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Yousheng Li / Amber Nehal	26 August 2021	Anna Nowland / Michael Rowe	26 August 2021
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DSC Consulting

Statement of Validity

Development Application Details

Applicant name	Land and Housing Corporation
Applicant address	Locked Bag 4009 Ashfield BC NSW 1800
Land to be developed	Ivanhoe Estate, Macquarie Park
Proposed development	Stage 2 of the detailed design and construction of Ivanhoe Estate, as detailed in Section 3.0 of this EIS

Prepared by

Name	Anna Nowland	Michael Rowe
Qualifications	BPlan (Hons 1)	BPlan (Hons 1)
Address	173 Sussex Street, Sydney	
In respect of	Stage 2, Ivanhoe Estate, State Significant Development - Development Application	

Certification

I certify that I have prepared the content of this EIS and to the best of my knowledge:

- it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000;
- all available information that is relevant to the environmental assessment of the development to which the statement relates; and
- the information contained in the statement is neither false nor misleading.

Signature



Name

Anna Nowland & Michael Rowe

Date

5 August 2021

Executive summary

Purpose of this report

This Environmental Impact Statement (EIS) is submitted to the Department of Planning, Industry and Environment (DPIE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in support of a State Significant Development Application (SSDA) for the next stage, Stage 2, of the detailed design and construction of the Ivanhoe Estate redevelopment. The Ivanhoe Estate redevelopment is also known by its promotional name; “Midtown MacPark” or “Midtown”.

This report has been prepared by Ethos Urban on behalf of Frasers Property Australia and the NSW Land and Housing Corporation (LAHC) in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the SEARs for the preparation of the EIS, which are included at **Appendix A**.

The proposal is State Significant Development by virtue of Clause 10 under Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) as it has a capital investment value of >\$30 million and is on land identified as a LAHC site on behalf of LAHC. This application is also SSD by virtue of Clause 12 of SEPP SRD as being pursuant to a Concept SSD Application (SSD 8707).

The site

This SSDA relates to a portion of the Ivanhoe Estate in Macquarie Park, being works within Blocks C2, C3 and C4 within the centre of the Estate and adjoining a section of Shrimptons Creek. The Stage 2 site will be bordered by the approved C1 Building, being constructed to the northwest, the approved Ivanhoe Estate internal road network to northeast and southwest (with future stages further beyond), and Shrimptons Creek to its southeast.

Planning context

This SSDA is a staged application within the meaning of Section 4.22 of the EP&A Act. It has been made pursuant to Section 4.24 of the EP&A Act, which states that whilst a Concept Proposal remains in-force any further detailed application in respect to the site cannot be inconsistent with the Concept Proposal. This detailed Stage 2 SSDA has been made with reference to the Ivanhoe Estate Masterplan (SSD-8707) and follows the first approved stage of physical works known as Stage 1 (SSD-8903), both of which were granted development consent on 30 April 2020.

Pursuant to Clause 8A of the SRD SEPP, the Minister for Planning and Public Spaces is the consent authority for a SSDA made by on behalf of a public authority. This application is made by Frasers Property Australia on behalf of LAHC, who are a public authority.

The *Ryde Local Environment Plan 2014* applies to the site, with the proposed development being permissible with consent and consistent with the B4 Mixed Use zone objectives. The proposed development is compliant with the FSR development standard applying to this land and while parts of the buildings on Blocks C3 and C4 are not compliant with the maximum height of buildings development standards applying to the Estate, this outcome is entirely consistent with the approved building envelopes under the Concept Masterplan. A Clause 4.6 Variation Request accompanies this EIS for completeness, confirming that compliance is unreasonable and unnecessary in this circumstance and that there are sufficient environmental planning grounds to justify the proposed variation to the mapped maximum building height consistent with the approved Concept Masterplan.

Overview of the project

Stage 2 of the Ivanhoe Estate redevelopment seeks consent for the detailed design and construction of Blocks C2, C3 and C4. Site preparation works for these areas including the construction of all roads, servicing, public domain works, and Torrens Title subdivision has already been approved as part of Stage 1 (SSD-8903).

This Stage 2 SSDA seeks consent for the following works:

- The detailed design, construction, and operation of Blocks C2, C3 and C4:
 - C2 comprising the community centre, pool, gym, and central open space area known as the ‘Village Green’;

- C3 comprising a 17-storey mixed use building with 168 market housing residential apartments, 7 ground floor retail tenancies, and 3 levels of basement parking; and
- C4 comprising 4 walk-up townhouses, a 24-storey building with 268 market residential apartments, and a 17-storey building comprising 216 social housing apartments with 3 shared levels of basement parking.
- Relevant excavation and detailed earthworks, including for building basements and to achieve the required levels for the community centre and Village Green.
- Utilities and services infrastructure to tie into the requirements of the proposed buildings.
- New driveways and public domain areas to tie into the approved internal road network and road reserves.
- Stratum subdivision to correspond with the proposed buildings.



Figure 1 Building C2 – community centre and Village Green

Source: Chrofi



Figure 2 Building C3 – retail and market housing

Source: Fox Johnston



Figure 3 Block C4 buildings – social and market housing

Source: COX Architecture

Environmental impacts

This EIS provides an assessment of the environmental impacts of the project in accordance with the SEARs and sets out the undertakings by LAHC and Frasers Property Australia to manage and minimise potential impacts arising from the development. The key environmental matters identified include:

- urban design and built form;
- public domain and landscaping;
- social impacts;
- flooding;
- amenity;
- traffic, parking and access;
- visual and view impacts; and
- construction works.

The proposed development has been assessed in each of these instances by technical experts across a range of disciplines as guided by the SEARs and industry best-practice. This confirms that there will be potential impacts resulting from the change to the existing conditions of the site, from the construction of multi-storey buildings and community spaces consistent with the Concept Masterplan. This development represents the next stage in realising the project objectives set for the redevelopment of the Ivanhoe Estate that will provide a number of transformative social and economic benefits. On-balance the proposed development is considered to be in the public interest and will not result in any unacceptable social, economic or environmental impacts that cannot be appropriately managed through the identified mitigation measures and conditions of consent.

Conclusion and justification

Having regard to environmental, economic, and social considerations, the carrying out of the project is justified for the following reasons:

- the project is permissible with consent and generally meets the statutory requirements of the relevant environmental planning instruments;

- the proposal is consistent with the site-specific planning framework established under the Ivanhoe Concept Masterplan (SSD 8707), including the approved Ivanhoe Estate Design Guidelines and Design Excellence Strategy;
- the proposal continues the delivery of a high quality, truly mixed use community with strong transport connections within the Macquarie University Station (Herring Road) Priority Precinct;
- the proposal delivers 216 social housing apartments on a key LAHC site contributing to the revitalisation and expansion of social housing in Sydney;
- the proposal forms a critical component of the Ivanhoe Concept Masterplan that enhances the amenity and vibrancy of the precinct with the delivery of a new community centre and public open space (Village Green); and
- the proposal is in the public interest and does not result in any adverse environmental impacts.

This Environmental Impact Statement has been undertaken in accordance with the SEARs and confirms that the project is consistent with all statutory requirements and that the potential impacts of the development are acceptable and are able to be managed through compliance with the identified mitigation measures. Given the planning merits of the proposal, the proposed development warrants approval by the Minister for Planning and Public Spaces. It makes a vital contribution towards the ongoing renewal and delivery of social housing dwellings across the state. It is consistent with the substantive planning work undertaken at the site to date and will not give rise to unreasonable environmental impacts.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning, Industry and Environment (DPIE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in support of a State Significant Development Application (SSDA) for the next stage, Stage 2, of the detailed design and construction of the Ivanhoe Estate redevelopment. The Ivanhoe Estate redevelopment is also known by its promotional name; “Midtown MacPark” or “Midtown”.

This SSDA is a staged application within the meaning of Section 4.22 of the EP&A Act. It has been made pursuant to Section 4.24 of the EP&A Act, which states that whilst a Concept Proposal remains in-force any further detailed application in respect to the site cannot be inconsistent with the Concept Proposal. This detailed Stage 2 SSDA has been made with reference to the Ivanhoe Estate Masterplan (SSD-8707) and follows the first approved stage of physical works known as Stage 1 (SSD-8903), both of which were granted development consent on 30 April 2020.

This report has been prepared by Ethos Urban on behalf of Frasers Property Australia and the NSW Land and Housing Corporation and is based on the relevant Architectural Plans, Design Reports, and other supporting technical information appended to the report (refer to Table of Contents). It has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the SEARs for the preparation of the EIS, which are included at **Appendix A**.

As the proposed development has capital investment value in excess of \$30 million and is being carried out on land identified as a NSW Land and Housing Corporation (LAHC) site and is on behalf of LAHC, it is State Significant Development (SSD) by virtue of Clause 10 under Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP). This application is also SSD by virtue of Clause 12 of SEPP SRD as it is pursuant to a Concept SSD Application (SSD 8707).

1.1 Overview of the proposed development

Stage 2 of the Ivanhoe Estate redevelopment seeks consent for the detailed design and construction of Blocks C2, C3 and C4. Site preparation works for these areas including the construction of all roads, servicing, public domain works, and Torrens Title subdivision has already been approved as part of Stage 1 (SSD-8903).

This Stage 2 SSDA seeks consent for the following works:

- The detailed design, construction, and operation of Blocks C2, C3 and C4:
 - C2 comprising the community centre, pool, gym, and central open space area known as the ‘Village Green’;
 - C3 comprising a 17-storey mixed use building with 168 market housing residential apartments, 7 ground floor retail tenancies, and 3 levels of basement parking; and
 - C4 comprising 4 townhouses each three storeys in height, a 24-storey building with 268 market residential apartments, and a 17-storey building comprising 216 social housing apartments with 3 shared levels of basement parking.
- Relevant excavation and detailed earthworks, including for building basements and to achieve the required levels for the community centre and Village Green.
- Utilities and services infrastructure to tie into the requirements of the proposed buildings.
- New driveways and public domain areas to tie into the approved internal road network and road reserves.
- Stratum subdivision to correspond with the proposed buildings.

1.2 Project background – redevelopment of Ivanhoe Estate

LAHC is a public trading enterprise that was established under the *Housing Act 2001*. LAHC operates under the Department of Family and Community Services and is responsible for the management of the NSW Government’s social housing portfolio, which comprises some 130,000 properties. Social housing is primarily Government-owned accommodation that provides for individuals and families who are unable to access suitable accommodation in the private rental market.

LAHC is a self-funding government agency that has historically funded the maintenance and provision of social housing through property sales and receipt of rental income from tenants. In 2015, LAHC launched the 'Communities Plus' program – a development program to deliver 23,000 new and replacement social housing dwellings, through the redevelopment of existing land, of which Ivanhoe Estate is a key site. 'Communities Plus' seeks to deliver new communities with good access to transport, employment, improved facilities, and open space through leveraging the expertise and capacity of the private and non-government sectors. Development delivered under Communities Plus is mixed-tenure – that is, a mix of both social and market housing. This mix serves two purposes: to deliver truly integrated communities and avoid the concentration of large amounts of social housing, and to offset the cost of delivering new social housing.

In September 2015, the Ivanhoe Estate was rezoned by DPIE as part of the Macquarie University Station (Herring Road) Priority Precinct to transform the area into a vibrant centre that makes the most of the available transport infrastructure and the precinct's proximity to jobs, retail, and education opportunities within the Macquarie Park corridor. *State Environmental Planning Policy (State and Regional Development) Amendment (Eden Street) 2018* was adopted on 12 October 2018, amending the SRD SEPP to include the site as a LAHC State Significant development site pursuant to Clause 10 under Schedule 2 of the SEPP. Mission Australia Housing will manage the Ivanhoe Estate social housing portfolio and is a national Tier 1 Community Housing Provider (CHP). Frasers Property Australia was selected as LAHC's partner in revitalising the Ivanhoe Estate at no extra cost to the government, and as detailed in the following sections has successfully set the vision for and commenced the delivery of a new mixed use, tenure-blind community.

1.2.1 Ivanhoe Estate Concept Masterplan (SSD 8707)

Consent was granted by the Minister for Planning and Public Spaces on 30 April 2020 for the Ivanhoe Estate Concept Masterplan (SSD 8707), which established the overall planning and assessment framework for the staged redevelopment of the Ivanhoe Estate. The approved Masterplan comprises:

- A mixed use development involving a maximum of GFA of 268,000m², including:
 - residential flat buildings comprising private, social and affordable housing (approximately 3,300 dwellings including 950 social and 128 affordable dwellings);
 - seniors housing comprising a residential care facility and self-contained dwellings;
 - a new primary school;
 - childcare centres;
 - retail; and
 - community uses;
- Maximum building heights and GFA for each development block;
- Public domain landscape concept, including parks, streets and pedestrian connections;
- Establishment of the Ivanhoe Estate Design Guidelines and Design Excellence Strategy to guide the detailed design of the future buildings;
- Vehicular and intersection upgrades, and pedestrian access improvements; and
- The removal of all required trees on the site, and system for the purchase and retirement of biodiversity offsets.

A Modification Application to SSD 8707 (MOD 1) is currently under assessment to modify Condition A30 and revise the contribution amount payable based on program changes. This Modification Application has not been determined at the time of writing.

The approved Masterplan envisages that the site is to be redeveloped in stages over a 10-15 year period, with the site divided into a number of Development Blocks. The approved staging plan is shown in **Figure 4** below, with the Stage 2 area (Blocks C2, C3 and C4) highlighted in red.

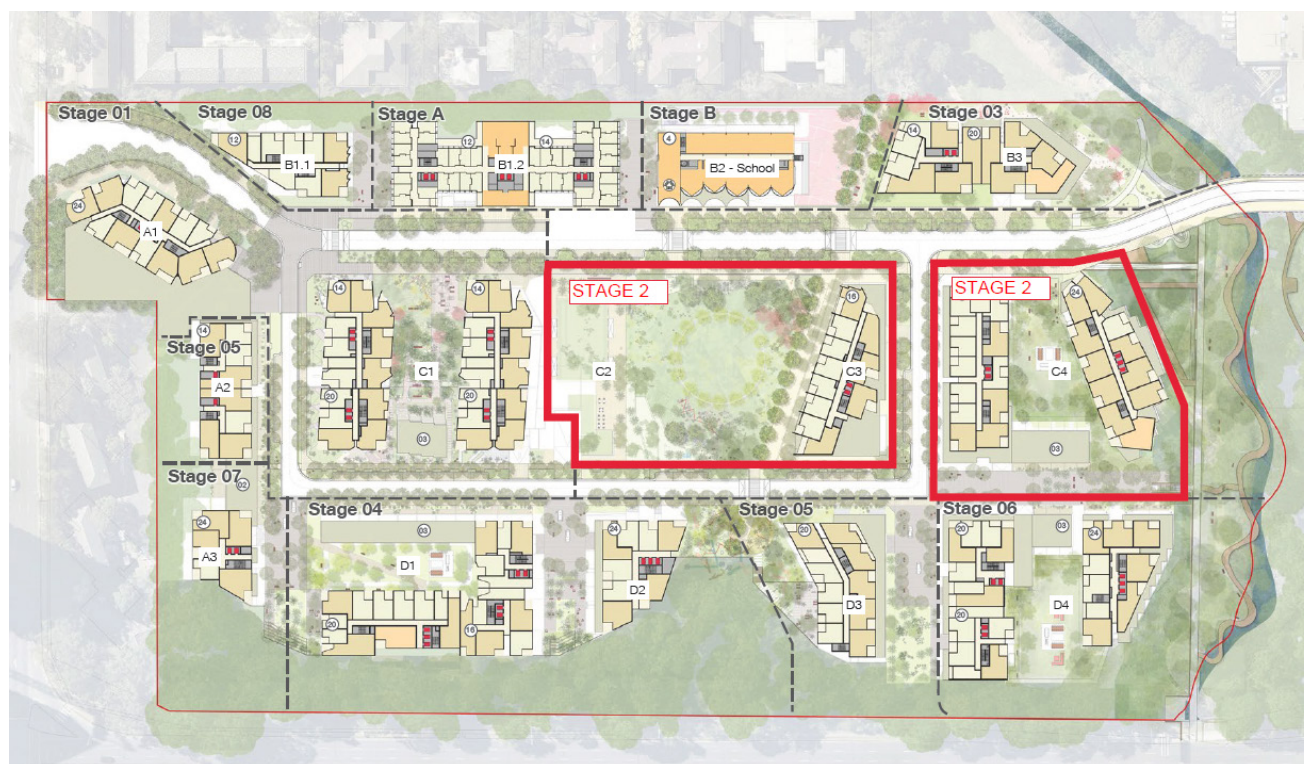


Figure 4 Ivanhoe Concept Masterplan staging plan, with the Stage 2 area highlighted

Source: Bates Smart, edits by Ethos Urban

1.2.2 Ivanhoe Estate detailed design Stage 1 (SSD 8903)

On 30 April 2020, the Minister granted consent to the first stage of physical works on the site, known as Stage 1, pursuant to the Masterplan. In addition to the construction of the buildings and public domain areas comprising Blocks A1 and C1, Stage 1 also incorporated site preparation works across the entirety of the Ivanhoe Estate. Stage 1 specifically included the following:

- Site preparation works, including bulk earthworks and excavation;
- Provision and augmentation of utilities and services infrastructure;
- The construction of internal roads including public domain within the road reserves, and the bridge crossing and road connection to Lyonpark Road including changes to parking, site access, landscaping, and ancillary works at 2-4 Lyonpark Road;
- The consolidation of existing lots and subdivision to reflect the revised road layout, open space, and provide superblocks corresponding to the Masterplan;
- The construction and use of Blocks A1 and C1 comprising residential uses (including social housing), a childcare centre, and retail/community spaces; and
- Stratum subdivision of buildings A1 and C1.

Since approval, SSD 8903 has been modified twice. MOD 1 was approved on 10 November 2020 to clarify various conditions of consent, and MOD 2 was approved on 7 May 2021 for design amendments to Block C1, including space provisioning for carparking, waste removal and servicing associated with the proposed Building C2 in this SSDA. Works are now underway on the site to deliver the Stage 1 building and areas.

1.3 Objectives of the development

Consistent with the Masterplan, the objectives of the Ivanhoe Estate redevelopment are to:

- Provide a seamlessly integrated community of private housing units, affordable housing units and social housing units where:

- world class urban and architectural design creates a high quality place;
- private housing units, affordable housing units and social housing units are indistinguishable and evenly distributed;
- building design innovation assists management of mixed tenures;
- urban design creates inclusive, high amenity places to optimise community interaction;
- social housing units meet the needs of tenants with built-in flexibility;
- Provide sustainable outcomes for tenants of social housing units and sustainable management of social housing units by:
 - conducting programs supporting social housing units tenants to engage in the community and local education, training and employment opportunities;
 - creating opportunities and programs to improve social outcomes;
 - providing industry leading water and energy efficiency;
 - promoting affordable housing units as a stepping stone for tenants from social housing units;
 - deliver at least 128 affordable housing dwellings across Ivanhoe Estate; and
- Optimise the value for money return to the New South Wales Government.

1.4 Strategic need for the proposal

This subject SSDA represents the next phase of the ongoing redevelopment of Ivanhoe Estate pursuant to the approved Concept Masterplan (SSD 8707). It is necessitated by virtue of Condition A5 of the Masterplan conditions of consent, which states that:

A5. In accordance with section 4.22 of the EP&A Act, all physical works and subsequent stages of the development are to be subject of future development applications.

Hence, this SSDA has been prepared to progress the next stage of the redevelopment of Ivanhoe Estate to create a vibrant, integrated community as part of its next stage of physical works, following the approval of Stage 1 (SSD 8903). It is consistent with the vision and framework established under the Masterplan.

DPIE's assessment of the Masterplan concluded that "the concept proposal is consistent with the strategic objectives for the area, as outlined in NSW 2021, the Region Plan and the North District Plan. The concept proposal is consistent with the strategic future direction of the Herring Road Priority Precinct and would result in a wide range of positive social and economic impacts, primarily the provision of a new master planned estate with significantly increased social and affordable housing availability and choice near public transport, employment opportunities and services."

1.5 Analysis of alternatives

This detailed SSDA for Stage 2 of the Ivanhoe Estate redevelopment follows the vision and framework established with the approved Ivanhoe Estate Concept Masterplan (SSD 8707), which assessed the available options for the redevelopment of the site including the 'do nothing scenario' and variables for achieving the best possible outcome, built form alternatives, and the timely and economic redevelopment of the land. The assessment of strategic need and objectives of the project ultimately concluded that the now approved concept represented the best possible outcome for the site.

The following alternative scenarios have been assessed for this project:

- do nothing;
- alternative built form; or
- development in accordance with the Concept Masterplan approval (preferred option).

1.5.1 Do nothing

The 'do nothing' scenario would result in an inappropriate outcome for Ivanhoe Estate that is contrary to the substantive planning and urban design work undertaken and approved as part of the Concept Masterplan.

Demolition works are complete and site preparation works for the entire Estate are already well progressed. Hence, doing nothing would result in retaining a disused area and resulting a significant underutilisation of the Estate and waste of capital investment. Through not advancing the redevelopment of the Ivanhoe Estate, the project would fail to realise a genuine strategic opportunity to provide social and market housing, new public open space, a community centre, and other supporting retail and recreation areas.

The 'do nothing' option would, therefore, be inconsistent with the NSW Government's strategic planning policies and identified need for the project, including being inconsistent with the *Future Directions for Social Housing in NSW* policy. For these reasons, the 'do nothing' option is found to not be an appropriate, viable or preferred scenario for the subject site, and would not be in the public interest.

1.5.2 Alternative built form

The primary alternative built form options for this stage would be to amend the buildings on Block C3 and C4 to strictly comply with the mapped height limits contained in the *Ryde Local Environment Plan 2014*, and to provide alternative land uses within Stage 2.

The built form for C3 and C4 will partially extend above the mapped height limits specified in the LEP, consistent with the building envelopes assessed and approved as part of the Concept Masterplan SSDA. These building heights are founded in the urban design analysis completed for the Masterplan, which reviewed height at a precinct-scale, and proposed a strategic redistribution of bulk and scale to locations where the impacts would be less than a complying development. Specific outcomes of the precinct-wide review of building heights also included the ability to reduce the previously proposed building on Block C2 to the minor community/recreation centre proposed, providing more public open space, and increasing setbacks to reduce the impacts on the neighbouring properties and public open space. Compliance with the mapped height limits at this subsequent detailed stage, therefore, would be a lesser urban design outcome and would result in the loss of a significant number of social and market dwellings and consequently reduced public benefits and housing choice.

This SSDA also proposes to deliver a mix of social and market housing typologies, retail spaces, a community centre, and indoor recreation facilities. Alternative land uses would be contrary with the substantive urban design work undertaken and result in the redevelopment of Ivanhoe Estate failing to meet its stated objectives, i.e. the creation of a mixed-tenure, mixed-use tenure community in close proximity to public transport, as part of LAHC's 'Communities Plus'. The proposed mix of uses within the Estate was carefully determined to ensure mixed tenure housing is delivered in conjunction with facilities that serve the needs of people who live or work in the surrounding neighbourhood, and that the redevelopment would enrich the site and contribute to a wide range of social outcomes.

Most critically, these alternative built form options would result in a noncompliance with Condition A6 of the Concept Masterplan consent which stipulates that future detailed design DAs must be consistent with the Masterplan. For such reasons, the alternative built form scenario is considered to be unviable and not in the public interest.

1.5.3 Preferred option

This detailed SSDA has been informed by the endorsed and conditioned design excellence and design review process, and follows the vision and framework established under the approved Concept Masterplan.

In addition to being reviewed by the State Design Review Panel on two occasions prior to lodgement, the design of the proposed buildings and landscaping has been informed by a competitive design process undertaken by Frasers Property. While not a formal invited architectural competition in the meaning of the approved Design Excellence Strategy (which will be undertaken for future Blocks B2 and B3), this process ensured that a range of built form options were considered to deliver the best possible outcome for Stage 2.

Accordingly, as addressed in the preceding sections, the proposed development consistent with the Concept Masterplan is the only appropriate and realistic development option. The development maximises the provision of

social housing on the site as part of a mixed tenure community as consistent with NSW Government policy and the site-specific planning framework established for Ivanhoe Estate, including the Ivanhoe Design Excellence Strategy and Design Guidelines. This is explored and demonstrated in the following sections of the EIS.

1.6 Secretary's Environmental Assessment Requirements

In accordance with section 4.39 of the EP&A Act, the Secretary of DPIE issued the requirements for the preparation of the EIS on 6 April 2021 for the project (SSD 15822622). A copy of the issued Secretary's Environmental Assessment Requirements (SEARs) is attached at **Appendix A**.

Table 1 below provides a detailed summary response of the individual matters as listed in the SEARs and identifies where each requirement has been addressed in this report and the accompanying technical studies.

Table 1 Secretary's Environmental Assessment Requirements – SSD 15822622

SEAR	Relevant EIS section	Relevant appendices
<p>General requirements</p> <p>A development application (DA) for State significant development (SSD) must include all relevant information and documents specified in Part 1 of Schedule 1 of the Regulation, including an environmental impact statement (EIS) (section 4.12(8) of the Act and clause 2(1)(e) of Schedule 1 of the Regulation).</p> <p>The DA must be lodged on the NSW planning portal (clause 50(1)(d) of the Regulation).</p> <p>The form and content of the EIS must be prepared in accordance with clauses 6 and 7 of Schedule 2 of the Regulation. Any document adopted or referenced in the EIS will form part of the EIS (clause 9(1) of Schedule 2 of the Regulation).</p> <p>The EIS must include a report certified to be accurate at the time of publication by a qualified quantity surveyor providing:</p>	Throughout EIS	All Appendices
<p>a detailed calculation of the capital investment value (CIV) of the proposal (as defined in clause 3 of the Regulation), including details of all assumptions and components for the CIV calculation, including consultant costs</p> <p>an estimate of jobs that will be created during the construction and operational phases of the proposal.</p>		Under separate cover
<p>1. Statutory and Strategic Context</p> <p>The EIS must:</p> <ul style="list-style-type: none"> address all relevant legislation (including sections 1.3 and 4.15 of the Act and clauses 6 and 7 of Schedule 2 of the Regulation), Environmental Planning Instruments (EPIs), draft EPIs, plans, policies and guidelines detail the nature and extent of any prohibitions, including partial prohibitions, that may apply to the proposal demonstrate the reasons for the proposed development being SSD identify compliance with applicable development standards and provide a detailed justification for any non-compliances address the requirements of any approvals applying to the site, including any concept approval or recommendations from any Gateway determination comply with these SEARs (cl 3(8) of Schedule 2 of the Regulation) 	Section 5.0	<p>QS report</p> <p>Appendix EE</p>
<p>2. Design excellence</p> <p>The EIS must include a Design Excellence Strategy demonstrating:</p> <ul style="list-style-type: none"> how the development will achieve design excellence in accordance with the requirements of the Design Excellence Strategy and Design Guidelines that formed part of the concept approval, and objectives for good design (of the built environment) in Better Placed the Stage 2 proposal has been reviewed by the State Design Review Panel (SDRP), and advice addressed, prior to lodgement how design excellence issues will be addressed following exhibition, including a minimum of one further meeting with the SDRP how design integrity will be maintained in subsequent stages of the planning process 	Section 5.5	<p>Appendix D</p> <p>Appendix B, C and FF</p>

SEAR	Relevant EIS section	Relevant appendices
3. Built form and urban design The EIS must: <ul style="list-style-type: none"> demonstrate how the proposed building or building envelope form (layout, height, bulk, scale, separation, setbacks, interface and articulation) addresses and responds to the context, site characteristics, streetscape and existing and future character of the locality demonstrate how the detailed building design will deliver a high-quality development, including consideration of façade design, articulation, activation, roof design, materials, finishes, colours and integration of services demonstrate how the proposed built form would result in appropriate scale and minimise visual bulk and long facades demonstrate the proposed built form appropriately addressed the change in levels across the site and avoids/minimises protruding basements and blank ground floor facades 	Section 3.0	Appendix B & C
<ul style="list-style-type: none"> address how Crime Prevention through Environmental Design (CPTED) principles are to be integrated into the development 	Section 6.21	Appendix U
<ul style="list-style-type: none"> assess how the proposed development complies with the relevant accessibility requirements 	Section 6.23	Appendix W
<ul style="list-style-type: none"> include tables identifying the proposed land uses, including tables identifying gross floor area (GFA)/floor space ratio (FSR) for each building, including a floor by floor breakdown, and total GFA and FSR 	Section 3.2	Appendix B
<ul style="list-style-type: none"> identify opportunities for Aboriginal culture and heritage to be incorporated holistically in the design proposal. 	Section 6.13	Appendix I & CC
4. Visual impacts The EIS must include a Visual Impact Assessment, with photomontages, justifying potential visual impacts associated with the proposal when compared to the existing situation and a compliant development (if relevant), when viewed to and from key vantage points.	Section 6.4	Appendix S
5. Public domain The EIS must demonstrate how the proposed development: <ul style="list-style-type: none"> satisfies the approved concept plan in relation to public domain and open space outcomes - maximises the amount, access to and quality of public spaces (including open space, public facilities and streets/plazas within and surrounding the site) reflects relevant design guidelines and advice from Council and the Department - ensures the public space is welcoming, attractive and accessible for all maximises permeability and connectivity ensures public spaces have excellent amenity, suitable for their intended use, such as through adequate facilities, solar access, shade and wind protection maximises street activation minimises potential vehicle, bicycle and pedestrian conflicts. 	Section 6.3	Appendix B & C
The EIS must include: <ul style="list-style-type: none"> a masterplan for the Village Green that demonstrates universal design, public art, soil depths, vegetation types, solar access, CPTED, materiality and lighting and outlines the following specific design features (as applicable): <ul style="list-style-type: none"> footpaths and pavements, roads and/or rights of carriageways outdoor seating materials and finishes public art furniture and fixtures street lighting, pedestrian lighting and feature lighting edges, screens and fences walls, embankments and mounds steps, ramps, vehicle crossings, decks and pathways services, utility poles, and service pits civil and stormwater infrastructure 	Section 3.3.2	Appendix C

SEAR	Relevant EIS section	Relevant appendices
<ul style="list-style-type: none"> tree planting mass planting beds 		
<ul style="list-style-type: none"> detailed plans for the proposed community centre, pool and gym. The plans should demonstrate its location, area, levels, access, GFA, capacity etc. 	Section 3.3	Appendix B
<ul style="list-style-type: none"> a draft operational management plan for the proposed community centre, pool and gym. 	Section 3.3.1	Appendix AA
6. Trees and Landscaping The EIS must include a Landscape Plan and Arborist Report, that: <ul style="list-style-type: none"> demonstrates how the proposal satisfies the approved concept plan in relation to tree protection measures, tree retention and tree planting and landscaping outcomes with respect to trees on the site or immediately adjoining details the proposed landscaping and planting, including proposals for native vegetation communities and plant species demonstrates how the development proposes to protect and increase the urban tree canopy demonstrates how the proposed development maximises opportunities for green infrastructure, consistent with Greener Places. 	Section 6.2	Appendix C
7. Environmental Amenity The EIS must: <ul style="list-style-type: none"> demonstrate how the proposal has been designed to achieve a high level of environmental amenity within the proposed development and on the surrounding area 	Section 6.3	Appendix B, C, S, T, & BB
<ul style="list-style-type: none"> provide an assessment of the proposed development against State Environmental Planning Policy No 65 - Design Quality of Residential Apartment Development and the associated guidelines 	Section 6.3	
<ul style="list-style-type: none"> provide a detailed assessment of view loss, ventilation, pedestrian movement, access to landscape and outdoor spaces, visual privacy, lighting, reflectivity and wind impacts 	Section 6.3, 6.4, 6.5, 6.6, 6.7, & 6.8	
<ul style="list-style-type: none"> provide a detailed assessment of overshadowing impacts within the site, on surrounding buildings and public spaces (during summer and winter solstice and spring and autumn equinox) at hourly intervals between 9am and 3pm, when compared to the existing situation and a compliant development. 	Section 6.5	
8. Development contributions and public benefit The EIS must: <ul style="list-style-type: none"> address the requirements of the concept approval, including monetary contributions and/or works-in-kind, and include details of any proposals for further material public benefit include a certificate from an independent quantity surveyor certifying the value of the works for each contribution item applicable to Stage 2, as referred to in Condition A30 of the concept approval. 	Section 6.28	Appendix Z
9. Transport, traffic, parking and access (operation and construction) The EIS must include: <ul style="list-style-type: none"> a Traffic and Transport Impact Assessment which provides: an assessment of the proposed stage within the context of the approved concept plan and cumulative impacts of prior developments the predicted transport mode share split and daily trip numbers for the proposal development an analysis of the existing traffic conditions within the surrounding road network, including but not limited to a description of the surrounding road hierarchy, current daily and peak hour vehicle movements and an assessment of the existing performance levels of nearby intersections a forecast of additional daily and peak hour vehicle movements as a result of the proposal (using SIDRA modelling or similar at 5-year intervals) and identification of potential traffic impacts on road capacity, intersection performance and road safety (including pedestrian and cycle conflict) 	Section 6.10	Appendix P

SEAR	Relevant EIS section	Relevant appendices
<ul style="list-style-type: none"> proposals to mitigate any traffic impacts, including intersection upgrades to achieve acceptable performance details of car parking provision, having regard to relevant parking rates, specifications and standards details of proposed vehicular access, parking areas, loading, deliveries and servicing arrangements, and any proposed infrastructure improvements or measures to reduce potential conflicts with pedestrians and cyclists. proposals to improve walking and cycling, such as connections into existing walking and cycling networks, high quality end-of-trip facilities and adequate bicycle parking for visitors, employees and residents (provided in accordance with the relevant rates, specifications and standards) measures to promote sustainable travel choices for employees and residents or visitors, such as minimising car parking provision, encouraging car share and public transport, cycling and walking, implementing a green travel plan and providing end of trip facilities and how this can be demonstrated to be implemented details of any new sustainable transport infrastructure or technology to be provided i.e. future electric charging to each parking spot (ensuring buildings have EV distribution boards sufficient to cater for and manage to allow for future connections and that an EV load management system is provided) a detailed Framework Green Travel Plan 		
<ul style="list-style-type: none"> a draft Construction Pedestrian and Traffic Management Plan providing details of predicted construction traffic movements, routes and access arrangements, and outline how construction traffic impacts on existing traffic, pedestrian and cycle networks would be appropriately managed and mitigated. 	Section 6.10	Appendix P
<p>10. Ecologically Sustainable Development (ESD) and climate change The EIS must:</p> <ul style="list-style-type: none"> identify how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) will be incorporated into the design, construction and ongoing operation of the proposed development demonstrate how the development will achieve the commitments identified in the approved concept plan (see Condition C2(q)) demonstrate how future buildings will meet or exceed the relevant industry recognised building sustainability and environmental performance standards, including any green accreditation demonstrate how the proposal incorporates measures to minimise carbon emissions both construction/waste materials and in built, embodied design, reflecting the Government's goal of net zero emissions by 2050, and the consumption of resources, water (including through water sensitive design principles and water re-use) and energy. 	Section 6.26	Appendix N
<p>11. Contamination The EIS must include a preliminary investigation assessing and quantifying any soil or groundwater contamination, and demonstrating that the site is suitable (or may be made suitable after remediation) for the proposed use, in accordance with the State Environmental Planning Policy No 55 - Remediation of Land and the associated guidelines.</p> <p>Where recommended in the preliminary investigation, or requested by the Planning Secretary, the EIS must also include a detailed site investigation, a remediation action plan and/or a preliminary long-term environmental management plan.</p>	Section 6.11	Appendix G
<p>12. Heritage and archaeology The EIS must:</p> <ul style="list-style-type: none"> address any archaeological potential and significance on the site and the impacts the proposed development may have on this significance 	Section 6.12 & 6.13	Appendix I
<ul style="list-style-type: none"> include an Aboriginal Cultural Heritage Assessment Report in accordance with relevant guidelines, identifying, describing and assessing any impacts for any Aboriginal cultural heritage values on the site, including archaeology. The ACHAR must demonstrate attempts to avoid impact upon cultural heritage values and identify conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. 	Section 6.13	

SEAR	Relevant EIS section	Relevant appendices
13. Biodiversity The EIS must assess any biodiversity impacts associated with the proposal in accordance with the Biodiversity Conservation Act 2016 and the Biodiversity Assessment Method 2020, including the preparation of a Biodiversity Development Assessment Report, unless a waiver is granted and all applicable offset certifications and obligations are undertaken.	Section 6.14	Appendix R
14. Flooding The EIS must: <ul style="list-style-type: none"> • identify any flood risk on-site having regard to adopted studies for the development site, consideration of any relevant provisions of the NSW Floodplain Development Manual and the potential effects of climate change, sea level rise and an increase in rainfall intensity • assess the impacts of the development, including any changes to flood risk on-site or off-site, and detail design solutions to mitigate flood risk where required. • identifies required management measures and design solutions, including water sensitive urban design and detention, to minimise the impacts of flooding on the proposed development. The EIS must also address the following flood related issues: <ul style="list-style-type: none"> • Finished Floor Levels (FFLs) shall be set at levels that comply with Council's freeboard requirements defined in DCP-2014-8.2 Stormwater Management Technical Manual. • basement ramps shall raise up to PMF levels, at each location, before descending to the basements, to fully flood proof every basement • no gaps/openings connected to any basement are allowed below the PMF level at each location • fences located in overland flow paths shall allow flows to pass through. 	Section 6.15	Appendix H
15. Stormwater and drainage The EIS must include an Integrated Water Management Plan that: <ul style="list-style-type: none"> • is prepared by a suitably qualified person in consultation with Council and any other relevant drainage authority (including Office of Water for works impacting riparian zones and required approvals for works) • assesses any stormwater, drainage, erosion and sedimentation impacting water quality and flows associated with the proposal • assesses the water quality impacts and any downstream impacts for both surface and groundwater on any water courses, riparian zones, estuaries and marine areas • details the proposed drainage design for the site including on-site detention facilities, water quality measures and the nominated discharge point • caters for a failure mode in the event the system is blocked or exceeds capacity, including nominating surface levels and surcharge grates/ weirs designed to convey stormwater runoff away from habitable areas • demonstrates compliance against any relevant provisions of the Sydney Drinking Water Catchment SEPP with Council or other drainage authority requirements and avoids adverse impacts on any downstream properties • provides details of the existing/proposed Council drainage network, including easements required, in favour of Council, centred on the pipes and compliant with Council's DCP-2014-8.2 - Stormwater Management Technical Manual. • Where drainage infrastructure works are required that would be handed over to Council, provide full hydraulic details and detailed plans and specifications of proposed works that have been prepared in consultation with Council and comply with Council's relevant standards. 	Section 6.16	Appendix E
16. Noise and vibration The EIS must include a noise and vibration assessment in accordance with the relevant EPA guidelines. This assessment must detail construction and operational noise and vibration impacts on nearby sensitive receivers and outline the proposed management and mitigation measures that would be implemented.	Section 6.17	Appendix V
17. Ground conditions The EIS must:	Section 6.18	Appendix F

SEAR	Relevant EIS section	Relevant appendices
<ul style="list-style-type: none"> map features and assess impacts relevant to water and soils, including acid sulfate soils, adjacent licenced water users, basic landholder rights, wetlands, watercourses, riparian land, groundwater, groundwater dependent ecosystems, proposed intake and discharge locations and include measures proposed to reduce and mitigate any impacts describe background conditions for any water resource likely to be affected by the development include proposed surface and ground water monitoring activities and methodologies. assess the impact of the proposed development on water quality and hydrology demonstrate that the proposed development can be accommodated on the site, having regard to any geotechnical and acid sulphate soil impacts. 		
18. Earthworks The EIS must include: <ul style="list-style-type: none"> a detailed survey showing existing and proposed levels, maximum depth of excavation, and proposed quantities of cut and fill necessary for the proposed works 	Section 6.18	Appendix F
<ul style="list-style-type: none"> details of the fill, including types and materials and their source details of the location for the disposal of excess cut and the methodology of transportation to this location 	Section 6.18	
<ul style="list-style-type: none"> a geotechnical report. 	Section 6.18	
19. Waste and servicing The EIS must: <ul style="list-style-type: none"> identify, quantify and classify the likely waste to be generated during construction and operation describe measures to be implemented to minimise, reuse, recycle and safely dispose of this waste identify appropriate servicing arrangements. 	Section 6.19	Appendix O
20. Staging If relevant, the EIS must provide details regarding the staging of the proposed development.	Section 3.10	N/A
21. Social housing The EIS must: <ul style="list-style-type: none"> detail the integration and mix of private and social housing, including the proposed tenure blind approach outline the intended operation of the social housing by community housing provider/s detail measures to prioritise operational efficiency to ensure ongoing housing affordability through reduced utility costs. 	Section 6.9	
22. Utilities The EIS must: <ul style="list-style-type: none"> identify and address the existing capacity of the site to service the proposed 9 development and any augmentation requirements for utilities in consultation with relevant agencies. In particular, the EIS must demonstrate that satisfactory arrangements for drinking water, wastewater and recycled water services have been made outline any sustainability initiatives that will minimise/reduce the demand for drinking water, including any alternative water supply and end uses of drinking and non-drinking water that may be proposed, and demonstrate water sensitive urban design (principles are used), and any water conservation measures that are likely to be proposed identify any potential impacts of the proposed construction and operation on existing utility infrastructure and demonstrate how these assets will be protected, or impacts mitigated. 	Section 6.20	Appendix J

SEAR	Relevant EIS section	Relevant appendices
23. Subdivision The EIS must: <ul style="list-style-type: none"> outline subdivision, access and driveway locations outline consistency with the concept development application. The application must include a Plan of Subdivision which: <ul style="list-style-type: none"> identifies all lots proposed to be created across the site identifies the location of all servicing infrastructure across the site details any covenants, easements or notations proposed to ensure appropriate access is provided to each service provider to enable the on-going maintenance of their assets details any covenants, easements or notations proposed to enable public access to the public domain areas wherever the proposed lot falls to a neighbouring lot, nominate the configuration of drainage easements aligned with the fall of the land so as to permit the natural conveyance of water by gravity to a legal discharge point 	Section 5.3.1	Appendix M
Plans and documents The EIS must include all relevant plans, architectural drawings, diagrams, lists, certificates and any other documentation required under Schedule 1 of the Regulation. In particular, the EIS must include a detailed schedule and plans showing proposed gross floor area and floor space ratio, and a report demonstrating compliance with relevant requirements of the Building Code of Australia. If the Department identifies any other document required to be included in the EIS before the DA is lodged, those documents must also be included in the EIS.	Throughout EIS	All Appendices
Consultation During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, utility providers, community groups and affected landowners, as identified in any meeting with the Department before the DA is lodged. The EIS must describe the consultation process, the issues raised during consultation, and how the proposal addresses those issues. Where amendments have not been made to address an issue, a succinct explanation should be provided.	Section 4.0	Appendix Q
Further consultation after 2 years If you do not lodge a Development Application and EIS for the development within 2 years of the issue date of these SEARs, you must consult further with the Planning Secretary in relation to the preparation of the EIS.	Noted	N/A

2.0 The site

2.1 Site location and context

2.1.1 Ivanhoe Estate

Ivanhoe Estate is located within the suburb of Macquarie Park, northeast of the intersection of Herring Road and Epping Road, within the Ryde Local Government Area (LGA). It is located on the southern fringe of Macquarie Park, and is within approximately 500 metres of Macquarie Shopping Centre, the Macquarie University campus, and Macquarie University metro station.

It also forms part of the broader Macquarie Park corridor. The Precinct is characterised by a mix of new high density residential uses, older low scale residential flat buildings, and key attractors such as the Macquarie Shopping Centre and Macquarie University. The Macquarie Park corridor is a key employment centre, which accommodates a significant number of businesses and research facilities in medium scale commercial development.

Immediately to the north east of the Ivanhoe Estate boundary is a row of established trees that separate the Estate from a series of four storey residential flat buildings on Peach Tree Road. The north western boundary fronts Herring Road and 137-143 Herring Road, which is a high-density residential apartment complex known as 'NEUE Macquarie Park'.

Epping Road, an 8-lane arterial road, runs along the south western boundary of the site. On the other side of Epping Road are detached houses and townhouse developments. Commercial and light industrial uses are located further to the south east on the other side of Shrimptons Creek associated with the Macquarie Park business park, including a number of multi-storey commercial buildings on Lyonpark Road and the Optus Campus.

The site's locational context is shown at **Figure 5**.

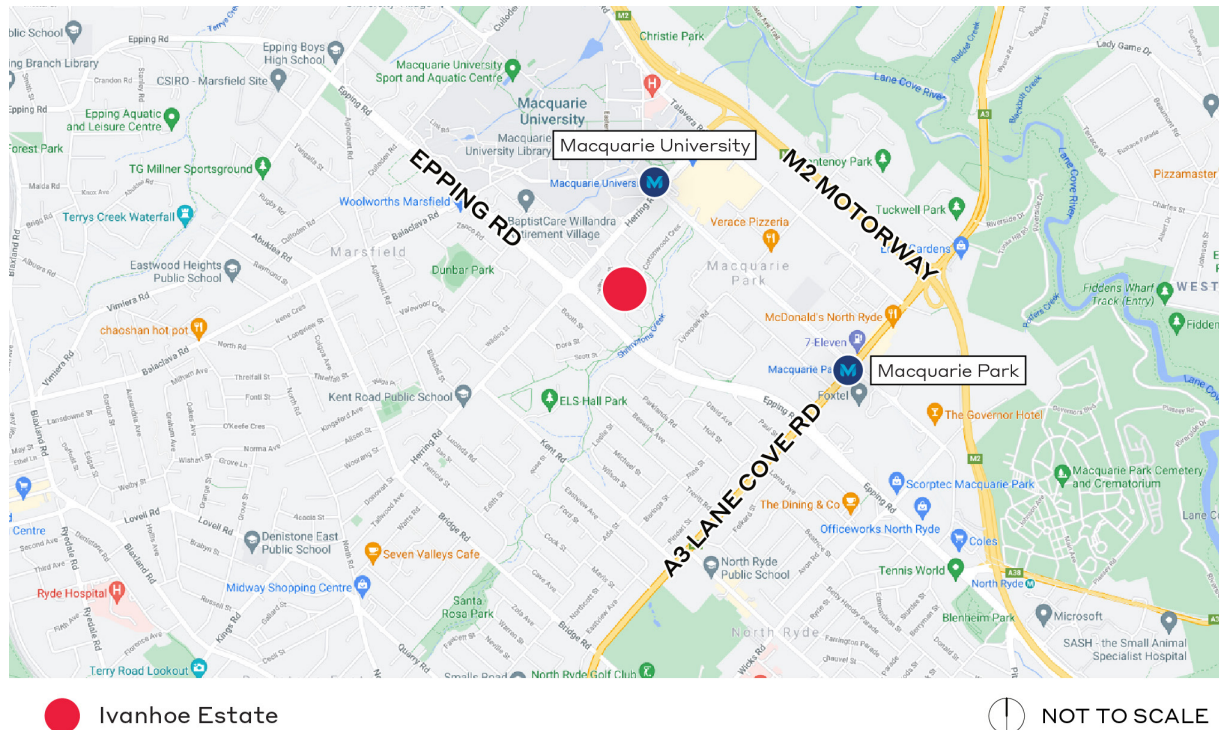


Figure 5 Site context

Source: Google Maps, edits by Ethos Urban

Following the consolidation of previous allotments as part of Stage 1 (SSD 8903), the entirety of Ivanhoe Estate is now legally described as Lot 100 in DP1262209. An aerial photo of the site is shown at **Figure 6**. The Ivanhoe Estate Masterplan also includes provisions for a new road connection to Lyon Park Road via 2-4 Lyonpark Road (Lot 100-101 in DP1263727), which is outlined in orange.

Ivanhoe Estate is owned and managed by LAHC, while 2-4 Lyonpark Road is owned by LIF Pty Ltd as trustee for Local Government Super.



Figure 6 Ivanhoe Estate

Source: Nearmap, edits by Ethos Urban

2.1.2 Stage 2 SSDA

This SSDA only relates to a portion of the greater Ivanhoe Estate area, with the proposed works generally isolated to Blocks C2, C3 and C4 within the centre of the Estate and adjoining a section of Shrimptons Creek.

The Stage 2 site will be bordered by the approved C1 Building being constructed to the northwest, the approved Ivanhoe Estate internal road network to northeast and southwest (with future stages further beyond), and Shrimptons Creek to its southeast. As shown in **Figure 4** above, an approved internal road will also run through the Stage 2 site, between Blocks C3 and C4, in accordance with the approved Concept Masterplan and Stage 1 works.

Current site conditions

The Ivanhoe Estate previously comprised 259 social housing dwellings with a mix of townhouse and four storey apartment buildings with a cul-de-sac street layout. These structures have been demolished and earthworks have commenced across the site, with excavation associated with the approved Stage 1 works well underway (see **Figure 7** below).

Remnant vegetation is generally concentrated at the site's south-western frontage facing Epping Road and eastern frontage along Shrimptons Creek, which is being protected in accordance with the Masterplan. Shrimptons Creek is a riparian corridor bordering the Estate's eastern edge, running from south to north through the Lane Cove National Park and onwards to the Lane Cove River.



Figure 7 Site conditions (May 2021)

Source: Frasers Property Australia

2.2 Site topography

The topography of land within and surrounding Blocks C2, C3 and C4 is governed by the levels of the approved surrounding road network. Lots C2 and C3 generally fall to the east towards the future Main Street, whilst the C4 lot falls towards Shrimpton's Creek in the south. As shown in **Figure 7** above, earthworks are well underway on the site.

2.3 Access

At this time, there is a single point of vehicular entry to the Ivanhoe Estate site via a roundabout on Herring Road. A further bridged connection to Lyonpark Road is approved as part of Stage 1 and will form a future road connection to the Ivanhoe Estate, in addition to intersection upgrades to Herring Road.

In addition to the existing road network, pedestrian and cycle access to the eastern part of the site is possible from the Shrimptons Creek Trail that runs parallel to the creek and through the site at its eastern frontage. This trail is able to be accessed from Epping Road, Wilga Reserve or from Waterloo Road.

3.0 Description of the proposed development

This SSDA seeks consent for Stage 2 of the Ivanhoe Estate redevelopment, pursuant to the approved Ivanhoe Estate Concept Masterplan (SSD 8707) and following the first stage of physical works approved as Stage 1 (SSD 8903). Site preparation works, roads, servicing, public domain works and Torrents Title subdivision across Ivanhoe Estate have already been approved under the Stage 1 SSDA.

Hence, the application will include the following works:

- The detailed design, construction, and operation of Blocks C2, C3 and C4:
 - C2 comprising the community centre, pool, gym, and Village Green central open space area;
 - C3 comprising a 17-storey mixed use building with 168 market housing residential apartments, 7 ground floor retail tenancies, and 3 levels of basement parking; and
 - C4 comprising 4 townhouses each three storeys in height, a 24-storey building with 268 market residential apartments, and a 17-storey building comprising 216 social housing apartments with 3 shared levels of basement parking.
- Relevant excavation and detailed earthworks, including for building basements and to achieve the required levels for the community centre and Village Green.
- Utilities and services infrastructure to tie into the requirements of the proposed buildings.
- New driveways and public domain areas to tie into the approved internal road network and road reserves.
- Stratum subdivision to correspond with the proposed buildings.

The proposed development is discussed further in the following subsections, and detailed in the Architectural Plans and detailed Design Reports (**Appendix B**) prepared by Chrofi (Block C2), Fox Johnston (Block C3) and Cox (Block C4), and as well as the Landscape Plans and Design Reports (**Appendix C**) prepared by Hassell (C3 and C4) and McGregor Coxall (C2).

3.1 Site preparation works

As identified in **Section 1.2.2** above, the Stage 1 SSDA enabled undertaking site preparation works across the Ivanhoe Estate including the demolition of all buildings, roads, and any site improvements; bulk earthworks to grade the site and provide platforms for buildings and public roads; site investigations and remediation works; tree removal and retention; and utility and services upgrades.

However, minor additional site preparation works are proposed as part of this SSDA to address the detailed design of Blocks C2, C3 and C4 and ensure future buildings and public domain areas tie into the Stage 1 works that are underway on the site. These works include the excavation of basements for Buildings C3 and C4, and detailed earthworks to achieve the required levels for the community centre and Village Green. A cut and fill plan demonstrating the level change is provided at **Appendix K**, and an extract included in **Figure 8** below.

No tree removal works are proposed under the proposed development, noting all trees removal and retention required to facilitate the redevelopment of the Ivanhoe Estate was assessed and approved as part of the Stage 1 SSDA. The proposed Stage 2 SSDA remains consistent with this approval and will not seek to remove or impact any additional trees.



Figure 8 Extract of cut and fill plan

Source: ADW Johnson

3.2 Numerical overview

A numerical summary of the proposed Ivanhoe Estate Stage 2 detailed design works is provided in **Table 2** below.

Table 2 Key development information

Component	Proposal																				
GFA	<ul style="list-style-type: none">Residential: 52,774m²Retail: 997m²Community & indoor recreation: 1,632m² Total: 54,376m ²																				
Maximum height <i>(Does not include basements)</i>	<ul style="list-style-type: none">Building C2: part 2 and 3 storeysBuilding C3: RL 17 storeys plus rooftop plant and servicesBuilding C4.1 (social): 17 storeys plus rooftop plant and servicesBuilding C4.2 (market): 24 storeys plus rooftop plant and services																				
Dwellings	<ul style="list-style-type: none">Building C3: 168 apartmentsBuilding C4.1 (social): 216 apartmentsBuilding C4.2 (market): 268 apartments, 4 townhouses Total: 656 dwellings																				
Dwelling mix	<table><tr><th>Typology</th><th>Building C3</th><th>Building C4.1</th><th>Building C4.2</th></tr><tr><td>Studio</td><td>2</td><td>24</td><td>-</td></tr><tr><td>1 bedroom</td><td>79</td><td>97</td><td>133</td></tr><tr><td>2 bedroom</td><td>49</td><td>95</td><td>92</td></tr><tr><td>3 bedroom +</td><td>38</td><td>-</td><td>47</td></tr></table>	Typology	Building C3	Building C4.1	Building C4.2	Studio	2	24	-	1 bedroom	79	97	133	2 bedroom	49	95	92	3 bedroom +	38	-	47
Typology	Building C3	Building C4.1	Building C4.2																		
Studio	2	24	-																		
1 bedroom	79	97	133																		
2 bedroom	49	95	92																		
3 bedroom +	38	-	47																		
Vehicular parking	Retail: <ul style="list-style-type: none">C3: 10 spaces Residential: <ul style="list-style-type: none">C3: 145 paces for residents (including 9 accessible), 8 spaces for visitors, and 10 retail spacesC4: 372 spaces for residents (including 24 accessible spaces), 25 spaces for visitors Total: 561 car spaces																				

Component	Proposal
	Community and indoor recreation: <ul style="list-style-type: none"> • C2: 19 spaces will be used by Building C2 as part of the approved C1 basement Bicycle: <ul style="list-style-type: none"> • C3: 168 spaces, plus 10 visitor spaces • C4: 488 spaces • Village Green: 25 spaces for public use
Communal open space	<ul style="list-style-type: none"> • C3: 360m² • C4: 2,362m²
Public open space	3,385m ² useable area (Village Green), which is to be dedicated to Council

3.3 Block C2

Block C2 is identified as the ‘heart’ of the Ivanhoe Estate under the Concept Masterplan. This block comprises a new community centre at its western end designed by Chrofi, and a new public park (the Village Green) at its eastern end designed by McGregor Coxall. This Block delivers significant public benefits nominated under the Masterplan and will be a key destination for future residents and visitors to the Estate.



Figure 9 Render of the proposed Village Green and Building C2 behind

Source: Chrofi

3.3.1 Community centre

Building C2 is comprised of a community centre, with a commercial pool and gym partially located below existing ground level, and a total of three storeys. It has been carefully integrated into the topography of the site to present as a single storey when viewed from the Neighbourhood Street and landscaped with a green roof to visually integrate with the Village Green (discussed further in **Section 3.3.2** below). The building has also been designed to directly interface and integrate with the approved C1 building and the community space to be provided in this adjoining building.

- The community centre, pool and gym will compromise both lower and upper ground level floors accounting for the slope of the site. A public lift and outdoor staircase facilitate public access between these two floors as well as to the required parking provided within Building C1.
- The upper ground level is accessed from the Neighbourhood Street and a proposed through-site link at the Block's northern end. This level provides multi-purpose community rooms and a social enterprise café, all of which are to be operated by Mission Australia (see **Figure 10**). These spaces will operate in conjunction with the community space approved to be delivered in the adjoining Building C1 and will be connected via a proposed community plaza fronting Main Street (see **Figure 11** below). A community garden will also be accessible at this upper ground level allowing the community to take ownership of this community space under the guidance of Mission Australia.
- The lower ground level directly interfaces with the Village Green and includes a gym and 25m indoor pool as well as associated amenities (including reception area, changerooms and site office) (see **Figure 12** below). These spaces complement the active and passive recreation areas provided in the Village Green and will promote passive surveillance and site activation. Beneath is a small basement level accommodating mechanical plant and services for the building, as well as access to the Building C1 parking.



Figure 10 Community centre space

Source: Chrofi



Figure 11 Community plaza and social enterprise café behind

Source: Chrofi



Figure 12 Indoor pool

Source: Chrofi

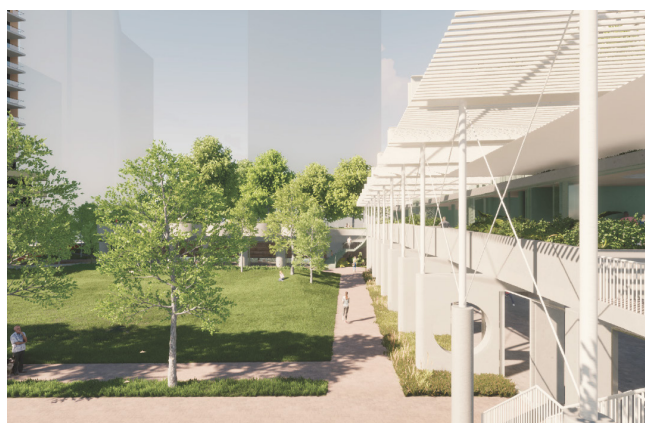


Figure 13 Upper level community space and sheltered through-site link overlooking the Village Green

Source: Chrofi

This building has been designed to accommodate significant landscaping opportunities to complement the Village Green, provide shade and shelter, and support the green link through the Estate as envisaged in the Masterplan, including:

- An arbor with vines and raised planters shading the through-site link connecting the Neighbourhood Street and Main Street at the upper ground level (see **Figure 13** above).

- A community terrace located on top of the community centre pool including informal seating, a lawn, and a community garden (see **Figure 14** below).
- A green roof spanning over upper level of the community centre and treated with a mix of shrubs and trees to read as part of the park when viewed from the C1 residences. It will create a green outlook for surrounding residences and contribute to the relationship between the community centre and Village Green.



Figure 14 Community garden

Source: Chrofi

Building operations

The multi-purpose community rooms and a social enterprise café will be owned by LAHC, operated by Mission Australia, and will be accessible to all residents and visitors as confirmed in the preliminary Operational Management Plan provided at **Appendix AA**. The purpose of these facilities is to provide programs and activities that increase the accessibility of services, supporting the integration of service providers, and promoting social inclusion and participation across the Estate community and throughout the LGA.

The spaces to be operated by Mission Australia include:

- Community rooms that will be free to book and use by residents, community groups, and charities, or be subject to a fee when booked by external parties including commercial bookings. These spaces have been designed to accommodate a range of purposes including fitness groups, social gatherings, outreach and education programs, and other uses. The community rooms will be managed by Mission Australia Monday to Friday, and remain available for hire and use outside of these hours and on the weekends.
- A social enterprise café will provide jobs for disadvantaged people, training and upskilling opportunities, and a gather space for the community to interact. It will enable people to participate in vocational training and employment and support those wanting to up-skill and re-enter the workforce.

The indoor pool and gym also within Building C2 may be subject to a further detailed application for any operation changes or signage required.. It is intended that these spaces will be available for use by the residents as well as the greater surrounding area subject to the terms of a future lease. Best endeavours will be sought through the operator for these spaces to be accessible to social and affordable housing occupants.

Access and parking

19 car spaces for Building C2 have been provided within the approved adjacent Building C1 basement, accessible via a public lift. Loading, servicing and waste collection will also occur from the neighbouring building basement. This arrangement is further detailed in the Environmental Impact Statement for SSD 8903 prepared by Ethos Urban dated 14 March 2019 and Modification Report for SSD 8903 MOD 2 dated 11 March 2021.

3.3.2 Village Green

The Village Green comprises a new public park located at the heart of the Ivanhoe Estate, which will be dedicated to council as per Condition A30 of the Concep Masterplan consent. Extensive easements will be placed over the surrounding open space area not being dedicated to council for the use of this area by the public in accordance with the staged subdivision plans. approved as part of the Stage 1 SSDA.

The Village Green has been designed to support both passive and active recreation and use by different age groups, ensuring it caters to the entire Estate community. In this way, the Village Green has been designed as a series of microcosms supporting different uses and users, including:

- An expansive central lawn to allow a range of uses including sports, exercise, outdoor classes, picnicking and the like. Turfed embankments at the boundaries of the lawn offer a variety of vantage points across the park, informal seating, and tree planting.
- A playground located to the north of the central lawn that will cater to different age groups, providing a series of sensory and engaging play spaces.
- A passive seating area at the interface of the Village Green and the Neighbourhood Street created by carving out the existing sandstone bedrock to form a series of amphitheatre seating steps, and complemented with tree planting, providing opportunities for quieter respite.
- Through-movements are also facilitated by a green link provided at the eastern edge of the Village Green connecting the Neighbourhood Street to Main Street, including flexible seating and landscaping adjacent to the Block C3 retail tenancies.

Planting for the Village Green across these spaces has been carefully selected with reference to the site's context, using native vegetation from the Sydney Turpentine Ironbark Forest and Sydney Sandstone Gully Forest species, helping restore the native vegetation of Macquarie Park and the Lane Cove River and support habitat.



Figure 15 The Village Green and Building C2

Source: McGregor Coxall



Figure 16 Extensive landscaping integrated with the built form and Village Green in Block C2

Source: McGregor Coxall

3.4 Block C3

Block C3 is located at the centre point of the Masterplan with a direct frontage to the Village Green on Block C2 and bordered by Main Street and Neighbourhood Streets. Block C3 is to be occupied by a 17 storey building comprising 168 market housing apartments and retail tenancies on the ground floor. The building is designed by Fox Johnston with regard to its central location within the Ivanhoe Estate and will provide a high level of activation to all frontages, including to the Neighbourhood Streets, Main Street, and to the Village Green at its western frontage.



Figure 17 Proposed Block C3 building as viewed from the upper level of the community centre

Source: Fox Johnston

The key design features of the building include:

- A retail ground floor primarily facing and activating the Village Green with a northern aspect, with opportunities for outdoor seating integrating with the through-site link bordering this open space area (see **Figure 18** below). A comparatively larger 446m² tenancy is provided at the southern end of the building capable of accommodating a neighbourhood supermarket.
- Two residential lobbies facing the building's eastern frontage, ensuring access is separated for the building's residential and retail components, and this Neighbourhood Street is activated by the building.
- A distinct 3-storey podium including a continuous awning provided at Level 1 to benefit pedestrian amenity which is essential for this site that is located at the heart of the Masterplan and borders the Village Green and community centre. The awning is used for outdoor terraces and landscaping on the floors above.
- An undulating tower form above the podium that is stepped in height in response to the topography of the site. The building façade facing the Village Green is inset in the centre to breakup this façade, and curved building lines are used for every elevation to create visual interest and modulate the built form.
- Apartments, balconies, and communal open space areas have been oriented towards the building's northern façade where possible to maximise solar access and provide passive surveillance towards the Village Green.
- Multistorey 'forest rooms' are provided at levels 5-7 and 10-12 of the building. These 'forest rooms' are intended to introduce an additional element of articulation to the building's northern façade and serve as communal open spaces for the building residents, providing opportunities for respite. The forest rooms will include communal open staircases linking their 3 levels (see **Figure 19** below). The design of each forest room is not identical but will instead provide different interactive elements such as timber seating, swings, a sand play area, and/or raised tables and seating. These are detailed in the Landscape Plans by McGregor Coxall at **Appendix C**, with excerpts in **Figure 20** below.
- Communal facilities are also provided on level 15 including a communal conference room with kitchen and an outdoor space with retractable awning. The area is accessible from both building circulation corridors, for the shared use of all residents.
- Non-trafficable landscaped gardens are also provided on all levels, most prominently levels 1-3 (the podium residential levels) and level 15. The landscaping will feature an extensive palette of vegetation endemic to Australia, especially species reflective of the local Turpentine Ironbark Forest.



Figure 18 Retail entrances integrated with the through-site link bordering the Village Green

Source: Fox Johnston



Figure 19 Multistorey forest rooms integrated into the building

Source: Fox Johnston



Figure 20 Proposed forest room designs for Building C3

Source: McGregor Coxall

Building operations

The fit-out and operation of each of the ground floor retail tenancies will be the subject of a separate and future application.

Access and parking

- Vehicular access to the Building C3 loading dock and underground carpark is provided through the eastern frontage to the Neighbourhood Street via a single driveway. Both the carpark and loading dock entrances contain an intercom for security. The loading dock provides a turntable to enable delivery and waste collection vehicles to enter and exit the dock in a forward direction.
- 3 levels of basement carparking are provided with a total of 163 car spaces. This includes 145 residential spaces, 8 visitor spaces, and 10 spaces for the retail tenancies. 168 residential bicycle parking spaces in storage cages, and 10 visitor spaces bicycle spaces are also provided in the building basement. End-of-Trip (EOT) facilities for retail staff and visitors are provided on Level B1.

3.5 Block C4

Block C4 represents the easternmost portion of the proposed works, being located towards the southeast of Block C3 and bordering the Shrimptons Creek corridor. Block C4 comprises a social housing tower with 216 apartments, a market housing tower with 268 apartments, and 4 terraced townhouses in between. The two towers are well integrated, reflecting the vision of Ivanhoe Estate as a tenure-blind community. Block C4 has been designed by Cox Architecture. The key parameters of Block C4 are further described below.



Figure 21 Proposed social and market buildings on Block C4 as viewed from Main Street

Source: COX Architecture



Figure 22 Proposed social and market buildings on Block C4 as viewed from Shrimptons Creek

Source: COX Architecture

The key design features include:

- The market housing towers and social housing towers have been designed to be distinct but related buildings, unified through a consistent building podium. Both towers adopt a two storey reverse podium to Main Street, a four storey podium to the Neighbourhood Street, and three storey podium to the Neighbourhood Mews. The podium facing Shrimptons Creek is also four storeys in height and adopts a sawtooth building line, creating visual interest where the building doesn't need to provide a consistent edge to a street frontage (see **Figure 23** below). Face brick is used consistently across the building podiums as a unifying finish.

- The social housing building is provided with two lobbies on the building's western frontage (Neighbourhood Street), while the market building is provided with a main lobby facing Block C2's northern frontage (Main Street).
- Between the two buildings is a row of 4 residential townhouses that are each 3 storeys in height. These townhouses address the Neighbourhood Mews and are also finished in face brick to visually connect the two towers and read as a single complementary development from the street (see **Figure 24** and **Figure 25**).
- Both the social and market housing towers above the podium use deep recesses in the façade line to provide a sense of smaller floor plates, and angling the corners of the tower to capture views of the Shrimptons Creek corridor. The recesses on the market housing tower will be used as green walls.
- Communal open space provided between the towers forms an extension to the public domain and creates a landscaped setting for the towers and townhouses (see **Figure 26**). This includes a neighbourhood garden fronting Main Street, a central courtyard between the social and market housing buildings ('The Grove'), and an additional open space on the edge of the site between the market tower, Main Street and Shrimptons Creek ('Shrimptons Creek public open space'). The neighbourhood gardens and Shrimptons Creek space is publicly accessible, while The Grove is accessible to Block C4 residents only (both market and social housing residents). The planting palette comprises species endemic to the Sydney Turpentine Ironbark Forest and pollinator attracting species, whilst ensuring significant tree cover is achieved reflecting the Block's proximity to Shrimptons Creek.
- A storey voids are provided on Level 18 of the market housing tower will accommodate landscaped 'Sky Gardens' whilst the rooftop of the social housing tower will be used as an (inaccessible) green roof. The selection of species for these areas has accounted for their exposed conditions.

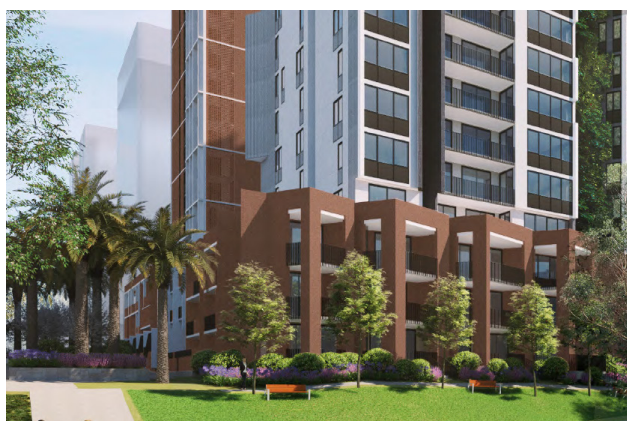


Figure 23 Sawtooth podium line to Shrimptons Creek

Source: COX Architecture



Figure 24 Townhouses facing the Neighbourhood Mews

Source: COX Architecture



Figure 25 Block C4 southern elevation, with social tower (left), townhouses (middle) and market tower (right)

Source: COX Architecture



Figure 26 Proposed ground level landscaping at Block C4

Source: Hassell

Access and parking

- Vehicular access to the social building in Block C4 will be provided from Neighbourhood Street 2 on the western frontage, whilst vehicular entry to the underground carparking levels for the Market housing is provided from the southern frontage of the Residential Mews.
- Access to the Block C4 loading dock is also provided from the Residential Mews. The loading dock provides a turntable to enable waste collection vehicles to enter and exit the dock in a forward direction
- Three levels of basement carparking will be provided with a total of 396 car spaces. This includes 371 spaces for residents and 25 spaces for visitors. 205 spaces are associated with the social housing building, and 426 spaces with the market housing building (including townhouses). 488 bicycle spaces are also provided, in addition to building plant, servicing, and storage (including waste storage) uses within the basement.

3.6 Stratum subdivision

It is proposed to subdivide Blocks C3 and C4 into Stratum Title lots corresponding to the mixed of uses considered in this application. Block C2 is proposed to be incorporated into Stage 1 Building C1 Stratum and completed on a staged basis. The proposed stratum subdivision is detailed in the plans at **Appendix M**, which show the proposed segregation of residential areas, retail, and community spaces, and those residences within Building C4 that will be used for market housing and social housing. The stratum subdivision also encompasses building services and dedicated basement parking.

The staged Torrens Title subdivision of Blocks C2, C3 and C4, for further proposed stratum subdivision, was approved as part of the Stage 1 SSDA.

3.7 Ecologically sustainable development

Stage 2 will achieve the sustainability targets that were nominated for development under the Masterplan, as detailed in the Sustainability Reports prepared by Integral Group (**Appendix N**). Buildings C2, C3 and C4 will achieve a 5 star Greenstar rating and incorporate the following sustainability measures:

- solar panels will be installed on the rooftop of the Block C3 building and the Block C4 market housing building to reduce electrical peak demand and greenhouse emissions;
- rainwater harvesting will be implemented (across Ivanhoe Estate) for re-use in irrigation and washdown;
- efficient domestic hot water (DHW) and heating, ventilation, and air conditioning (HVAC) systems;
- efficient lighting and electrical systems, including master switches and common area motion sensors to reduce electricity consumption;
- promotion of active transportation, including cycling and walking through bicycle storage/EOT facilities and efficient pedestrian infrastructure; and
- carbon offsets will be acquired, where necessary, to ensure that 100% energy supplied through Real Utilities is NCOS carbon neutral certified.

3.8 Waste management

The provision of bins and waste management measures for each component of the proposed development has been detailed in the Waste Management Plans (WMPs) prepared by Elephants Foot (Block C2) and SLR (Blocks C3, C4) at **Appendix O**, and summarised below:

- **Building C2:** This building will be provided with 1x 1100L general waste bin, and 1x 1100L recycling bin. Waste will be collected 3 times per week by a private waste contractor. Staff and contracted cleaners will transport all general waste and recyclables to the designated waste collection area and place into the appropriate collection bins. Waste collection will occur from the approved loading area accessed via the turntable shared with Block C1 (refer to SSD 8903 approval). Waste collection will occur separately from that of the Block C1 uses. The turntable enables the waste vehicle to enter and exit the site in a forward direction.
- **Building C3:**

- **Retail tenancies:** The proposed retail tenancies will be provided with approximately 2x 1100L general waste bins and 4x 1100L recycling bins (in total). Waste will be collected 6 times weekly for general waste, and 4 times weekly for recyclables by private contractor. Bin numbers and collection frequencies may be subject to change when tenants are confirmed, noting that different retail uses will result in different waste generation rates and requirements. Staff will transport all retail waste to the waste storage area on the Building C3 ground level. Waste collection will occur from the loading dock accessed via the turntable that enables vehicles to enter and exit the site in a forward direction.
- **Residential:** The residential component of Block C3 will be provided with 3x 1100L general waste bins, 6x 660L recycling bins, and a bulky waste room. Residents will dispose of waste via waste chutes provided for each building, one for general waste and one for recyclables. Waste collection will be undertaken by Council and occur 3 times per week for general waste, and 2 times per week for recyclables. Waste collection will occur from the loading dock accessed via the turntable that enables vehicles to enter and exit the site in a forward direction.
- **Building C4:** The Block C4 apartments will be provided with 8x 1100L general waste bins, 17x 660L recycling bins, and a bulky waste room in each building. 2x 120L bins (one general waste, one recyclables) will be provided for each townhouse. Waste management and disposal practices for Building C4.1 and C4.2 will be the same as Building C3. Residents of the townhouses will place their bins for collection on the kerb.

3.9 Utilities and infrastructure

Consent is sought to connect the proposed development to the relevant approved utilities infrastructure, including sewer drainage, potable water, gas services, and electrical infrastructure to enable its operation. This ties the detailed design of the proposed buildings to the provision and augmentation of infrastructure across Ivanhoe Estate approved as part of the Stage 1 works (SSD 8903). This is further discussed in the Utilities and Services Statement at **Appendix J** and **Section 6.20** below.

3.10 Development staging

Owing to the site's substantial size, it is necessary that the proposed buildings and public domain areas are constructed and occupied in stages. Accordingly, it is sought that the works described in this section of the EIS and detailed in the appended documents will be facilitated via staged Crown Building Works Certificates.

3.11 Construction management

A Preliminary Construction Management Plan (Prelim CMP) has been prepared by Frasers Property Australia at **Appendix DD**. The intent of the Prelim CMP is to provide preliminary discussion on the relevant construction processes and methodology to be employed by the appointed contractor. The appointed contractor will be required to prepare a detailed Construction and Environmental Management Plan (CEMP) based on the Prelim CMP, in accordance with the relevant Australian Standards and Occupational Health and Safety requirements, prior to the commencement of works.

The Prelim CMP discusses matters including noise and vibration management; air quality and dust management; stormwater and erosion; waste management; and traffic and pedestrian management, with reference to the findings of the relevant specialist consultants reports as further discussed in **Section 6.0** below.

The Prelim CMP confirms that the proposed hours of work at the site, to be as follows:

- 7:00 to 18:00 Monday to Fridays;
- 8:00 to 13:00 Saturdays; and
- No work on Sundays and public holidays.

Where there is a public order in relation to work hours in place, such as the *Environmental Planning and Assessment (COVID-19 Development—Construction Work Days) Order (No 2) 2021*, the standard hours of work may be amended in response to such an order.

The Prelim CMP should be read in conjunction with the Preliminary Construction Traffic and Pedestrian Management Plan (Prelim CTPMP), which forms part of the Traffic Statement prepared by Ason Group at

Appendix P, further discussed in **Section 6.10.1** below. Although also subject to finalisation, the Prelim CTPMP delineates how construction traffic for the Stage 2 works is expected to be managed at the site.

4.0 Consultation

A range of community and stakeholder engagement activities have been completed to inform the preparation of this EIS and the associated technical reports and plans. The consultation program included engagement with the local community and government authorities and agencies to present an overview of the proposed development and gather feedback during the preparation of the SSD DA. In undertaking this consultation, full consideration has been given to the SEARs.

The community consultation completed prior to the lodgement of this SSD DA is detailed in the Consultation Outcomes Report prepared by Elton Consulting (**Appendix Q**) and discussed in the following section.

In addition to this, the project team has consulted with:

- the Department of Planning, Industry and Environment in a preliminary scoping meeting on 22 February 2021;
- City of Ryde Council on 22 March 2021;
- the NSW Government Architect's office through the State Design Review Panel on 1 March 2021 and 17 June 2021; and
- relevant utilities and service providers as detailed by ADW Johnson in **Appendix J**.

4.1 Community consultation

An Engagement Outcomes Report has been prepared by Elton Consulting and is attached at **Appendix Q**. The report sets out the pre-lodgement engagement process undertaken to date with community groups and affected landowners, in accordance with the SEARs. The following consultation initiatives have been undertaken:

- A dedicated project email account has been setup for interested community members to ask questions and provide feedback.
- A letterbox drop was conducted to just over 7600 households within an 1km distribution area around the site on 3 June 2021. The drop provided affected landowners with postcards detailing the project, contact details and an invitation to a community drop-in session.
- A community drop-in session was held on 16 June 2021 between 5:30-7:30pm at Dunmore Lang College. The session was attended by 9 interested persons, comprising 3 purchasers of apartments within Building A1 and 6 from the wider community.

Overall, the Engagement Outcomes Report confirms that the community response to the development has been positive, with high levels of interest and excitement about the project. Feedback received is summarised within Table 2 of the Engagement Outcomes Report identifying that the provision of social housing as well as the delivery of community infrastructure and spaces has been positively received.

Few emails have been received to date through the project email, with responses ranging from neutral to positive, and predominantly relating to general inquiries about the development as further discussed within the report.

The postcards included in the letterbox drop and the information boards used during the community drop-in session are appended to the Engagement Outcomes Report for completeness.

4.2 Post-lodgement consultation

The proposed development will be placed on public exhibition in accordance the *Environmental Planning and Assessment Regulation 2000*. During the public exhibition period Council, State agencies and the public will have an opportunity to make submissions on the project.

5.0 Legislation, policy, and requirements

This section of the report assesses the proposed development's compliance with the relevant legislation, environmental planning instruments (EPIs), policies and guidelines. It addresses the matters for consideration set out in the SEARs (see **Section 1.6**). The identified environmental impacts at **Section 6.0** and mitigation measures at **Section 8.0** complement the findings of this section.

5.1 Secretary's Environmental Assessment Requirements

Table 1 in **Section 1.6** provides a summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this EIS and the accompanying technical studies.

5.2 Compliance with the strategic planning framework

The proposed development is consistent with the relevant regional and local strategic planning documentation, as assessed in **Table 3** below.

Table 3 Consistency with strategic planning framework

Name of plan	Comments
NSW Premier's Priorities	The NSW <i>Premier's Priorities</i> represent 15 of the key policy priorities for the NSW State Government. The proposed Stage 2 SSD DA is consistent with the priority to provide 'Greener public spaces'. The proposal will provide a new public park, the Village Green, which is within a 10 minutes' walk to all housing proposed within Stage 2 and convenient walking distance for residents of the greater Estate and surrounding areas via the Shrimptons Creek corridor or the new bridge connection to Lyonpark Road.
Greater Sydney Region Plan	<p>The Greater Region Plan was adopted in March 2018 and outlines the forty year vision regarding the expansion and growth of Greater Sydney.</p> <p>Under this Plan, Macquarie Park is highlighted as a strategic centre and health and education precinct as well as a Priority Growth Area. The proposal remains consistent with this strategic direction for Macquarie Park, providing further and more diverse residential dwellings and supporting community facilities in close proximity to employment opportunities and public transport. It is also remains consistent with the 10 directions established for delivering and monitoring the plan as assessed for the Ivanhoe Estate Masterplan to which this detailed SSDA is pursuant.</p>
North District Plan	<p>The North District Plan adopted in March 2018 establishes the 20-year vision for the North District and sets key priority actions, one of which is to create a sense of place, grow jobs and diversify activity in Macquarie Park.</p> <p>The North District Plan identifies a number of 'Planning Priorities' that are linked to the Greater Sydney Region Plan. This Stage 2 SSDA, pursuant to the approved Ivanhoe Estate Masterplan, remains consistent with a number of these priorities as follows:</p> <ul style="list-style-type: none"> • Infrastructure and collaboration: The development provides additional residential density in an area that is adequately serviced and benefits from close proximity to public transport and road infrastructure. • Liveability: The development proposes the second stage of mixed-tenure social and market housing in a new community that is well-connected to transport and employment opportunities, and that proposes significant landscape planting to contribute to the urban tree canopy. The delivery of the road network (approved within the Masterplan and Stage 1) will also provide new opportunities for walking and cycling through the precinct. • Productivity: The additional residential dwellings will support the ongoing growth of the Macquarie Park health and education precinct, allowing workers to live close to where they work. • Sustainability: Existing native vegetation on the site will be maintained and protected in accordance with the terms of the approved Stage 1 and Concept Masterplan SSDAs, and landscaping throughout the site will enhance the site's existing character. The proposed buildings considered under this application will also achieve the relevant ESD targets established under the Concept Masterplan. <p>The proposal also remains consistent with the Masterplan, which was developed in consultation with Land and Housing Corporation, state agencies, and private industry experts, in line with the Estate being identified as a Collaboration Area.</p>

Name of plan	Comments
Ryde Local Strategic Planning Statement 2020	<p>The <i>Ryde Local Strategic Planning Statement 2020</i> (Ryde LSPS) establishes a 20-year-plan setting out the council's vision and planning priorities as a response of the North District and Greater Sydney Region Plan.</p> <p>The Ryde LSPS aligns with the North District Plan and highlights the 'Planning Priorities' that are linked to the Greater Sydney Region Plan to a local context. Stage 2 SSDA, pursuant to the approved Ivanhoe Estate Masterplan, is consistent with the Ryde LSPS as follows:</p> <ul style="list-style-type: none"> • Infrastructure and collaboration: Block C2 provides key infrastructure such as community space and public open space to meet population demand • Liveability: Stage 2 will provide additional market housing and social housing options, aligning to the housing targets set out in the North District Plan • Productivity: Stage 2 will provide housing near the Macquarie Park health and education precinct, allowing workers to live close to where they work. • Sustainability: Stage 2 will provide public open space and walking paths allowing opportunities for recreation.
Ryde 2028 Community Strategic Plan	<p>The City of Ryde Community Strategic Plan "<i>Our Vision for Ryde 2028</i>" sets seven outcomes to achieving the vision of Ryde. The Stage 2 DA will be consistent with this Plan, including:</p> <ul style="list-style-type: none"> • Our vibrant and liveable city: The Stage 2 DA will provide a community centre and open space as a part of Block C2 as well as a range of housing types (social and market) creating a liveable neighbourhood. • Our active and healthy city: Block C2 provides open green space as well a community centre that is of easy access within the Estate. • Our natural and sustainable city: Stage 2 has been designed to achieve the sustainability targets nominated under the Concept Masterplan. • Our connected and accessible city: The Stage 2 DA will deliver walking and cycling connections throughout the site, that will connect to the wider Macquarie Park area. Future residents of the site will benefit from the close proximity of Macquarie University station, local bus services and the Metro station. • Our diverse and inclusive city: Stage 2 will provide an accessible community facility in the form of a community centre

5.3 Compliance with legislation and environmental planning instruments

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in the **Table 4** below.

Table 4 Consistency with legislation and environmental planning instruments

<i>Environmental Planning & Assessment Act 1979</i>	<p>The proposed development is consistent with the objects of the EP&A Act, in particular:</p> <ul style="list-style-type: none"> • It delivers social housing to support the welfare of the community; • It has been designed to ensure it responds to the terms of the Masterplan and the character of the site and surrounding area; • It represents the first stage in the delivery of the Masterplan, and as such supports the economic and orderly development of land; • It will incorporate biodiversity offset measures, tree protection, and replacement planting to conserve the natural environment; • It will provide buildings that achieve a range of sustainability targets and measures established under the Masterplan; and • Significantly, it will provide revitalised social housing to support those in need within Sydney. <p>The proposed development is consistent with Part 4 Division 4.1 of the EP&A Act, particularly for the following reasons:</p> <ul style="list-style-type: none"> • the development has been declared to have state significance; • the development is not prohibited by an environmental planning instrument; and • the development has been evaluated and assessed against the relevant heads of consideration under section 4.15.

	Furthermore, this application has been made pursuant to Section 4.24 of the EP&A Act, which states that whilst a Concept DA remains in-force, any further detailed application in respect to the site cannot be inconsistent with the consent for the Concept Proposal. This detailed SSDA has been made with reference to the Ivanhoe Estate Masterplan and is consistent with, and pursuant to, the Masterplan. This is discussed further in Section 5.4 below.																																		
<i>Environmental Planning & Assessment Regulation 2000</i>	<p>The EIS has addressed the specification criteria within clause 6 and clause 7 of Schedule 2 of the <i>Environmental Planning & Assessment Regulation 2000</i> (EP&A Regulation). Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see Section 6.26).</p> <p>As required by clause 7(1)(d)(v) of Schedule 2, the following additional approvals will be required in order to permit the proposed development to occur.</p> <table> <tr> <th>Act</th><th>Approval Required</th></tr> <tr> <td colspan="2">Legislation that does not apply to State Significant Development</td></tr> <tr> <td><i>Coastal Protection Act 1979</i></td><td>N/A</td></tr> <tr> <td><i>Fisheries Management Act 1994</i></td><td>N/A</td></tr> <tr> <td><i>Heritage Act 1977</i></td><td>N/A</td></tr> <tr> <td><i>National Parks and Wildlife Act 1974</i></td><td>N/A</td></tr> <tr> <td><i>Native Vegetation Act 2003</i></td><td>N/A</td></tr> <tr> <td><i>Rural Fires Act 1997</i></td><td>N/A</td></tr> <tr> <td><i>Water Management Act 2000</i></td><td>N/A¹</td></tr> <tr> <td colspan="2">Legislation that must be applied consistently</td></tr> <tr> <td><i>Fisheries Management Act 1994</i></td><td>No</td></tr> <tr> <td><i>Mine Subsidence Compensation Act 1961</i></td><td>No</td></tr> <tr> <td><i>Mining Act 1992</i></td><td>No</td></tr> <tr> <td><i>Petroleum (Onshore) Act 1991</i></td><td>No</td></tr> <tr> <td><i>Protection of the Environment Operations Act 1997</i></td><td>No</td></tr> <tr> <td><i>Roads Act 1993</i></td><td>No</td></tr> <tr> <td><i>Pipelines Act 1967</i></td><td>No</td></tr> </table>	Act	Approval Required	Legislation that does not apply to State Significant Development		<i>Coastal Protection Act 1979</i>	N/A	<i>Fisheries Management Act 1994</i>	N/A	<i>Heritage Act 1977</i>	N/A	<i>National Parks and Wildlife Act 1974</i>	N/A	<i>Native Vegetation Act 2003</i>	N/A	<i>Rural Fires Act 1997</i>	N/A	<i>Water Management Act 2000</i>	N/A ¹	Legislation that must be applied consistently		<i>Fisheries Management Act 1994</i>	No	<i>Mine Subsidence Compensation Act 1961</i>	No	<i>Mining Act 1992</i>	No	<i>Petroleum (Onshore) Act 1991</i>	No	<i>Protection of the Environment Operations Act 1997</i>	No	<i>Roads Act 1993</i>	No	<i>Pipelines Act 1967</i>	No
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<i>Pipelines Act 1967</i>	No																																		
Biodiversity Conservation Act 2016	<p>In accordance with this Act, an assessment of any State Significant proposal's biodiversity impacts must be undertaken as part of the provision of any SSDA, including the provision of a Biodiversity Development Assessment Report (BDAR) in instances where it is required.</p> <p>An application was lodged prior to the lodgement of this DA requesting that the Department, in consultation with EES Group, waive the requirement to prepare a BDAR. The Concept Masterplan and Stage 1 SSDA, which granted consent for all tree removal across the Estate, was assessed as a transitional project against the <i>Environment Protection and Biodiversity Conservation Act 1999</i> and an offset strategy was approved for all development within the Estate. Accordingly, all biodiversity assessment and offset obligations have been met and a waiver from the need to prepare a BDAR was issued on 13 July 2021 (see Appendix L).</p>																																		
SEPP 55 – Remediation of Land	<p>Comprehensive site investigations were completed as part of the Masterplan and Stage 1 SSDAs including a Preliminary and Detailed Site Investigation and Remedial Action Plan prepared by DLA Environmental. A subsequent Section B Site Auditor Statement was also submitted confirming that the site could be made suitable for the proposed uses subject to the implementation of the RAP.</p> <p>A further Site Auditor Report and Site Auditor Statement is provided at Appendix G prepared by James Davis of Enviroview confirming that the soil remediation and validation works have been appropriately undertaken as required under the previous approvals. It is considered that the soils at the site are suitable for the proposed land uses.</p>																																		

¹ As the proposed development is within 40 metres of a natural water course it would, but for the project being SSD, require an activity approval under section 91 of the *Water Management Act 2000*. This includes the potential need for a Water Access License/s for groundwater inflows that may be higher than 3 megalitres a year for Blocks C3 and C4 as identified in the Geotechnical Investigations provided at **Appendix F**.

SEPP (Infrastructure) 2007	Clause 104 of the SEPP applies to the Stage 2 SSDA as it is a traffic generating development in the meaning of Schedule 3 of the SEPP. Accordingly, the DA will be referred to TfNSW. Traffic generation is discussed further in the Transport Assessment prepared by Ason Group (Appendix P) and Section 6.10 of this EIS.
SEPP (State and Regional Development) 2011	<p>The Ivanhoe Estate is identified as a State Significant Site in Schedule 2 of <i>State Environmental Planning Policy (State and Regional Development) 2011</i>. Development within the Ivanhoe Estate with a capital investment value of more than \$20 million is SSD for the purposes of the EP&A Act. As the proposed development exceeds this value (see the QS Statement provided), it is SSD.</p> <p>The Minister for Planning and Public Spaces is the consent authority for SSD where the application to carry out the development is made by or on behalf of a public authority (Clause 8A of SEPP SRD). LAHC is a public authority, and therefore the Development Application will be assessed by DPIE and determined by the Minister.</p>
SEPP (Affordable Rental Housing) 2009	Refer to Section 5.3.1 below.
SEPP (Building Sustainability Index: BASIX) 2004	BASIX certificates are provided at Appendix R for the residential dwellings proposed as part of this SSDA.
SEPP 65 – Design Quality of Residential Flat Buildings.	A assessment against the principles of SEPP 65 has been completed by both COX Architecture and Fox Johnson for the residential components of Buildings C3 and C4, demonstrating that the development on the site achieves a high-quality outcome. Compliance against the Apartment Design Guide (ADG) is also assessed in each of the Design Reports and Plans at Appendix B in the context of the Masterplan, as discussed in further detail at Section 6.3 below.
DRAFT SEPP – Environment	The Draft SEPP Environment was released for public exhibition in October 2017 and aims to repeal and replace a number of SEPPs and SREPs that currently apply in NSW. Under the Draft SEPP, the site is identified as being within an area of ‘Urban Bushland’ and as such would be subject to controls relating to the protection of land that is reserved for public open space. No portion of the Estate is zoned for this purpose at this time, and as such the provisions of the Draft SEPP do not apply.
SEPP Sydney Drinking Water Catchment	The Estate does not fall within the Sydney Drinking Water Catchment Map, and as such this SEPP does not apply.

5.3.1 State Environmental Planning Policy (Affordable and Rental Housing) 2009

State Environmental Planning Policy (Affordable Rental Housing) 2009 (ARH SEPP) sets the standard for the development and maintenance of affordable rental housing in NSW.

Division 1 of the ARH SEPP applies to development that is permitted with consent under an environmental planning instrument, is located on a site that does not contain a heritage item and where all or part of the development is within an accessible area. The proposed development is permissible with consent under the Ryde LEP 2014 in the B4 Mixed Use zone, is not affected by a heritage item and is located within 500 metres of Macquarie University Station.

Clause 13 of the SEPP permits an FSR bonus if at least 20% of the GFA of the development is to be used for affordable housing. Under the SEPP the term ‘affordable housing’ includes social housing. However, it is emphasised that the FSR of development across the Ivanhoe Estate was assessed and determined as part of the Concept Masterplan, including the utilisation of applicable bonuses. The proposed Stage 2 buildings comply with the GFA caps established for each development block as assessed in **Section 5.4** below.

The key provisions of the ARH SEPP have been considered in the preparation of the SSD DA and are addressed in **Table 5** below.

Table 5 Assessment against the ARH SEPP

Provision	Assessment
Division 1 – In-fill affordable housing	
Clause 13 – Floor space ratio	The Concept Masterplan application nominates a GFA cap for development on the site, which includes a specific breakdown of affordable and social housing and the respective FSR bonus that would apply. Stage 2 of the development is consistent with the terms of the Masterplan in this respect, as illustrated in Section 5.4 below.
Clause 14 – Standards that cannot be used to refuse consent	The following standards set minimums that the consent authority cannot be used to refuse consent. It is noted that not achieving the standard is not a non-compliance.
<i>1(b) if the sites area is at least 450m².</i>	The Estate is 8.2 hectares, and the final subdivision of Block C4 approved as part of the progressive Torrens Title subdivision proposed in the Stage 1 SSDA is approximately 6,960m ² , and including a component of the Neighbourhood Mews it is 7,015m ² .
<i>1(c) at least 30% of the site is landscaped.</i>	Block C4 provides a mix of ground floor communal open space and public domain areas, with a combined minimum area of over 3,508m ² (or 50% of the future block).
<i>1(d) 15% of the site is provided as a deep soil zone with a minimum dimension of 3 metres and (if practicable) at least two thirds of the deep soil zone is located at the rear of the site.</i>	Block C4 provides deep soil area comprising 15% of the future block that is predominantly located at the rear of the block where it interfaces with Shrimptons Creek, consistent with the Masterplan. 15% of the Estate will be provided as a deep soil zone, with a minimum dimension of 3 metres or more.
<i>1(e) 70% of living rooms and private open space receive at least 2 hours of direct sunlight between 9am and 3pm in mid-winter.</i>	The analysis provided within the Design Report prepared by COX Architecture (see Appendix B) confirms that Block C4 will achieve at least 65% of dwellings with 2 hours of solar access in mid-winter. This is consistent with the Masterplan assessment and is discussed further in Section 6.3 below. It is emphasised that strict compliance with this clause is not required under the SEPP, rather this is a standard that if complied with cannot be used as a reason to refuse consent.
<i>2(a) car parking (minimum rates) 1 bedroom – 0.4 space 2 bedrooms – 0.5 space 3 bedrooms – 1 space</i>	Condition A18 of the Masterplan consent, to which this application is pursuant, nominates parking rates for housing subject to the ARH SEPP. As detailed in Section 6.10 below, the proposed development achieves the nominated rates.
<i>2(b) dwelling size</i>	The Architectural Plans and Design Report for Building C4 at Appendix B demonstrate that the proposed social housing dwellings (as a type of affordable housing) achieve the required dwelling sizes, which are generally consistent with the provisions of the ADG.
Clause 16 – Continued application of SEPP 65	SEPP 65 applies to the proposed development as it is development for the purpose of a residential apartment building. Compliance with SEPP 65 is set out in Section 6.3 and Appendix B .
Clause 16A	The existing Ivanhoe Estate site has been used as social and affordable housing for approximately 30 years. The proposed redevelopment of the site is permissible with consent under the Ryde LEP 2014 and is consistent with the strategic vision for the Macquarie Park Priority Precinct, where homes are located in close proximity to employment and public transport.
Clause 17 – Must be used for affordable housing for 10 years	The affordable housing component of the development will be used as such for at least 10 years.

5.3.2 Ryde Local Environmental Plan 2014

The *Ryde Local Environmental Plan 2014* (RLEP 2014) is the site's principal environmental planning instrument. An assessment against the relevant clauses of the RLEP 2014 is provided in **Table 6** below.

Table 6 Assessment against RLEP 2014

Clause	Control
2.1 – Lane use zones	B4 Mixed Use Residential, retail, a community facility, and recreation facility (indoor) are all uses that are permissible with consent in the B4 Mixed Use zone applying to the site. There are no prohibitions applying to the proposed development.

Clause	Control	
4.3 – Height of buildings	LEP: Northern: 45m Southern: 65m Masterplan: C2: 12m C3: 55m C4 Social: 55m C4 Market: 75m	The detailed buildings proposed in this SSDA are consistent with the building heights that were established by the approved building envelopes as part of the Masterplan. Accordingly, the proposed height of Building C2 is significantly beneath the mapped maximum height limits contained in the LEP, while Buildings C3 and C4 partially sit above the mapped maximum height limits. A Clause 4.6 Variation request is provided at Appendix EE to address where these detailed building designs (consistent with the approved building envelopes) do not align with the mapped building height controls in the LEP. This enables this next staged DA to be granted consent where it contravenes the applicable development standard. This variation request is administrative in nature and does not introduce any changes to the built form controls established under the approved Masterplan to which this application is pursuant.
4.4 – Floor space ratio	2.9:1 - Ryde LEP 3.53:1 - Masterplan	As detailed in Section 5.4.1 below, the proposed Stage 2 buildings will deliver a total of 55,386m ² of GFA. Inclusive of the approved Stage 2 buildings (A1 and C1), which provides a further 54,376m ² of GFA, the total GFA is 109,436m ² over a total lot area of 8.29 hectares for an FSR of 1.3:1. Accordingly, these two stages of development comply and remain well below the maximum permitted FSR under the Ryde LEP 2014.
5.10 – Heritage conservation	N/A	There are no listed heritage items present on the site and the site is not located within a heritage conservation area. The Masterplan was accompanied by an Aboriginal and Historical Assessment confirming that the site has no European heritage significance. A further detailed Aboriginal Cultural Heritage Assessment Report (ACHAR) has been prepared for this SSDA and is provided at Appendix I and discussed further in Section 6.13 below.
6.1 – Acid sulfate soils	N/A	The site is not affected by acid sulfate soils.
6.13 – Design excellence	Design excellence is further discussed in Section 5.5 below.	

5.3.3 Ryde Development Control Plan 2014

As SSD, the *Ryde Development Control Plan 2014* (Ryde DCP) does not apply to Stage 2 of the Ivanhoe Estate redevelopment. The Ivanhoe Estate Masterplan and associated Urban Design Guidelines set the new vision for development on the site and have the same effect and purpose as a site-specific DCP. Together, they establish the parameters for future development in the form of building envelopes and apply detailed objectives and design principles to shape the design development of buildings.

This approach is in accordance with Section 4.22 of the EP&A Act that confirms that a Staged DA may set out concept proposals (i.e. the Masterplan) for the development of a site to which separate and future detailed proposals (i.e. the Stage 2 DA) are pursuant. A concept proposal may also be undertaken in lieu of the preparation of a site-specific DCP in accordance with Section 4.23 of the EP&A Act.

It is noted that SSD applications are treated differently to regular 'local' and 'regional' developments, with a range of other legislation not applying (Section 4.41 and 4.46 of the EP&A Act) and other legislation needing to be applied consistently with the terms of any SSD consent (Section 4.42 of the EP&A Act). Accordingly, in this instance Development Control Plans are specifically excluded from being applicable to SSD applications per Clause 11 of the *State Environmental Planning Policy (State and Regional Development) 2011*.

An assessment of the Stage 2 proposal against the terms of the Masterplan and the provisions of the Ivanhoe Urban Design Guidelines is discussed in **Sections 5.4** and **6.1** of the EIS, and addressed in the Design Reports at **Appendix B**.

5.4 Consistency with the Concept DA

Under Section 4.24 of the EP&A Act, whilst a Concept DA remains in-force, any further detailed application in respect to the site cannot be inconsistent with the consent for that Concept Proposal. This detailed DA has been made with reference to the Ivanhoe Estate Masterplan and is consistent with, and pursuant to, the Masterplan. An

assessment against the key features of the Masterplan has been provided in **Table 7** below, while an assessment against the conditions schedule is provided at **Appendix Z** of this EIS. Detailed discussions concerning the mitigation measures and strategies proposed under the Masterplan are addressed where relevant in the following components of **Section 6.0**.

Table 7 Consistency with Concept Masterplan approval

Component	Discussion
Land Uses	The proposed residential, retail, community and indoor recreation uses are consistent with what was considered under the Masterplan. The suitability of these uses was addressed in the Masterplan and has been further demonstrated in the following sections of the EIS. The detailed fit-out and operation of the non-residential tenancies will be subject to separate and future applications.
Gross Floor Area and Floor Space Ratio	Stage 2 of the Ivanhoe Estate redevelopment is compliant with the GFA and FSR established for the Estate. Refer to the breakdown in Table 8 below.
Building Envelopes	Blocks C2, C3 and C4 have been designed with regard to the approved building envelopes, and to be consistent with the Ivanhoe Estate Design Guidelines as demonstrated in the Design Reports at Appendix B . While it is noted that Building C2 has a built form element that sits outside of the building envelope, this area is inconsequential and does not affect compliance with any other provision of the Masterplan consent as explored in Section 5.4.2 below, and detailed in the compliance table at Appendix Z of this EIS.
Access Arrangements	No change is proposed to the approved road network. The detailed design of Blocks C2, C3 and C4 will comfortably tie-into this road network.
Public Domain	Stage 2 will deliver public domain areas associated with Blocks C2, C3 and C4. Importantly, this stage of the redevelopment will provide the new public park known as the Village Green. These areas will achieve the relevant Design Guidelines established under the Masterplan as demonstrated at Appendices B and C and discussed further in Section 6.1 below.
ESD	The proposed Stage 2 buildings have been designed to achieve the sustainability targets nominated under the Masterplan, as demonstrated in the ESD Reports at Appendix N and discussed in Section 6.26.1 below.
Development Staging	The delivery of Blocks C2, C3 and C4 is consistent with the indicative staging plan contained in the Masterplan, ensuring that social housing is provided concurrently with market housing as well as supporting community facilities, open space and retail.
Design Guidelines	An assessment against the Design Guidelines has been undertaken for each of the Stage 2 Blocks (see Appendix B).

5.4.1 Land use, gross floor area, and floor space ratio

Stage 2 of the Ivanhoe Estate Masterplan will provide two residential flat buildings on Block C4, a mixed use building (retail and residential) on Block C3, and a community centre and public open space on Block C2. The proposed use of the site is consistent with the Masterplan and relevant legislation governing the desired character of the area, in providing integrated residential and compatible non-residential uses in an accessible location that supports the vitality of the Macquarie Park Corridor.

The composition of this floor space in the context of the Masterplan is detailed in **Table 8** below.

Table 8 Land use and GFA by development block

Development Block	Maximum GFA (m ²)	Uses	Detailed Development (m ²)
A1	24,000	Residential, childcare	21,580 *
A2	10,000	Residential	-
A3	12,000	Residential	-
Precinct A Total	46,000		21,580
B1	8,000	Residential	-
B1.2/3/4	17,000	Residential aged care	-
B2	5,000	School, childcare	-
B3	21,000	Residential	-
Precinct B Total	51,000		-

Development Block	Maximum GFA (m ²)	Uses	Detailed Development (m ²)
C1	37,000	Residential, retail/community	33,480 *
C2	3,000	Community	1,632
C3	15,000	Residential, retail, community facilities	14,897
C4	43,000	Residential	37,847
Precinct C Total	98,000		87,856
D1	33,000	Residential	-
D2	18,000	Residential	-
D3	18,000	Residential, Mission Australia Offices	-
D4	39,000	Residential	-
Precinct D Total	108,000		-
Total	268,000		109,436

* Buildings approved under a separate SSDA

5.4.2 Building envelopes

The Concept Masterplan approved building envelopes for each of the development blocks within the Ivanhoe Estate. These building envelopes define the parameters within which the detailed design of buildings will occur, determining the overall bulk and scale of future buildings.

The proposed detailed buildings are not inconsistent with these approved building envelopes, including the permitted GFA as discussed in **Section 5.4.1** above and maximum heights nominated for the building podiums and the towers to the roof line. The buildings are also each designed to comply with the setback requirements, open space areas, and deep soil controls specified in the endorsed Design Guidelines as demonstrated in the Design Reports at **Appendix B**.

However, there is one area where Building C2 protrudes from the approved building envelope nominated in the Concept Masterplan. As illustrated in **Figure 27** and **Figure 28** below, a minor corner of the indoor pool and accessible rooftop approximately 1.2m in height is sitting outside of the building envelope, equating to 34m². This outcome is supported for the following reasons:

- The minor proposed area is required to provide a legible floor plate and ensure there is adequate circulation space around the indoor pool.
- The building occupies a significantly lesser area than what would otherwise be permitted under the approved building envelope, ensuring that the proposed development more than compensates for the minor additional area required outside of this envelope.
- The 25m setback to Building C3 is achieved as nominated for the Block C2 building envelope, providing an open and legible through-site link.
- The Village Green is over 3,300m² in area including informal and formal gathering spaces as required under Condition A15 of the Concept Masterplan, ensuring the minor proposed area of Building C2 does not impact the usability and scale of this new public park.
- Deep soil is also still provided across Block C2, and in an increased area owing to the proposed floor plate of the building not covering the full volume of the approved building envelope.

Accordingly, Block C2's overwhelming compliance with the controls determining the density of the building, its relationship to the adjoining Building C3, and the scale of public open space to be provided on the site, renders the overall development not inconsistent with the terms of the approved Concept Masterplan irrespective of the minor proposed protrusion.

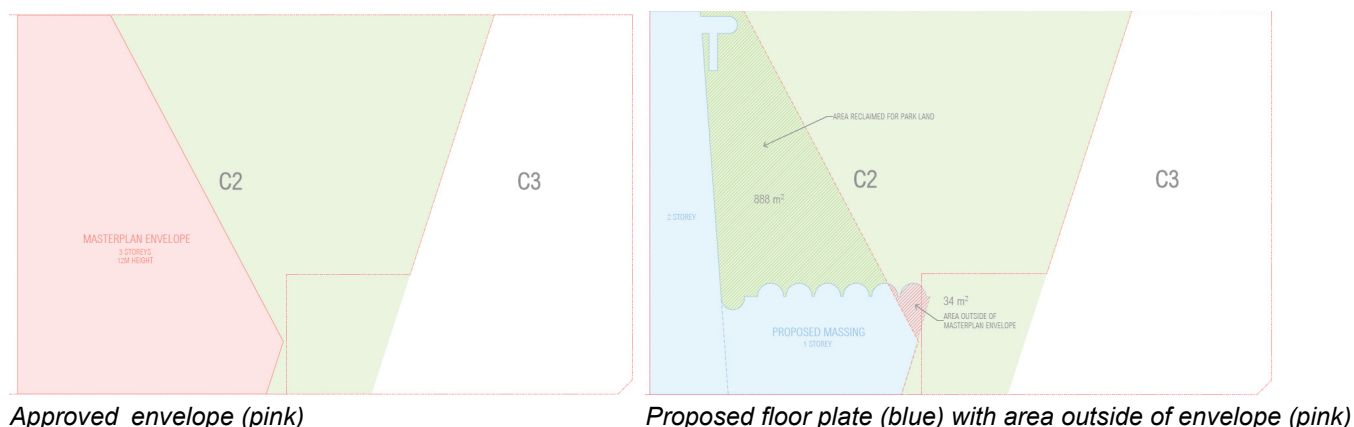


Figure 27 Plan comparing the approved envelope to the proposed Building C2 floorplate

Source: Chrofi

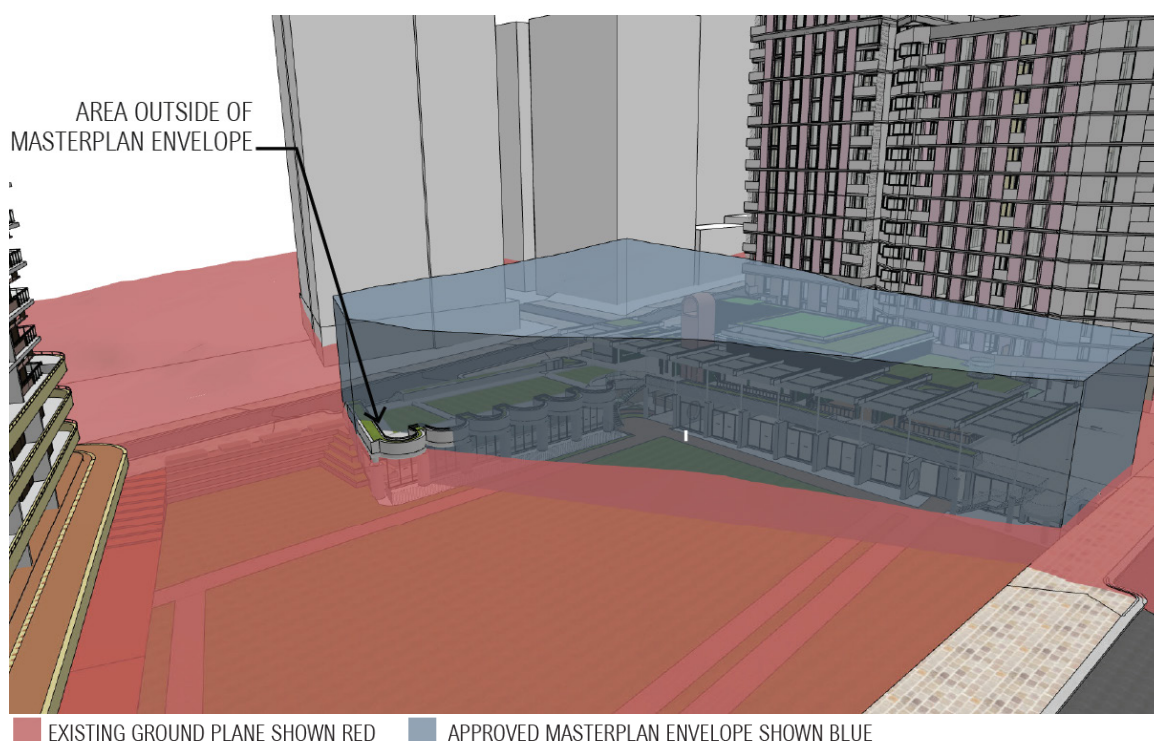


Figure 28 Minor area of the building façade projecting outside of the building envelope

Source: Chrofi

5.5 Design excellence

5.5.1 Design competitions and process

Design excellence was a major component of the LAHC tender process to select a development team for the Ivanhoe Estate. This process ran from March 2016 until August 2017 and as part of the process, three proponents submitted detailed Masterplans that were prepared by established Australian Architectural practices, including Cox Architecture, the architects of Block C4. These submissions were then evaluated by LAHC in consultation with their expert design advisors. The winning submission became the Ivanhoe Concept Masterplan (SSD 8707) and was developed with the guidance of the Design Review Panel and the assessment process.

The adopted Design Excellence Strategy prepared for the Masterplan (see **Appendix D**) requires a minimum of 2 development blocks to be subject to an architectural design competition. The applicant has nominated Blocks B2 and B3 as the blocks which will undertake a full design competition. Nevertheless, two blocks under the proposed Stage 2 works, C2 and C3, have been subject to paid internal competitive design processes that commenced in October 2020.

Frasers Property recognise the importance of good design and this process sought to stimulate innovative and imaginative architectural urban design solutions and respond to the unique characteristics of each site. Whilst not representing a formal invited architectural design competition under the terms set out in the Design Excellence Strategy, these processes were undertaken to ensure the best possible urban design outcome is achieved for these sites at the heart of the Ivanhoe Estate.

Frasers Property commissioned a two-stage design competition for Blocks C2 and C3, independent of one another:

- Stage 1 – Expression of Interest sent to a select number of architects with relevant experience dedicated to design excellence. Frasers then shortlisted three consortiums to progress to Stage 2.
- Stage 2 – Three consortiums were requested to develop an architectural and integrated landscape concept design for subject sites. The successful consortiums were then engaged to develop the relevant documentation.

The EOI and design competition was run in accordance with the *Australian Institute of Architects, Expression of Interest and Requests for Tender for Architectural Services Guidelines* and was assessed by a team of managers and directors, who include Architects and Landscape Architects within FPA, and an external Masterplan Architect representative.

The Jury for the internal design competitions was made up of a Frasers Property team members along with two external jurors being Matthew Allen from Bates Smart, the lead designers of the approved Masterplan, and Michael Rowe from Ethos Urban.

At the outcome of these competitions:

- The design of Block C2 was awarded to McGregor Coxall (Village Green) and CHROFI (community centre) as the design best brought together the landscape and community uses into a comprehensive precinct at the heart of the Masterplan.
- The design of Block C3 was awarded to Fox Johnston as the design brought innovative communal spaces into the building design, and enabled Frasers Property to work with an up-and-coming Architectural practice.

5.5.2 State Design Review Panel

Following the resolution of the initial design schemes by the winning teams and COX Architecture (part of the original Concept Masterplan team) selected to design Building C4, the project team met with the NSW Government Architect's State Design Review Panel (SDRP) on two occasions prior to the lodgement of this SSDA (1 March 2021 and 17 June 2021). The SDRP issued written feedback on 20 April 2021 following the first meeting, which was responded to in the second SDRP meeting (with evidence provided as part of the Design Reports at **Appendix B** and **Appendix C**). The SDRP also issued written feedback on 1 June 2021 following the second meeting which has been addressed in the design documents at **Appendix B** and detailed in the response table at **Appendix FF**.

5.5.3 Design integrity

The refinement of the Stage 2 Blocks will be undertaken in accordance with the Design Excellence Strategy prepared for the Concept Masterplan (**Appendix D**), to ensure the integrity of the proposed architectural and landscape design is translated into the construction drawings. Namely, in addition to preparing the relevant Development Application documentation, the Design Team will be expected to:

- retain lead roles over the relevant design decisions in the preparation of the design drawings for Crown Certificates for the preferred design;
- retain lead roles over design decisions in the preparation of the design drawings for the contract documentation; and
- maintain continuity during the construction phases to the completion of the project.

6.0 Environmental assessment

This chapter of the EIS contains an assessment of the environmental effects of the proposed development as described in the preceding chapters of this report.

Under Section 4.15(1) of the EP&A Act, in determining a development application the consent authority must consider a range of matters relevant to the development, including the provisions of environmental planning instruments (addressed in **Section 5.0**); impacts of the built and natural environment, the social and economic impacts of the development; the suitability of the site; and whether the public interest would be served by the development.

The following assessment includes only those key matters under Section 4.15(1) that are relevant to the proposal. Where relevant, recommendation subsections have been provided summarising the findings of specialist consultant inputs, including any mitigation measures found to be necessary.

6.1 Built form and urban design

The proposed development is considered to achieve a high-quality built form and urban design outcome that is consistent with the vision for the site established under the Ivanhoe Estate Concept Masterplan. Built form and design parameters are established within the approved Ivanhoe Estate Masterplan Guidelines, which delineates the relevant building height, street level height, setbacks, building façade design and rooftop design and other matters. These are discussed in further detail below.

The proposed development is considered to be consistent with these requirements, and has addressed the matters raised in the SEARs.

6.1.1 Height, bulk, and scale

The proposed development has been designed in accordance with the building envelopes established under the Ivanhoe Concept Masterplan. The final approved envelopes represent the culmination of a rigorous and comprehensive planning process, that demonstrates the ideal built form parameters to be delivered at the site. Consistency with the envelopes is further discussed at **Section 5.4.2** above.

The Block C3 and C4 residential buildings by virtue of their scale have been designed with the minimisation of bulk and height in mind. This has been achieved through fine-grain architectural detailing including the incorporation of split, angled and expressive articulation elements, with the utilisation of a diverse materiality and colour palette along each façade. The underlying intention is to provide a visually engaging built form with a number of different and fragmented massing elements with well-defined vertical and horizontal gaps, preventing the appearance of large, blank elevations (see **Figure 29** and **Figure 30**).



Figure 29 Block C4 market building articulation elements

Source: COX Architecture

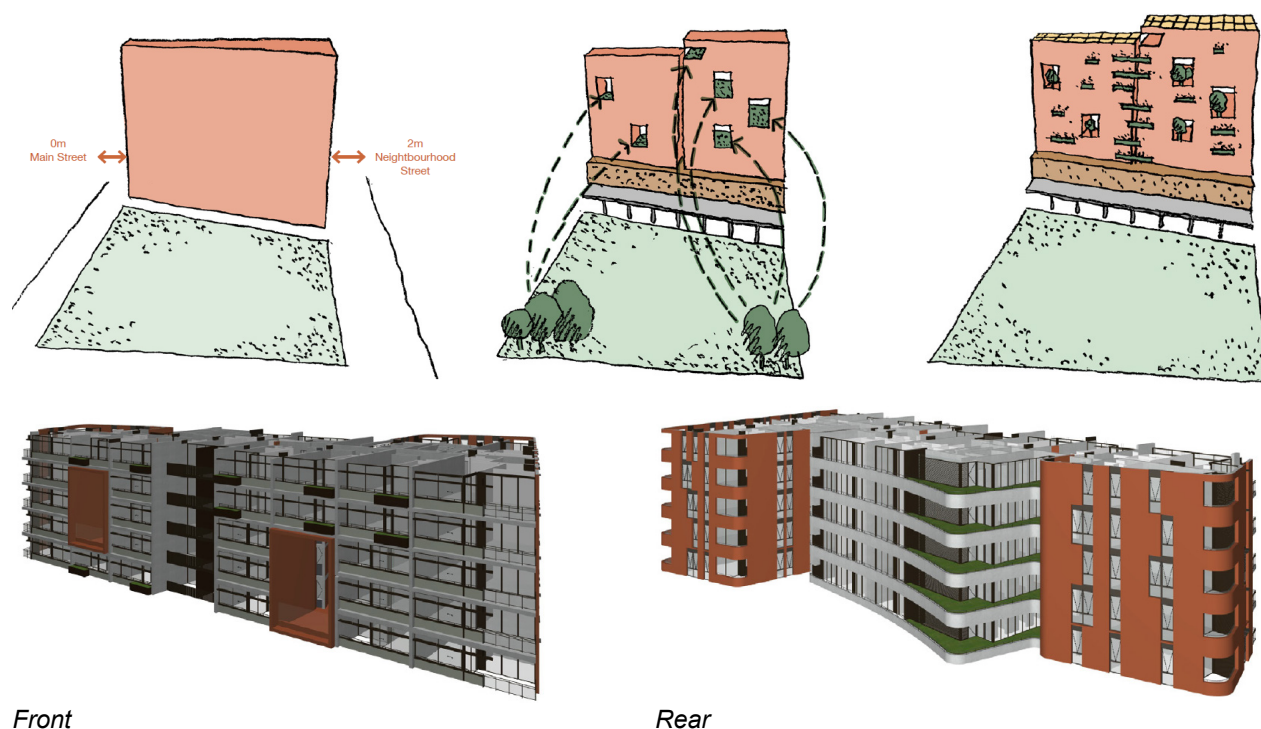


Figure 30 Building C3 building articulation elements

Source: Fox Johnston

Blocks C3 and C4 employ podium-and-tower style built forms with differing setbacks for their lower and upper floors in accordance with the approved building envelopes and Design Guidelines, to provide an enhanced streetscape interface reflective of the human scale as further discussed in **Section 6.1.4**. The location and design of the communal open spaces within the buildings also assist in 'breaking up' the sides of the buildings. The Building C3 'forest rooms' along its northern elevation facing the Village Green provide further visual diversity and architectural detailing, communicating the 'green' nature of the redevelopment of Ivanhoe Estate. Non-trafficable gardens are also provided on all levels, most prominently levels 1-3 (the podium residential levels) and level 15. The Block C4 buildings employ a sky garden at level 18 of the market building and green roof on the social building, introducing additional architectural features and greenery into the built form.

Minimisation of bulk and scale is further discussed in the Design Reports at **Appendix B**.

6.1.2 Human scale and streetscape

The street level heights (podium heights) of development on the site has been set by the approved Ivanhoe Estate Masterplan Guidelines. The Guidelines state that, for neighbourhood streets, buildings should express a 2-4 storey scale on the lowest levels of the buildings. A negative podium arrangement may be employed for Main Street, also adopting 2-4 storey streetwall. The proposed development is consistent with these street level heights:

- Block C2 fronts a neighbourhood street on its southern frontage. As the community centre itself is only 2 storeys above ground, this control is irrelevant.
- Block C3 fronts neighbourhood streets on its eastern and southern frontages. The design of Building C3 provides for a 3 storey scale facing these frontages (**Figure 31**).
- Block C4 fronts a neighbourhood street on its western frontage. The C4 social housing building provides for a 3 storey scale along this frontage (**Figure 32**).
- Blocks C3 and C4 front Main Street on its northern frontage and adopt a nil setback to this central spine through the Estate. A negative podium is used to create human scale consistent with the Guidelines.

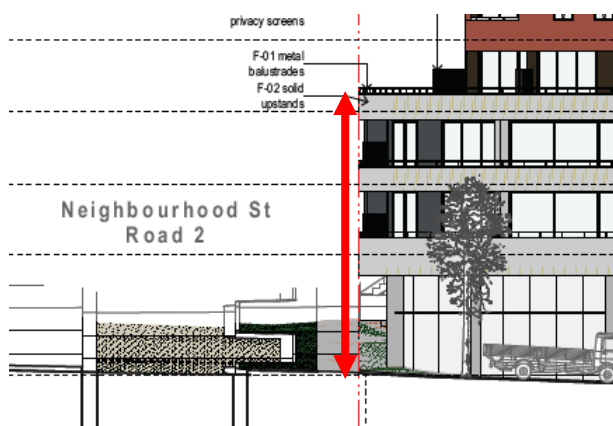


Figure 31 Block C3 – 3 storey street wall height to Neighbourhood Street 2

Source: Fox Johnston, edits by Ethos Urban



Figure 32 Block C4 – 3 storey street wall height to Neighbourhood Street 2

Source: Cox, edits by Ethos Urban

Creating a strong building podium of a consistent 2-4 storey scale across the Estate ensures that that an appropriate interface is provided to the streetscape and buildings are not overbearing at the pedestrian scale. In addition to upper level setbacks to create distinct building podiums, Building C3 provides a pedestrian awning to further establish a comfortable human scale at the ground level.

The ground level of Building C3 has also been designed to be permeable and accessible, as an extension of the Village Green to which it directly interfaces with. Retail tenancies have provided to the parkland frontage and wrapping around the corners of the building to provide a vibrant and activated public domain during both day and night, including opportunities for outdoor seating interfacing with the through-site link running along the edge of the open space (**Figure 33**).

For Building C4, the provision of townhouses along the Neighbourhood Mews and individual apartment entrances at the building edges where the topography allows (**Figure 34**) creates a fine-grain urban scale and promotes activation and passive surveillance to the streetscape, while being reflective of the more passive, residential nature of Block C4 at the edge of Shrimptons Creek.



Figure 33 Block C3 retail frontage facing Village Green

Source: Fox Johnston, edits by Ethos Urban



Figure 34 Block C4 terraced townhouses facing the Neighbourhood Mews

Source: Cox, edits by Ethos Urban

6.1.3 Setbacks

The approved Ivanhoe Estate Masterplan Guidelines establish minimum setbacks required for buildings on the site including ground level setbacks, upper level setbacks, and setbacks to Shrimptons Creek. Hence, the proposed development is compliant with these requirements. The southern frontage of Block C2 (community centre) contains a substation that is setback 1.5 metres from the neighbourhood street, representing a numerical noncompliance. Nevertheless, an integrated landscape planter and green wall has been provided to mitigate this impact, noting that

the community centre at only 1 storey above ground to this frontage does not contain sufficient height or bulk for this setback to become an issue. The southern end of the building is otherwise generally hidden within the landscaped green roof.

6.1.4 Façades and materiality

The Design Reports at **Appendix B** confirm that the proposal employs a diverse but compatible materials and finishes palette that improves visual interest and responds to the requirements of the Design Guidelines, which include recommendations on the use of masonry as the prominent façade material for the lower levels of residential buildings, and for colour palettes to adopt warm, naturally occurring hues. In this regard:

- The community centre predominantly comprises concrete with steel and aluminium framing, chosen for its robustness and strong ability to integrate with the surrounding landscaping. Durable, low maintenance materials with naturally occurring hues have been chosen in response to the requirements of the Design Guidelines. Similarly, the materials palette of landscaping and furniture within the public open space has been designed to provide for a sense of coherency throughout the park. Sandstone excavated from the site will be left exposed in the indoor pool space and integrated into the design of the Village Green to retain a connection to the land.
- The ground level and podium façade of Building C3 comprises a bush-hammered concrete texture intended to link to textures of the local ironbark forest. The tower façade invokes warm hues and comprises concrete cladding as a lightweight material suitable for high-rise construction, with a varied colour pallet used to emphasise the multi-storey forest rooms within the façade.
- The Block C4 buildings utilise face brick with warm, earth-red hues as the predominant material at podium levels and for the townhouses, reinforcing a consistent base for development in this Block. The upper levels comprises concrete, brick, and Compressed Fibre Cement (CFC), with colours and opportunities for visual diversity provided in accordance with the Design Guidelines. While the Block C4 buildings will be visually distinct to promote architectural diversity in the Estate, and avoid repetitive built forms in the skyline, they are related and have been designed with the intent of achieving tenure blindness.

Hence, it is considered that the materiality of the proposed Stage 2 buildings exhibits a high degree of architectural excellence and consistency with the controls and intended objectives of the Ivanhoe Masterplan Design Guidelines.

6.1.5 Rooftop design

The Masterplan Design Guidelines stipulate that private and rooftop terraces should be provided where possible for residents, accommodate solar panels, and facilitate interesting silhouettes with no residential accommodation above the maximum approved height. In this regard:

- A green roof is provided for the Block C4 social building. For the other buildings, architecturally engaging forest rooms and a communal open space on level 15 has been provided on Block C3, and a sky garden has been provided on level 18 of the Block C4 market building. These offer superior outcomes compared to conventional rooftop terraces by offering additional shelter and shade, resulting in a less exposed environment that minimises adverse wind impacts on user comfort.
- Significant landscaping is also achieved for Building C2 including using the lower level roof as an accessible community garden and open space area, and the upper level roof treated with native grasses to promote a green outlook and the achievement of the east-west green link through the Estate as envisaged under the Concept Masterplan (see **Figure 35** below).
- Solar panels are to be provided on building C3 and C4 rooftops as confirmed within the Architectural Plans and Sustainability Assessments at **Appendices B** and **N**.
- No residential accommodation has been provided above the approved maximum building heights. Areas above these levels comprise plant, services, and design features as discussed in **Section 5.4** above.

Hence, the proposed development is compliant with these parameters and ensures that roof spaces positively contribute to sustainability, landscaping, and recreation outcomes.



Figure 35 East-west green link under the Concept Masterplan intended to connect the perimeter bushland to the riparian corridor through the centre of the site

Source: Bates Smart

6.1.6 Topography

The proposed buildings, public domain and landscaping spaces have been carefully designed to respond to the topography of the site established by the road network being delivered under the Stage 1 SSDA. The Architectural Plans at **Appendix B** demonstrate that:

- the proposal will not result in protruding basements; and
- the proposal will not result in blank ground floor facades.

The design of Block C2 specifically has been designed with consideration of the site's sloping topography to minimise perceived bulk and scale, through excavating this block to maximise the open space area available and to ensure the community centre only reads as one storey from the Neighbourhood Street surrounded by accessible open space areas such as the community garden (see **Figure 36**). The level of the Village Green is aligned the Block C3 frontage ensuring the retail spaces are accessible and activate this open space area.

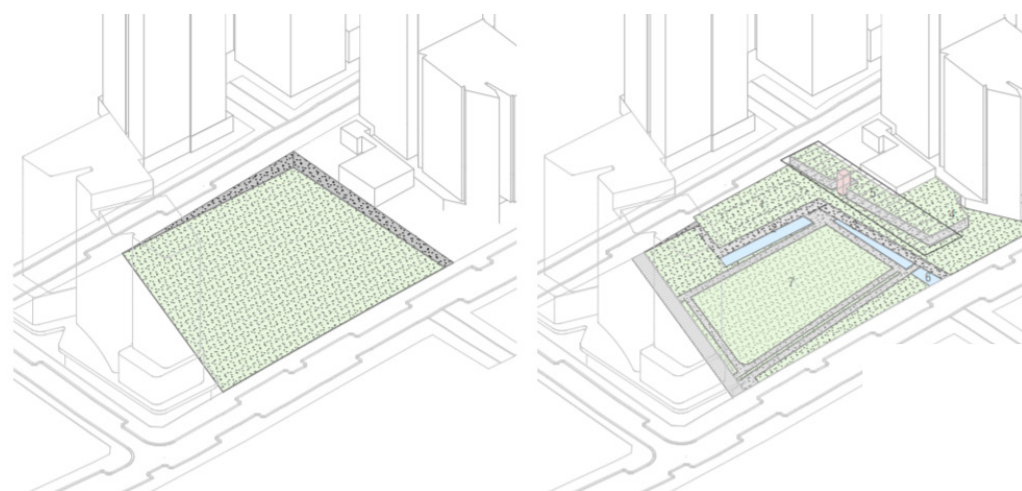


Figure 36 Topographic response of Block C2, with the community centre (right) above the Village Green cutting (left)

Source: Chrofi

The provision of retail at all frontages of the Building C3 ground floor ensures that passive surveillance is provided to the surrounding street network despite changes in topography. By focusing retail entrances to the building's northern frontage, maximum activation is provided to the Village Green, and the need to provide additional entrances requiring stairs and/or ramps is minimised. Although residential lobbies and the vehicular entrance is provided from the site's rear frontage facing the neighbourhood street, these are segregated from the retail uses and hence differences in topography do not posit a problem.

The design of the Block C4 is also responsive to the topography of the block, which slopes downwards towards Shrimptons Creek. The built form adopts a two storey reverse podium to Main Street, a three storey podium to the Neighbourhood Mews, and a four storey podium to the Neighbourhood Street and Shrimptons Creek, which together provides a coherent human scale.

Hence, the proposed development is compliant with this requirement of the issued SEARs, and amenity objectives relating to topography in general.

6.1.7 Recommendation

The proposed development is considered to exhibit a high level of consistency with the Ivanhoe Estate Concept Masterplan and Ivanhoe Estate Masterplan Design Guidelines. These parameters were established under the approved Concept Masterplan (SSD 8707) as an outcome of rigorous planning and urban design assessment to ensure that a high quality outcome is delivered in the redevelopment of the Estate.

Through consistency with the Design Guidelines and additional amenity and design considerations, the proposed built form is considered to exhibit strong built form and urban design outcomes. In response to the issued SEARs, the proposal delivers a high-quality built form that responds to the surrounding context and topography and demonstrates appropriate bulk and scale with minimisation of visual bulk. Hence, no further design development, testing or mitigation measures are considered necessary.

6.2 Open space

The provision of open space at the site follows the guidance provided by the Masterplan Design Guidelines, including the delivery of a Village Green on Block C2 with a minimum of 3,300m² open space, and a landscaped roof to be provided for the remainder of Block C2 (see **Figure 37** below).



Figure 37 Open space plan

Source: Bates Smart

The proposed Stage 2 works are consistent with these requirements. The proposed Village Green situated on Block C2 provides a total usable area of 3,385m², excluding the green roof (community garden) provided atop the community centre, in line with the recommendations given in the Masterplan.

The Village Green supports a high standard of amenity for the future occupants and visitors of the Ivanhoe Estate, providing high quality multipurpose public open space for the benefit of the local community. As discussed within the Block C2 Design Report, the park and community spaces have been designed to cater to all age groups through the provision of a diverse array of uses including a childrens' playground, passive seating area, and expansive central lawn usable for a variety of sporting and family uses and is accessible for users with a disability (refer to **Section 6.23**). The Village Green is configurable for a variety of applications, being able to host potential future community events such as 'Sunday markets' and the like. A community garden is also provided at the upper ground level fronting the community centre, allowing the local community to take 'ownership' of the area and instilling a sense of belonging for the entire Ivanhoe Estate community.

The Village Green has also been designed to maximise connectivity and permeability through a number of through-site links. A green link adjacent to Block C3 provides opportunities for interfacing and activation provided by the retail tenancies within that block, and another link is provided on the upper ground level of the community centre, defined by a landscaped arbore that serves as a shaded elevated walkway (**Figure 38**). Horizontal and vertical movement paths through this space has been strategically coordinated to provide clear sightliness and to assist wayfinding through and around the Village Green. A spiral staircase and lift provide access between the lower and upper ground levels of Block C2 whilst providing further visual interest.

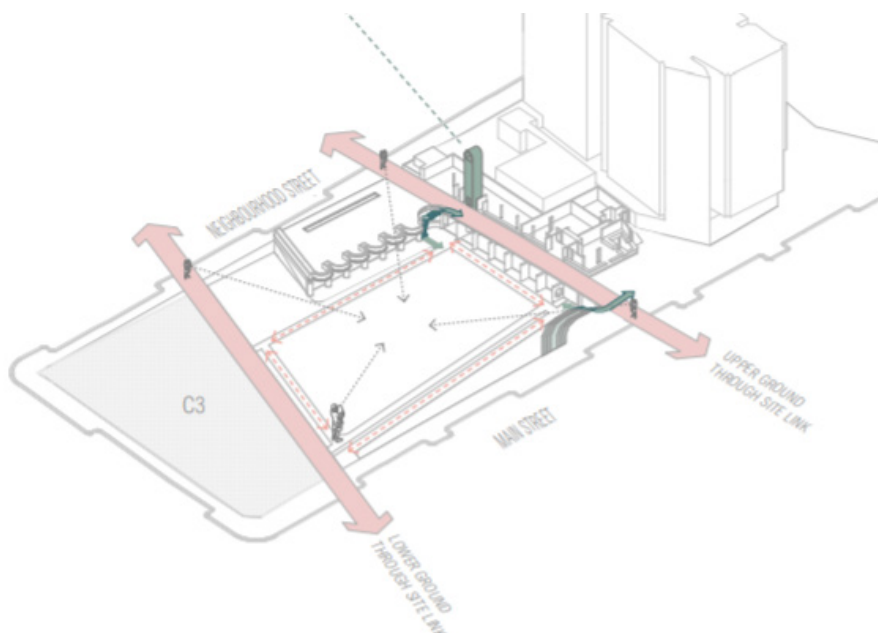


Figure 38 Circulation and wayfinding within Block C2

Source: Chrofi

The Design Guidelines also stipulates that each Block should provide a mix of public and communal open space with a combined minimum area equal to 25% of the lot area. For the proposed residential blocks:

- 15% of the lot area is provided as communal open space within Block C3. As this building faces the Village Green (with a total usable area of 3,385m²) and directly interfaces with the Green Link through-site link through its ground floor retail tenancies, this numerical noncompliance is considered to be acceptable. Refer to the future discussion in **Section 6.3.4** below.
- Over 25% of the lot area is provided as communal open space within Block C4, hence complying with the control.

The communal open spaces have been designed to be meaningful and dynamic, ensuring that they are constantly used by residents. The Block C3 'forest rooms' comprise a variety of designs discussed in **Section 3.4** above, with a variety of designs providing different interactive elements such as timber seating, swings, a sand play area, and raised tables/seating for each forest room. Similarly, the communal facilities on level 15 including a communal conference room with kitchen and outdoor space with retractable awning are utilisable for a variety of applications

for residents, such as communal barbeques, meetings and gatherings, and as co-working spaces, in all weather conditions.

The Block C4 'Sky Garden' is similarly usable for a variety of applications by building residents, and are supported by two landscaped spaces on ground, 'The Grove' central courtyard (accessible to residents only) and the Shrimpton's Creek Recreation Space (accessible to all), which provide for diverse landscaped activity zones with facilities enabling both community/family activities and more passive opportunities for respite.

6.2.1 Tree removal and urban tree canopy

No tree removal works are proposed under the proposed development, noting all trees removal and retention required to facilitate the redevelopment of the Ivanhoe Estate was assessed and approved as part of the Stage 1 SSDA. The proposed Stage 2 SSDA remains consistent with this approval and will not seek to remove or impact any additional trees.

Noting that streetscape planting within the internal road network was approved under the Stage 1 works, the proposed development seeks consent for the establishment of extensive site landscaping within the Blocks C2, C3 and C4 boundaries. Landscaping details and the proposed planting palette are discussed further in **Section 3.0** above, the Block C2 Design Report at **Appendix B**, and the Landscape Reports at **Appendix C**. The planting palettes of all Blocks utilise endemic species from the Sydney Turpentine Ironbark Forest and Sydney Sandstone Gully Forest species, helping restore the native vegetation of Macquarie Park and the Lane Cove River and assisting in the regeneration of endangered habitat.

Landscaping at the site has been designed to respond to the principles of Greener Places as delineated within the Landscape Reports. This includes integration of vegetative planting opportunities into the built form, such as through the provision of green roofs and a community garden for the community centre, and within communal open spaces including the Forest Rooms of Building C3 and the Sky Garden of the Block C4 market building. The through-site links within the Village Green provide for an interconnected network of open space in accordance with the Concept Masterplan, with integrated green infrastructure such as the provision of an arbor with vines and raised planters shading the through-site link adjacent to the community centre.

The proposed development will contribute to the minimum replacement planting target nominated in the Concept Masterplan for 950 trees.

6.2.2 Recommendation

The proposed development responds to the requirements of the Design Guidelines and issued SEARs in delivering high quality public domain and open space outcomes to Ivanhoe Estate. Public open space at the site has been delivered in accordance with the Concept Masterplan and provides for a high level of amenity whilst maximising connectivity. No trees will be removed or impacted outside of those already assessed and approved as part of the Stage 1 SSDA as further confirmed in the mitigation measures in **Section 8.0** of this EIS.

6.3 Residential amenity

Buildings C3 and C4 have been designed to achieve a high level of amenity in accordance with the principles established in the Concept Masterplan and in response to the nine principles of SEPP 65 and the design criteria recommended by the Apartment Design Guide (ADG).

A detailed assessment of the proposed development in accordance with the ADGs is provided within the relevant Design Reports at **Appendix B**. A discussion of the objectives and design criteria for residential amenity is also provided below – emphasising that in some scenarios while strict numerical compliance with the ADG design criteria has not been achieved, the proposed buildings are consistent with the Concept Masterplan assessment which addressed amenity at a comprehensive precinct-scale. The Concept Masterplan recognised that individual buildings across the Estate could either exceed or be deficient, but together overall compliance could be achieved ensuring the Estate as a whole would achieve appropriate standards of residential amenity.

6.3.1 Building Separation and Visual Privacy

ADG Design Criteria 3F Visual Privacy recommends building separation distances to maintain visual privacy. Building separation is measured between the site boundary and a habitable room or window. For buildings within the same site, minimum separation distance should be shared equitably between buildings. The Architectural Plans prepared by Fox Johnston and COX Architecture demonstrate that the recommended building separation distances have been achieved for the proposed buildings to surrounding development, and internally within C4.

6.3.2 Solar Access

ADG Design Criteria 4A-1 Solar Access requires that living rooms and private open spaces of at least 70% of apartments receive a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June (winter solstice), and that no more than 15% of apartment receive no direct sunlight at this time. Building C3 exceeds this principle, with 76% receiving a minimum of 2 hours of direct sunlight and only 13% not receiving any sunlight on the winter solstice. Block C4, however, has 65% of dwellings with a minimum of 2 hours of direct sunlight and only 6% dwellings not receiving any sunlight. This outcome is supportable for the following reasons:

- The proposed Stage 2 buildings remain consistent with the Masterplan assessment which determined that while Block C4 buildings would not achieve the numeric control, Building C3 would exceed this amenity criteria. This detailed design phase of the project, therefore, remains consistent with the Concept Masterplan that recognised some individual buildings within the Masterplan will not achieve 70% solar access but will provide an appropriate degree of solar access and amenity at a precinct scale.
- A key reason for the numerical non-compliance is the comparatively higher number of 3 bedroom units being provided as part of Stage 2 Midtown, contributing to housing choice and providing more opportunities for families to form part of the developing Ivanhoe Estate. Numerical compliance could be achieved if the northern building facades were revised to include a high proportion of one bedroom and studio units, however, this would not achieve the same social benefits or provide a housing typology that is currently underrepresented in the market.

6.3.3 Natural cross ventilation

ADG Design Criteria 4B-3 Natural Ventilation requires that at least 60% of apartments are naturally cross ventilated in the first nine storeys of the building and apartments at ten storeys or greater are deemed to be cross ventilated only if any enclosure of the balconies at these levels allows adequate natural ventilation and cannot be fully enclosed. 70% of apartments within Building C3 and 67% of the apartments within Building C4 are naturally cross ventilated in excess of the ADG requirements.

6.3.4 Communal open space

ADG Design Criteria 3D-1 Communal and Public Open Space recommends that 25% of the site is provided as communal open space and that 50% of the principal usable part of the communal open space receives a minimum of 2 hours direct sunlight between 9am and 3pm on 21 June.

- Block C4 buildings benefit from extensive communal open space with 2,362m² (34% of the site) provided at the ground plane and the Sky Garden on level 18 of the market housing tower. This mix of spaces achieve good solar access.
- Building C3 is not able to provide substantive communal open space areas at the ground plane owing to the smaller size of this block and its location with the Estate that requires the building to prioritise active building frontages. Accordingly, innovative solutions have been developed to integrate open space into the building itself through the provision of the multistorey forest rooms and communal facilities on Level 15 of the building, which are orientated to the north and benefit from excellent solar access. Each of the proposed Building C3 apartments are provided with balconies that achieve or exceed the area requirements in the ADGs and residents will also have direct access to the Village Green opposite the building, ensuring opportunities for active and passive recreation are provided. Non-trafficable landscaped gardens are also provided on all levels, most prominently levels 1-3 (the podium residential levels), level 15, and the building roof, ensuring that a green outlook is achieved notwithstanding the limited opportunities for ground level landscaping.

6.3.5 Private open space

ADG Design Criteria 4E-1 Private Open Space and Balconies requires that all apartments have access to balconies of a certain size and a certain depth, and that ground floor apartments be provided with private terraces that achieve a minimum area of 15m² and depth of 3m. Balconies have been provided for each apartment within Building C3 and C4, and private terraces have been provided for the ground floor apartments within Building C4 (with the ground floor of Building C3 used for retail). All balconies achieve the minimum area requirements.

6.3.6 Vertical circulation

ADG Criteria 4F-1 Common Circulation and Spaces requires that the maximum number of apartments off a single circulation core on a single level is twelve, and for buildings over 10 storeys in height the maximum number of apartments sharing a single lift is 40.

- Building C3 has been designed so that between 4 to 7 apartments are accessed from the same circulation core on a single level, and no more than 40 apartments are serviced by a single lift.
- Block C4 has been designed so that the social housing building has no more than 7 apartments accessed from a circulation core on a single level, and the market housing building has no more than 12 accessed from a circulation core on a single level. However, both towers will seek to service more than 40 apartments with a single lift. In view of this, the building corridors have been designed to be naturally ventilated and with windows provided in the notches of the building to ensure these corridors have access to views and daylight. This achieves the design guidance principles in the ADG. Further, an assessment of the ability of future lifts to service the proposed number of apartments has also been completed by DSC Engineers (**Appendix GG**), which confirms that these buildings will meet international benchmarks and are acceptable in the circumstances. They further state that “the quantity of lifts prescribed by the ADG would be an over provision in this instance and therefore the ADG non-compliance is justified.”

Deep soil

ADG Criteria 3E-1 Deep Soil Zones requires that 7% of the site is provided as a deep soil zone. Deep soil was assessed as a precinct scale as part of the Concept Masterplan, and the specific opportunities and areas for providing deep soil areas across the Estate were set in the approved stamped plans.

The proposed development remains not inconsistent with the Concept Masterplan commitments:

- Block C2 – the Village Green is not constrained by a building basement, and the community centre occupies a smaller footprint than what is otherwise permitted under the approved building envelope, ensuring that this block more than achieves its deep soil requirements.
- Block C3 – consistent with the stamped plans, no deep soil has been provided within Block C3.
- Block C4 – the development of this block provides deep soil over 20% of the site area. While a minor proportion of plant and services is required to be provided outside of the basement extent within the nominated deep soil zone, this area is minor and does not impact overall compliance with Block C4 providing 1,041m² of deep soil as compared to the 993m² required under the Concept Masterplan.

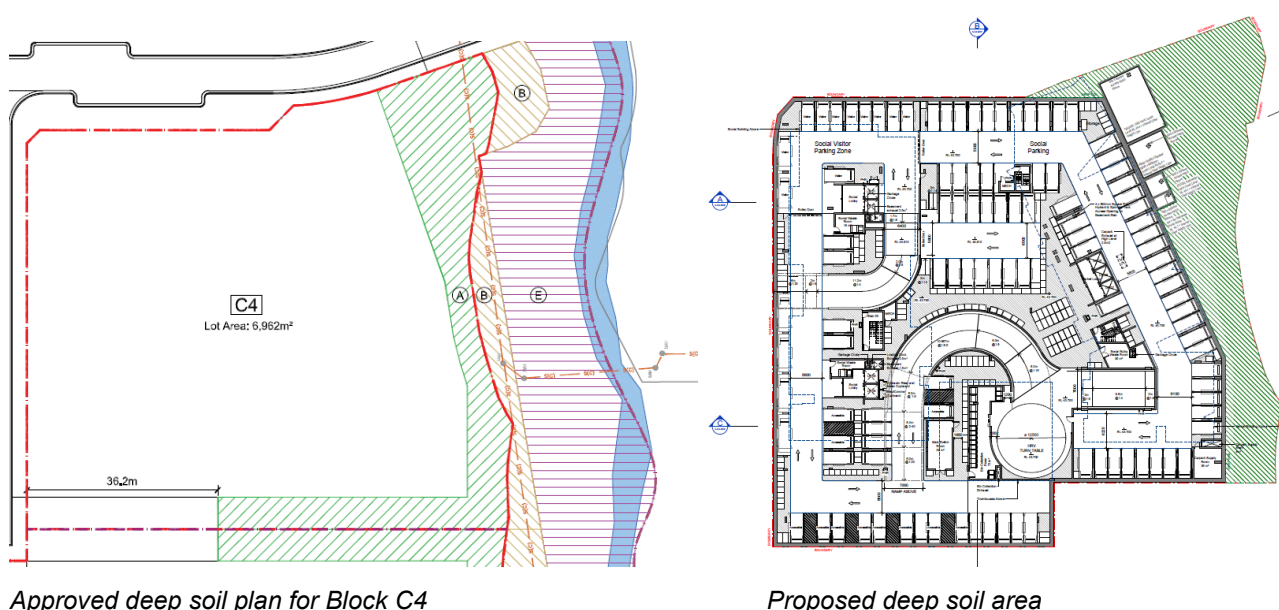


Figure 39 Comparison of deep soil areas provided in Block C4

Source: Bates Smart & COX Architecture

6.3.7 Recommendation

Buildings C3 and C4 have been designed to achieve a high level of amenity in accordance with the principles established in the Concept Masterplan and in response to the nine principles of SEPP 65 and the design criteria recommended by the Apartment Design Guide (ADG). While numerical compliance is not achieved in some circumstances such as solar access of Block C4, communal open space for Building C3, and vertical circulation, these outcomes are warranted and justified in the circumstances of the development. The proposal will continue to provide a high degree of residential amenity and aligns with the comprehensive precinct-scale analysis completed at the Concept Masterplan stage of the project. No further assessment or mitigation measure is considered necessary.

6.4 Visual impact

A Visual Impact Assessment (VIA) has been prepared by Ethos Urban with photomontages by Visual Ideas and is attached to this EIS at **Appendix S**. As the building envelopes were previously assessed under the Ivanhoe Concept Masterplan and found to be appropriate, the intention of the VIA is to confirm that the proposed development remains consistent with the level of impact considered at the Masterplan stage and provide photomontage renderings of the proposal compared to the existing situation for the consent authority's information.

The VIA confirms that the detailed design of the Stage 2 works are a consistent scale as the approved building envelopes and through setbacks, refinement, and articulation occupy a lesser volume than the envelopes. Blocks C3 and C4, being contained at the heart of the Estate, are largely shielded by surrounding buildings and the community centre, being minor in scale, is not visible from any viewpoint assessed within the VIA. While varying with each viewpoint, noticeable elements comprise partial views of the southern, eastern and western façades of Buildings C3 and C4 where a natural break is created by the Shrimptons Creek and building setbacks.

Visual impacts, while significant (as inevitable of a development of such bulk and scale), are considered to be reasonable given the project's strategic merit, and the high standard of architectural design exhibited by the proposed buildings. The VIA confirms that mitigation measures identified within the Concept Masterplan including vegetation buffers, appropriate building separation and preservation of view corridors where possible have been implemented. The building designs are considered to be of a high quality and contribute to the developing Estate.

6.4.1 Recommendation

The VIA confirms that the Stage 2 works are acceptable by virtue of them being consistent with the envelopes established under SSD 8707. Comparison renders of the proposal against the existing situation have been provided. No further mitigation measures for Stage 2 are considered to be required.

6.5 Overshadowing

Shadow diagrams have been prepared by Fox Johnston, Chrofi and COX Architecture, illustrating the shadows cast by the proposed detailed buildings hourly between 9am and 3pm on 21 June (winter solstice), 21 December (summer solstice), 21 March (autumn equinox) and 23 September (spring equinox) in accordance with the SEARs. These plans demonstrate that the proposed buildings are generally consistent with the extent of overshadowing assessed and approved as part of the Concept Masterplan, recognising a degree of design development has occurred for the Stage 2 buildings.

- All shadow cast by Building C3 will fall within the Estate. Owing to the location of Block C3 to the south of the Village Green, overshadowing resulting from Building C3 will not impact the solar access of the Village Green at all times of the year except for a small area of the park at 9am on the summer solstice, when shade is desirable. The shadows cast will primarily affect future buildings within Blocks D3 and D4 in the mornings and Block C4 in the afternoons. In this respect, the proposed Building C3 has been designed in accordance with the approved building envelope and Design Guidelines that determine the scale and form of future development, and as such the proposal does not alter the comprehensive precinct-scale analysis of overshadowing and residential amenity completed at the Concept Masterplan stage of the project. The amenity of the Block C4 buildings has also been assessed as part of this EIS and found to achieve an appropriate degree of residential amenity as discussed in **Section 6.3** above.
- Shadows cast by the Block C4 buildings fall within the Estate on Blocks D3 and D4 in the mornings, on Epping Road and the surplus RMS land on the opposite side of Epping Road, Shrimptons Creek, and the commercial building at 2-4 Lyonpark Road. The only affected residential properties outside of the Estate are those on the other side of Epping Road. These properties will receive at least 2 hours solar access to at least 50% of the private open space area between 9am and 3pm on 21 June as required by the Ryde DCP.
- Shadows cast by Building C2 demonstrate that the Village Green will acceptable solar access. Some shadows will be cast from 2pm at all times of the year and in the mornings during the winter solstice. However, because Building C2 occupies a lesser volume than the approved building envelope, the degree of overshadowing is significantly less than that resulting from the approved building envelope. Further, the area of the building outside of the building envelope will only cast minor shadows on the passive seating area at the interface of the Village Green and the Neighbourhood Street and not on the primary recreation areas of the park, ensuring it does not result in any significant or adverse impact.

Accordingly, it is clear that the proposed works will not give rise to any unacceptable overshadowing impacts, including on the amenity of surrounding residences or open space areas.

6.5.1 Recommendation

The assessment confirms that the proposed development does not result in any significant or adverse overshadowing, and as such no further study or refinement is required and no specific mitigation measure has been nominated in this instance.

6.6 Wind

A Wind Impact Assessment (WIA) has been prepared by SLR at **Appendix T**. The WIA provides a qualitative assessment of the proposed works, focusing on whether areas of pedestrian interest including the proposed communal and public open spaces, building entry points, and balconies comply with the relevant wind safety and comfort criteria. It must also be noted that the analysis was undertaken on the basis of maximum expected wind gusts and expected winds would be generally much milder than delineated in the report.

The WIA found that the relevant spaces are generally expected to comply with the relevant wind comfort and safety criteria. Winds along footpaths at the site are expected to remain similar to existing levels. Although there is potential for wind channelling between buildings, the proposed landscaping scheme will mitigate such risks. A number of locations on the upper levels of residential buildings have been found to potentially exceed the desired

comfort criteria. Where exceedances are anticipated, mitigation measures have been proposed and these locations are identified below with further discussion provided within the WIA.

6.6.1 Recommendation

The Wind Impact Assessment confirms that the proposed development is supportable from a wind impact perspective. Further design considerations were nominated in this assessment to further improve wind conditions which can be investigated and incorporated into the construction stage detailed drawings for the proposed buildings and public domain areas including:

- a 2.1 metre vertical windbreak for the Building C3 forest rooms;
- a 1.8m balustrade or equivalent for the Building C3 communal outdoor area and Building C4 sky garden;
- additional shielding for corner or dual aspect balconies on the upper levels of residential buildings; and
- additional landscaping for the Building C4 courtyard.

These measures will be further considered by the project team at the Crown Certificate or Construction Certificate stage in consultation with SLR, and have informed the mitigation measures at **Section 8.0** of the EIS.

6.7 Reflectivity

A Reflectivity Assessment has been prepared by RWDI and is provided at **Appendix BB**. The report provides a computer modelled assessment of sunlight reflected by the proposed development onto the surrounding environment. A 'worst case' scenario was modelled not taking into account weather effects (e.g. cloud cover) or a reduction in sunlight due to vegetation or other shielding features.

Overall, the assessment determined that:

- The project, which will deliver multi-storey buildings, will result in some solar reflections onto surrounding areas. The solar intensity of such reflections will be below 600 W/m². While this represents an increase in solar reflectivity when compared to current site conditions, the expected intensity does not exceed what is commonly observed in an urban area.
- The built form is not expected to result in concentrated reflections occurring, and hence will not result in heat gain issues or create significant additional heat loads on adjacent buildings. Therefore, no heat gain issues for people or property are anticipated.
- The proposed development will have a low potential for glare, with analysis finding that this will not present a safety issue. Most frequent exposure to reflections will occur at the ground level area in front of the community centre, and the southwestern aspect of Building C3, although these are not considered to be excessive. As these are pedestrian areas, there is no safety risk.
- With regard to glare impacts on drivers on Epping Road, reflections from the proposed development will not exceed the veiling luminance threshold of 500 cd/m². Accordingly, the proposed development will not generate safety issues for drivers.

6.7.1 Recommendation

Reflectivity modelling has been completed for the proposed development demonstrating that solar reflections and the potential for glare will not be significant. Hence, the development is supportable on reflectivity grounds. As no potentially adverse impacts were identified, no additional mitigation measures considered to be necessary in this instance.

6.8 Lighting

Public domain lighting may be provided within the site where not already accommodated for in the road reserve and public domain works approved and being completed under the Stage 1 SSDA. This lighting will be designed and installed in accordance with the recommendations of the CPTED Report (**Appendix U**) discussed further in **Section 6.21** below. All lighting will consider its context and any relevant controls and standards, including Australian Standard 4282(1997): Control of obtrusive effects of outdoor lighting.

6.8.1 Recommendation

Any external lighting will be designed and installed with consideration of the approved works occurring under the Stage 1 SSDA and the recommendations of the CPTED Report which nominates lighting specifications. Accordingly, no further mitigation measures is considered necessary in this instance.

6.9 Operation of social housing

One residential building within Block C4 comprises social housing, while Block C3 and the other building within C4 comprises market housing. There are 216 social housing and 438 market residential apartments in total proposed in Stage 2. The social housing apartments, and Block C4 in general, have been designed to achieve 'tenure blindness' whereby the building's tenure is not perceptible from the public domain and the entirety of Ivanhoe Estate presents as one holistic and highly integrated precinct.

The social housing dwellings will be owned by LAHC whilst Mission Australia Housing (MAH) will manage the social housing portfolio. MAH is an accredited Community Housing Provider (CHP) and one of Australia's largest CHPs. As with other stages of Ivanhoe Estate, social housing residents will comprise a mix of applicants on the Department of Families and Community Services Housing Pathways register, former residents of the site who have a right to return following its redevelopment, and applicants selected from the register who are assessed as being able to take advantage of education, training and employment services in the area with greater potential to transition out of social housing. Households in the latter category will have fixed term leases and participate in wrap around support programs. The final allocation policy will be developed by MAH.

The Ivanhoe Social Housing Outcomes Plan (SHOP) is being developed to provide an improved social housing experience for all tenants. The SHOP will form the long term practical strategy and will include a package of initiatives that incorporates tenant management, tailored tenant support services and a community development and partnership (Strengthening Communities) approach to place making. The SHOP aims to create:

- More opportunities, support and incentives to create housing independence;
- A better housing experience for social housing tenants where they feel safe and empowered to participate in their community; and
- Links to early learning, education, training and employment.

The SHOP will include a range of services to support social housing tenants. These services are in a number of forms:

- Tenancy management, property management and tenant engagement.
- Programs and services to increase economic and social participation.
- Tailored Support Coordination involving collaborative work with social housing tenants and the development of individualised Personal Support Plans to identify goals, provide information and refer to the appropriate services and supports. Individualised Support Plans could include a TAFE course, financial management skills, job search assistance, and/or participation in social activities.
- The Strengthening Communities Program, which will comprise:
 - Community development focus including convening of community groups, leveraging resources for local activities, skill and leadership development; and
 - Partnership focus including mapping of community assets, identifying and engagement with delivery partners, engaging with local business, clubs, and associations.

Further work will be done to establish referral pathways, identify volunteering opportunities, and address barriers to service delivery and access.

Consultation and leading practice research have emphasised the importance of continuity with existing, established service providers and the establishment of new strategic partnerships. In light of this, MAH will work with local services to involve them in the package of services and programs that will be available to Ivanhoe Estate residents. The SHOP will be key to guiding the provision of services and support to residents of the redeveloped Ivanhoe.

6.9.1 Recommendation

Social housing proposed as part of the Stage 2 works, comprising 216 apartments in Block C4, will be managed in accordance with arrangements approved under the Concept Masterplan. Social housing across the site will be managed holistically by Mission Australia including the ongoing preparation of the Ivanhoe Social Housing Outcomes Plan (SHOP) and the Strengthening Communities Program to build partnerships within and beyond the Ivanhoe Estate community including the establishment of referral pathways for social housing tenants.

These arrangements are considered to be appropriate and consistent with industry best practice. Hence, no further mitigation measures for social housing operation are necessary as part of the Stage 2 works consistent with the approved Stage 1 SSDA (SSD 8903).

6.10 Transport, traffic, parking and access

A Transport Assessment has been prepared by Ason Group and is provided at **Appendix P**. The report sets out the expected traffic impacts and trip generation of the development during construction and operation, provides an assessment of the proposed parking rates and servicing arrangements, and discusses sustainability initiatives to promote sustainable travel and active transportation in the Green Travel Plan (GTP) appended to the Assessment.

6.10.1 Construction

The Transport Assessment includes a Preliminary Construction Traffic and Pedestrian Management Plan (Preliminary CTPMP). The Preliminary CTPMP outlines principles to be adopted as part of a detailed CTPMP when the construction methodology is finalised prior to the commencement of works. It nominates the following measures for construction works associated with the Stage 2 SSDA:

- Only limited on-site parking will be made available for construction workers/contractors, with exact numbers to be confirmed under the detailed CTPMP. Usage of public and alternative means of transportation to the site by workers will be encouraged to reduce traffic impacts.
- Construction traffic will generally comprise truck-and-dog and 19m conventional articulated trucks for transportation of material, and mixer trucks up to 12m in length for delivery of concrete. The Preliminary CTPMP maps the proposed arrival and departure routes for trucks at the site. Trucks will enter and leave the precinct via left in and out movements from Herring Road, and then via Epping Road and/or the M2 Motorway, avoiding local roads.
- The proposed construction works would generate approximately 100 additional movements within the network, spread over a typical 12 hour period (6:00am to 6:00pm). Given that the M2 and Epping Road routes currently carry high volumes of traffic, Ason Group confirms that the construction of the development is not anticipated to have a material impact to the existing volumes on the M2 and the local network.
- The Preliminary CTPMP identifies a number of mitigation measures to be implemented in response to the expected increase in construction traffic on the surrounding road network, as delineated in chapter 9.10 of the report. This includes traffic control measures to regulate movements into and out of the site and scheduling intensive delivery activities outside of road network peak hours when possible. These measures will be finalised as part of the detailed CTPMP.

6.10.2 Operation

Site access

Site access for vehicles, pedestrians and cyclist to the proposed development will occur in accordance with the internal road network already approved for Ivanhoe Estate and being delivered under the Stage 1 SSDA. The internal road network, including associated pedestrian sidewalks and infrastructure, was comprehensively assessed under the Stage 1 SSDA where it was found to be appropriate.

The Shrimptons Creek Public Open Space to the rear of Block C4 provides a number of access points to the existing Shrimptons Creek Trail shared pathway that runs parallel to the creek, as delineated in detail within the Landscape Plans at **Appendix C**. While Block C4 has been designed where possible to appropriately interface with this space, detailed upgrade works to the Shrimptons Creek corridor will occur as part of a separate and future stage in accordance with the requirements in Condition A30 of the Concept Masterplan consent.

Parking

The proposed buildings C3 and C4 will comply with the parking rates nominated in the Concept Masterplan consent. Parking for Building C2 (the community centre) is located within Building C1 and approved under the Stage 1 SSDA, as discussed in **Section 3.3** above, while parking for Buildings C3 and C4 are provided in each buildings basement.

The provision of 8 accessible spaces within Building C3 and 25 accessible spaces within Building C4 also complies with the minimum requirement of 5% of parking under the Concept Masterplan. Applying Masterplan rate results in a total of 33 spaces, which the proposed development exceeds by 2.

Furthermore, the proposed bicycle parking rates of 168 resident and 10 visitor spaces in Building C3, and 488 spaces in Building C4 complies with the relevant requirements for each dwelling to be provided with a bicycle space under the Masterplan. 25 bicycle parking spaces will be provided within the public domain, for public use, to contribute to the Concept Masterplan target to provide 100 spaces located within the public domain.

Servicing

The Transport Assessment confirms that vehicular circulation areas and basement entrances have been generally designed in accordance with the relevant Australian Standards (AS2890). Swept path analysis demonstrating adequate access arrangements for cars and service vehicles have been appended to the report, including that up to 11m service vehicles can access the site in accordance with the Concept Masterplan conditions of consent.

Traffic generation

The predicted traffic generation of the proposed development has been assessed in the Transport Assessment, including a comparison with the approved Concept Masterplan.

- The traffic generated by Building C2 was assessed with Building C1 as part of the Stage 1 SSDA, recognising that parking and servicing for the community centre is accommodated in the adjacent building basement. Negligible additional traffic would be generated by Building C2 outside of these parking spaces already assessed and approved.
- Blocks C3 and C4 are expected to generate 78 vehicles per hour in the AM peak and 74 vehicles per hour in the PM peak. These vehicle movements are consistent with the expected traffic generation rates modelled for Stage 2 assessed under the Concept Masterplan. SIDRA modelling undertaken at the Concept Masterplan stage confirms that surrounding intersections will continue to operate at acceptable levels of performance. It is noted that the proposed development in conjunction with the Stage 1 SSDA does not trigger the delivery of the intersection upgrades or the remodelling of the Shrimptons Creek bridge connection as detailed in the Concept Masterplan consent.

Green Travel Plan

A Green Travel Plan (GTP) has been prepared by Ason Group and is attached to the Traffic Statement. The GTP confirms the desired mode share for future development on the site and provides a framework to encourage sustainable transportation for employees and visitors to and from the site, as consistent with the issued SEARs. The GTP finds there to be substantive existing public transport (including Sydney Metro and bus) connections, pedestrian and cycling infrastructure, and car sharing infrastructure (GoGet car pods) in the vicinity of the site, which the proposed development will be able to access to efficiently reduce car dependency.

The detailed measures and action strategies to reduce dependency on private vehicles are under the following categories: travel planning and demand management; promoting public transport; promoting cycling; promoting walking; restraining parking; and influencing travel behaviour. These strategies will be finalised and implemented as part of the future operation of the buildings on site.

6.10.3 Recommendation

The Traffic Assessment has analysed the expected traffic and parking impacts of the proposed development during construction and operation, and prepared a preliminary Green Travel Plan in accordance with the issued SEARs. The report demonstrates that the proposed parking arrangements and expected traffic generation rates are consistent with the Concept Masterplan approval, and hence there will not be any unforeseen or adverse traffic

impacts. SIDRA modelling has confirmed that surrounding intersections will continue to operate at an appropriate level of service. Hence, the proposed development is supportable on traffic, access, and parking grounds.

The exact construction staging and methodology is to be confirmed prior to the commence of works, and as such the Transport Assessment provides a preliminary framework for future construction works on the site and recommends that a final CTPMP be finalised prior to commence of works.

This assessment and the recommendations and subplans have informed the mitigation measures at **Section 8.0** of the EIS.

6.11 Contamination

A Site Auditor Assessment Report and Site Auditor Statement has been prepared by James Davis of Enviroview (**Appendix G**) providing a summary of the remediation works that have been undertaken to date and confirming the suitability of the site for the proposed development. While small quantities of asbestos have previously been found within the Estate, these have already been disposed of and remediated successfully as part of prior stages of works. The site is declared to be suitable for the proposed development without necessitating the implementation of an environmental management plan.

6.11.1 Recommendation

The Site Auditor Report and Site Auditor Statement confirm that no further mitigation measures are required for the commencement of works for Stage 2, by virtue of the following:

- the site is deemed suitable for the proposed Stage 2 detailed design and construction works with previous on-site contaminants already disposed of and remediated; and
- due to remediation and validation works already conducted, an environmental management plan is not required for Stage 2.

Accordingly, no further study or refinement is required, and no specific mitigation measure has been nominated in this instance.

6.12 Non-Aboriginal heritage

An Aboriginal and Historical Heritage Assessment (HHA) was prepared by Eco Logical and accompanied the approved Concept Masterplan. The HHA found there to be no heritage items located on the site including those nominated on the NSW State Heritage Register and Ryde LEP 2014. Further, no heritage items are located within proximity of the site.

A site survey was undertaken as part of the HHA, finding that given the significant amount of excavation which has historically been undertaken at the site, there was a low potential for historical relics to be present on the site and concluding that there is no further requirement for archaeological assessment. In the unlikely event archaeological objects are discovered, works will cease and a qualified archaeologist will assess the findings.

6.12.1 Recommendation

The Concept Masterplan approval has confirmed that the Ivanhoe Estate redevelopment will not give rise to European, non-Aboriginal, heritage impacts. As the proposed Stage 2 works and building envelopes are consistent with the Concept Masterplan, it likewise will not give rise to any additional heritage impacts. Accordingly, the proposed development is acceptable from a heritage perspective, and no mitigation measures are necessary.

6.13 Aboriginal heritage

An Aboriginal Cultural Heritage Assessment Report (ACHAR) has been prepared by Urbis (**Appendix I**) in relation to the entire Ivanhoe Estate for completeness. The ACHAR details the Aboriginal cultural heritage values of the site and assesses the potential impact of the development on Aboriginal cultural heritage values, informed by consultation with Aboriginal stakeholders and interested parties.

6.13.1 Archaeology

The ACHAR determines that there is a low to nil likelihood of the site having Indigenous archaeological significance:

- The previous Aboriginal and Historical Heritage Assessment prepared for the Concept Masterplan found the site to be highly developed, with no Aboriginal objects or places identified and the likelihood of archaeological findings to be low to nil.
- An extensive search of the Aboriginal Heritage Information Management System (AHIMS) yielded no recorded Aboriginal object or places within or immediately adjacent to the subject area.
- Archaeological reports from other sites in proximity to Ivanhoe Estate indicate that archaeological potential in the locality has been significantly reduced by historical ground disturbing activity. The site itself has been subject to several phases of significant ground distributing activity over time, including through the previous development of Ivanhoe Estate in the 1980s, and as such the likelihood of Aboriginal sites is determined to be low to nil.
- Landscape analysis has indicated that the subject area does not include any topographic features that are indicative of Aboriginal archaeological potential, although the natural watercourse (Shrimptons Creek) is an archaeologically sensitive landscape.

In light of the above, the ACHAR concludes that the proposed development can proceed without further investigations, however, induction materials will need to be prepared for any contractors working at the subject area including a procedure incorporated into the detailed CEMP identifying the process to follow in the event of uncovering archaeological deposits or human remains.

6.13.2 Aboriginal cultural heritage

The ACHAR (**Appendix I**) has been prepared in consultation with Aboriginal communities in accordance with the 'Aboriginal cultural heritage consultation requirements for proponents' guidelines (OEH 2010). This consultation and investigations have confirmed that the site is assessed as having the following values:

- The subject area is considered to have a moderate cultural significance due to landscape features that define the site such as proximity to water and connection to Country.
- The subject area is considered to have nil to low historic value.
- The subject area is considered to have nil to low scientific value as zero Aboriginal Sites or areas of archaeological potential have been identified within the subject area.
- The subject area is considered to have low aesthetic value insofar as it relates to Aboriginal cultural heritage, as it is highly disturbed from periods of and clearance, agriculture, construction of buildings and, in particular, cut and fill earthworks.

6.13.3 Connecting with Country

Further to the ACHAR, Frasers Property and the Fulcrum Agency have prepared a Connecting With Country Strategy (**Appendix CC**) in response to NSW Government Architect's Connecting with Country DRAFT Framework. The Strategy identifies further commitments for engagement and opportunities to better recognise appropriate Aboriginal stakeholders for the Ivanhoe site. Such opportunities relating to the Stage 2 sites include commissioning Aboriginal artists for public art and engaging an Aboriginal organisation to oversee management of the Community Garden for 'bush tucker'.

6.13.4 Recommendation

The ACHAR has assessed the likelihood of Aboriginal sites or archaeological objects to be present on site as being low to nil. No recorded entries within or adjacent to the site were found on AHIMS. Notwithstanding this, it is recommended that processed be developed as part of the detailed CEMP or associated sub-plans to educate works on the process to follow in the event of uncovering archaeological deposits or human remains. This has informed the mitigation measures in **Section 8.0** of the EIS.

Accordingly, it is considered that the proposed development is supportable from an Aboriginal Cultural Heritage perspective subject to the resolution of consultation. LAHC and Frasers Property are committed to continue working

with Aboriginal people including implementing the Connecting with Country process. This has also informed the mitigation measures in **Section 8.0** of the EIS.

6.14 Biodiversity

In accordance with Section 7.9 of the *Biodiversity Conservation Act 2016*, a request to waive the requirement to prepare a Biodiversity Development Assessment Report (BDAR) was prepared by EcoLogical and submitted to DPIE prior to the lodgement of this application. A waiver was subsequently granted on 13 July 2021 and is attached at **Appendix L**.

Biodiversity impacts have already been comprehensively addressed under the Concept Masterplan and Stage 1 approvals, including implemented a biodiversity offset scheme.

6.14.1 Recommendation

The issued waiver from the requirement to prepare a BDAR demonstrates that the proposal will not result in any new or significant biodiversity impacts. Hence, no further mitigation measure is necessary in this instance.

6.15 Flooding

A Flood Impact Assessment (FIA) has been prepared for the proposed development by BMT (**Appendix H**). This FIA analyses the expected flood impacts of the development, including in relation to 1% AEP (1-in-100 year) and PMF (probably maximum flood) events including consideration of the potential effects of climate change, sea level rise, and an increase in rainfall intensity and events where drainage systems are blocked. The analysis has been prepared with reference to the assessments also prepared for the Concept Masterplan to which this SSDA is pursuant, confirming that the Stage 2 modelling does not significantly deviate from the Concept Masterplan.

The FIA confirms that:

- The detailed design of Blocks C2, C3 and C4 will only result in a minimal change to flood levels up to and including a 1% AEP event compared to existing conditions. Adverse flood impacts are highly localised and limited to the Shrimptons Creek corridor, with no predicted adverse flood impacts onto neighbouring properties as a result of the proposal, even when modelling accounts for climate change (10% rainfall increase).
- As Shrimptons Creek and its adjacent floodplain is already subject to significant inundation depths, flood impacts will occur upstream of Epping Road and downstream of the Ivanhoe Estate redevelopment during a PMF event. However, such events are extremely rare (AEP of 1 in 10,000,000).
- The built form complies with the relevant Ryde DCP 2014 requirements for flooding. A freeboard of >0.5m is achieved for all events up to the PMF event. Basement ramps leading to carparks are located above PMF flood levels and hence will not be inundated during a PMF event.

6.15.1 Emergency Response

It was identified at the Concept Masterplan stage that a Flood Emergency Response Plan (FERP) would be required for those buildings neighbouring Shrimptons Creek to ensure the occupants of the development site are aware of the flood risk within and adjacent to the site, and to identify measures that can be employed to safely manage the flood risk before, during and after flood events. The FIA prepared by BMT (**Appendix H**) includes a framework for the FERP to demonstrate that a flood emergency can be safely managed on the site. The detailed emergency planning measures will then be confirmed with reference to this Framework prior to the occupation of Block C4.

The Framework FERP identifies that the duration of flooding is predicted to be relatively short (about 3 hours or less for the 1% AEP and PMF events), but there is the potential for quick inundation within 30 minutes at the onset of rain. Accordingly, the following emergency response process is proposed:

- It is recommended that a 'shelter in place' flood emergency response be adopted, whereby occupants remain inside the buildings on-site until floodwaters recede. As identified, the finished floor levels and basement entries have been designed to ensure that all buildings are above the PMF ensuring that remaining within the C4 building is possible and safe during a flood event.

- In the event of another emergency requiring evacuation from the building during Shrimpton Creek flooding, rising road egress is provided from the site to Herring Road in all events up to and including the PMF ensuring vehicle access is still possible.
- Where occupants or visitors are located on-site but in an area below the PMF level (e.g. lower lying areas outside the buildings), they should move to the closest building and make their way indoors (i.e. to an area above the PMF) as soon as a flood alarm/sensor is activated or ideally prior to this point (for example, following observations of significant depths of water in Shrimptons Creek).
- Occupants of the building should be notified of the potential for an extreme event by the Building Manager via a subscription to the BoM warning service to receive updates and warnings of anticipated heavy rainfall. A chief flood warden or head warden will need to be nominated to manage the evacuation of the site during a flood if required, and individual building wardens will also need to be nominated to manage the emergency response of local sites.
- The emergency siren and PA system that is installed for fire emergencies is also likely suitable for communicating with occupants during other emergencies such as a flood emergency. These emergency warning and communication systems are to be located above the PMF level.

6.15.2 Recommendation

The issued FIA responds to the relevant SEARs for flooding, confirming that the proposed development does not present an adverse flood risk, both on-site and off-site, as the modelled flood levels do not significantly deviate from the approved Concept Masterplan. The built form freeboard and basement entrances were found to comply with DCP requirements. Hence, the FIA confirms that the proposed development is supportable from a flood management perspective.

The Framework FERP also demonstrates that a flood emergency can be safely managed on the site for the occupants of Block C4. The detailed FERP will be developed further to address the detailed design and operation of the buildings on this site in consultation with the Mission Australia as the community housing provider operating the social housing provided in this location. This detailed FERP will be prepared prior to the occupation of Block C4. This assessment has informed the mitigation measures at **Section 8.0** of the EIS.

6.16 Stormwater and drainage

A Stormwater Management Plan has been prepared by ADW Johnson and included at **Appendix E**, providing an assessment of the proposed stormwater arrangements against the relevant requirements, including the Ryde DCP. In summary, the assessment confirms that:

- As consistent with the Masterplan, water quality devices (including gross pollutant traps and filtration devices) and an end-of-line raingarden will be provided to treat generated runoff before it is discharged into Shrimptons Creek. MUSIC modelling confirms that the proposed development will achieve, and exceed, Council targets with regards to stormwater treatment. It is noted that an end of line rain garden will be provided at a future stage when undertaking the required rehabilitation works to Shrimptons Creek in order to meet the requirements of the Green Star communities' guidelines.
- Rainwater tanks will be used to capture and store runoff from roof areas for reuse as irrigation and for car washing. Given the scale of the proposed buildings, it is extremely difficult to capture enough water to effectively reduce the extremely high potable water demand for internal uses. Notwithstanding this, the water balance model demonstrates that a reduction in potable water demand for these specific uses could range from 22% to 49%, benefitting the sustainability of the project.
- Runoff will be managed through the rainwater tanks and dedicated OSD tanks to attenuate discharges and surface drainage pits to capture and transport runoff. A 42m³ OSD tank on Block C3, and a 13m³ OSD tank on Block C4 will be provided in-line with Council requirements. No detention tank is required for Block C2, which will instead use an aboveground basin/swale to achieve OSD targets. XP-RAFTS modelling confirms that through the use of rainwater tanks and dedicated detention tanks, the post developed 1 in 100 year ARI peak discharges can be adequately attenuated back to the post developed 1 in 5 year ARI peak discharges.
- An indicative erosion and sedimentation control plan has been developed for infrastructure external to the development lots, with detailed plans for the building construction to be prepared by the building contractor prior to the commencement of works, as consistent with industry best practice.

It is emphasised that the entire public road network including stormwater infrastructure, will be constructed with stormwater connection points being left for all future buildings, including those covered under the Stage 2 application. As such, no drainage infrastructure will be provided as part of this stage that will be handed over to Council.

6.16.1 Recommendation

In response to the issued SEARs, the Stormwater Management Plan confirms that the proposal will achieve the identified water quality targets identified for the site in the Ryde DCP and Concept Masterplan. Further, the proposed drainage design including OSD and rainwater tanks are appropriately sized to attenuate runoff and will capture water for reuse in irrigation and car washing to reduce potable water demand. An indicative erosion and sedimentation control plan has been prepared to support the future construction works associated with the project.

This assessment has informed the mitigation measures at **Section 8.0** of the EIS.

6.17 Noise and vibration

A Noise and Vibration Assessment of the proposed development has been prepared by Acoustic Logic and is attached at **Appendix V**. The report assesses the likely noise and vibration impacts of the proposed development during both its construction and operational phases against the relevant guidelines.

6.17.1 Construction phase

The proposed development is not expected to have any adverse impacts on surrounding sensitive receivers during construction. Construction noise will generally comply with the nominated acoustic criteria provided within the report, and where these are exceeded (which may occur when working close to the site's western, northern, and southern boundaries), appropriate mitigation measures have been nominated in the Assessment including the following:

- providing construction hoarding around the site perimeter to assist with noise screening to northern receivers;
- using alternative equipment as much as practicable to minimise activities with the greatest noise impacts (hammering; rock/concrete saws; piling activities);
- using silencing devices such as engine shrouding or industrial silencers fitted to exhausts, and requiring on-site work vehicles to turn off their engines when practicable; and
- implementing noise respite periods as consistent with ICNG recommendations where continuous exceedances are unavoidable.

These occasional exceedances of the noise criteria are not considered to be unreasonable. Expected noise impacts will generally decrease throughout the construction period as building facades are erected and enclose the building construction works.

The Noise and Vibration Assessment has nominated within the report the relevant noise and vibration thresholds that construction activity at the site should not exceed. Further detailed assessment of construction noise and vibration will be undertaken once construction methodology is finalised. The Construction Environmental Management Plan (CEMP) to be prepared will ensure that the nominated thresholds are not exceeded as much as practicable and, where exceedances are inevitable, that adequate mitigation measures are provided. This has informed the mitigation measures at **Section 8.0** of the EIS.

6.17.2 Operational phase

The Noise and Vibration Assessment provided at **Appendix V** also identifies and assess the potential acoustic and vibration impacts associated with the operation of the project, confirming the following:

- Noise impacts associated with traffic during the proposed development's operation will remain within acceptable limits following the implementation of the noise mitigation measures provided within the report, including the usage of glazed windows and doors and acoustically appropriate external walls and ceilings. Recommended specifications are provided within Section 8.2 of the assessment. Mechanical and/or alternate means of ventilation are not required to meet the acoustic criteria.

- Noise emissions and vibrations from mechanical plant and equipment can be satisfactorily mitigated through appropriate plant selection and standard treatments. Building plant equipment will be selected and confirmed at the construction phase of the project with reference to the recommendations in the Assessment. Further acoustic and vibration design for walls, floors, and mechanical systems will be undertaken to ensure continued acoustic compliance with the nominated criteria.
- Noise impacts associated with the community centre is not expected to have adverse impacts on surrounding residents (including within Ivanhoe Estate). Patronage noise and noise from ambient background music is predicted to be negligible.
- Noise impacts associated the operation of the C3 and C4 loading docks will not adversely impact the building occupants, with the predicted noise levels to remain below the relevant acoustic criteria.

6.17.3 Recommendation

The Noise and Vibration Assessment concludes that the proposed development is supportable on acoustic and vibration grounds and will not give rise to unreasonable impacts.

Acoustic impacts during construction generally comply with the relevant EPA guidelines. Exceedances may occur when working close to site boundaries, with acoustic treatments and mitigation measures to be implemented as delineated above and within Section 10.4 of the report. Construction noise and vibration impacts will be further considered as part of a detailed CEMP.

During operation, no adverse acoustic or vibration impacts are expected, including from traffic movements, plant and services, the operation of loading docks, or the operation of the community centre. The development will be refined consistent with the recommendations in Section 8.2 of the Assessment as part of the construction phase of the project to ensure continued compliance.

This recommendation has informed the mitigation measures at **Section 8.0** of the EIS.

6.18 Geotechnical assessment

Geotechnical Investigations have been prepared by Douglas Partners for each of the development Blocks and accompany this EIS at **Appendix F**. These reports provide an assessment of the subsurface profile and geotechnical conditions within the site and have been prepared with reference to the previous investigations undertaken for the greater Ivanhoe Estate in 2017, and groundwater monitoring undertaken in 2018. These reports found the following with regard to the site and proposed development:

- None of the development blocks are affected by Acid Sulfate Soils and all are mapped as being outside of the Salinity Potential areas in Western Sydney mapping.
- The depth of groundwater below the site sits between 2.3m and 8.61m. Higher groundwater levels were generally indicated by the current investigation in the upper parts of the C4 site, when compared to levels from previous investigations.
- The assessment details that any potential groundwater seepage can be readily managed using 'sump and pump methods' if inflows of groundwater are less than 3 megalitres a year. However, groundwater inflows may be higher than 3 megalitres a year for Blocks C3 and C4 and as such a Water Access License will need to be obtained during the construction phase of the project.

6.18.1 Recommendation

Douglas Partners have identified opportunities for further investigation during finalisation of detailed design for the construction phase of the project, as provided within Section 7.6 of the Geotechnical Reports. These recommended strategies ensure the proposed buildings can be safely constructed on the sites and have informed the mitigation measures at **Section 8.0** of the EIS.

6.19 Waste

6.19.1 Construction phase

The Preliminary Construction Management Plan (CMP) provided at **Appendix O** delineates expected waste generation rates and management during the construction stage of the development. It should be noted that waste management during demolition was assessed and approved as part of the Stage 1 SSDA (SSD 8903).

The engaged Principal Contractor will be responsible for transporting all non-recyclable materials to approved landfill sites. Recyclable materials will be disposed by the Principal Contractor at the most appropriate recycling depot. Waste bins will be stored on-site and separated between recyclable and non-recyclable material for construction staff.

6.19.2 Operational phase

Waste Management Plans (WMPs) have been prepared for each of the proposed buildings by Elephants Foot (C2) and SLR (C3, C4) at **Appendix O**. The WMPs outline the expected waste generation and management measures during the ongoing operation of the proposed buildings, which have been discussed in **Section 3.8** above. The reports have been prepared to be consistent with the WMP prepared for the Ivanhoe Masterplan by Elephants Foot last amended 11 September 2019, which sets out the relevant residential waste generation totals, per unit, across Ivanhoe Estate.

The WMPs confirm that sufficient waste storage rooms and facilities have been provided within each building to accommodate the expected waste generation rates. The WMPs also confirm that the proposed waste management measures have been designed in accordance with the relevant provisions of the Ryde DCP 2014, including Section 7.2 (waste management specifications in new development) as further delineated within the WMPs.

6.19.3 Recommendation

As required by the issued SEARs, expected waste generation and management during the construction phase has been delineated in the Preliminary Construction Management Plan (**Appendix EE**). A further detailed subplan will be prepared as part of the detailed Construction Environmental Management plan as confirmed in the mitigation measures at **Section 8.0** of the EIS.

Waste generation and management during the development's operation stage, including waste servicing arrangements, has also been assessed in the WMPs at **Appendix O** confirming that the proposal is consistent with the Ryde DCP 2014 and Concept Masterplan assumptions. The future detailed design of waste rooms within the buildings should be refined in accordance with the recommendations of the WMPs. This recommendation has informed the mitigation measures at **Section 8.0** of the EIS.

6.20 Utilities and infrastructure

A Utilities Services Report (USR) has been prepared by ADW Johnson and accompanies this EIS at **Appendix J**. The USR addresses the capacity of utilities infrastructure servicing the proposed development, including any augmentations required, and potential impacts of construction on the operation of existing utilities infrastructure.

The USR follows on from previous utilities assessments prepared for the Concept Masterplan and Stage 1 SSDA and confirms that lead-in works at the site have already been approved or are awaiting approval to support the proposed buildings. In summary, the report confirms that:

- Blocks C2, C3 and C4 can be readily and adequately serviced by infrastructure approved under Stage 1 without the need for any further augmentation; and
- Construction works are not envisaged to impact on existing infrastructure with all works proposed to be located within relevant lot boundaries. Dial-before-you-dig and relevant searches will be undertaken by the contractor prior to commencement of works.

6.20.1 Recommendation

In response to the issued SEARs, the USR has demonstrated that there is adequate capacity to service the proposed development without need for any augmentation or improvements. This is by virtue of the proposal being consistent with the Concept Masterplan, which was found to be serviceable in assessments conducted as part of the Concept Masterplan (SSD 8707) and Stage 1 (SSD 8902) approval processes.

No potential impacts have been identified on existing utility infrastructure that requires protection and mitigation. Hence the proposed works are supportable on utilities and infrastructure grounds. No specific mitigation measure is considered necessary in this instance.

6.21 CPTED

A Crime Prevention Through Environmental Design (CPTED) report has been prepared by Ethos Urban and is attached at **Appendix U**. The report outlines the project, policy, and crime context for the project and makes recommendations for appropriate CPTED strategies to reduce the opportunity for crime to occur.

The existing site has been assessed in the CPTED Report and found to have a crime risk rating of 'low', generally by virtue of it being an active construction site with hoarding erected around it, limiting access to the site by authorised personnel only. Following the construction of the proposed development, the crime risk rating of the site has also been assessed and found to remain at 'low'. This is owing to the design of the Stage 2 buildings and public domain areas being generally consistent with the principles of CPTED, including with regards to opportunities for natural surveillance, the implementation of adequate lighting and opportunities for technical supervision (i.e. CCTV), the public domain design providing for appropriate territorial reinforcement, and effective space management and access control.

The assessment confirms that the opportunities for crime can be further minimised through the implementation of Mitigation Measures. The project is not anticipated to significantly change the crime risk profile of the site.

6.21.1 Recommendation

The CPTED report confirms that the proposed development is worthy of support from a CPTED perspective. Recommendations have been provided within Section 6.1 of the CPTED Report delineating further opportunities to reduce crime risk at the site.

These recommendations will not substantially alter the crime risk rating of the site, which appropriately remains at 'low', but will ensure that adequate mitigation of crime will continue to be maintained during the operation of the development. Key recommendations including:

- Maintaining cleanliness throughout Ivanhoe Estate to ensure there is no indication of whether a building is social, affordable, or market housing.
- Ensuring adequate and discrete CCTV coverage, especially to entry/exits at semi-private and private spaces including the residential lobbies within Blocks C3 and C4 sites and access points to the pool, gym, and community facilities within the community centre.
- Ensuring an appropriate level of wayfinding and signage is installed, reinforcing public and private space.
- Installing access control measures, such as electronic pass systems or physical barriers and intercom systems, to minimise trespassing whilst not 'fortifying' the development.
- Providing adequate lighting to specifications outlined within the CPTED report.
- Ensuring that residential storage areas within the basement levels are secured.
- Ensuring that unfixed equipment such as outdoor seating is appropriately stored when not in use, minimising opportunities for misuse.

These initiatives will be further explored and implemented in the preparation of the detailed construction drawings and the operational stages of the proposed development, as confirmed in the mitigation measures contained in **Section 8.0** of this EIS.

6.22 Social and economic impact

A comprehensive Social Impact Assessment (SIA) was prepared by Elton Consulting for the Ivanhoe Concept Masterplan to which this SSDA is pursuant. The SIA assessed social impacts arising from urban renewal projects in general, and also the impacts specific to the Ivanhoe Estate redevelopment. In summary, it was found that the redevelopment of Ivanhoe Estate would provide significant positive social impacts including:

- providing new high quality social and affordable housing stock for vulnerable populations;
- reducing the stigma associated with social housing through the achievement of tenure blindness as part of a truly mixed-tenure community;
- improving housing quality and quantity in Macquarie Park overall, on a site well situated to provide strong access to public transport and services; and
- providing new community infrastructure and facilities including new open space, a new community centre, and a new school on the site.

The few identified negative social impacts pertained generally to the temporary loss of social housing and tenant relocation, and concerns around densification. The SIA recommended that these impacts be managed through effective evaluation, monitoring and community engagement.

With regard to this Stage 2 development more specifically, the proposal is considered to be essential in realising the suite of social and economic benefits envisioned under the Concept Masterplan. Most importantly, the proposed community centre and new public park on Block C2 is critical community infrastructure that will support the future Estate community and greater Ryde LGA.

The envisaged social and economic benefits include the following:

- The proposed community centre will provide crucial managed facilities including a gym, pool, and multi-purpose rooms to meet the demand for facilities generated by the redevelopment of the Estate, including buildings already approved and under construction as part of the Stage 1 works (SSD 8903).
- The proposed retail tenancies on the ground level of Building C3 will provide ongoing employment opportunities and transform the site into a true mixed-use precinct. These tenancies will improve the amenity, vibrancy and street level activation of the precinct, and have been designed to provide passive surveillance opportunities to the community centre, Village Green, and surrounding street frontages.
- Building C4 will provide 216 new social housing dwellings that are critical social infrastructure and deliver significant public benefits through housing people who are unable to access accommodation on the private market. Social housing typically caters to low to very low income households, which comprise some of the most vulnerable members of society and include people in poor health (mental and physical) or escaping violent or abusive situations.
- The project will also strongly contribute to employment generation during construction, as NSW continues its recovery from the ongoing COVID-19 pandemic and associated economic impacts.

6.22.1 Recommendation

The proposed development is considered to overall have a positive social and economic outcome as assessed under the Masterplan to which this SSDA is pursuant. These proposed Stage 2 works will assist in realising the range of social and economic benefits associated with the Ivanhoe Estate redevelopment. Most critically, this stage of the project will deliver the new community centre and public park to benefit the entire Ivanhoe Estate community, as well as 216 of the minimum 950 social housing units that are to be provided within the Estate.

Conversely, failure to carry out the proposed works (through a refusal or otherwise) will significantly reduce the benefits considered under the Masterplan including resulting in the loss of the community centre, a new public park, providing 216 social housing apartments, and employment-generating retail tenancies.

The social and economic impacts of this project, both positive and negative, are consistent with those identified under the SIA prepared for the Concept Masterplan approval. Hence, approval of the proposed works would not give rise to unexpected impacts that were not previously considered and as such no additional mitigation measures are required.

6.23 Accessibility

Accessibility Statements have been prepared by Morris Goding Access Consulting (MGAC) at **Appendix W** assessing each of the proposed buildings and public domain areas. The reports assess the proposed developments against the relevant disabled access standards, including the AS1428 series Australian Standards, BCA, *Disability Discrimination Act 1992* (DDA) and DDA Access to Premises Standards (including DDA Access Code).

It confirms that the proposed developments comply, or are capable of complying, with the relevant standards for ingress and egress, paths of travel, adaptable units, and facilities and amenities. Further detailed discussion on each of these matters is provided within the Accessibility Statements for the design of each Block.

6.23.1 Recommendation

The Accessibility Statements conclude that compliance with accessibility standards can be readily achieved, and that the project is supportable on these grounds. The Statements recommend that further work will be undertaken between MGAC and the relevant architects at the Crown Certificates stage to ensure continued compliance.

Compliance with DDA is a standard requirement of the issuance of Crown Certificates, and as such no specific mitigation measure is considered necessary.

6.24 Building Code of Australia

Assessments of the proposed development against the Building Code of Australia (BCA) have been prepared by AED Group (**Appendix X**). These assessments confirm that the development of Blocks C2, C3 and C4 are generally compliant with the prescriptive Deemed-to-Satisfy (DtS) provisions of the BCA. Non-compliances with the DtS provisions identified within the assessments are detailed within the reports are capable of being addressed through performance requirements prior to the issuance of the relevant Crown Certificates.

6.24.1 Recommendation

These assessments confirm that the proposed development is capable of complying with the BCA. Further work will be undertaken between the project team and AED Group to ensure where DtS non-compliances are identified, performance requirements are achieved. This is consistent with industry best practice.

Compliance with the BCA is a standard requirement of the issuance of Crown Certificates, and as such no specific mitigation measure is necessary in this instance.

6.25 Fire safety

Fire Safety Assessments have been prepared by Affinity Fire Engineering for the Block C2, C3 and C4 buildings (**Appendix Y**) to assess the proposed development against the fire safety performance requirements of the BCA by an accredited C10 Fire Safety Engineer. These assessments confirm that although not meeting the prescriptive DtS provisions of the BCA, each of the proposed buildings are capable of fully complying with the relevant performance requirements following the resolution of identified deviations within the reports at the detailed construction drawings stage of the project.

6.25.1 Recommendation

The Fire Safety Assessments confirm the development is supportable on fire safety grounds. Further refinement and assessment will be undertaken between the project team and Affinity Fire Engineering to ensure the relevant performance requirements are achieved. Such arrangements are consistent with industry best practice.

Compliance with the fire safety and engineering requirements of the BCA is a standard requirement of the issuance of Crown Certificates, and as such no specific mitigation measure is considered necessary in this instance.

6.26 Ecologically Sustainable Development

Sustainability Assessments of the proposed development have been prepared by Integral Group at **Appendix N**. The Assessments delineate the Ecologically Sustainable Development (ESD) incentives and requirements of the

proposal, including with regards to incorporation of ESD principles, consistency with Concept Masterplan and industry building environmental performance standards, and carbon emissions reduction.

The proposed development will employ a variety of ESD principles, with design and energy reduction opportunities are discussed within Chapters 5 and 6 of the reports. This includes passive design to maximise natural ventilation and solar access, efficient waste management, incorporation of green roofs and walls, installation of PV solar panels, WSUD initiatives (described further in **Section 6.16** above), and promotion of active transportation (such as through bicycle parking and end of trip facilities and high-quality and legible pedestrian movements).

Further opportunities and operational efficiencies will be explored during the Crown Building Certificate stage, in consultation with Integral Group. The proposed development is consistent with the NSW Government's target of net zero emissions by 2050 through being climate positive, as delineated in Chapter 4 of the Sustainability Assessments. The development will be carbon neutral in operations.

6.26.1 Consistency with the Masterplan Targets

The Sustainability Assessments confirm that the proposed development will be consistent with sustainability outcomes adopted by the Ivanhoe Concept Masterplan. This includes with regards to the following:

- 5-star Green Star Design and As-Built v.1.3;
- 6-star Green Star Communities v1.1;
- Carbon neutral in operations;

Continued compliance with the above commitments are demonstrated within Chapter 8 of the Sustainability Assessments. The reports confirm that the Stage 2 works are compliant, or capable of compliance, with these established targets, although in some circumstances further modelling or detailed design at the Construction Certificate stage may be required.

6.26.2 Consistency with the EP&A Regulations

The EP&A Regulation lists 4 principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing of environmental resources.

An analysis of these principles follows.

Precautionary principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any serious threat of irreversible damage to the environment and therefore the precautionary principle is not relevant to the proposal.

Intergenerational equity

Inter-generational equity is concerned with ensuring that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations by:

- implementing safeguards and management measures to protect environmental values;

- facilitating job creation during both the construction and operational phases of the proposed development;
- providing high quality social housing for use by both current and future generations; and
- providing high quality communal and public open space at the site for the enjoyment of both current and future generations.

The proposal has integrated short and long-term social, financial, and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long term implications such as waste disposal would be avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports.

Conservation of biological diversity and ecological integrity

The proposal is not considered to have a significant effect on the biological diversity and ecological integrity of its surrounding area, as confirmed in **Section 6.8** above. Biodiversity has already been addressed under the Concept Masterplan.

Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling, and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance.

Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases in accordance with the mitigation measures at **Section 8.0**.

6.26.3 Recommendation

The Stage 2 works are consistent with sustainability targets established under the Concept Masterplan, and consistent with the principles of ESD under the EP&A Act. Overall, the project's commitments to sustainable construction and operation can be achieved and demonstrated further post-approval through the detailed design and delivery phases of the project.

6.27 Site suitability and public interest

The above assessment demonstrates that the proposed development is consistent with the Ivanhoe Concept Masterplan and the Design Guidelines. The proposed built form and land uses respond to the envelopes and requirements of the Masterplan and have been refined to provide an optimal response to the unique opportunities and constraints of the site, including integration of the community centre with Block C1, the varied site topography, and the frontage of Block C4 to Shrimptons Creek. For these reasons, the development is considered to be suitable for the site.

As discussed in **Section 1.4** above, the proposed development is considered to exhibit significant strategic merit. It is a critical part of the ongoing redevelopment of Ivanhoe Estate under the approved Concept Masterplan that will deliver significant community infrastructure, including new community centre and Village Green and new high quality social housing. Thus, the proposal is in the public interest.

The proposed Ivanhoe Stage 2 detailed design works:

- Are consistent with the planning framework established for the site under the Ivanhoe Concept Masterplan (SSD 8707), including the approved Ivanhoe Estate Design Guidelines and Design Excellence Strategy;
- Continues the delivery of a high quality, truly mixed use community with strong transport connections within the Macquarie University Station (Herring Road) Priority Precinct;
- Delivers 216 new social housing apartments on a key LAHC site, providing significant public benefits by housing people who are unable to access accommodation on the private market; and
- Are a critical component of Ivanhoe Estate that enhances the amenity and vibrancy of the precinct as a whole through the delivery of a new community centre and significant public open space offering (Village Green).

6.28 Development contributions and public benefits

The redevelopment of the Ivanhoe Estate is an entirely self-funding program that will capitalise on existing LAHC assets. As each development is completed, new social housing properties are handed over to LAHC as payment for the land. This ensures government resources can be allocated to other areas, whilst at the same time accelerating the supply of social housing. Further, the Concept Masterplan committing to providing additional assets, infrastructure, works-in-kind to provide a range of public benefits that are intrinsically linked to the delivery of the Masterplan.

In addition to the 216 social housing units provided as part of Building C4, Stage 2 of the Ivanhoe Estate will deliver two community assets being the community centre and Village Green. These assets have been designed to fulfil the requirements specified for each in Condition A30(5) and (6) of the Concept Masterplan consent. A certificate from an independent Quantity Surveyor will be provided for these facilities to the Certifier at the appropriate stage as required under Condition A30.

7.0 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for the Stage 2 of the Ivanhoe Estate redevelopment has been adapted from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools.

In accordance with the SEARs, the ERA addresses the following significant risk issues:

- the adequacy of baseline data;
- the potential cumulative impacts arising from other developments in the vicinity of the Site; and
- measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Figure 40 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- the receiving environment;
- the level of understanding of the type and extent of impacts; and
- the likely community response to the environmental consequence of the project;

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- the complexity of mitigation measures;
- the known level of performance of the safeguards proposed; and
- the opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 40 Risk Assessment Matrix

Source: Ethos Urban

Risk Assessment						
Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Visual impacts	O	Visual impact of the development when viewed from the public domain	<ul style="list-style-type: none"> Buildings C3 and C4 will be visible from surrounding areas, but as stages of the redevelopment are delivered across the Estate, these buildings will be largely shielded by surrounding buildings – owing to their location in the centre of the Estate. Building C2, being minor in scale, is not visible from any viewpoint. The detailed design of Buildings C3 and C4 are a consistent scale to the approved building envelopes and through setbacks, refinement, and articulation occupy a lesser volume than the envelopes. Where visible from the selected viewpoints, the proposal will be seen as articulated buildings that are consistent with the developing scale of Macquarie Park and the redevelopment of the Ivanhoe Estate itself. 	3	1	4 Low/medium
Overshadowing	O	<ul style="list-style-type: none"> Potential for overshadowing of adjoining land. Potential for overshadowing of new public park. 	<ul style="list-style-type: none"> The delivery of the proposed buildings will result in overshadowing of areas within the Estate, on surrounding public domain areas and on a component of residential dwellings on the opposite side of Epping Road. The amount and areas of overshadowing are not inconsistent with the extent of overshadowing assessed and approved as part of the Concept Masterplan and will not give rise to any unacceptable overshadowing impacts, including on the amenity of surrounding residences or open space areas. 	2	2	4 Low/Medium
Wind	O	Potential wind impacts on safety and comfort	<ul style="list-style-type: none"> An Environmental Wind Assessment has been undertaken which considers the effect of the proposed building on wind conditions within the public domain. At all measures locations wind speeds will comply with the criterion for safety, and the comfort criteria ensures the spaces can be made acceptable based on the nature and intended usage of these locations. Mitigation measures nominate further design measures to be explored to improve wind conditions within the building and public domain. 	2	2	4 Low/Medium
Reflectivity	O	Potential impacts to the safety of drivers, heat gain in surrounding areas, and glare	<ul style="list-style-type: none"> Reflectivity modelling has been completed for the proposed development demonstrating that solar reflections and the potential for glare will not be significant. The proposed buildings do not present a risk to the safety of drivers. 	2	2	4 Low/Medium
Social impacts	O	<ul style="list-style-type: none"> Potential for social integration to be implemented poorly. 	<ul style="list-style-type: none"> Community programs and activities will be implemented in accordance with the Ivanhoe Social Housing Outcomes Plan being developed by Mission Australia. 	3	2	5 Low/Medium

Risk Assessment						
		Potential pressure on existing infrastructure and community facilities in the area.	<ul style="list-style-type: none"> Stage 2 will deliver the Village Green as public open space, and the community centre which generate significant social benefits and will be coordinated by Mission Australia as a space for outreach, training, and community building programs. 			
Water management	C/O	<ul style="list-style-type: none"> Stormwater Water quality 	<ul style="list-style-type: none"> The proposal will achieve the identified water quality targets identified for the site in the Ryde DCP and Concept Masterplan. The proposed drainage design including OSD and rainwater tanks are appropriately sized to attenuate runoff and will capture water for reuse in irrigation and car washing to reduce potable water demand. An indicative erosion and sedimentation control plan has been prepared to support the future construction works associated with the project. The development ties into the approved Stage 1 works. 	1	2	3 Low
Flooding	O	<ul style="list-style-type: none"> Potential flood impacts resulting from the detailed design and development of the site Potential flooding of the site 	<ul style="list-style-type: none"> All floor levels and entrances to basement car parking have been designed above the PMF event flood levels. The Flood Impact Assessment confirms there is no predicted adverse flood impacts onto neighbouring properties as a result of the proposal, even when modelling accounts for climate change, and upstream and downstream effects during a PMF events are extremely rare (AEP of 1 in 10,000,000). The Framework FERP demonstrates that a flood emergency can be safely managed for Block C4. Mitigation measures required that the detailed FERP will be prepared prior to the occupation of Block C4. 	3	3	6 Moderate
Transport and accessibility	C/O	<ul style="list-style-type: none"> Construction traffic on roads Congestion associated with the occupation of the proposed buildings Parking demand Servicing 	<ul style="list-style-type: none"> A preliminary Construction Traffic, Transport and Pedestrian Management Plan has been prepared to ensure that construction activities do not adversely impact upon the amenity or safety of the locality. The proposed development can be accommodated within the road network and the intersection upgrades approved as part of the Concept Masterplan and being delivered as part of the Stage 1 SSDA remain appropriate. Each of the buildings have been designed to comply with the vehicle and bicycle parking rates, and with loading docks for waste removal and service vehicles. A Green Travel Plan will be implemented for future residents and occupants. 	3	2	5 Low/Medium

Risk Assessment						
Noise and vibration	C/O	<ul style="list-style-type: none"> Construction noise and vibration. Operational noise and vibration. 	<ul style="list-style-type: none"> The development is capable of complying with the acoustic and vibration criteria during construction, subject to detailed construction methodology. Plant selection and treatment and the detailed design and construction of the apartment buildings will be in accordance with the recommendations in the Noise and Vibration Assessment. 	2	2	4 Low/Medium
Biodiversity	C	Tree removal, tree retention, urban treen canopy	<ul style="list-style-type: none"> Biodiversity impacts were comprehensively addressed under the Concept Masterplan and Stage 1 approvals, including implementation of a biodiversity offset scheme. No change is proposed to the approved tree removal, tree retention, and tree replacement program. 	1	1	2 Low
Contamination	C	Remediation of contaminated soils	<ul style="list-style-type: none"> A Site Auditor Assessment Report and Site Auditor Statement confirms that remediation works have already been successfully completed on the site and that the site is suitable for the proposed development without an environmental management plan. 	1	1	2 Low
Safety and security	O	Potential for crime and perception of crime	<ul style="list-style-type: none"> A Crime Prevention through Environmental Design (CPTED) assessment has been undertaken that considers the potential for crime to occur and classifies the site as low risk. Recommendations identified in the report will be addressed further in the detailed construction drawings and the operational stages of the proposed development. 	2	1	3 Low
Utilities and infrastructure	C/O	Capacity to service the new development	<ul style="list-style-type: none"> The Utilities Services Report demonstrates that there is adequate capacity to service the proposed development without need for any further augmentation/improvements – with site services being delivered under the Stage 1 SSDA for the Estate. 	1	1	2 Low
Aboriginal heritage	C/O	<ul style="list-style-type: none"> potential impacts on archaeology impact on cultural values 	<ul style="list-style-type: none"> An Aboriginal Cultural Heritage Assessment Report has been prepared, detailing the sites social and cultural values, as well as potential for archaeological resource value. The cultural value of the subject area is considered moderate. No further specific cultural heritage significance associated with the subject was identified by the RAPs. The likelihood of Aboriginal sites or archaeological objects to be present on site as being low to nil. 	2	2	4 Low/Medium
Non-Aboriginal heritage	C	<ul style="list-style-type: none"> potential impacts on surrounding heritage items 	<ul style="list-style-type: none"> There no mapped heritage items on the site or in the surrounding area. 	1	1	2 Low

Risk Assessment						
		<ul style="list-style-type: none">potential impacts on archaeology	<ul style="list-style-type: none">An Aboriginal and Historical Heritage Assessment (HHA) accompanied the Concept Masterplan and confirmed there was a low potential for historical relics.			

8.0 Mitigation measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 9** below. These measures have been derived from the previous assessment in **Section 6.0** and those detailed in appended consultants' reports.

Table 9 Mitigation Measures

Ref No.	Mitigation Measure
Design and Operation	
D/O-BF	Built form
D/O-BF1	Any design development should occur in accordance with the design integrity process outlined in the Ivanhoe Estate Design Excellence Strategy.
D/O-BF2	The detailed fit-out, operation, and signage for retail tenancies should be the subject of separate and future approval.
D/O-BF3	The indoor pool and gym also within Building C2 will be subject to a further detailed application for their fit-out and use, including intended operational details. Best endeavours will be sought through the operator for these spaces to be accessible to social and affordable housing occupants.
D/O-BF4	A detailed Operational Management Plan should be prepared for the community spaces and social enterprise café by Mission Australia prior to the occupation of the building. This Plan should be subject to Aboriginal participation with reference to the Connecting with Country Strategy dated June 2021.
D/O-BF5	All tree removal and retention is to occur in accordance with the Stage 1 SSDA. No additional trees are to be removed under this SSDA.
D/O-BF6	Detailed construction phase drawings should have consideration of the recommendations outlined within: <ul style="list-style-type: none"> • Environmental Wind Impact Assessment prepared by SLR (July 2021) • CPTED Report prepared by Ethos Urban (July 2021) • Section 8.2 of the Noise and Vibration Assessment prepared by Acoustic Logic (July 2021) • Section 7.6 of the Geotechnical Report prepared by Douglas Partners (May 2021) • Waste Management Plans prepared by Elephants Foot and SLR (June 2021)
D/O-TA	Transport and accessibility
D/O-TA1	The operation of future buildings should where possible implement the recommendations of the Green Travel Plan prepared by Ason Group (July 2021) and encourage the preparation of workplace travel plans for new businesses.
D/O-FL	Flooding
D/O-FL1	A detailed Flood Emergency Response Plan should be prepared prior to the occupation of Block C4 identifying the flood evacuation procedure, including the installation of any physical, visual and/or audible warning mechanisms.
D/O-NV	Noise and vibration
D/O-NV1	The selection and attenuation of external mechanical plant and equipment should have consideration of the noise criteria and recommendations in the Noise and Vibration Assessment prepared by Acoustic Logic (July 2021).
D/O-ESD	Sustainability
D/O-ESD1	The development will incorporate ecological sustainable development principles and will be designed generally in accordance with the objectives, targets and strategies of the Ivanhoe Sustainability Report prepared by Frasers Property Australia (July 2021) and Integral Group (July 2021).
D/O-SEC	Safety and security
D/O-SEC1	A CCTV network for the site should be designed in consultation with a suitably qualified security consultant. Signage is to be installed at site entries advising visitors that CCTV is in operation throughout the precinct.
D/O-SEC2	A lighting strategy should be designed and implemented in consultation with a suitably qualified lighting expert to ensure that the CCTV network is effective, and the building will be lit during the night.
D/O-HER	Heritage
D/O-HER1	Ongoing consultation with RAPs should occur as the project progresses, to ensure ongoing communication about the project and key milestones, and to ensure the consultation process does not lapse, particularly with regard to consultation should the CFP be enacted.

Ref No.	Mitigation Measure
Construction Management	
CM-1	Prepare a detailed Construction Environmental Management Plan prior to the commencement of works on the site including all required technical management plans and with consideration of other nominated mitigation measures.
CM-2	The CEMP is to be supported by a Construction Waste Management Sub-Plan detailing the waste expected to be generated during the demolition and construction phases of the project development, and the associated processes for sorting, storing and processing waste, including monitoring and reporting programs.
CM-3	Works should take into consideration the recommendations and strategies identified in the Geotechnical Assessment prepared by Douglas Partners (July 2021), including when preparing construction drawings.
CM-4	An Erosion and Sedimentation Control Plan should be prepared and implemented on site prior to the commencement of works in order to support the future construction works associated with the project.
CM-TA	Transport and Accessibility
CM-TA1	A detailed Construction Pedestrian and Traffic Management Plan will be developed with the appointed contractor, confirming the detailed construction methodology and specific measures for safely managing construction traffic in the surrounding area.
CM-HER	Heritage
CM-HER1	Prepare and educate all on site contractors on a policy of should any archaeological deposits be uncovered. Should any suspected archaeological resource/relic be encountered, a stop work order would be required in the area of the find, and the project archaeologist contacted.
CM-NV	Noise and vibration
CM-NV1	A Construction Noise and Vibration Management Plan shall be prepared, including the final details of the types of plant to be used and updated estimates of the likely levels of noise and the scheduling of activities. The Plan will have references to the recommendations in Table 24 of the Noise and Vibration Impact Assessment prepared by Arup (April 2020).

9.0 Conclusion

The Environmental Impact Statement (EIS) has been prepared to consider the environmental, social, and economic impacts of the proposed development, being Stage 2 of the Ivanhoe Estate redevelopment, comprising Blocks C2, C3 and C4. The EIS has addressed the issues outlined in the SEARs (**Appendix A**) and Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* to consider the relevant environmental planning instruments, built form, and social and environmental impacts resulting from the proposed development. Appropriate mitigation measures have been identified to manage the impacts of the development through the construction and operational phases of the project.

Having regard to environmental, economic, and social considerations, the carrying out of the project is justified for the following reasons:

- the proposal is permissible with consent and meets or has justified any non-compliances with the statutory requirements of the relevant environmental planning instruments;
- the proposal is consistent with the site-specific planning framework established under the Ivanhoe Concept Masterplan (SSD 8707), including the approved Ivanhoe Estate Design Guidelines and Design Excellence Strategy;
- the proposal continues the delivery of a high quality, truly mixed use community with strong transport connections within the Macquarie University Station (Herring Road) Priority Precinct;
- the proposal delivers 216 social housing apartments on a key LAHC site, providing significant public benefits by housing people who are unable to access accommodation on the private market;
- the proposal forms a critical component of the Ivanhoe Concept Masterplan that enhances the amenity and vibrancy of the precinct with the delivery of a new community centre and significant multipurpose public open space offering (Village Green);
- the proposal includes a full description of adequate and appropriate measures proposed, developed based on detailed technical assessment carried out in accordance with the Secretary's Environmental Assessment Requirements, in order to mitigate any adverse impacts of the development on the environment;
- the project has been informed by pre-lodgement community consultation and establishes a framework for ongoing consultation and engagement with the community through the detailed design, construction and operational phases of the development;
- the proposal is consistent with the principles of ecological sustainable development as defined by Schedule 2(7)(4) of the *Environmental Planning and Assessment Regulation 2000*, and will support the delivery of an ecologically sustainable development; and
- the proposal is in the public interest and does not result in any adverse environmental impacts.

Overall, the proposal forms the stage of the redevelopment of Ivanhoe Estate under LAHC's 'Communities Plus' programme, pursuant to the approved Ivanhoe Estate Concept Masterplan and Stage 1 detailed design works. It makes a vital contribution to the ongoing renewal and delivery of social housing across the state in a 'tenure-blind' model. It is consistent with the substantive planning work undertaken to date and will not give rise to any unreasonable or unmitigated environmental impacts.

On this basis and given the merits of the proposal, we have no hesitation in recommending the proposal be approved.