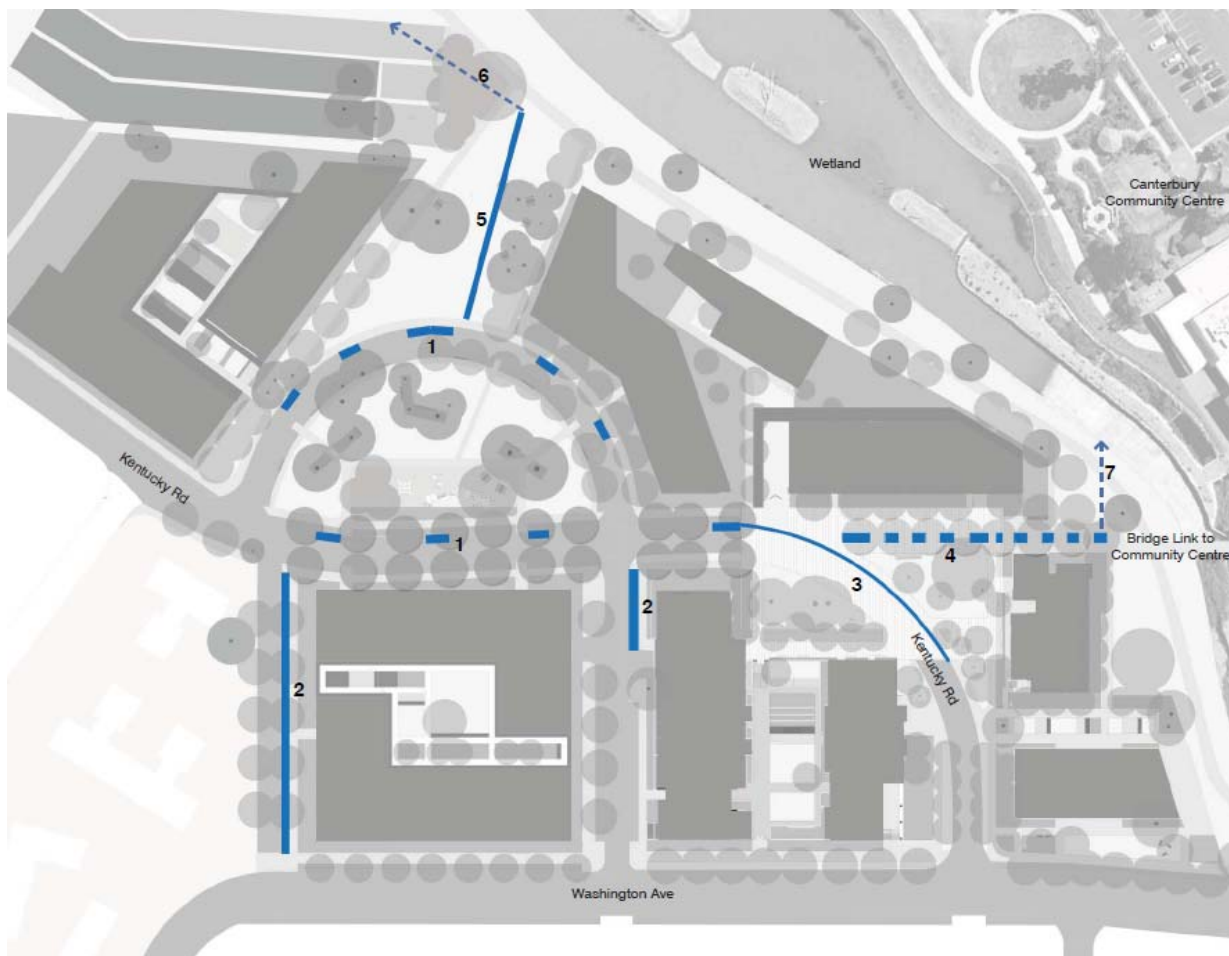
6. **Bridge Link** - formalise bridge access to adjacent community centre by creating a small formal square connecting to the garden square. Provide formal paths, pavements, raised gardens, seating and lawn area.

7. **Community Gardens Extension** - extend existing community allotment gardens to cater for increased population. Connect with new pathways and provide a gravel entry plaza for shade relief while tending lots.
8. **Wetland Edge** - provide additional tree planting along parkland edge to accentuate high visual quality of wetland views beneath tree canopies, and enhance recreational opportunities.
9. **Communal Courtyard** - develop high quality private residential courtyards with a focus on views to public open space and wetlands.

An integrated approach was also undertaken with regard to the proposed stormwater management plan and the landscaping treatment. The landscape concept documentation also identifies opportunities to incorporate Water Sensitive Design Measures into the detailed landscaping drawings to be prepared and submitted with the future Project/Development Applications. A copy of the WSUD Opportunities Plan is provided as **Figure 11**. The key opportunities are listed below:

1. **Parking Lane Bio-retention Gardens** – incorporate raingardens into new roadside verge.
2. **Verge Treatment** - existing roadside grass verge retrofitted with rain gardens - extent of water retention dependent on location/depth of existing underground services.
3. **Dish Drain** - Spoon drain to follow Kentucky Rd alignment and direct flows into terminating Rain Garden. Drain to assist in legibility of trafficable zone.
4. **Garden Square Treatment** - Rain gardens used to filter overland flow from Garden Square pavements.

Figure 11 – WSUD Opportunities (Turf Design)



5. **Linear Swale** - Potential ornamental linear bio-retention swale through open space. Provide running water interest in rain events. Incorporate timber bridge access points and public art. Alignment to prevent damage to significant tree roots.
6. **Connection into Existing Swale** - Connect linear swale into existing swale skirting community gardens.
7. **Piped Connection Into Wetland Floodway** - Potential to pipe filtered water into existing wetland system.

The Draft Statement of Commitments in **Section 5.2** includes a number of matters related to achieving the desired built form and urban design in the detailed design phase of the future Project/Development Applications.

4.3 Environmental and Residential Amenity

Each of the identified key environmental and residential amenity issues is addressed below:

- **Solar Access** – the concept layout and design has been influenced by a number of factors, including solar access. The proposed future residential flat buildings have been located and varied in height to maximise the number of dwellings with a northern orientation. A preliminary assessment of the indicative dwelling unit layout has been undertaken by Turner + Associates to confirm that the provisions of SEPP 65 can be satisfactorily addressed in the detailed design phase for the Project/Development Applications. Further, the proposed public open spaces and communal open spaces for residents have been located and designed to enjoy solar access throughout the year, including during the winter months. Illustrative shadow diagrams have also been prepared by Turner + Associates for winter (21 June), summer (21 December) and spring/autumn (21 March/September) at 9.00am, 12.00 noon and 3.00pm to enable an indicative assessment of the likely overshadowing, both within the site and on the adjoining residential properties. Similar to the above, this analysis has concluded that the proposal will be able to meet the detailed design requirements at the Project/Development Application stage.
- **Acoustic Privacy** - Acoustic Logic Consultancy Pty Ltd was engaged to prepare a Noise Impact Assessment that addresses the potential external noise impacts (primarily traffic noise) and the potential construction noise and vibration impacts during the building of the site. These matters are addressed in detail in **Section 4.14** of this report. Overall, this report concludes that the proposed development will be acceptable, subject to the implementation of the recommended mitigation and management measures. Each of these recommendations has been included within the Draft Statement of Commitments in **Section 5.2**.
- **Visual Privacy and View Loss** – the architectural documentation submitted with the Concept Plan application (refer to **Appendix D**) includes a comprehensive package of visual aids to assist with understanding of the potential visual impacts of the proposed development. These include massing views and sketches of the proposed scheme from a variety of viewpoints. Further, it is noted that the proposed development has been designed to maximise the number of dwellings which can enjoy the northern orientation, taking into account both solar access and views across Salt Pan Creek Reserve.
- **Wind Impacts** – Windtech Consultants Pty Ltd was prepared to review the potential wind impacts of the proposal. A copy of their statement is attached as **Appendix J**. The study concludes that the development proposed in the Concept Plan application will not likely cause any adverse wind effects. The following recommendations are made to provide adequate wind conditions for the outdoor trafficable areas within and around the site:
 - The species of trees selected for the footpaths along Kentucky Road, Green Street, the Through Site Link, and along Washington Avenue, should be of an evergreen and moderately well-foliating variety. The requirement for an evergreen species of tree is important for these areas since they could otherwise be exposed to the westerly winds, which tend to occur most frequently during the winter season for the Sydney region.

- The inclusion of the remaining proposed trees within and around the site will also assist in mitigating adverse winds.
- Private balconies should not be designed to be protruding from the corner of a building, where winds tend to be accelerated. If balconies are located near the corner of a building, it may be necessary to include a full-height screen along the side of the balcony (which will effectively transform the balcony into a single-aspect balcony). Impermeable balustrades may also be necessary for some of the private balconies.
- Care should be taken in the location of rooftop terrace areas, if these are to be part of the design. These types of areas are exposed to the prevailing winds and possibly even up-washed winds from the building façade below. A combination of impermeable balustrades, scattered vegetation and awnings/canopies may be necessary to mitigate adverse winds for these types of areas.
- As with any situation involving high-rise outdoor areas, the use of loose glass-tops and other light-weight sheets or covers (including loose BBQ lids) is not appropriate. Lightweight furniture is not recommended, unless it is securely attached to the balcony floor slab.

The report concludes that wind conditions for the private balconies and terraces should be investigated at the detailed design stage. However, it is anticipated that adoption of the above recommendations will mitigate any potential adverse wind conditions within the trafficable outdoor areas within or around the site. Each of the relevant recommendations has been included within the Draft Statement of Commitments in **Section 5.2**.

Overall, it is considered that the integrated approach to the design of the proposed renewal project will ensure a satisfactory level of environmental and residential amenity is achieved for both the existing residents on the adjoining and nearby land to the south and west and the future residents of the proposed buildings.

4.4 Staging

The development proposed in the Concept Plan application is to be staged. All development proposed within the Concept Plan application is anticipated to be completed within nine years.

The first stage is anticipated to be lodged in the near future as a Project Application and will include the three residential flat buildings (Buildings A, B and C) comprising the 150 social housing dwellings suitable for seniors. These dwellings will 'replace' the existing 176 social housing dwellings and as such, it is anticipated that there will be no additional population or 'demand' that would warrant an upgrade of existing services. The majority of the proposed public domain improvements are also proposed to be included within the first stage, including:

- Land swap with Council to facilitate improved pedestrian and bicycle connections from Riverwood to Salt Pan Creek Reserve.
- Embellishment of the existing and proposed public open spaces, including landscaping and stormwater management.
- Construction of garden square, including local roadworks within Kentucky Road, and the east-west accessway to the existing pedestrian bridge.
- Street tree planting and landscaping along Washington Avenue, Kentucky Road and Vermont Crescent.
- Construction of the north-south access streets between Washington Avenue and Kentucky Road.
- Any required infrastructure upgrades and site remediation (to be confirmed).

The next three stages comprise the construction of the residential flat buildings which will accommodate the dwellings to be made available for private sale. These stages will be constructed in response to market demand and other financial/commercial considerations.

It is acknowledged that the proposed increase in the existing residential population will require payment of contributions and/or negotiation of a voluntary planning agreement for the provision of local infrastructure.

4.5 Transport and Accessibility Impacts

Varga Traffic Planning Pty Ltd was engaged to prepare a Transport and Accessibility Study in accordance with each of the matters listed in the DGRs. A copy of the report is attached as **Appendix K**. The key points listed in the conclusion are listed below:

- *The site is ideally located in close proximity to a range of walking, cycling and public transport options.*
- *The site is also located in easy walking/cycling distance of a range of shops and services, including banks, post office and primary schools.*
- *Two new road links proposed within the site will improve permeability for pedestrians and cyclists.*
- *The site is also located immediately adjacent to a shared pedestrian and bicycle path with links to Bankstown, Padstow and Kingsgrove.*
- *The proposed development will not have any unacceptable traffic implications in terms of road network capacity, and does not generate a need for any upgrades or road improvements.*
- *The parking facilities incorporated in the development proposal will satisfactorily accommodate the needs of the proposed development.*

The adoption of the relevant car parking rates and implementation of the recommended mitigation measures is included within the Draft Statement of Commitments provided as **Section 5.2** of this report.

4.6 Social Impact Statement

Urbis was engaged to address the social considerations of the proposed renewal, having regard to both the existing surrounding residents and the potential new residents which may be more vulnerable members of the community. A copy of the Social Impact Review is attached as **Appendix L**. The key points arising from the social impact research and analysis is summarised below:

- A comprehensive overview of the key social and demographic characteristics of the local community has been undertaken, including the renewal area, the suburb of Riverwood and the Canterbury Local Government Area and in comparison to the broader averages across the Sydney Statistical Division. Key points arising from this analysis include the older and ageing population, the significant proportion of lone person households and high level of social and economic disadvantage within the renewal area.
- The demographic analysis also indicated that the existing residential population is culturally diverse, with 45% of residents born overseas. The two main countries of origin are Lebanon (9.4%) and China (8%). The community consultation undertaken to date by Housing NSW and Payce Communities Pty Ltd has included specific consultation with the local Arabic and Chinese community, in addition to the broader local community, to identify specific issues of concern which need to be addressed in the detailed design phase.
- The social housing dwellings are to be developed in Phase 1 on the eastern part of site. This location is considered to be entirely appropriate taking into account its proximity to public transport services along Belmore Road and local community services, including the Riverwood Community Centre, Riverwood Senior Citizens Club and Riverwood Indoor Sports and Fitness Centre. The residential flat buildings to the north and west will be made available for private sale. The social housing dwellings will be managed by St George Community Housing, while the private dwellings will be managed through separate residential strata schemes.

- The Social Impact Review has undertaken a comprehensive audit of existing local social infrastructure. It can be seen that the renewal is well serviced by existing community, educational, open space/recreation, retail and transport facilities. The proposed renewal may result in a positive impact arising from the likely changes to the current demographic profile, including a potential reversal of the current declining student numbers at local schools.
- Community and stakeholder consultation is well advanced, including engagement with residents and the local community, service providers, Canterbury City Council and the Department of Planning. A number of social, health and safety issues have been identified and are responded to as follows:
 - Ongoing community consultation will be held with residents and the local community during the detailed design phase, demolition and construction phases to provide additional information regarding the future dwelling types/designs, likely timing and duration of the project phases and the opportunities to provide additional social infrastructure by way of a Voluntary Planning Agreement with Canterbury City Council (refer to **Section 4.8**).
 - The conceptual design and layout includes additional pedestrian and bicycle connections to encourage walking and cycling as a means of transport. These include improved linkages to the existing public open spaces and community facilities to encourage existing and future residents to make use of local recreational opportunities.
 - A Crime Prevention Through Environmental Design report will be required to accompany the Project/Development Applications for each of the future phases to ensure that safety and security issues are addressed in detail.

The Draft Statement of Commitments in **Section 5.2** includes the relevant recommendations listed within the report.

4.7 Ecologically Sustainable Development (ESD)

Windtech Consultants Pty Ltd was engaged to provide the Ecologically Sustainable Development (ESD) principles to be incorporated into the design, construction and ongoing operation of the proposed Concept Plan. A copy of their statement is attached as **Appendix M**. The ESD initiatives identified in their statement are listed below:

- **Energy and Thermal Efficiency**
 - Solar panels for the hot water systems.
 - Solar shading devices to openings and louvres.
 - Insulation to walls and exposed ceilings.
 - Gas cooktops and electric ovens.
 - Energy efficient appliances.
 - Light motion sensors throughout all common areas.
 - The architectural design principle is to maximise daylight access, and hence minimise the reliance on artificial lighting.
 - Energy efficient ballasts.
 - Energy efficient globes.
 - Clothes drying areas.
 - Transport – minimise car parking to encourage use of public transport, and provision of bike racks for each building.

- **Passive Design**

- Natural cross-flow ventilation to habitable rooms.
- Orientation of the units/buildings to maximise solar access.

- **Materials**

- Feature elements made from recycled materials (ie: railways sleepers in landscaped areas, and recycled timber panels in the main lobbies).
- Low VOC content for paints and sealants.
- Reuse some of the existing bricks from the site (subject to structural integrity).
- High level of acoustic performance to be achieved with internal noise levels in habitable rooms designed not to exceed 40dB.

- **Water**

- Rainwater harvesting for WC's and irrigation.
- Water efficient appliances (minimum 3 star WELS rating).
- Dual flush toilet suite.
- Landscape using water-efficient, drought-tolerant, and indigenous species.
- Moisture sensors within irrigation system.
- First flush filtration pits for stormwater discharge.
- Individual water meters per apartment.

- **Waste Management**

- Worm farming facilities.
- Composting.
- Recycling of household waste.
- Recycling and sorting of construction waste.

The report concludes that incorporation of these ESD principles will enable BASIX to be satisfied in the detailed design phase of the project. BASIX certificates will be required to be submitted with the future Project/Development Applications. Further confirmation will also be required with regard to the compliance of the detailed architectural drawings in the future phases with the relevant design principles listed in SEPP 65 (eg solar access, daylight access, natural cross-flow ventilation, acoustics, etc). Each of these matters is incorporated into the Draft Statement of Commitments in **Section 5.2**.

4.8 Contributions

Canterbury City Section 94 Contributions Plan 2005 (Section 94 Plan) levies a range of contributions for residential development within the LGA. The required levies depend on the size of the dwelling – small (less than 60m² and no more than one bedroom), medium (60-90m² and no more than two bedrooms) and large (greater than 90m² and over two bedrooms). These contributions are provided in **Table 3**.

Table 3 – Section 94 Contributions – Residential Development

	Small Dwelling		Medium Dwelling		Large Dwelling	
	Base Levy	CPI Adjusted	Base Levy	CPI Adjusted	Base Levy	CPI Adjusted
Open Space Acquisition	\$3,099.84	\$3,464.57	\$4,456.02	\$4,980.32	\$6,780.90	\$7,578.77
Recreation Facilities	\$520.23	\$581.44	\$747.83	\$835.82	\$1,138.00	\$1,271.77
Community Facilities and Services	\$1649.50	\$1,843.58	\$2,371.16	\$2,650.16	\$3,608.29	\$4,032.85
Environmental Amenity Improvements	\$642.43	\$718.03	\$923.50	\$1,032.16	\$1,405.32	\$1,570.67
Traffic Control and Management	\$109.43	\$122.30	\$157.31	\$175.83	\$239.38	\$267.55
Contribution (per dwelling)	\$6,021.43	\$6,729.92	\$8,655.81	\$9,674.29	\$13,171.89	\$14,721.75

The contributions payable in accordance with the above table would need to be calculated at the Project/Development Application phase, taking into account the detailed architectural drawings. A credit would be applied taking into account the existing 176 social housing dwellings within the renewal site. As a result, it is unlikely that any contributions would be payable to facilitate the first phase of the project which includes 150 social housing dwellings suitable for seniors.

However, an alternative approach is being considered with regard to the delivery of social infrastructure that will benefit the local and wider community. Discussions are well advanced with Canterbury City Council with regard to the potential opportunity to relocate the existing Riverwood Library to the corner of Washington Avenue and Kentucky Road, adjacent to the renewal area. Other facilities to be incorporated into the proposed library could also include a new Senior Citizens Club and a café that would provide local training and employment opportunities. Such an approach would require the proponent and Council and the proponent to enter into a Voluntary Planning Agreement.

The Draft Statement of Commitments in **Section 5.2** makes allowance for either payment of Section 94 contributions in accordance with the relevant Plan or negotiation of a voluntary planning agreement for an amount equivalent to or greater than the relevant Section 94 contribution.

4.9 Heritage

The Phase 1 Environmental Site Assessment (refer to **Section 4.1.4**) included a review of the site history and found that the site has been owned by the Housing Commission of NSW since 1946. Prior to 1946, the site was owned by private citizens and used as rural/residential land and also a wartime hospital.

There are no heritage items within the site boundaries or in close proximity of the site. The site is also unaffected by any conservation area listings.

Based on the past demolition and earthworks associated with the post-war redevelopment of the site for residential flat buildings, it is considered unlikely that the site has any heritage significance that would warrant further assessment.

Accordingly, it was not considered necessary to prepare a statement of significance and/or an assessment of the heritage impact.

4.10 Aboriginal Heritage

Biosis Research was previously engaged by Housing NSW to undertake a preliminary heritage and archaeological assessment of the development site. This assessment included heritage register searches to identify any previously recorded cultural heritage sites within the survey area and a site visit to assess the archaeological potential of the site. A copy of the Biosis report is attached as **Appendix N**. The key findings are provided below:

The study area has been impacted in the past through the construction of the military hospital in the 1940s and later upgrades to housing. Construction of roads and installation of other services would also have contributed to the disturbance of land in this area.

The area was assessed to have low potential for archaeological deposit, although there is still the possibility that artefacts are present in this area. No surface artefacts were present at the site.

During the site visit, Ian Edwards, from the GLALC, identified several mature gum trees as being of cultural significance to Aboriginal people. He expressed concern that these trees might be affected by the proposed development. He did not identify any other archaeological or cultural values within the study area.

The proposed development site at Riverwood North is located within the boundaries of the 1943 US Army 118 General Hospital. The site visit did not reveal any evidence of historic archaeological potential, although there is the possibility that subsurface historic relics may be present.

No heritage landscape and streetscape values were identified in the study area.

The report recommends that should Aboriginal objects and/or historic relics be encountered during works, all works are to cease in the vicinity of the find and an Aboriginal and/or historic archaeologist be contacted to assess the find. The Gandangara Local Aboriginal Land Council has also requested that the native gum trees at this site are not disturbed during works. Each of these matters is incorporated into the Draft Statement of Commitments in **Section 5.2**.

The provisions of the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005 have been assessed, taking into account the previous work undertaken by Biosis. The following points are reiterated, taking into account the documentation requirements for a Preliminary Assessment in accordance with the Draft Guidelines:

- The renewal area is located within an established residential suburb. The project is considered unlikely to have an impact on Aboriginal cultural significance taking into account the extensive site disturbance arising from the past use of the site as a military hospital and for housing. Provision has been made in the Draft Statement of Commitments for cessation of works and appropriate investigations to be undertaken in the unlikely event that relics are encountered.
- Input has been sought from potentially affected Aboriginal communities and their requests regarding retention of the mature gum trees have been incorporated into the final design and Concept Plan application. Provision has been made in the Draft Statement of Commitments for the appropriate protection of these trees during the construction process, if considered necessary.

The findings of the Preliminary Assessment indicate that there is unlikely to be an impact on Aboriginal cultural heritage values and as such, no further assessment was considered to be warranted.

4.11 Drainage

Warren Smith & Partners was engaged to prepare a Stormwater Management Plan for the staged renewal of the site. A copy of the Concept Application Design Report is attached as **Appendix F**. The key findings and recommendations outlined in the report are summarised below:

- The report aims to identify and address the following infrastructure issues and proposed solutions with respect to:-
 - Municipal overland flow and flooding
 - Existing Council drainage
 - Water Sensitive Urban Design (WSUD)
 - Building On-Site Detention
 - Building rainwater reuse
 - Water supply
 - Gravity sewer reticulation
 - Building Natural Gas Service
 - Domestic Fire Hydrant Service
 - Domestic Cold Water Service and Fire Hose Reels
 - Domestic Hot Water Service
- The site has been developed and grades from south to north with levels varying from 18.0m to 10.3m AHD.
- Stormwater for harvesting and reuse shall require pre-treatment to remove gross pollutants, including litter, organic matter and coarse sediment before it enters storage or downstream treatment measures.
- On-Site Detention (OSD) is to be provided by a series of in-ground tanks located within or adjacent to the envelope of each building. A number of tanks may also be suspended beneath ground floor deck level. A new detention basin is proposed in the proposed public reserve to the north. This basin is to be one metre deep and will replace the existing basin which provides storage over a large area of the site during major storm events.
- OSD has been designed in accordance with Council's requirements, including:
 - Permissible Site Discharge (PSD) shall be limited to 150 litres per hectare
 - A minimum of 75% of the entire site must drain through the storage area
 - The design shall incorporate provision for on-site storage resulting from a storm with an ARI of:
 - 10 years where overland flow paths are not through private property. A weir shall be designed to direct the 100 year discharge to the street drainage system
 - 100 years where overland paths are through private property and/or known flooding problems occur
- The OSD system has been designed with no overflows occurring during the 10 Year ARI storm as the tank overflows shall travel overland and not enter private properties before entering Salt Pan Creek. The PSD for Tanks 1-8 have been designed to limit the discharge to 75 litres per hectare and offset the volume of OSD that is required to be provided in the Detention Zone.

- The overall philosophy for drainage is as follows:-
 - Provision of a network of bio-retention swales with a nominal width of 3.0 metres to remove nutrients and coarse sediments
 - Provision of a Humes 'Humeceptor' hydrodynamic separator to remove hydrocarbons and fine sediments
- Surface runoff will be collected within the swale up to the 1 in 10 Year event and will filter through the drainage medium and be collected within low flow pipes. Vegetation will be required to achieve the percent removal rate for nitrogen (in conjunction with the Humeceptor GPT).
- Hydraulic Services have been designed to conform with relevant authorities and code requirements and include:
 - Drainage
 - Sewer Drainage
 - Rainwater Downpipes and Roof Outlets
 - Sanitary Plumbing
 - Domestic Cold Water Service including Fire Hose Reels
 - Rainwater Reuse
 - Domestic Hot Water
 - Natural Gas Service
 - Fire Hydrant Service
- A variety of sustainability measures are included within the hydraulic services including (but not limited to) the following:
 - Five star rated flow control devices will be provided within each tap set to limit the amount of water outflow from taps to reduce water wastage.
 - An inground rainwater reuse tank will be installed to each building to collect rainwater from downpipes from the roof areas.
 - Rainwater will be utilised for WC flushing and irrigation. The tank will be topped up from the potable domestic cold water service supply at 10% storage capacity, ensuring the tank will always have at least 90% tank capacity for filling from the next rainfall event.
 - Domestic hot water plant for each building will include solar hot water heating and storage with natural gas heating to provide adequate domestic hot water at times of heavy cloud cover.
 - Five star rated flow control devices will be provided within each tap set to limit the amount of water outflow from taps to reduce water wastage.

The implementation of the Concept Plan Application Design Report in the future Project/Development Applications is included within the Draft Statement of Commitments provided as **Section 5.2** of this report.

4.12 Flooding

The Concept Application Design Report prepared by Warren Smith & Partners referred to in **Section 4.11** (and attached as **Appendix F**) also includes a flood study.

The study was based on hydrological analysis of the catchment discharging into and through the development site in an existing and proposed scenario. The report estimates the 10 and 100 Year ARI catchment peak discharges in relation to local area rainfall and runoff, taking into account drainage models for the following scenarios:

- *Existing Catchment Model estimating flows discharging into Salt Pan Creek from the existing development and upstream catchment in their current state*
- *Proposed Model estimating flows discharging into Salt Pan Creek from the proposed development and upstream catchment in the redeveloped state*

The flood study concludes:

- *An overflow of 0.688m³/sec occurs from the detention basin during the 100 Year ARI. The V*D product for this overflow is 0.04 which is well below the requirements of the NSW Floodplain Development Manual. This overflow shall occur for a storm duration of 60 minutes and above.*
- *The total discharge during the 10 Year ARI storm for the proposed development is 0.314m³/sec which is less than the pre-development flow of 0.357m³/sec.*

The implementation of the Concept Application Design Report in the future Project/Development Applications is included within the Draft Statement of Commitments provided as **Section 5.2** of this report.

4.13 Utilities

The Concept Application Design Report prepared by Warren Smith & Partners referred to in **Section 4.11** (and attached as **Appendix F**) includes advice regarding the provision of water, sewer and gas as summarised below:

- **Water** - Sydney Water currently have water mains available for domestic cold water services and fire hydrant services water supply which are interconnected and form part of an overall ring main system.
- **Sewer** - the existing 225mm diameter reticulation sewer will be extended to provide a Sydney Water-owned sewer service to each of the proposed lots. It is anticipated that the size of this sewer system will vary from a minimum of 150mm up to 225mm. Only the residential lots are required to be serviced.
- **Natural Gas** - the Jemena natural gas main will be extended from the corner of Kentucky Road and Washington Avenue along Kentucky Road and Vermont Crescent to provide a natural gas supply to each building.

Additional advice was sought from Shelmerdines Consulting Engineers regarding the provision of electrical and telecommunications infrastructure. A copy of their advice and associated plans are attached as **Appendix O**. The key findings are summarised below

- **Electrical** – infrastructure will need to be upgraded and relocated to meet the maximum demand of the development. Initial advice from Energy Australia suggests the three existing substations within the site will need to be decommissioned and removed. The existing Riverwood zone substation and high voltage network is near full capacity and the existing high voltage network will need to be upgraded to meet the expected electrical load for the development. All new infrastructure will be underground and the development will be served from three padmount substations located within the site. Further confirmation will be sought from Energy Australia with regard to the proposed approach once the application has been progressed.

- **Telecommunications** – the existing communications cable infrastructure that provides telephone and internet services will need to be decommissioned and removed. Multiple underground communications conduits and pit systems are proposed to be installed, allowing for future installation of both copper communications cables and optical fibre communications cables from available carriers and providers. Pay television will be available via satellite dish or coaxial cable, depending on further investigations with the service providers.

The upgrade of existing services will be undertaken as part of the future Project/Development Applications is included within the Draft Statement of Commitments provided as **Section 5.2** of this report.

4.14 Noise and Vibration

Acoustic Logic Consultancy Pty Ltd was engaged to prepare a Noise Impact Assessment that addresses:

- Potential external noise impacts (primarily traffic noise) and recommend acoustic treatments to ensure that a reasonable level of amenity is achieved for future tenants.
- Potential construction noise and vibration impacts during the building of the site.

A copy of the Noise Impact Assessment is attached as **Appendix P**. The key findings and recommendations outlined in the report are summarised below:

- Significant noise sources in the vicinity of the site include the M5 Motorway to the north and Belmore Road to the east.
- A preliminary review of traffic noise intrusion confirms that compliance with acoustic guidelines is achievable with upgraded single glazing with acoustic seals as outlined in the following table:

Table 4 – Recommended Noise Mitigation Measures

Room Type	Glazing Thickness	Acoustic Seals
Bedrooms	6mm Float	Yes
Living Rooms	6mm Float	Yes
Wet Areas	4mm Float	No

- Further to the above, the STC rating of the glazing fitted into openable frames and fixed into the building opening should not be lower than the values listed in the following table. Where nominated, this will require the use of acoustic seals around the full perimeter of openable frames and the frame will need to be sealed into the building opening using a flexible sealant. Mohair seals in windows and doors are not acceptable where acoustic seals are required.

Table 5 – Recommended Noise Mitigation Measures

Glazing Assembly	Acoustic Seals	Minimum STC of Installed Window
6mm Float	Yes	28
6mm Float	No	22

- The application of the standard criteria DECC environmental criterion to a major construction site represents a non-workable and unrealistic approach - it is practically impossible to reduce noise emissions from these activities to a standard such as 5dB(A) above background.

- AS2436-1981 provides a practical and acceptable application for the control of construction noise, requiring:
 - That reasonable suitable noise criterion is established.
 - That all practicable measures are taken to regulate noise emissions, including siting of noisy static processes on parts of the site where they can be shielded and selecting less noisy processes.
 - Undertaking noise monitoring to assist in the management and control of noise emissions from building sites.
- The report assumes that work will be undertaken during normal construction hours:
 - Between 7:00am and 6:00pm, Mondays to Fridays inclusive;
 - Between 7:00am and 4:00pm, Mondays to Fridays inclusive for vehicles over 8 tonne;
 - Between 7:00am and 4:00pm, Saturdays, if inaudible on residential premises and between 8:00am and 1:00pm, Saturdays, if audible on residential premises;
 - No work on Sundays and public holidays.
- It is anticipated that works will fully comply with suitable noise control criteria during these hours. Activities will be carefully managed and appropriate noise mitigative measures will be strictly implemented where required. The formulation of noise management plans for the various activities will arise from the assessment carried out in this report and the strict enforcement of all determined control measures.
- A range of noise control mitigation measures are proposed, including:
 - Selection of alternate appliance or process for piling - CFA/Bored piling will be utilised where practical to minimise impact driven piling and reduce noise levels at the receivers by up to 15dB(A).
 - Selection of alternate appliance or process for excavation - where practical, alternative quieter process will be utilised in order to limit noise emissions to receivers.
 - Provision of acoustic barrier - noise barriers or screens can be located either at the source or receiver. Barriers are to be constructed from materials which have a noise reduction performance which is approximately 10dB(A) greater than the maximum reduction provided by the barrier. Where the barrier obscures the line of sight, noise reduction of approximately 5 to 10 dB(A) will be achieved at the locater site.
 - Silencer devices - all main appliances will be fitted with silencing devices with either engine shrouding or special industrial silencers fitted to exhausts to enable noise reductions of 10-20 dB(A).
 - Material handling - material handling areas will be located away from residential receiver areas.
 - Treatment of specific equipment - it may be possible to specially modify a piece of equipment to dramatically reduce sound levels.
 - Establishment of site practices – a noise plan will be developed for this project outlining work procedures and methods for minimising noise. This plan will target work practices and worker behaviour.
- A fortnightly noise check will be undertaken to determine the requirement for silencing devices on machinery. Items such as mufflers and engine shrouds will be examined to ensure they are in good working order. A record will be kept to maintain noise at constant levels and prevent any increases.

- Continual communication will establish a dynamic response process and allow for the adjustment of control methods and criteria for the benefit of all parties. The objectives of the communication programme are:
 - Inform and educate the groups about the project and the noise controls being implemented.
 - Increase understanding of all acoustic issues related to the project and options available.
 - Identify group concerns generated by the project, so that they can be addressed.
 - Ensure that concerned individuals or groups are aware of and have access to the Complaints Register which will be used to address any construction noise related problems should they arise.

Regular scheduled meetings will be required for a finite period, until all issues have been addressed and the evidence of successful implementation is embraced by all parties.

- Should ongoing complaints of excessive noise or vibration criteria occur, immediate measures shall be undertaken to investigate the complaint, the cause of the non-compliances and identify the required changes to work practices. In the case of a non-compliance with vibration limits, all work potentially producing vibration shall cease until the non-compliance is investigated. The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the non-compliances are not repeated. If a noise complaint is received the complaint should be recorded on a Noise Complaint Form.

The above recommended measures have been included within the Draft Statement of Commitments provided as **Section 5.2** of this report.

4.15 Waste

A waste management plan has been prepared by Dasco Australia Pty Ltd and is held as **Appendix Q**. The key initiatives outlined in this report are listed below:

- **Excavation Materials** - approximately 11,000m² of excavated material will be removed over a 10 week period. The excavation process will involve the clearing of the topsoil and excavation of ground and basement levels. Excavators will be used to extract material from the site. Benching will be carried out as required during the excavation process. Water hoses will be used for dust mitigation and all vehicles will have loads covered prior to leaving the site to prevent dust and dirt being tracked out onto the street.
- **Piling and Slab** - careful ordering of concrete will result in minimum waste. Any unforeseen waste will be utilised in providing all weather access driveways and paths. Steel waste from reinforcement and all timber waste formwork will be recycled at an off-site facility.
- **Structural Phase** - brick and mortar waste will be deposited in skip bins transport to an off-site recycling facility. General waste will be separated into designated bins for off-site disposal.
- **Roof Phase** - metal and timber waste will be recycled at an off-site facility.
- **Finishes Phase** – waste generated from rendering, tiling, joinery and painting be separated into designated waste bins for off-site disposal.
- **Landscaping** - the major waste generated in this phase will be bricks and mortar, which will be recycled and disposed of at off-site facilities.
- **Construction Traffic Management** - designated truck routes will be provided during the construction phase so that truck movements to and from the site will be restricted to the main road network. Appropriate temporary signage will be erected to direct construction traffic onto and off of the site. A Traffic Control Plan will be provided to Canterbury City Council prior to works commencing on site.

- Operational Phase - there will be three separate categories of waste streams for the development - garbage, recyclables and green waste. Residential waste generated per unit is calculated in accordance with Canterbury Council Waste Info Kit.
 - 240 litre wheelie bins for household (putrescible) - 1 per 2 units per week.
 - 240 litre wheelie bins for recyclables - 1 per 3 units per fortnight.
 - 240 litre wheelie bins for green waste -1 per 5 units per fortnight
- Bins will be stored within garbage rooms within 15 metres of direct access to the road.

Implementation of the Waste Management Plan as part of the future Project/Development Applications is included within the Draft Statement of Commitments provided as **Section 5.2** of this report.

4.16 Consultation

In addition to ongoing discussions with Housing NSW, the Minister for Housing and the Minister for Lakemba, ongoing discussions have been held with key stakeholders and the community as outlined below:

- **NSW Planning** – in addition to the preliminary briefing regarding the proposal, ongoing discussions were held with NSW Planning regarding the request for a Clause 6 declaration and Concept Plan authorisation and the issue of the Director-General's Environmental Assessment Requirements.
- **Roads and Traffic Authority NSW** -a similar approach was undertaken with the Roads and Traffic Authority. A preliminary briefing was arranged to enable the RTA to understand the proposal and for the proponent to fully understand the level of traffic assessment to be required in association with the Environmental Assessment.
- **Utility providers** – consultation with the relevant servicing authorities is addressed in **Section 4.13** of this report. It is anticipated that there will be ongoing consultation following approval of the Concept Plan and as the Project Application for Phase 1 is progressed.
- **Canterbury City Council** - ongoing discussions and briefings have been held Council regarding the proposed renewal of Riverwood North. A series of meetings were held with the General Manager and each of the Department Directors of Canterbury City Council to provide a briefing of the proposed renewal and to fast-track the consideration of the draft Director-General's Environmental Assessment Requirements.
- **Local community** - local stakeholders and existing social housing tenants have been provided with information regarding the proposed renewal. A website (www.riverwoodnorth.com.au) has also been established to provide information and seek input from the community regarding the proposed development plans.

It is anticipated that further community consultation will be undertaken once the Environmental Assessment has been lodged and the dates for public exhibition have been confirmed. An information display will be provided either on or in close proximity of the site. Consultation workshops will also be held with social housing tenants, both from within the renewal area and surrounding areas.

5 Impact Assessment

5.1 Assessment of Potential Impacts

5.1.1 Environmental

The potential environmental impacts of the proposed renewal have been identified and assessed in detail in **Section 4**, including:

- The bulk, height and sale of the proposed development is comparable to the existing residential flat buildings to the south and are unlikely to result in any significant visual or view impacts.
- The future buildings have been located and designed to achieve adequate levels of solar access and minimise overshadowing impacts to facilitate future compliance at the detailed Project/Development Application Stage for the future phases.
- The potential acoustic and visual privacy impacts, taking into account impacts within the renewal area, impacts on the adjoining residential properties and traffic noise impacts from Belmore Road and the M5 Motorway. Recommended measures to mitigate the potential acoustic impacts during the detailed design/construction phase are included within the noise impact assessment.
- Wind impacts arising from the proposed built form have been assessed and the report recommendations will be implemented in the future detailed design phase to avoid any potential adverse impacts.
- Traffic impacts on the local road network and key intersections in the local area have been thoroughly assessed and it has been confirmed that the project will not result in any significant impacts.
- Sustainable transport measures have been recommended to encourage the use of alternative forms of transport, including walking, cycling and public transport.
- Increased demand for services (ie water, sewer, electricity, gas and telecommunications) arising from the increased residential population will be appropriately managed through consultant with relevant providers and the staged upgrade of existing services.
- Stormwater impacts arising from the increased hardstand area will be off-set through the implementation of the proposed Stormwater Management Plan, including the use of Water Sensitive Urban Design measures in the landscape treatment.
- A Phase 1 Environmental Site Assessment has been undertaken (refer to **Appendix F**) to understand the current site context and provide recommendations for further analysis of site contamination at the detailed Project/Development Application stage.
- Preliminary geotechnical analysis has also be undertaken (refer to **Appendix R**) to understand the existing site conditions and provide recommendations for further analysis during the construction phase of the project.
- Waste generation from the construction and operational phases of the development will be minimised through the adoption of appropriate management procedures, with recycling of waste maximised where re-use is not possible.

The Draft Statement of Commitments in **Section 5.2** includes each of the recommended initiatives to mitigate and/or manage the potential environmental impacts of the proposal.

5.1.2 Social

A comprehensive assessment of the potential social impacts arising from the proposed residential renewal was undertaken by Urbis, as outlined in detail in **Section 4.6** of this report.

A number of initiatives have been included within the Draft Statement of Commitments to ensure that potential impacts are appropriately assessed during the detailed design and assessment of the future Project/ Development Applications.

5.1.3 Economic

The proposed renewal is anticipated to have a number of positive economic impacts, including:

- Direct and indirect employment opportunities arising during the construction phase of the project.
- Associated economic benefits arising from increased local spending during the construction phase of the project and as a result of the expanded residential population.
- Potential training and employment opportunities that will be addressed in the voluntary planning agreement that is to be entered into with Canterbury City Council.

5.2 Draft Statement of Commitments

Built Form and Urban Design

1. The architectural drawings required to be lodged with the future Project/Development Applications are to be generally consistent with the Concept Plan Submission prepared by Turner + Associates.
2. The landscape drawings required to be lodged with the future Project/Development Applications are to incorporate Water Sensitive Urban Design measures, taking into account the opportunities identified in the Landscape Proposal prepared by Turf Design.

Environmental and Residential Amenity

3. Shadow diagrams demonstrating the potential overshadowing impacts of the proposed buildings on 21 June, 21 December and 21 March/September at 9.00am, 12.00noon and 3.00pm are to be prepared and lodged with the future Project/Development Applications.
4. The detailed design of the development proposed in the future Project/Development Applications is to incorporate the following recommendations to avoid adverse wind impacts:
 - The species of trees selected for the footpaths along Kentucky Road, Green Street, the Through Site Link, and along Washington Avenue, should be of an evergreen and moderately well-foliating variety. The requirement for an evergreen species of tree is important for these areas since they could otherwise be exposed to the westerly winds, which tend to occur most frequently during the winter season for the Sydney region.
 - The inclusion of the remaining proposed trees within and around the site will also assist in mitigating adverse winds.
 - Private balconies should not be designed to be protruding from the corner of a building, where winds tend to be accelerated. If balconies are located near the corner of a building, it may be necessary to include a full-height screen along the side of the balcony (which will effectively transform the balcony into a single-aspect balcony). Impermeable balustrades may also be necessary for some of the private balconies.
 - Care should be taken in the location of rooftop terrace areas, if these are to be part of the design. These types of areas are exposed to the prevailing winds and possibly even up-washed winds from the building façade below. A combination of impermeable balustrades, scattered vegetation and awnings/canopies may be necessary to mitigate adverse winds for these types of areas.
 - As with any situation involving high-rise outdoor areas, the use of loose glass-tops and other light-weight sheets or covers (including loose BBQ lids) is not appropriate. Lightweight furniture is not recommended, unless it is securely attached to the balcony floor slab.

Staging

5. The first Project Application will include the three residential flat buildings comprising the 150 social housing dwellings suitable for seniors adjacent to the corner of Washington Avenue and Kentucky Road.

Transport and Accessibility Impacts

6. Car parking is to be provided in accordance with the following rates:
 - Social housing - 1 space per 10 dwellings
 - Private dwellings: 1 bed dwelling – 1 space, 2 bed dwelling – 1.5 spaces and 3 bed dwellings – 2 spaces
 - Visitors – 1 space per 6 apartments
7. Sustainable transport measures are to be implemented in Stage 1 of the renewal process, including:
 - Establish high quality and efficient pedestrian and cycle links to existing routes.
 - Incorporate fibre/internet connections to each dwelling
 - Community education to support public transport initiatives, including information packs for residents that identify walking, cycling and public transport options.

Social Impacts

8. A Crime Prevention Through Environmental Design Assessment report is to be prepared at the Project/Development Application stage for each of the future stages.
9. The proponent will undertake community capacity-building activities, which may include hosting community events, establishing a social committee, undertaking a social research project, developing a social inclusion framework, development an on-line community portal and/or promoting other community based activities. Details are to be provided in the future Project/Development Applications for the future stages.

Ecologically Sustainable Development (ESD)

10. The ESD memorandum prepared by Windtech Consultants Pty Ltd is to be incorporated into the detailed design for the future Project/Development Applications to enable compliance with State Environmental Planning Policy (Building Sustainability Index: BASIX) 2004 and State Environmental Planning Policy No 65 – Design Quality of Residential Flat Development.

Contributions

11. Section 94 contributions are to be payable to facilitate Construction Certificate release for the future Project/Development Application approvals. Alternatively, a voluntary planning agreement for an amount equivalent to or greater than the relevant Section 94 contribution for the total number of dwellings approved by way of the Concept Plan or on a staged basis.

Aboriginal Heritage

12. Should Aboriginal objects and/or historic relics be encountered during works, all works are to cease in the vicinity of the find and an Aboriginal and/or historic archaeologist be contacted to assess the find.
13. Housing NSW is not to disturb the native gum trees located within the public open space in the centre of Vermont Crescent. Details of any required tree protection measures are to be provided with the construction certificate(s) for works within or in close proximity to these trees or for any works that could potentially impact on these trees (eg installation of mobile cranes, use of heavy vehicles or the like).

Drainage and Flooding

14. The Stormwater Management Plan is to be implemented in the detailed stormwater design for individual stages and documented within the future Project/Development Applications.

Utilities

15. Utility services are to be upgraded during the appropriate phase of the project, taking into account the requirements of Sydney Water, Energy Australia, Jemena and other service providers.

Noise and Vibration

16. Upgraded single glazing with acoustic seals is to be provided as outlined in the following table:

Room Type	Glazing Thickness	Acoustic Seals
Bedrooms	6mm Float	Yes
Living Rooms	6mm Float	Yes
Wet Areas	4mm Float	No

17. The STC rating of the glazing fitted into openable frames and fixed into the building opening should not be lower than the values listed in the following table. Where nominated, this will require the use of acoustic seals around the full perimeter of openable frames and the frame will need to be sealed into the building opening using a flexible sealant. Mohair seals in windows and doors are not acceptable where acoustic seals are required.

Glazing Assembly	Acoustic Seals	Minimum STC of Installed Window
6mm Float	Yes	28
4mm Float	No	22

18. Work will be undertaken during normal construction hours:
- Between 7:00am and 6:00pm, Mondays to Fridays inclusive;
 - Between 7:00am and 4:00pm, Mondays to Fridays inclusive for vehicles over 8 tonne;
 - Between 7:00am and 4:00pm, Saturdays, if inaudible on residential premises and between 8:00am and 1:00pm, Saturdays, if audible on residential premises;
 - No work on Sundays and public holidays.
19. A noise management plan will be prepared including appropriate noise control measures to facilitate compliance with AS2436-1981, which could include:
- Selection of alternate appliance or process for piling - CFA/Bored piling will be utilised where practical to minimise impact driven piling and reduce noise levels at the receivers by up to 15dB(A).
 - Selection of alternate appliance or process for excavation - where practical, alternative quieter process will be utilised in order to limit noise emissions to receivers.
 - Provision of acoustic barrier - noise barriers or screens can be located either at the source or receiver. Barriers are to be constructed from materials which have a noise reduction performance which is approximately 10dB(A) greater than the maximum reduction provided by the barrier. Where the barrier obscures the line of sight, noise reduction of approximately 5 to 10 dB(A) will be achieved at the locater site.

- Silencer devices - all main appliances will be fitted with silencing devices with either engine shrouding or special industrial silencers fitted to exhausts to enable noise reductions of 10–20 dB(A).
- Material handling - material handling areas will be located away from residential receiver areas.
- Treatment of specific equipment - it may be possible to specially modify a piece of equipment to dramatically reduce sound levels.
- Establishment of site practices – eg fortnightly noise checks, regular scheduled meetings for a finite period, complaints handling procedures.

Waste

20. The waste management plan prepared by Dasco Australia Pty Ltd is to be implemented in the construction and operational phases of the future buildings.

Site Contamination and Geotechnical

21. A Phase 2 Environmental Assessment is to be undertaken prior to approval of the Project/Development Applications for individual stages.
22. The recommendations listed in the Geotechnical Assessment prepared by Jeffrey & Katauskas Pty Ltd are to be implemented in the construction phase of the future buildings.

Consultation

23. Ongoing community consultation will be held with residents and the local community during the detailed design phase, demolition and construction phases to provide additional information regarding the future dwelling types/designs, likely timing and duration of the project phases and the opportunities to provide additional social infrastructure, potentially by way of a Voluntary Planning Agreement with Canterbury City Council

Sydney

Level 21, 321 Kent Street
Sydney, NSW 2000
Tel: +612 8233 9900
Fax: +612 8233 9966

Brisbane

Level 12, 120 Edward Street
Brisbane, QLD 4000
Tel: +617 3007 3800
Fax: +617 3007 3811

Melbourne

Level 12, 120 Collins Street
Melbourne, VIC 3000
Tel: +613 8663 4888
Fax: +613 8663 4999

Perth

Level 1, 55 St Georges Terrace
Perth WA 6000
Tel: +618 9346 0500
Fax: +618 9221 1779

Australia • Asia • Middle East
www.urbis.com.au
info@urbis.com.au