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A Bureau Veritas Group Company

Building Code of Australia AssessmentReport

ESR Horsley Logistics Park

327-335 Burley Rd, Horsley Park

Prepared for: ESR

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Revision: D

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Date	Rev No	No. of Pages	Issue or Description of Amendment	Assessed By	Approved By	Date Approved
05/03/2020	A	19	Preliminary Report for DA Submission	Zac Wilkins	Geoffrey Pearce	06/03/2020
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22/06/2020	D	19	Final Report for DA Submission – includes comments	Vanessa Batty	Aaron Celarc	22/06/2020

1. Executive Summary

Development Overview

The proposed Stage 1 development consists of 6 industrial warehouses and associated offices at 327-335 Burley Rd, Horsley Park.

Compliance Summary

As a Certifying Authority, McKenzie Group Consulting (NSW) Pty Ltd have reviewed the concept architectural design documents prepared by ESR Australia (refer appendix A) for compliance with the current building assessment provisions, i.e. the Building Code of Australia 2019 (BCA).

The report is intended as an overview of the relevant provisions of the BCA for assistance only. Detailed drawings and associated review will be required as the final design is developed.

Achieving Complaince with the provisions of the BCA

The assessment of the design documentation has revealed that the development is capable of achieving compliance with the BCA, through either a prescriptive or performance based means. Design documentation demonstrating compliance with the provisions of the BCA will be further assessed as part of the application for a Construction Certificate for the Development.

Currently the design documentation for the development indicates deviations from the deemed-to-satisfy (DtS) provisions as outlined in the table below, as such, these matters are to be addressed in design documentation through either the development of Performance Solutions and/or design modifications to achieve compliance with the DtS provisions.

No.	Performance Solution Description	DTS Clause	Performance Requirements
Fire Safety Items			
1	**Perimeter Vehicular Access** The following vehicular access paths will be required to be addressed as part of a performance-based fire engineered solution: ▪ The recessed docks at the Lot 201, 203, 204 (A) Warehouses result in vehicular access being greater than 18m from the Warehouses ▪ Discontinuous access to the perimeter of Warehouse 202. ▪ Warehouse B on Lot 204 is not provided with perimeter vehicular acces within the boundary allotment along the eastern boundary	C2.4	CP9
2	**Extended Travel Distances – to a point of choice and to an exit** Due to the size and nature of the warehouses and offices, it is anticipated that travel distances will exceed the Deemed-to-satisfy provisions of the BCA.	D1.4	DP4, EP2.2

No.	Performance Solution Description	DTS Clause	Performance Requirements
	Extended travel distances will be required to be addressed as part of the Fire Engineered Solution for the development in accordance with DP4 and EP2.2 of the BCA. Further assessment of travel distances will need to be undertaken as the design progresses		
3	**Extended Travel Distances - Between Alternative Exits** Due to the size and nature of the warehouses and offices, it is anticipated that travel distances will exceed the Deemed-to-satisfy provisions of the BCA. Extended travel distances will be required to be addressed as part of the Fire Engineered Solution for the development in accordance with DP4 and EP2.2 of the BCA. Further assessment of travel distances will need to be undertaken as the design progresses	D1.5	DP4, EP2.2
4	**Fire Hydrants** Hydrants located below an awning to be considered external are to be address in a performance solution	E1.3	EP1.3
5	**Smoke Hazard Management** Smoke exhaust or smoke and heat vents required throughout the development. We note that the requirement for Smoke Exhaust may be rationalised through the Fire Engineered Solution for the development in accordance with Performance Requirement EP2.2 of the BCA.	E2.2	EP2.2
6	**Fire Hose Reels** If 50m Fire Hose Reel lengths are proposed to be utilised as part of the development, we note that this will be required to be included within the Fire Engineered Solution in accordance with Performance Requirement EP1.1 of the BCA.	E1.4	EP1.1
7	**Exit Signs** Direction signs will be installed at a greater distance from the Finish Floor Level (FFL) than 2.7m due to the ceiling height.	E4.6	EP4.2
Other NCC Complaince Matters			
8	**Accessibility** Confirmation is to be sought if portions of the Warehouses are deemed inappropriate for disabled access to be provided as part of the design development phase of the project, and therefore a Clause D3.4 exemption maybe sought.	D3.4	
9	**Weatherproofing of External Walls**	-	FP1.4

No.	Performance Solution Description	DTS Clause	Performance Requirements
	As there are no deemed to satisfy provisions relating to the weatherproofing of external walls, a performance solution is to be provided by the façade engineer/registered architect demonstrating that the external walls comply with the requirements of Performance Requirement FP1.4.		
10	**Energy Effciency** Efficient energy use must be achieved appropriate to the function and use of the building, level of human comfort, solar radiation, energy source of the services and sealing of the building envelope. To achieve this JV1, JV2, JV3 and JV4 verification methods may be used to demonstrate compliance.		JP1

The fire engineered solution relating to CP9, EP1.3 & EP2.2 items will need to be approved after consultation with the NSW Fire Brigade as part of the Construction Certificate process.

Further Assessment

The assessment of the design documentation has also revealed that the following additional information is required in order to complete the assessment, and/or the following areas need to be further reviewed.

No.	Further Information / Review Required	Responsibility
1.	Please advise if there are any proposed alternative building solutions with regard to design of the building services for the project.	Services Consultants
2.	The location of the hydrant booster assembly is to be confirmed.	Fire Services Engineer
3.	Staff and population numbers to be provided – calculations utilized within the report is based on the DTS provisions of the BCA which may be conservative.	Client
4.	Where external hydrants are located under the awning – this will need to be addressed though fire engineering	Fire Services Consultant
5.	All electrical distribution boards and the like to adequately fire and smoke separated. Plan notes to be provided on architectural details	Architect
6.	Fire service coverage drawings required to be submitted confirming locations of all proposed fire services infrastructure relevant e (sprinklers, portable fire extinguishers, fire hydrants/ booster assemblies and hose reels etc.)	Fire services engineer
7.	Please provide detailed Architectural plans showing all external exit doors, internal fitouts (including racking) and proposed sanitary facilities	Architect
8.	Please provide clarification on how the fire services infrastructure will be applied to the development.	Fire Services Consultant

Documentation to enable assessment and demonstrate compliance will be required to address the above items prior to approval.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 (As Amended) and the Environmental Planning & Assessment Regulation 2000.

2. Introduction

The proposed development comprises of the construction of 6 warehouses and ancillary offices.

The site is located on the 327-335 Burley Rd, Horsley Park.

This report is based upon the review of the design documentation listed in Appendix A of this Report

The report is intended as an overview of the relevant provisions of the Building Code of Australia for assistance only. Detailed drawings and associated review will still be required as the final design is developed.

The applicable legislation governing the design of buildings is the Environmental Planning and Assessment Act 1979. This Act requires that all new building works must be designed to comply with the BCA.

The version of the BCA applicable to the development, is version that in place at the time of the application to the Certifying authority for the Construction Certificate. For the purposes of this Report, BCA 2019 has been utilised as the version of the BCA applicable at the time of preparation this Report. It is noted that all applications for Construction Certificate lodged after May 1st , 2020 BCA 2019 Amendment 1 will be applicable.

3. Preliminaries

3.1. Building Assessment Data

Summary of Construction Determination:

Part of Project	Warehouse Lot 201	Warehouse (A and B) Lot 202	Warehouse Lot 203	Warehouse (A and B) Lot 204
Classification	5 & 7b	5, 7a & 7b	5, 7a & 7b	5, 7a & 7b
Number of Storeys	2	2	2	2
Rise In Storeys	2	2	2	2
Type of Construction	C (Large Isolated building)	C (Large Isolated building)	C (Large Isolated building)	C (Large Isolated building)
Effective Height (m)	<12m	<12m	<12m	<12m

Note: The effective height of the project includes all stories included in the rise in stories of the project.

Summary of the floor areas and relevant populations where applicable: -

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Approximate Volume (m^3)	Assumed Population
Warehouse Lot 201	7b	43,488	TBA*	TBA*
Office Lot 201	5	1,117	TBA*	100
Warehouse A Lot 202	7b	15,880	TBA*	TBA*
Warehouse B Lot 202	7b	15,880	TBA*	TBA*
Office A Lot 202	5	800	TBA*	80

Part of Project	BCA Classification	Approx. Floor Area (m^2)	Approximate Volume (m^3)	Assumed Population
Office B Lot 202	5	800	TBA*	80
Warehouse Lot 203	7b	18,730	TBA*	TBA*
Office A Lot 203	5	800	TBA*	80
Warehouse B Lot 204	7b	7,863	TBA*	TBA*
Office A Lot 204	5	400	TBA*	40
Warehouse B Lot 204	7b	8,334	TBA*	TBA*
Office B Lot 204	5	400	TBA*	40

Notes:

- The above populations have been based on floor areas and calculations in accordance with Table D1.13 of the BCA.
- Applicant to provided employee population numbers for the warehouse portions

4. Structure

4.1. Structural Provisions (BCA B1):

Any new structural works are to comply with the applicable requirements of BCA Part B1, including AS/NZS 1170.0-2002, AS/NZS 1170-1-2002, AS/NZS 1170.2-2011 and AS 1170.4-2007.

Depending on the importance level of the building as determined by AS/NZS 1170.0-2002, the non structural elements of the building, including partitions (and non-structural fire walls), ceilings, services and racking/shelving may be required to comply with the seismic restraint requirements of AS 1170.4-2007. Where this is required, certification will be required confirming that the design of the seismic restraints comply with AS 1170.4-2002. This may be provided by a specialist seismic consultant or by the architect and services design engineers.

It is noted that BCA 2019 introduced a new Verification Method, BV2, which is a pathway available to verify compliance with BCA Perforance Requirement BP1.1(a)(iii).

Glazing is to comply with AS1288-2006, and AS2047-2014.

Prior to the issue of the Construction Certificate structural certification is required to be provided by a Professional Engineer registered on the National Engineering Register.

5. Fire Protection

5.1. Fire Compartmentation (BCA C1.1)

The BCA stipulates three levels of fire resistant construction, which is based upon the rise in storeys and classification of the building. Each of these types of construction has maximum floor area and volume limitations as per BCA Table C2.2.

Based upon the rise in storeys and use of the building, it is required to be constructed in accordance with the requirements of Type C Construction, in accordance with Table 5 & 5.9 of Specification C1.1 of the Building Code of Australia 2019, as all building are considered large Isolated Buildings.

As the building exceeds the area / volume limitations of the BCA provisions Clause C2.2, the building is considered a large isolated building and the following provisions will apply:

- Automatic sprinkler protection to AS2118.1 and BCA Specification E1.5 throughout the development / smoke detection and alarm system in accordance with AS1670,
- Perimeter emergency vehicular access 6m wide located within 18m of the entire building perimeter in accordance with BCA Clause C2.4, (Subject to FER)
- Smoke exhaust or smoke and heat vents required throughout the development if the building exceeds 18,000m^2 or 108,000m^3 in volume (Subject to FER)
- Provision of a fire hydrant ring main

The following vehicular access paths will be required to be addressed as part of a performance-based fire engineered solution:

- The recessed docks at the Lot 201, 203, 204 (A) Warehouses result in vehicular access being greater than 18m from the Warehouses
- Discontinuous access to the perimeter of Warehouse 202.
- Warehouse B on Lot 204 is not provided with perimeter vehicular acces within the boundary allotment along the eastern boundary

5.2. Fire Resistance (BCA C1.1)

The building should be constructed generally in accordance with the relevant provisions of Specification C1.1 of the BCA applicable to Type C Construction, Please refer to Appendix C which outlines the required fire rating to be achieved by the development.

Other passive fire protection issues that will need to be addressed in detailed documentation phase include:

- Hydrant Pump Rooms,
- Sprinkler Pump Rooms,

The above areas are to be separated from the remainder of the building by construction achieving a minimum fire resistance level of 120 minutes.

5.3. Fire Hazard Properties (BCA C1.10 and BCA C1.9)

The fire hazard properties of fixed surface linings and mechanical ductwork will also need to be addressed within the detailed documentation phase pursuant to Specification C1.10 of the Building Code of Australia. The following requirements apply:

Sprinkler Protected Areas

a) Floor Coverings – Critical radiant Flux not less than 1.2 kW/m2
b) Wall and Ceiling Linings – Material Group No. 1 & 2
c) Other Materials – Spread of Flame Index not exceeding 9 and Smoke Developed Index not exceeding (insert)

Rigid and flexible air handling ductwork must comply with AS4254 parts 1 & 2 2012.

Rigid and flexible air handling ductwork must comply with AS4254 Parts 1 & 2 2012.

5.4. Separation of equipment (C2.12)

Equipment listed below must be separated from the remainder of the building providing a FRL as required by Spec C1.1 but not less than 120/120/120 with a self-closing fire door with an FRL or not less than -/120/30. When separating a lift shaft and life motor room, an FRL of not less than 12/-/- is required.

a) Emergency generators used to sustain emergency equipment operating in the emergency mode; or
b) Central smoke control plant; or

c) Boilers; or
d) A battery system installed in that building that has total voltage of 12 volts or more and a storage capacity of 200kWh or more.

5.5. Protection of Openings in External Walls (BCA C3.2 / C3.3 / C3.4)

The prescriptive provisions of the BCA stipulate that any external opening within 3m of the boundary, within 6m of the far boundary of a road, river, lake or the like that adjoins the allotment, or within 6m of another building on the allotment requires protection by -/60/- fire rated construction, or externally located wall wetting sprinklers.

As perimeter emergency vehicular access 6m wide located within 18m of the entire building perimeter in accordance with BCA Clause C2.4 is required to each building, it is assumed protection of openings is not applicable to the development.

Clarification to be provided confirming with boundaries and leasing or title boundaries.

Fire source feature is defined as;

a) The far boundary of a road, river, lake or the like adjoining an allotment,
b) The side or rear boundary of the allotment,
c) The external wall of another building on the allotment which is not a class 10 building.

5.6. Protection of Openings fire rated building elements (BCA C3.5 and BCA C3.10)

The prescriptive provisions of the BCA stipulate that openings within building elements required to have an FRL shall be protected as follows:

a) Any penetration through a wall or room required to have an FRL (e.g. substation, boiler room, etc) is to be protected either by a tested prototype (e.g. fire collar, fire damper, etc) or be installed within a shaft achieving an FRL of 120 minutes (or 120/120/120 where it is a room such as a substation);
b) Self-closing -/60/30 fire doors to the doors opening to the fire isolated stairs (note that this also includes the access doors to the condenser units on the plant platforms).

Note that where fire dampers, fire collars, etc are utilised, allowance needs to be made for access hatches to be provided within the walls / ceilings to ensure that maintenance access is provided.

As the design develops, details will need to be included in relation to sealing of penetrations / construction of fire rated shafts.

6. Access and Egress

6.1. Provision for Escape (BCA D1)

The egress provisions for the proposed building are provided by the following:

- External perimeter doorways

Detailing issues that will need to be addressed as the design develops include:

- Door Hardware
- Exit Door Operation
- Stair Construction
- Handrail and Balustrade construction

6.2. Exit Travel Distances (BCA D1.4)

The locations of the proposed exits would appear to indicate that the deemed to satisfy requirements in terms of travel distances, distances between alternative exits and egress widths would be satisfied.

The travel distances to exits should not exceed:

Class 5 and 7a

- no point on the floor must be more than 20m to a single exit or point of choice and where two exits are provided, a maximum of 40m to one of those exits; and
- exits shall be located to not be more than 60m apart and not closer than 9m

Assumptions have been made for the proposed exits locations that the deemed to satisfy requirements in terms of travel distances would be satisfied, with the exception of the following:

Travel Distance to a Single Exit

- Warehouse Lot 201 - Distance to an exit up to 60m in lieu of 40m
- Warehouses (A and B) Lot 202 - Distance to an exit up to 75m in lieu of 40m
- Warehouse Lot 203 - Distance to an exit up to 60m in lieu of 40m
- Warehouses (A and B) Lot 202 - Distance to an exit up to 55m in lieu of 40m

Distance Between Alternative Exits

- Warehouse Lot 201 - Distance between alternative exits up to 120m in lieu of 60m
- Warehouses (A and B) Lot 202 - Distance between alternative exits up to 150m in lieu of 60m
- Warehouse Lot 203 - Distance between alternative exits up to 120m in lieu of 60m
- Warehouses (A and B) Lot 202 - Distance between alternative exits up to 90m in lieu of 60m

These distances are indticative only and are subject to further review as the design develops.

The extended travel distances and distance between the exit stairs will need to addressed as performance solutions by the Fire Safety Engineer using BCA Performance Requirements DP4 & EP2.2

6.3. Dimensions of Exits (BCA D1.6)

Minimum dimensions of 1000mm and 2000mm height to be provided within exits, with the paths of travel should provide a minimum width of 1000mm (note that all maintenance access, cat walks, etc may comply with AS1657-2018 in which case a 600mm clear width is required).

Doorways are permitted to contain a clear opening width of the required width of the exit minus 250mm, with a height of 1980mm as part of egress requirements. Access for persons with disabilities however requires a clear doorway opening width of 850mm (i.e. minimum 920 mm doors).

6.4. Balustrades and Handrails (BCA D2.16 / BCA D2.17 / D2.24)

Generally

Balustrading to a minimum height of 1000mm with a maximum opening of 124mm in any direction should be provided adjacent to balconies, landings, corridors etc where located adjacent to a change in level exceeding 1000mm, or where it is possible to fall through an openable window located more than 4m above the surface beneath.

Where it is possible to fall more than 4m to the surface below, the balustrade shall not contain any horizontal or near horizontal members that facilitate climbing between 150 – 760mm above the floor.

Handrails should generally be provided at a minimum height of 865mm alongside of all ramps and stairs.

The public stairs and ramps located along an accessible path of travel should be designed in accordance with the requirements of AS1428.1 for persons with disabilities. This requires a handrail on each side of the stair and ramp and for the handrail to extend approximately 550mm – 600mm past the last tread / end of ramp.

Class 7b/8 Buildings

Balustrades in the fire isolated stairways and Class 7b or 8 parts of buildings are permitted to contain a 3 rail system, with a bottom rail situated at not more than 150mm above the nosings. The distance between the rails shall not exceed 460mm.

Handrails are required on both sides of all stairways except for fire isolated stairways used only for emergency egress purposes.

Note: in a required exit serving an area required to be accessible, handrails must be designed and constructed to comply with Clause 12 of AS1428.1-2009

Further review will be undertaken to ensure compliance as the design develops.

6.5. Slip Resistance

The adoption of BCA 2019 outlines the requirement for slip resistance of stairway treads and ramp surfaces. The requirements are as follows:

Table D2.14 SLIP-RESISTANCE CLASSIFICATION

Application	Surface conditions	
	Dry	Wet
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

7. Services and Equipment

The following section of this report describes the essential fire safety measures and the minimum performance requirements of those measures. A draft essential fire safety schedule can be found in Appendix B.

7.1. Fire Hydrants (BCA E1.3)

A system of Fire Hydrants is required to be provided in accordance with BCA Clause E1.3 and AS2419.1-2005.

The building is required to be provided with a booster assembly as part of the fire hydrant requirements. The booster is required to be located attached to the building at the main entry. If remote from the building, the booster is to be located at the main vehicle entry and within sight of the main entry of the building within 20m of a hardstand area.

Hydrants located below an awning to be considered external are to be address in a performance solution

A fire ring main is required.

It is anticipated that the hydrant booster system will be addressed through a performance-based solution.

7.2. Fire Hose Reels

A Fire Hose Reel System is required to BCA Clause E1.4 and AS2441-2005

Fire hose reels to the warehouse portions are to be located within 4m of exits and provide coverage within the building based on a 36m hose length. Where required, additional fire hose reels shall be located internally as required to provide coverage.

If 50m Fire Hose Reel lengths are proposed to be utilised as part of the development, we note that this will be required to be included within the Fire Engineered Solution in accordance with Performance Requirement EP1.1 of the BCA.

Fire Hose Reel coverage is not required to the office (Class 5) portions of the buildings.

7.3. Fire Extinguishers (BCA E1.6)

The provision of portable fire extinguishers is required to BCA Clause E1.6 and AS2444 - 2001 to provide coverage to the following zones.

Table E.6 details when portable fire extinguishers are required:

Occupancy Class	Risk Class (as defined in AS 2444)
General provisions – Class 5 and 7b buildings (except within sole-occupancy units of a Class 9c building)	a) To cover Class AE or E fire risks associated with emergency services switchboards. (Note 1) b) To cover Class F fire risks involving cooking oils and fats in kitchens. c) To cover Class B fire risks in locations where flammable liquids in excess of 50 litres are stored or used (not excluding that held in fuel tanks of vehicles). d) To cover Class A fire risks in normally occupied fire compartments less than 500m^2 not provided with fire hose reels (excluding open deck carparks). e) To cover Class A fire risks in classrooms and associated schools not provided with fire hose reels.

Fire extinguishers are to be located in accordance with AS 2444 - 2001, often collocated with fire hydrants and/or fire hose reels.

7.4. Automatic Sprinkler Protection (BCA E1.5)

Automatic sprinkler protection is required to Specification E1.5 and AS2118.1-2017 to the following areas:

- Throughout the entire building as it is classified as large isolated under BCA Clause C2.3

Location of pumps, tanks, FIP, control valves and booster assemblies will be subject to review as part of the design development review.

7.5. Smoke Hazard Management (BCA E2.2)

As per Table E2.2a of the BCA, a large isolated building that exceeds 18,000m^2 in floor area or 108,000m^3 in volume shall be provided with a smoke hazard management system.

It is noted that Buildings exceed the limitation above and are required to have a complying Smoke hazard management system complying with Table E2.2a of the BCA.

- Automatic Shutdown of Mechanical Systems in accordance with the requirements of AS/NZS 1668.1-2015;

A fire indicator panel is required as part of the detection system. This panel is to be located within 4m of the main entry and should be incorporated within the fire control room. Any variation to the prescriptive provisions will require the consent of the fire brigade and should form part of the fire safety engineering report to verify the performance requirements of the BCA.

We note that the requirement for Smoke Exhaust may be rationalised through the Fire Engineered Solution for the development in accordance with Performance Requirement EP2.2 of the BCA.

7.6. Exit Signs and Emergency Lighting (BCA E4.2 and BCA E4.5)

Emergency Lighting and Exit Signs indicating exit location paths of travel to exits to be provided in accordance with BCA Part E4 and AS/NZS 2293.1-2018, including the potential use of photo luminescent exit signs.

To avoid potential damage by forklifts in the warehousing areas, it is recommended the Fire Safety Engineer include an alternative solution in the FER to permit directional exit signage to be located above 2.7m. This is to be assessed to BCA Performance Requirement EP4.2.

Details are required to be provided for review.

7.7. Fire Control Centre (BCA E1.8)

As the Class 6, 7, 8 or 9 building contains a floor area of greater than 18,000m^2, a fire control centre is required in accordance with BCA Specification E1.8.

8. Health and Amenity

8.1. Sanitary Facilities (BCA F2.2 and BCA F2.3)

Once population numbers and/or the internal office configuration have been confirmed, further assessment and commentary will be provided with regards to Sanitary Facility numbers to the development.

Bathroom Construction

Where bathrooms or rooms containing water closets have the WC within 1200mm of the doorway, the door shall be either sliding, open outwards, or be provided with removable hinges.

Note:
1. The Unisex facilities provided for people with disabilities may be counted once for each sex. These facilities are to be provided in accordance with AS1428.1-2009.

8.2. Light and Ventilation (BCA Part F4)

Natural Ventilation is required to be provided to rooms at a rate of 5% of the floor area in openings. Alternatively, mechanical ventilation is required in accordance with AS1668.2-2012

Artificial lighting complying with AS/NZS1680.0-2009 is to be incorporated with the final detailed design to be developed to confirm this.

8.3. Waterproofing (BCA FP1.4)

Performance Requirement FP1.4 which relates to the prevention of the penetration of water through external walls, must be complied with. It is noted that there are no Deemed-to-Satisfy Provisions for this Performance Requirement in respect of external walls.

As such, a performance solution is to be prepared by a suitably qualified professional that demonstrates that the external walls of the proposed building complies with Performance Requirement FP1.4 which reads as follows:

A roof and external wall (including openings around windows and doors) must prevent the penetration of water that could cause—

a) unhealthy or dangerous conditions, or loss of amenity for occupants; and
b) undue dampness or deterioration of building elements.

Wet Areas

Internal wet areas throughout the development (e.g. bathrooms, laundries) shall be waterproofed in accordance with AS3740 - 2010 requirements.

Further review will be undertaken as the design develops with respect to the specification of waterproofing membrane, provision of water-stops at doorways etc.

8.4. Stormwater Drainage

Stormwater drainage systems serving the building are to comply with AS3500.3 - 2018.

The use of a syphonic stormwater drainage system is not covered by Australian Standards and an appropriate performance solution will need to be documented by the hydraulic consultant addressing the system compliance against BCA Performance Requirements FP1.2 & FP1.3.

9. Energy Efficiency

9.1. SECTION J (Transition Period)

A transition period applies to Section J requirements, from 1 May 2019 to 30 April 2020 Section J of NCC 2016 Amendment 1 may apply instead of Section J of NCC 2019. From 1 May 2020 Section J of NCC 2019 will apply.

The commentary below is an assessment based on the provisions included in BCA 2019.

9.2. SECTION J (JP1 Energy Use)

For BCA 2019 a 12 month transitional period, ending 30 April 2020, applies to the energy efficiency provisions in Section J of Volume One and Parts 2.6 and 3.12 of Volume Two. During this time either the new BCA 2019 provisions or those from BCA 2016 amendment 1 may be used.

1. The building can comply with the deemed-to-satisfy provisions of the BCA, relating to the following areas:

    - Building Fabric
    - Glazing
    - Building Sealing
    - Air Conditioning & Ventilation Systems
    - Artificial Lighting & Power
    - Hot Water Supply

2. The building can be verified against a reference building as per Verification Method JV3. This requires that the proposed building and its services be shown to have an annual energy consumption of equal or less than the reference building which has been modelled as per the requirements of Part J of the BCA.

Certification from an appropriately qualified engineer should be provided for either option with a report / computations outlining how compliance is achieved.

The proposed site will be located in a climate zone 6.

10. Access for People with Disabilities

The development is required to comply with the accessibility provisions contained within:

- The Building Code of Australia 2019;
- Disability (Access to Premises – Buildings) Standards 2010;
- AS1428.1-2009 General Requirements for Access – New Building Work;
- AS1428.4.1 -2009 Tactile Ground Surface Indicators
- AS2890.6-2009 Car Parking for People with Disabilities

Note: With the introduction of the Commonwealth *Disability Discrimination Act (DDA)* in 1992 (enacted in 1993), all organisations have a responsibility to provide equitable and dignified access to goods, services and premises used by occupants. Organisations and individuals since its introduction, are required to work to the objects of the Act which are to eliminate, as far as possible, discrimination against persons on the ground of disability in the **areas of work, accommodation, education, access to premises, clubs and sports, and the provision of goods, facilities, services and land, existing laws and the administration of Commonwealth laws and programs.**

This report assesses against the requirements contained with the Building Code of Australia (and documents referred to therein) and is not considered to be a full assessment against the Disability Discrimination Act.

10.1. General Building Access Requirements (BCA D3.1)

Access for people with disabilities shall be provided to and within the building in accordance with the requirements of Clause D3.2, D3.3 and D3.4 of the BCA 2019. Parts of the building required to be accessible shall comply with the requirements of:-

- AS1428.1-2009 General Requirements for Access – New Building Work;
- AS1428.4-2009 Tactile Ground Surface Indicators
- AS2890.6-2009 Car Parking for People with Disabilities

Office (Class 5 buildings)

To and within all areas normally used by the occupants

Warehouse and production/Manufacturing facilities (Class 7B Buildings)

To and within all areas normally used by the occupants, but as the uses of these areas could be deemed inappropriate, confirmation is required as the appropriateness of the areas in question by the owners or tenant.

Confirmation is to be sought if portions of the Warehouses are deemed inappropriate for disabled access to be provided as part of the design development phase of the project, and therefore a Clause D3.4 exemption maybe sought.

10.2. Lifts (BCA E3.6)

Lifts compliant to BCA E3.6 and BCA E3.7 must be provided, where required to be provided, with a minimum size of 1400 x 1600mm or 1100mm x 1400mm (whichever is appropriate) in size – with appropriate handrails and auditory commands.

11. Appendix A - Reference Documentation

The following documentation was used in the assessment and preparation of this report:

Drawing No.	Title	Revision
DA-201-A100	Lot 201 Site and Facility Plan	B
DA-201-A200	Lot 201 Warehouse Elevations	B
DA-202-A100	Lot 202 Site and Facility Plan	A
DA-202-A200	Lot 202 Warehouse Elevations	A
DA-203-A100	Lot 203 Site and Facility Plan	A
DA-203-A200	Lot 203 Warehouse Elevations	A
DA-204-A100	Lot 204 Site and Facility Plan	A
DA-204-A200	Lot 204 Warehouse Elevations	A
DA-MS-A010	Estate Master Plan	B

12. Appendix B - Draft Fire Safety Schedule

	Essential Fire Safety Measures	Standard of Performance
1.	Automatic Fail Safe Devices	BCA 2019 Clause D2.19 & D2.21
2.	Automatic Fire Suppression System (sprinklers)	BCA 2019 Spec. E1.5 & AS 2118.1 – 2017,
3.	Emergency Lighting	BCA 2019 Clause E4.2, E4.4 & AS/NZS 2293.1 – 2005 Amdt 1 & 2
4.	Exit Signs	BCA 2019 Clauses E4.5, NSW E4.6 & E4.8 and AS/NZS 2293.1 – 2005 Amdt 1 & 2
5.	Fire Control Centre	BCA 2019 Spec. E1.8
6.	Fire Doors	BCA 2019 Clause C3.2, C3.4, C3.5, C3.6, C3.7 & C3.8, Spec C3.4 and AS 1905.1 – 2015
7.	Fire Hose Reel Systems	BCA 2019 Clause E1.4 & AS 2441 – 2005 Amdt 1
8.	Fire Hydrant Systems	BCA 2019 Clause E1.3 & AS 2419.1 – 2005 Amdt 1
9.	Fire Seals protecting fire resisting components of the building	BCA 2019 Clause C3.12, C3.15, C3.16 & AS 1530.4 – 2014
10.	Lightweight Construction	BCA 2019 Clause C1.8, C3.17 & AS 1530.3 – 1999
11.	Perimeter Vehicular Access for emergency vehicles	BCA 2019 Clause C2.4
12.	Portable Fire Extinguishers	BCA 2019 Clause E1.6 & AS 2444 – 2001
13.	Warning and Operational Signs	EP&A Reg 2000 Clause 183, BCA Clause C3.6, D2.23, E3.3 & H101.8
14.	Building Occupant Warning System	BCA 2019 Spec. E1.5, BCA Spec. E2.2a & AS 1670.1 – 2015 – Clause 3.22
15.	Emergency Evacuation Plan	Fire Engineering Report XXXX Revision XX prepared by XXXX dated XXXX and AS 3745 – 2002
16.	Paths of Travel	EP&A Reg 2000 Clause 183, 184, 184 & 186

13. Appendix D - Fire Resistance Levels

The table below represents the Fire resistance levels required in accordance with BCA 2019:

Table 5 **TYPE C CONSTRUCTION: FRL OF BUILDING ELEMENTS**	**Class of building—FRL: (in minutes)** ***Structural adequacy/Integrity/Insulation***			
	2, 3 or 4 part	**5, 7a or 9**	**6**	**7b or 8**
EXTERNAL WALL (including any column and other building element incorporated within it) or other external building element, where the distance from any fire-source feature to which it is exposed is—				
Less than 1.5 m	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
1.5 to less than 3 m	–/–/–	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is—				
Less than 1.5 m	90/–/–	90/–/–	90/–/–	90/–/–
1.5 to less than 3 m	–/–/–	60/–/–	60/–/–	60/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
INTERNAL WALLS-				
Bounding *public corridors*, public lobbies and the like—	60 / 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—	60/ 60/ 60	–/–/–	–/–/–	–/–/–
Bounding a stair if *required* to be rated—	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–