



FRASERS PROPERTY PTY LTD

**IVANHOE ESTATE STAGE 1 – LOT A1 & C1
MACQUARIE PARK NSW**

ACCESS REVIEW

Morris Goding Accessibility Consulting

FINAL V.2

29th Nov 2018

REPORT REVISIONS		
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1. EXECUTIVE SUMMARY

The Access Review Report is a key element in design development of the Ivanhoe Estate mixed use residential/commercial development on Epping Road, Macquarie Park, NSW, and an appropriate response to the AS1428 series, Building Code of Australia (BCA), DDA Access to Premises Standards (including DDA Access Code) and ultimately the Commonwealth Disability Discrimination Act (DDA).

Morris-Goding Accessibility Consulting has prepared the Access Report to provide advice and strategies to maximise reasonable provisions of access for people with disabilities. The Development Application Drawings prepared by Bates Smart & Candelapas have been reviewed and the ingress and egress, paths of travel, circulation areas, common areas, car-parking and accommodation can achieve compliance with relevant statutory guidelines.

The recommendations in this report are to be developed in the ongoing design development and should be confirmed prior to construction certificate stage. As the project proceeds, further review of documentation is strongly recommended to ensure that appropriate access is provided to and throughout the development.

The main recommendations included in this report are as follows:

- (i) Lot A1 and Lot C1 - All stairs/ramps to be suitably set-back at least from adjacent walls at top/base so required access features (handrail extensions and TGSIs) can be provided without protruding onto traverse path of travel, compliant with AS1428.1.
- (ii) Lot C1 - Liaison and confirmation with BCA consultant is required to ensure compliance with BCA 2016 part D2.17 and AS1428.1:2009 Clause 12 can be achieved for fire-isolated stairs. We recommend that an off-set tread be provided at the base of each stair landing and steps on mid-landings be removed.
- (iii) Lot A1 - Provide turning spaces (1540mm width x 2070mm long in the direction of travel) within 2m of the end of all corridors to allow for 180° wheelchair turn.
- (iv) Lot A1 and C1 - Provide a unisex accessible toilet and shower, compliant with AS1428.1 at each bank of toilets on each storey, where provided in accordance with DDA Access Code Part F2.
- (v) Lot A1 and C1 - Provide a male and female ambulant cubicle, compliant with AS1428.1 at each bank of toilets, adjacent to an accessible toilet in accordance with DDA Access Code Part F2.4.
- (vi) To ensure equitable access can be achieved to common use facilities in accordance with BCA Table D3.1, an accessible path of travel, compliant with AS1428.1 needs to be provided from main entrance lobbies to accessible entrances to the residential common landscape areas.
- (vii) Provide equitable access to and within the residential common use landscape areas located in the C1 atrium. A performance solution based on duplicate/similar amenities being provided on both sides (north and south) could be provided to support this if required.
- (viii) The current 2.4m wide designated accessible car bay configuration with columns located within shared area can be supported to satisfy BCA performance

requirements as accessible car bays provide functional 3800mm min. clear width for each adaptable unit residential, compliant with AS4299. This may require a performance solution.

2. INTRODUCTION

2.1. General

Fraser's Property Pty Ltd has engaged Morris-Goding Accessibility Consulting to provide a design review of the proposed DA application for the mixed use residential/commercial development located on Epping Road, Macquarie Park

The proposed Stage 1 development is made up of 2x separate complexes, Lot A1 and C1.

Lot A1 is located in the northern corner of the Ivanhoe Estate and is a 23 storey residential (Class 2) and Child Care Centre (Combination of Class 5/9b) tower over 4 basement levels carpark/storage.

Lot C1 is located immediately south-east of 'Lot A1' in the Ivanhoe Estate and consists of 3 separate residential buildings/towers. All 3 buildings are made up mostly of residential sole occupancy units (SOU's) (Class 2) with some minor retail/community (Class 6) over 3 basement levels carpark/storage.

The requirements of the investigation are to:

- Review supplied drawings of the proposed development;
- Provide a report that will analyse the provisions of disability design of the development, and
- Recommend solutions that will ensure the design complies with the Disability Discrimination Act (DDA), Building Code of Australia (BCA) and AS 1428 series.

2.2. Objectives

The report considers user groups such as the public, clients, staff, residents and residential visitors. The Report attempts to deliver equality, independence and functionality to people with disabilities inclusive of:

- People with sensory impairment (hearing and vision)
- People with mobility impairments (ambulant and wheelchair)
- People with dexterity impairments

The Report seeks to provide compliance with the DDA. In doing so, the Report attempts to eliminate, as far as possible, discrimination against persons on the ground of disability.

2.3. Limitations

This report is limited to the accessibility provisions of the building in general. It does not provide comment on detailed design issues, such as: lift specification, slip resistant floor finishes, door schedules, hardware and controls, glazing, luminance contrast, stair nosing, TGSI's, handrail design, etc. that will be included in construction documentation.

2.4. Statutory Requirements

The following standards are to be used to implement the Report:

- BCA – Building Code of Australia 2016
- DDA Access to Premises Standards 2010
- Disability Discrimination Act (DDA) 1992

- AS 1428.1:2009 (General Requirements for Access-New Building Work)
- AS 1735.12:1999 (Lifts, Escalators, & Moving Walks)
- AS2890.6:2009 (Off-street Parking for People with Disability)
- AS 4299:1995 (Adaptable Housing Standard)
- Ryde Council DCP 2014 (as relevant for SSD application)
- AS1428.1-1992 (Enhanced and Additional Requirements) as relevant
- Livable Housing Australia Design Guidelines (Silver level) Fourth Edition, 2017

2.5. Public Domain

For new developments, the DDA Premises Standards, BCA Part D3 and AS 1428.1 outline the minimum access provisions required for people with a disability within the allotment boundary to ensure compliant access to and within buildings can be achieved.

For public domain areas (outside of allotment boundary) the above codes/standards are not technically mandatory as they are not specifically covered within the building access requirements. In these situations these codes/standards are generally advisory (best practice) to satisfy the intent and objectives of the DDA, as the over-arching DDA legislation still applies to public domain areas and impacts on access for people with disability.

Given the scale/nature of this development, where new areas of public domain are being proposed around, between and to connect buildings (yet outside of individual building lot boundaries), strong consideration needs to be made to using the above codes/standards to improve general access for all users and maximise access provisions for people with disability as far as possible.

3. INGRESS & EGRESS

3.1. Site Linkages

The proposed Stage 1 Ivanhoe development is located at Epping Road, Macquarie Park and is comprised of Lot A1 and Lot C1.

There is such a strong interface between public domain footpath surrounding the building lot boundary line and the main entrance points to this development. C1 development has considerable gradients extending along its boundary on the pedestrian footpath. There is an approximate 1:15 gradient extending along the entirety of the south side of the development, with 1:17 gradient extending along the north side. These gradients are classified as ramps under AS1428.1 and may impact on external access to the building for people with disabilities, particularly those with mobility issues.

Recommendations:

- (i) Provide continuous accessible path of travel from all lot boundary entry points to the building entrances, compliant with AS1428.1 as required by BCA/DDA Access Code Part D3.2.
- (ii) Provide regular level landing areas along pedestrian walkways, particularly at building entry points that are required to be accessible.

3.2. Residential Tower Entrances – Lot A1

There are two entrances to the Lot A1 residential development. The main entrance is located at north side of building at level 1, and the secondary entrance is located at south-east side of the building at lower ground level.

From northern lot boundary there is pedestrian on-grade/level access into the residential entry lobby, level 1.

From south-east lot boundary, pedestrian access to the building entrances is via wide stairs that lead to the 'Forecourt' that connects to the 'Residential Lobby, lower ground level. Accessible path of travel is via a 1:14 ramp that has compliant space to accommodate appropriate TGSIs & handrails. This will be developed further at DD stage.

Both the north main and south residential entry lobby doors (dual hinged doors of equal width) can achieve 850mm min. clear width and suitable circulation on both sides, compliant with AS1428.1:2009.

There is an alternate entry access to the building via the Mail Room from lower ground level Forecourt. This is not accessible due to the path of travel being via series of external stairs, however an alternate entry is available from inside Residential Lobby.

Recommendations:

- (i) Provide directional signage at external stairs to alternate building entrance, lower ground level via Mail Room identifying the accessible main entrance.
- (ii) Short set of stairs neighbouring the main entrance and external entry stairs to be suitably set-back at least 650mm (900mm min. preferred) from the walls & landscape so required access features (handrail extensions and TGSIs) can be provided without protruding onto traverse path of travel, compliant with AS1428.1.

- (iii) Ensure all main entry doors have light weight operation to assist wheelchair users. To comply, the door shall have an operative force of no greater than 20N.
- (iv) Ensure all common use doors are 850mm min. clear widths opening & door circulation, compliant with AS1428.1-2009.

3.3. External Child-Care Tenancy Entrance – Lot A1

The main entrance to the Lot A1 Childcare Centre (CC) tenancy is located at southern side of building at lower ground level. Access to CC tenancy is from the same ‘Forecourt’ as ‘Residential Lobby’ at lower ground level described above and shares the same requirements for an accessible path of travel.

The CC entry lobby doors (double hinged doors of equal width) can achieve 850mm min. clear width and suitable circulation on both sides, compliant with AS1428.1:2009.

Once inside Entry Lobby, there is a clear path of travel to the passenger lift and alternate communication stairs to CC tenancy that is predominantly located on upper ground level.

Recommendations:

- (i) Ensure main entry doors have light weight operation to assist wheelchair users. To comply, the door shall have an operative force of no greater than 20N.
- (ii) Ensure the CC entry lobby stair has suitable set-back at least 650mm at base, 400mm at top (900mm min. preferred at base) from adjacent wall so required access features (handrail extensions on both sides and TGSIs) can be provided without protruding onto traverse path of travel, compliant with AS1428.1.

3.4. Residential Tower Entrances – Lot C1

There are 4x main entry lobbies, 1x for each of the main towers (*C1.1 Social, C1.2 Market, C1.3 Social & C1.4 Market*) that connect to separate lift cores that provide access to the various SOU’s. The social housing units are located at northern side of towers with entry lobbies accessed from lower ground level (Main Street). The market residential units are located at southern side of towers with entry lobbies accessed from upper ground level (Neighbourhood Street).

All entry lobbies are externally accessible from the lot boundary by a 1:14 external ramp with exception of the north-east ‘Social Lobby’ (C1.3) where a step-free path of travel from boundary is indicated. Access via the ramps can achieve compliance with AS1428.1-2009 and this will be developed further during design development to include required set-backs from lot boundary to accommodate access features.

An alternate path of travel to the entry lobbies (with exception of C1.3) is available by stairs, located adjacent to the ramps. All stairs currently begin at the boundary line of the development which will require further review to ensure compliance with AS1428.1. This is achievable.

Due to the height variations across the site, the stairs are tapered at base area to interface with public domain footpaths. While permitted under BCA in this location/context, tapered stairs can create safety by design and DDA issues for people with vision impairment. This can be mitigated by extra handrail provision at stair taper/transitions.

The main entry lobby doors can generally achieve 850mm min. clear width and suitable circulation on both sides, compliant with AS1428.1:2009.

Recommendations:

- (i) Ensure external access from boundary to C1.3 'Social Lobby' main entry is continuous and compliant with AS1428.1-2009.
- (ii) All ramps and stairs to be suitably set-back from footpath so required access features (handrail extensions and TGSIs) can be provided without protruding onto traverse path of travel, compliant with AS1428.1.
- (iii) All pedestrian access ramps and stairs to be detailed to include handrails on both sides and access features, compliant with AS1428.1-2009.
- (iv) Consider reducing the wide angled shape of entry stairs to north-east and south-west entry lobbies for improved safety by design (Advisory). Alternatively, use additional handrails, within stair that is perpendicular to stair tread to provide choice for path of travel as part of a performance solution.

3.5. Residential Townhouses – Lot C1

At south side of development between towers C1.4 & C1.2 there are 4x maisonette/townhouses, C1.5. The 4x SOUs between the towers have separate access from lot boundary with no internal connection to main entry lobbies.

As none of 4x SOUs are proposed to be adaptable or Social Housing Units (SHU) units, access is only required to be provided to entry gate/door of the private SOU under DDA Access Code Table D3.1.

External access to entry gate of the 4x townhouse SOU's is achievable direct from the lot boundary on Neighbourhood Street.

3.6. Residential Common Landscape Entrances – Lot C1

There are an additional 3x entry points to the development that are for the residential common use landscape areas located in the C1 atrium. External access from the boundary is achievable however as per section 3.1, the surrounding footpaths that connect the landscape entrances to the entry lobbies have steep gradients.

It is the intent that the atrium is for use by the residents only and will be via a key card entry. All doors show circulation spaces and paths of travel from the boundary that can be compliant as per AS1428.1-2009. This will be developed further at Design Development stage.

The largest entrance is on the north side of building on the lower ground level. Clear path of travel is provided to the north entrance from C1.3 Social lobby along a level path of travel. However, the path of travel from C1.1 Social Lobby is along the lot boundary line with steep gradient (1:17 over 40meters) which at this stage does not show any level landings.

The south side entrance has 2x entry points for the atrium. From the C1.4 Market Lobby there is a continuous path of travel via the pedestrian footpath and along a walkway between developments C1.4 & C1.5. From the C1.2 Market Lobby there is a continuous path of travel to the same walkway. However, the distance and gradient of the pedestrian footpath is steeper and extensive (38 meters along a 1:17 gradient).

All entrance doors can achieve 850mm min. clear width opening, compliant with AS1428.1:2009. This will be developed further at Design Development stage.

The atrium is separated into 2 main levels with stairs dividing them. Currently there is no accessible path of travel for residents of the Market tower (south) to the northern more

established side of the atrium (and vice versa for the Social tower to use the south side). Due to a majority of the area/facilities being located on the northern side this is seen as inequitable for the Market tower residents as access is not provided to and within the area.

While the intent is not for the atrium to be a thoroughfare for residents, it remains a potential linkage/path of travel for residents moving from north to south (and vice versa). As the atrium linkage is not accessible, residents unable to use the stairs would need to use the public footpath which is outside building lot boundary and currently steeper than 1:20 gradient required by AS1428.1 for walkways.

Recommendations:

- (i) Provide equitable access to and within the residential common use landscape areas located in the C1 atrium. A performance solution based on duplicate/similar amenities being provided on both sides (north and south) could be provided to support this if required.
- (ii) Ensure all atrium stairs are compliant with AS1428.1-2009.
- (iii) To ensure equitable access can be achieved to common use facilities in accordance with BCA Table D3.1, an accessible path of travel, compliant with AS1428.1 needs to be provided from all main entrance lobbies to accessible entrances to the residential common landscape areas.

This will require suitable walkway gradient and level landing areas at regular intervals along the connecting pedestrian footpath, compliant with AS1428.1 to minimise fatigue for people with disabilities. E.g. for pathways with 1:20 (15m max intervals) between the building and common-use area entrances.

3.7. External Retail/Community Tenancy Entrances – Lot C1

There is an external tenancy located at east side of tower 2. External access from lot boundary is provided to the tenancy at lower ground level via on-grade wide covered walkway and has street frontage to Main Street.

At this stage the entrance doors to the retail/community tenancy are not located however given the space available, entry doors with 850mm min. clear width opening and suitable circulation on both sides are achievable, compliant with AS1428.1:2009.

Recommendation:

- (i) Provide retail/community tenancy main entry doors with 850mm min. clear width (970 door leaf) and suitable circulation area in compliance with AS1428.1:2009.
- (ii) Ensure retail/community tenancy has doorways with smooth transitions and 1:40 max. gradient circulation area as per AS1428.1-2009.

3.8. Emergency Egress – Lot A1

Within the residential development A1, there are 2 emergency stairs servicing all levels of the development. Egress for the emergency exits discharges from the lower ground level & level 1.

The doors to the fire stairs and egress corridors indicate external door circulation space & door clear widths, compliant with AS1428.1.

In the event of an emergency situation the building main entrances are viewed as being the most appropriate means of egress for wheelchair users.

The fire-stair configuration has an off-set tread provided at base of each stair landing and a continuous inner handrail which will enable a consistent height handrail to be provided as required by BCA 2016 part D2.17 and AS1428.1:2009 Clause 12. However, ongoing documentation will need to ensure that min. clearance from the handrail to the stair landing back walls maintains 1000mm min. clear path to satisfy BCA egress requirements.

Recommendations:

- (i) The ongoing fire-stair design documentation to demonstrate compliance with BCA egress requirements and BCA2016 part D2.17 and AS1428.1:2009 Clause 12. Liaison and confirmation with BCA consultant is needed for minimum egress path required.
- (ii) Consideration for emergency services to include audible and visual warnings/signals to assist people with sensory disabilities within the building (DDA/advisory).
- (iii) Consideration of an alternative emergency evacuation means e.g. the passenger lift to be operational in the event of an emergency to be provided (DDA/Advisory).

3.9. Emergency Egress – Lot C1

Within the residential development C1, there are fire-isolated emergency stairs servicing all building cores and levels of the development. Egress for the emergency exits discharges from the building at the upper ground level & the lower ground level.

The doors to the fire stairs and egress corridors indicate at least 850mm min clear width, and external door circulation space, compliant with AS1428.1. This will allow a person using a wheelchair to access and move through the door into the stairwell in the case of an emergency.

Both northern SHU building cores C1.3 & C1.1 include an accessible refuge area (800mm W x 1300mm L min. dimensions) within 1x of their fire-stairs which is enhanced access and will assist people with mobility impairment in an emergency situation.

Currently a single continuous inner handrail is indicated within each fire-stair however stair configuration does not include off-set tread at base of each flight, and on basement levels additional steps are indicated on some mid landings. This configuration will hamper a consistent height handrail above stair nosings and landings being achieved and further review required to ensure compliance.

Recommendations:

- (i) Liaison and confirmation with BCA consultant is required to ensure compliance with BCA 2016 part D2.17 and AS1428.1:2009 Clause 12 can be achieved. We recommend that an off-set tread be provided at the base of each stair landing and that any steps on mid-landings be removed.
- (ii) Directional and identification signage will be required to accessible refuge areas on each level, where provided in northern SHU building cores (tower 1 and 2). This will be developed further at Design Development stage.
- (iii) Consideration for emergency services to include audible and visual warnings/signals to assist people with sensory disabilities within the building (DDA/advisory).

4. PATHS OF TRAVEL

4.1. General Residential – Lot A1

For both Lot A1 entry lobbies, a continuous path of travel from main entrances to the central lift lobby and all residential unit entry doors is achievable as required by DDA Access Code Table D3.1.

The entry lobby circulation space is generous and will facilitate access and movement for all users to and from passenger lift cars. In general the main central corridor on each residential level (and on basement levels) exceeds 1800mm width which will provide enough space for wheelchair users to pass when travelling in opposite directions compliant with DDA Access Code and AS1428.1:2009.

Most secondary corridors have clear widths of 1600mm compliant with AS1428.1:2009 which will allow wheelchair users to turn 180° within 2 metres maximum from corridor end (1540mm width x 2070mm length required) compliant with AS1428.1.

Recommendations:

- (i) Provide turning spaces (1540mm width x 2070mm long in the direction of travel) within 2m of the end of all corridors to allow for 180° wheelchair turn. In particular, design review required of secondary corridors on levels 1, 2 & 3.
- (ii) Ensure all flooring systems within common areas comply with BCA and HB198/AS4586.

4.2. Child Care Tenancy – Lot A1

The CC tenancy is located across lower and upper ground levels. A continuous path of travel to and within is provided via the single passenger lift or communication stairs that will be developed to ensure compliance with AS1428.1-2009.

The tenancy will be subject to separate development/building approval by third parties however the base build design will need to ensure access to and within to be to satisfy DDA Access Code table D3.1 can be achieved.

Childcare centre layout/fitout is indicative only. This will be developed further at Design Development stage.

At this stage no base build sanitary facilities are indicated on plan and these are presumed to be required under BCA.

Recommendations:

- (i) Provide continuous accessible path of travel to and within all common-use areas and facilities, compliant with AS1428.1:2009 and DDA Access Code Table D3.1.
- (ii) Provide a turning space (1540mm W x 2070mm L) within 2m of all corridor ends, compliant with AS1428.1.
- (iii) All doorways to have 850mm min. clear width and suitable door circulation on both sides, compliant with AS1428.1:2009.
- (iv) Ensure continuous access between internal and external areas, compliant with AS1428.1:2009.
- (v) Where sanitary facilities are provided ensure a unisex accessible toilet, compliant with AS1428.1 & DDA Access Code Part F2 is provided at each bank.

- (vi) Provide a male and female ambulant cubicle, compliant with AS1428.1 at each bank of toilets, adjacent to an accessible toilet in accordance with DDA Access Code Part F2.4.

4.3. General Residential – Lot C1

The design and layout of Market and SHU main entry lobbies are similar with a continuous path of travel from main entrances to lift lobbies and all residential unit entry doors achievable as required by DDA Access Code Table D3.1.

The main entry lobby circulation space is generous and will facilitate access and movement for all users to and from lift car. In general the main central corridors on each residential level are 1800mm clear widths to allow for wheelchair users to pass one another.

Recommendations:

- (i) Ensure inter-corridor door in SHU upper residential levels 1-12 provides 530mm min. latch side clearance, compliant with AS1428.1:2009.
- (ii) Ensure all flooring systems within common areas comply with BCA and HB198/AS4586.

4.4. Retail/Community Tenancy – Lot C1

A common corridor leads to a passenger lift and stairs that connects to Basement 2 where End of Trip facilities for retail staff are located. Review of the corridor width/shape to be further developed during design development stage is needed to ensure compliance.

At this stage there is limited detail included on the drawing however it is presumed that End of Trip room on Basement 2 will include sanitary facilities/showers for retail/community staff.

Recommendations:

- (i) Ensure all stairs include handrails on both sides and access features, compliant with AS1428.1.
- (ii) Provide continuous accessible path of travel to and within all common-use facilities, compliant with AS1428.1:2009 and DDA Access Code Table D3.1.
- (iii) Provide a unisex accessible toilet and shower, compliant with AS1428.1 at each bank of toilets on each storey that toilets/showers are provided in accordance with DDA Access Code Part F2.
- (iv) Provide a male and female ambulant cubicle, compliant with AS1428.1 at each bank of toilets, adjacent to an accessible toilet in accordance with DDA Access Code Part F2.4.

4.5. Passenger Lifts (Residential and Childcare) – Lot A1

The residential tower has a single core and 3 x passenger lifts servicing all levels of the building and connecting to building main entrances. All lifts are shown with internal dimensions greater than 1400mm W x 1600mm D compliant with DDA Access Code Table E3.6.

All lift lobbies have more than 1800mm clear width which will allow two wheelchair users to pass each other in opposite directions, compliant with AS 1428.1:2009.

There is an additional passenger lift located within the Childcare tenancy that travels between lower and upper ground level. The lift has internal dimensions greater than 1400mm W x 1600mm D compliant with DDA Access Code Table E3.6.

Recommendation:

- (i) All Lift car components (e.g. grabrail, control buttons, lighting etc.) and lift lobby audio/visual indicators comply with AS1735.12 and the DDA Access Code Part E3.6.

4.6. Passenger Lifts (Residential and General Bin/Store) – Lot C1

The residential development is split into 4 lobbies with separate cores, each with 2 passenger lifts servicing all relevant SHU and Market residential and basement levels. All lifts are shown with internal dimensions greater than 1400mm W x 1600mm D compliant with DDA Access Code Table E3.6.

As stated in Section 4.2 all lift lobbies have 1800mm clear width which is to allow two wheelchair users to pass each other in opposite directions, compliant with AS 1428.1:2009.

There is an additional passenger lift located in the General Bin/Store that travels between basement level 2 and the lower ground. The lift has internal dimensions greater than 1400mm W x 1600mm D compliant with DDA Access Code Table E3.6.

Recommendation:

- (i) All Lift car components (eg. grabrail, control buttons, lighting etc.) and lift lobby audio/visual indicators comply with AS1735.12 and the DDA Access Code Part E3.6.

4.7. Residential Common Facilities – Lot A1

The common-use residential facilities proposed are:

- Mail box area – lower ground level
- Garbage Chutes – all levels, except upper and lower ground level
- Garbage Room – lower ground level
- Storage Areas – lower ground level
- Common Courtyard/ Landscape.

Residential mail boxes are located in a designated room with doorway access from ‘Residential Lobby’ at lower ground level. The area in front of mail boxes has 1550mm diameter clearance which allows manoeuvrability for wheelchair users compliant with AS1428.1 and AS4299. The stairs within the mail room (that connect to an alternate building external entrance) will be developed to comply with AS1428.1. The Parcel room adjacent to mail room is required to be accessible if for residential common-use. Both doorways can achieve suitable clearances and door circulation to meet AS1428.1.

The garbage room on lower ground level and garbage chutes on all levels are located in a separate room adjacent to Lift core. They are accessed on a continuous path of travel and door can achieve 850mm min. clear width, with door circulation area compliant with AS1428.1:2009.

The Storage area nominated on plan at lower ground level is accessed on a continuous path of travel and door access can achieve 850mm min. clear width, with door circulation compliant with AS1428.1:2009.

Recommendations:

- (i) Ensure access to and within all unique resident common-use areas to and within building, and ensure access is provided to and within each common-use area located within accessible areas served by lifts or ramps in accordance with BCA Table D3.1 and AS1428.1.

4.8. Residential Common Facilities – Lot C1

The common-use residential facilities proposed are:

- Mail box areas – all entry levels (Market and Social)
- Garbage Chutes – all levels, except B2 & B3 (Market and Social)
- Garbage Rooms – level B3 (Market and Social)
- Storage Areas (Inc. Bikes) – level B1, B2
- Common Courtyard/ Landscape (Section 3.6)
- General Bin/Storage – Lower Ground Floor

Resident mailboxes are shown within each entry lobby in proximity to the main entry doors. There is a continuous path of travel and clear level area with circulation areas achievable compliant with AS1428.1 & Adaptable Housing AS4299.

The garbage chutes on all levels are located in a separate room adjacent to Lift cores. They are accessed on a continuous path of travel and the door can achieve 850mm min. clear width, with door circulation compliant with AS1428.1:2009.

The garbage rooms on level B3 are located in a separate room near Lift cores. They are accessed on a continuous path of travel (shared with vehicular aisles) and the door can achieve 850mm min. clear width, with door circulation compliant with AS1428.1:2009.

There are various Storage areas nominated on plan within Social SHU development at level B1 and LG. They are accessed on a continuous path of travel (shared with vehicular aisles) and doors can generally achieve 850mm min. clear width, with door circulation compliant with AS1428.1:2009.

The Substations in the substations in the south/east of the development show 2x external sets of stairs that provide access to them. While it's implied that these stairs are only for those who would use the substation (a service that would exempt accessible requirements under BCA 3.4), these stairs are in a common area that anyone who's lost could find themselves in.

The general bin/store in the north/east of the C1 development Lower Ground floor shows access via a walkway ramp and a door with greater than 850mm clear widths. However, the platform at the top of the ramp doesn't provide compliant circulation space outside the door for a wheelchair user. Client has flagged that this is not required to be accessible as it's not for common use. There are bulky storage areas for Social & Market residents elsewhere located that are accessible.

Recommendations:

- (i) Ensure access to and within all unique resident common-use areas within the building, and ensure access is provided to and within each common-use area located within accessible areas served by lifts or ramps in accordance with BCA Table D3.1 and AS1428.1.
- (ii) Ensure all external staircases/paths of travel that lead to substations or similar that aren't enclosed are compliant with AS1428.1-2009.
- (iii) Ensure path of travel to the General Bin/Store area has a compliant path of travel including any walkway/ramp requirements (no RL's provided) with doorway circulations compliant with AS1428.1-2009.

5. RESIDENTIAL ACCOMMODATION

5.1. SSD Strategy for Adaptable Housing Provision

The proposed adaptable housing strategy for overall Ivanhoe State Significant development site (SSD), of which this Stage 1 development application for Lot A1 and C1 is part, is to provide 5% of total residential units (for each Stage) designed to meet Adaptable Housing Standard AS4299. Whilst less than Ryde Council DCP 2014 recommendation for 10% of dwellings to be adaptable, the client is seeking leniency based on the scale and number of new residential buildings (approx. 11) across the total development site that will provide a significant increase in new residential units. In addition the Stage 1 development proposes an increased number of SHU units designed to meet SEPP 65 LHA Silver unit provision, ie. 30% in lieu of 20% total units - refer to Section 5.6)

Stage 1 Lot A1 has a total of 14 adaptable units out of 269 units for the development (5%) and Lot C1 has a total of 37 adaptable units out of 467 units for the development (7.9%).

The concept of adaptable housing is to design units with provisions in place from the outset (pre-adaption) so they can be easily adapted to meet changing needs of residents in the future (post-adaption). The adaptable unit will also be 'visitable' from the outset i.e. enable a visitors with disability to enter the unit through the front entry door and have access to the living room and a 'visitable' toilet.

5.2. Stage 1 Adaptable Unit Types:

Currently adaptable units are proposed as 1, 2 & 3 layouts in a range of locations across the tower buildings in Lot A1 and Lot C1 which is appropriate for flexibility and diversity in line with intent of AS4299, SEPP 65 and Ryde Council DCP. The proposed distribution of adaptable units is as follows:

Lot	Tower	Quantity	Adaptable Type	Lift core	Level
A1	single	7 x	1B	single	1 - 7
A1	single	4 x	2B	single	3 - 7
A1	single	2 x	3B	single	16-17
Sub-Total	-	13 x	-	-	-
C1	1	13 x	2B	Social North - West	UG - 12
C1	1	8 x	2B	Market South - West	2 - 9
C1	2	13 x	2B	Social South - East	UG - 12
C1	2	3 x	1B	Market South - East	2 - 4
Sub-Total	-	37 x	-	-	-
A1 & C1 Total	-	50 x	-	-	-

5.3. Adaptable Unit Design – Lot A1- Type 1B

The unit entry door has suitable clear width & circulation compliant with AS4299 and AS1428.1:2009.

There is currently 1550mm min. circulation area in front of kitchen appliances with 800mm adjacent clear set down (for food/other) space as required under AS4299.

Laundry area shows 1550mm min. depth clearance in front of it compliant with AS4299.

Doorways show +850mm clear widths, compliant with AS4299 & AS1428.1.

There is suitable 1000mm width path of travel to living/dining area which can achieve appropriate 2250mm diameter turning area compliant with AS4299. All internal doorways and door to wintergarden/balcony to achieve 850mm min. clear width, compliant with AS1428.1:2009 at pre-adaption. Drawings show compliance is achievable. Ensure the walls that will be moved during the adaption aren't structural or have services running through them to reduce adaption costs.

Recommendation:

- (i) Ensure the bedroom walls are non-structural with no services located within to reduce any hardships on the tenant for adaptation.

5.4. Adaptable Unit Design – Lot A1- Type 2B

The unit entry door has suitable clear width & circulation compliant with AS4299 and AS1428.1:2009.

1550mm min. circulation area in front of kitchen appliances with 800mm adjacent clear set down (for food/other) space can be achieved at post adaption as per AS4299.

Laundry area shows 1550mm min. depth clearance in front of it compliant with AS4299.

A 1000mm min. width path of travel to living/dining area is provided and appropriate 2250mm diameter turning area compliant with AS4299 can be achieved.

Doorways show +850mm clear widths, compliant with AS4299 & AS1428.1. However, secondary bedroom appears to have a different sized door post-adaption (this to be amended at CC stage).

There is suitable 1000mm width path of travel to living/dining area which can achieve appropriate 2250mm diameter turning area compliant with AS4299. All internal doorways and door to wintergarden/balcony to achieve 850mm min. clear width, compliant with AS1428.1:2009 at pre-adaption. Drawings show compliance is achievable.

Recommendations:

- (i) Recommend re-hinging the door to the adaptable bedroom on opposite side and moving it further south so latch side clearance is still achievable. This would improve circulation and ergonomics for all.
- (ii) Ensure extra provisions are in place from the outset (i.e. continuous tiling under island and extra plumbing services and waste for sink) to facilitate the kitchen bench alterations required for 1550mm circulation as per AS4299.

5.5. Adaptable Unit Design – Lot A1- Type 3B

The unit entry door has suitable clear width & circulation compliant with AS4299 and AS1428.1:2009.

There is currently 1550mm min. circulation area in front of kitchen appliances with 800mm adjacent clear set down space (for food/other) as required under AS4299. Ensure provision for capped off service is made from outset.

Laundry area shows 1550mm min. depth clearance in front of it compliant with AS4299.

There is suitable 1000mm width path of travel to living/dining area which can achieve appropriate 2250mm diameter turning area compliant with AS4299. All internal doorways and door to wintergarden/balcony to achieve 850mm min. clear width, compliant with AS1428.1:2009 at pre-adaption. Drawings show compliance is achievable.

Doorways show +850mm clear widths, compliant with AS4299 & AS1428.1 with exception to Bedroom 3 which has been supported as remaining as shown given spatial constraints.

Post adaption bedroom shows compliant circulation spaces with AS4299 can be achieved.

Recommendations:

- (i) Ensure extra provisions are in place from the outset (ie. continuous tiling under island and extra plumbing services and waste for sink) to facilitate the kitchen bench alterations required for 1550mm circulation as per AS4299.

5.6. Adaptable Unit Design – Lot C1 - Social - Types 2B

The unit entry doors have suitable clear width compliant with AS4299 and AS1428.1:2009. There is suitable external door circulation space and internal door circulation space.

There is currently 1000mm min. width between kitchen benches however 1550mm min. circulation area is achievable by relocation of island bench and provision of extra capped off services. A suitable 800mm min. width workspace adjacent to the cooktop and sink is provided as required under AS4299. Ensure the modular kitchen bench is setup so that moving the bench doesn't require large works.

Laundry area shows 1550mm min. depth clearance in front of it compliant with AS4299.

There is suitable 1000mm width path of travel to living/dining area which can achieve appropriate 2250mm diameter turning area compliant with AS4299. All internal doorways and door to wintergarden/balcony to achieve 850mm min. clear width, compliant with AS1428.1:2009 at pre-adaption. Drawings show compliance is achievable.

The adaptable bedroom has appropriate overall dimensions to achieve suitable circulation areas around bed and in front of wardrobe, compliant with AS4299, when wardrobe re-located and reduced in length at post adaption stage.

The bathroom has suitable pre-adaption dimensions to achieve the required circulation spaces compliant with AS1428.1:2009 at post-adaption stage, once plinth is removed. The provision of extra plumbing provisions (capped off wastes and supply pipes) in place

at pre-adaption stage will be necessary to allow the basin and shower to be re-located at post adaption. Pre/post adaptation drawings shows compliance and ease of adaptation.

A visitable toilet is provided at pre-adaption stage in accordance with AS4299 spatial requirements.

Recommendations:

- (i) Ensure extra provisions are in place from the outset (ie. continuous tiling under island and extra plumbing services and waste for sink) to facilitate the kitchen bench alterations required for 1550mm circulation as per AS4299. This can be worked through at DD stage.
- (ii) Bathrooms to adhere to MGAC comments made on 12.11.18 (DRG - DA 1150_Floor_Plan_Adaptable_P11 MGAC FPA 13.11.13) concerning that from the offset the bathroom drainage, waterproofing, tiling, and services are all setup for post-adaption should it be required. Pre-post drawings don't show finer details concerning capped off services however they have been agreed to based on MGAC's comments.

5.7. Adaptable Unit Design – Lot C1 - Market - Type 1B

The unit entry door has suitable clear width compliant with AS4299 and AS1428.1:2009. There is suitable external door circulation space and internal door circulation space can be easily achieved by removal of joinery unit beside door, compliant with AS4299 and AS1428.1:2009. The layout does however show a very fine fitting compliance. Ensure that tolerances and external factors like skirting boards don't impede on the circulation spaces here. This can be worked through at DD stage.

There is currently 1000mm min. width between kitchen benches however 1550mm min. circulation area is achievable by relocation of island bench and provision of extra capped off services. A suitable 800mm min. width workspace adjacent to the cooktop and sink is provided as required under AS4299. Ensure the modular kitchen bench is setup so that moving the bench doesn't require large works.

The 1550mm min. depth clearance in front of laundry area and is currently shown to be compliant.

There is suitable 1000mm width path of travel to living/dining area which can achieve appropriate 2250mm diameter turning area compliant with AS4299. All internal doorways and door to wintergarden/balcony to achieve 850mm min. clear width, compliant with AS1428.1:2009 at pre-adaption. Drawings show compliance.

The adaptable bedroom has appropriate overall dimensions to achieve suitable circulation areas around bed and in front of wardrobe, compliant with AS4299, when wardrobe re-located and reduced in length at post adaption stage.

The bathroom has a large amount of changes required for it to be adaptable. MGAC has worked with the client to come up with an unconventional solution where the ease of adaption is still low with the use of capped off services and a shower that's falls won't require re-tiling during the adaption phase. It is recommended that the toilet be in the final adaption location from offset (post adaption has it swapping location with the basin).

A visitable toilet is provided at pre-adaption stage in accordance with AS4299 spatial requirements.

Recommendations:

- (i) Ensure all internal doorways and door to wintergarden/balcony achieve 850mm min. clear width, compliant with AS1428.1:2009 at pre-adaption.
- (ii) Bathrooms to adhere to MGAC comments made on 12.11.18 (DRG - DA 1150_Floor_Plan_Adaptable_P11 MGAC FPA 13.11.13) concerning that from the offset the bathroom drainage, waterproofing, tiling, and services are all setup for post-adaption should it be required. Pre-post drawings don't show finer details concerning capped off services however they have been agreed to based on MGAC's comments.

Pre-adaption drawings for bathroom to include extra capped off plumbing wastes/services for toilet, basin fixtures for re- location in compliance with AS1428.1 at post adaption stage. In addition, continuous water-proofing is to be provided underneath plinth/joinery for ease of removal and adaption. To be worked through at DD stage.

- (iii) Ensure extra provisions are in place from the outset (ie. continuous tiling under island and extra plumbing services and waste for sink) to facilitate the kitchen bench alterations required for 1550mm circulation as per AS4299. This can be worked through at DD stage.

5.8. Adaptable Unit Design – Lot C1 - Market - Type 2B

The unit entry door has suitable clear width compliant with AS4299 and AS1428.1:2009. There is suitable external door circulation space and internal door circulation space can be easily achieved by removal of joinery unit beside door, compliant with AS4299 and AS1428.1:2009. The layout does however show a very fine fitting compliance. Ensure that tolerances and external factors like skirting boards don't impede on the circulation spaces here. This can be worked through at DD stage.

There is currently 1000mm min. width between kitchen benches however 1550mm min. circulation area is achievable by relocation of island bench and provision of extra capped off services. A suitable 800mm min. width workspace adjacent to the cooktop and sink is provided as required under AS4299. Ensure the modular kitchen bench is setup so that moving the bench doesn't require large works.

The 1550mm min. depth clearance in front of laundry area and is currently shown to be compliant.

There is suitable 1000mm width path of travel to living/dining area which can achieve appropriate 2250mm diameter turning area compliant with AS4299. All internal doorways and door to wintergarden/balcony to achieve 850mm min. clear width, compliant with AS1428.1:2009 at pre-adaption. Drawings show compliance.

The adaptable bedroom has appropriate overall dimensions to achieve suitable circulation areas around bed and in front of wardrobe, compliant with AS4299, when wardrobe re-located and reduced in length at post adaption stage. It has been agreed upon that at the DD stage it will be worked on that the column that impedes slightly on the bed circulation will be minimised further if possible.

The bathroom has a large amount of changes required for it to be adaptable. MGAC has worked with the client to come up with an unconventional solution where the ease of adaption is still low with the use of capped off services and a shower that's falls won't require re-tiling during the adaption phase. It is recommended that the toilet be in the

final adaption location from offset (post adaption has is swapping location with the basin).

Recommendations:

- (i) Ensure all internal doorways and door to wintergarden/balcony achieve 850mm min. clear width, compliant with AS1428.1:2009 at pre-adaption.
- (ii) Bathrooms to adhere to MGAC comments made on 12.11.18 (DRG - DA 1150_Floor_Plan_Adaptable_P11 MGAC FPA 13.11.13) concerning that from the offset the bathroom drainage, waterproofing, tiling, and services are all setup for post-adaption should it be required. Pre-post drawings don't show finer details concerning capped off services however they have been agreed to be based on MGAC's comments.

Pre-adaption drawings for bathroom to include extra capped off plumbing wastes/services for toilet, basin fixtures for re- location in compliance with AS1428.1 at post adaption stage. In addition, continuous water-proofing is to be provided underneath plinth/joinery for ease of removal and adaption. To be worked through at DD stage.

- (iii) Ensure extra provisions are in place from the outset (ie. continuous tiling under island and extra plumbing services and waste for sink) to facilitate the kitchen bench alterations required for 1550mm circulation as per AS4299. This can be worked through at DD stage.

5.9. Additional Recommendations Applicable for all Adaptable Units

- (i) Provide slip-resistant floor surface with minimum wet pendulum test rating of 'P2' (P3 preferred) under HB198/AS4856 in wet areas; adaptable bathroom, kitchen and laundry and P3 (P4 preferred) in winter-garden/balcony.
- (ii) Provide continuous wheelchair access to balcony/wintergarden. Pending the solution, this could affect the height of balcony balustrade requiring it to be increased from the outset to allow for a raised external floor surface level with internal area to be installed (at post-adaption) and still satisfy BCA balustrade height requirements.
- (iii) Ongoing design development for pre-adaption adaptable bathroom to include:
 - Continuous access between bathroom and adjacent room/corridor. This may include an introduction of a door threshold ramp or other if the hob is great than 5mm.
 - Reinforcement of lightweight walls in adaptable bathroom around bath, shower and WC, to suit post adaption locations to meet AS4299 requirements. At least 1200mm wall length for reinforcement is required beside the toilet from rear wall with 1800mm min. length (ie. 1000mm min. length from front of WC pan) preferred.
 - Hob-less, step free shower recess with min. dimensions of 1160mm width x 1100mm length, with drainage (waste location and required shower recess falls) installed from outset to suit post-adaption.

5.10. SSD Strategy for SEPP 65 – Liveable Housing Design Provision (Silver Level)

The proposed strategy for the overall development to meet SEPP 65 LHU Silver level provision is to provide all Social Housing Units (SHU) designed to meet LHU Silver Level. This accounts for 30% of total units across the site and exceeds current SEPP 65 recommendation for 20% min. of total units. This Stage 1 LHU Silver unit provision (100%) is separate to the AS4299 Adaptable unit provision (5%) within the Market residential units.

Under SEPP 65 referenced Apartment Design Guide Section 4Q: Universal Design, 20% total dwellings are recommended to incorporate Silver level universal design features (from LHA: Liveable Housing Design Guidelines). The intent is to improve the liveability of mainstream housing.

Liveable Housing Design, Silver Level-Universal Design, dwellings must achieve 7 - 8 Elements from the outset (NB. there is no pre and post-adaptation stage of the unit as in AS4299).

From the GA plans Lot C1 has a total of 260x SHU units within Stage 1 development comprised 130x SHU units within Tower 1 and 129x SHU units within tower 2.

5.11. Lot C1 - SHU Unit Requirements -Liveable Housing Design Provision (Silver Level)

At this stage no unit schedule or detailed SHU plans are provided for assessment or to confirm number of SHU unit types. The following LHA Silver Elements assessment and requirements has been based on GA plans and further details will be required within ongoing SHU unit documentation:

1. Element 1 – Dwelling access: There is at least one safe, continuous step-free pathway from the front allotment boundary (or a dedicated car parking area on allotment) to a dwelling entrance that is level in accordance with LHA Silver requirements.

Based on GA plans this is generally provided and addressed through the continuous path of travel to all SHU unit entries required under BCA/DDA Access Code compliance for the building.

2. Element 2 – Dwelling entrance: There is at least one level (step-free) entrance (820mm min. clear opening door width) into the dwelling to enable home occupants to easily enter and exit the dwelling in accordance with LHA Silver requirements. The entrance is to have a 1200mm x 1200mm level landing area on the external side, reasonable shelter from weather and be connected to Element 1.

Based on GA plans this is generally provided and addressed through the continuous path of travel to all SHU unit entries required under BCA/DDA Access Code compliance (Element 1) for building. For each SHU unit, the design documentation will need to demonstrate a level entry threshold and 820mm min. clear width opening entry door at CC Stage.

3. Element 3 – Car-parking: When step-free access from the lot boundary (Element 1) is already provided, then an increased size car-space (3.2M min. width) is N/A.

For this development there are no requirements for an increased size car parking spaces for SHU units as pedestrian access to be provided from the lotboundary.

4. Element 4 – Internal Doors and corridors: Internal doors and corridors facilitate comfortable and unimpeded movement between spaces. This applies to all doors to rooms in dwelling on entry level ie. living, dining, bedroom, bathroom, kitchen, laundry, sanitary etc. that need to have 820mm min. clear opening door width and

level threshold transition connected by 1000mm min. clear width of corridor/path of travel. To be worked through at DD stage.

Based on GA plans, design review is required for this element as not all SHU corridors and doors currently satisfy these spatial dimensions. The design will need to demonstrate compliance at CC Stage.

5. Element 5 – Toilet: There is at least one ground (or entry) level toilet within dwelling to support easy access for home occupants and visitors. This requires one toilet on entry level located in the corner and adjacent to a wall (to enable future installation of grab rails), with a clear circulation space of 900 W x 1200mm L forward of the pan and free of door swing.

Based on GA plans, this is provided as all SHU units generally include a toilet in the corner of bathroom adjacent a wall that can be suitably reinforced. The design will need to demonstrate compliance at CC Stage.

6. Element 6 – Shower – There is a bathroom and shower designed for easy and independent access for all home occupants. This requires at least one hob-less (step-free), slip resistant shower located in corner of at least one bathroom (to enable future installation of grab rails).

Based on GA plans, this is provided as all SHU units include a shower in the corner of bathroom adjacent to a wall that can be reinforced. The design will need to demonstrate compliance at CC Stage.

7. Element 7 – Reinforcement of Bathroom and toilet walls – The bathroom and toilet walls are built to enable grabrails to be safely and economically installed. If lightweight walls are proposed for bathroom, around bath, shower and WC, reinforcement is required to meet LHA Figures 6a/b, 7a/b, 8a/b and LHA requirements.

Based on GA plans, most bathrooms provide walls adjacent to toilet and shower of sufficient length to accommodate required reinforcement. An exception was noted in SHU C1.1-UG-02 as the wall adjacent toilet is only 1200mm and design review will be required of layout to satisfy LHA requirements, which is 1000mm min. length wall in front of the WC pan.

8. Element 8 – Internal stairways - Where installed, stairways are designed to reduce the likelihood of injury and also enable future adaption. This requires a continuous handrail on one side of stairs when the rise exceeds 1m.

For this development there are no internal stairways within SHU units, therefore this Element is N/A.

6. CAR-PARKING FACILITIES

6.1. Residential Car Parking – Lot A1

There are 3 basement levels for residential car-parking distributed as follows:

- Level B3 – Resident car-parking including 4x accessible spaces
- Level B2 – Resident car-parking including 5 x accessible spaces
- Level B1 – Resident car-parking including 4x accessible spaces

There are a total of 13 accessible car bays proposed within basement floors, with one for each adaptable unit (13 total) in accordance with provision requirements of AS4299 & City of Ryde Council DCP.

The designated car parking bays have internal clearances that satisfy the minimum 2.4m clear width x 5.4m long dimensions of AS2890.6 however required shared areas have large columns within which is a departure from AS2890.6. As most accessible car bays provide at least 3.8 m min. width (between designated accessible car bay and the adjacent column) and as this satisfies AS4299, these dimensional requirements can be supported as functional.

From the accessible car bays, there is a suitable accessible path of travel to the lift lobby area, compliant with AS1428.1:2009. In general, lobby areas have suitable clearances and circulation, compliant with AS1428.1:2009.

Recommendations:

- (i) The current 2.4m wide designated accessible car bay configuration with columns located within shared area can be supported to satisfy BCA performance requirements as accessible car bays provide functional 3800mm min. clear width for each adaptable unit residential, compliant with AS4299. This may require a performance solution.
- (ii) Ensure all accessible car bays have minimum 2.5m height clearance at the designated bay (and the shared area) and 2.2m throughout the car parking areas leading to the car bays from vehicular entrance, compliant with AS2890.6:2009.

6.2. Visitor and Childcare Car Parking – Lot A1

Within Lot A1, the lower ground level provides on-site car-parking for visitors (13x total) and for Childcare Centre tenancy (12x total). There are a total of 3 accessible car bays proposed, with 1 x accessible bay for visitors and 2 x accessible for Childcare tenancy. This satisfies Ryde Council DCP 2014 recommendation for 1x wide accessible bay visitor space for people with disability visiting residents of the tower. This also satisfies BCA Table D3.5 accessible car bay requirements for the clients and potential staff with disability using the Childcare Centre.

The designated accessible car parking bays have internal clearances that satisfy the minimum 2.4m clear width x 5.4m long dimensions of AS2890.6.

The visitor accessible car bay is located in proximity to the resident lift lobby and an accessible continuous path of travel is provided.

The accessible car bays for Childcare Centre (CC) are located in proximity to the CC lift lobby however review is required of the connecting path of travel to ensure doorway circulation that can achieve compliance with AS1428.1.

Recommendations:

- (i) Re-locate Child Care Centre car park entrance further north within corridor to provide a minimum 1450mm clearance length across 530mm latch side clearance, compliant with AS1428.1-2009.
- (ii) Ensure all accessible car bays have minimum 2.5m height clearance at the designated bay (and the shared area) and 2.2m throughout the car parking areas leading to the car bays from vehicular entrance, compliant with AS2890.6:2009.

6.3. Residential Car Parking – Lot C1

There are 3 basement levels and residential car-parking is distributed as follows:

- Level B3 – Market car-parking including 11x accessible car spaces
- Level B2 – Market and Social car-parking including 0x accessible car spaces
- Level B1 – Social car-parking including 17x accessible car spaces

The Market and Social car spaces are located in distinct and separated areas.

On B3 there are a total of 11x accessible car bays provided for each of the 11x market adaptable units. The car parking bays can achieve clearances of minimum 2.4m width x 5.4m length, adjacent a shared zone of the same internal dimensions, compliant with AS2890.6:2009. All allocated accessible car bays are considered local and adjacent to the relevant lift cores that serve adaptable units with clear continuous path of travel achievable, compliant with AS2890.6-2009.

On B1 there are a total of 17x accessible car bays provided for 26x social adaptable units. The car parking bays can achieve clearances of minimum 2.4m width x 5.4m length, adjacent a shared zone of the same internal dimensions, compliant with AS2890.6:2009. The accessible car bays allocated aren't considered close to the lift cores for the associated units and don't supply access to the north-east tower of Social Adaptable units. Recommend reallocating the accessible car bays to B2 so that the accessible car bays can be split between the 2 lift cores for Social adaptable units.

At this stage there does not appear to be any 1x accessible car space provided for residential visitor's parking (as recommended by Ryde Council DCP). This can be worked through at DD stage.

Recommendations:

- (i) Ensure all accessible car bays have minimum 2.5m height clearance at the designated bay (and the shared area) and 2.2m throughout the car parking areas leading to the car bays from vehicular entrance, compliant with AS2890.6:2009.
- (ii) Provide at least 1x accessible car space for residential visitor's parking as recommended by Ryde Council DCP, compliant with AS2890.6-2009. Drawings show that there's 4x Social Visitors car spaces however it's not indicated if any of them are accessible or their locations. There's no visitors Market car spaces indicated or shown. If there are separate visitors for each type of housing, then there should be separate accessible car bays.
- (iii) Provide at least 1x accessible car bay for each Social Adaptable units. Currently 17x are provided, however AS4299 requires 1x per adaptable unit. This can be resolved at DD stage however it could affect the amount of total car bays.

6.4. Retail/Community Car Parking – Lot C1

There are 3 x Retail /Community Spaces car-spaces on basement level B2.

There is no accessible car bay designated by signage and bollard to meet AS2890.6, however due to minimal number of allocated Retail/community spaces (not exceeding 5), this is permitted under BCA Table D3.5 (d) so as not to restrict the use of the car-parking space only for people with a disability.

In the event that an accessible car bay was required the layout and size of the retail/community spaces will allow for this to occur to meet AS2890.6 dimensions. The retail/community car bays are located near the End of Trip lift core. While a continuous path of travel is achievable, review is recommended of the door to End of Trip for improved safety by design.

Recommendations:

- (i) Ensure at least 2 of the 3 adjacent Retail standard car bays have minimum 2.5m height clearance across both car bays and 2.2m throughout the car parking areas leading to the car bays from vehicular entrance, compliant with AS2890.6:2009.
- (ii) Re-locate door to End of Trip facility further away from base of the vehicular ramp for improved safety by design. This door is required to achieve 850mm min. clear width and 530mm min. latch side clearance, compliant with AS1428.1:2009.

7. CONCLUSION

MGAC has assessed the proposed scheme for the Ivanhoe Estate. The proposed drawings indicate that accessibility requirements, pertaining to external site linkages, building access, common area access, sanitary facilities and parking can be readily achieved. It is advised that MGAC will work with the project team as the scheme progresses to ensure appropriate outcomes are achieved in building design and external domain design.