BLACKETT MAGUIRE+ GOLDSMITH

BCA ASSESSMENT REPORT

PROJECT: COLES EXTENSION
ADDRESS: M7 BUSINESS HUB OLD WALLGROVE ROAD, EASTERN CREEK

CLIENT: GOODMAN PROPERTY SERVICES PTY LTD

Revision 2

Date: 11 February 2013

Project No.: 120455

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REPORT STATUS				
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23/01/2013	0	Preliminary Assessment – DA Drawings	DG	TH
07/02/2013	1	Final Issue – DA Drawings	DG	TH
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A. INTRODUCTION

A.1 BACKGROUND / PROPOSAL

- Blackett Maguire + Goldsmith Pty Ltd (BM+G) have been commissioned by Goodman Property Services Pty. Ltd. to undertake a Building Code of Australia (BCA) 2012 assessment for the proposed warehouse extension at Coles M7 Business Hub – Old Wallgrove Road, Eastern Creek. The proposal involves a 12,185m^2 extension to the southern side of the existing warehouse facility, a new dock office, and conversion of the existing freezer area to chilled storage.

A.2 AIM

The aim of this report is to:

- Undertake an assessment of the proposed warehouse extension against the Deemed-to-Satisfy (DtS) Provisions of the BCA 2012.
- Identify any BCA compliance issues that require resolution/attention for the proposed development.

A.3 PROJECT TEAM

The following BM+G Team Members have contributed to this Report:

- Dean Goldsmith (Director)
- Tony Heaslip (Peer Review Building Surveyor)

A.4 DOCUMENTATION

The following documentation has been reviewed, referenced and/or relied upon in the preparation of this report:

- BCA 2012
- Guide to the BCA 2012.
- Architectural plans prepared by SB Architects:

Drawing No.	Revision	Date
12210 DA-01	D	8 February 2013
12210 DA-02	E	8 February 2013
12210 DA-03	I	8 February 2013
12210 DA-04	D	8 February 2013
12210 DA-05	D	8 February 2013
12210 DA-06	E	8 February 2013
12210 DA-07	D	8 February 2013
12210 DA-08	E	8 February 2013

A.5 REGULATORY FRAMEWORK

Pursuant to clause 145 of the Environmental Planning and Assessment (EPA) Regulation 2000 all new building work must comply with the current BCA however the existing features of an existing building need not comply with the BCA unless upgrade is required by other clauses of the legislation.

Clause 94 of the EPA Regulation 2000 allows the local authority to require a building, subject of an application for alteration, enlargement or extension, to be upgraded if the proposed work combined with other building work authorised over the previous 3 years represents more than half the total volume of the building; or, the measures in the building are inadequate to protect persons using the building or to facilitate egress from the building in the event of fire; or to prevent the spread of fire from the building to buildings nearby.

Clause 143(3) of the EPA Regulation 2000 prevents a certifying authority from issuing a construction certificate if the proposed new work will result in a reduction to the fire protection and structural capacity of the building.

A.6 LIMITATIONS & EXCLUSIONS

The limitations and exclusions of this report are as follows:

- The following assessment is based upon a review of the architectural documentation.
- No assessment has been undertaken with respect to the Disability Discrimination Act (DDA) 1992, with the exception of the comments made under Parts D3 & F2 in relation to compliance with the DDA (Access to Premises Standard) have been addressed.
- The Report does not address matters in relation to the following:
  i. Local Government Act and Regulations.
  ii. NSW Public Health Act 1991 and Regulations.
  iii. Occupational Health and Safety (OH&S) Act and Regulations.
  iv. Work Cover Authority requirements.
  v. Water, drainage, gas, telecommunications and electricity supply authority requirements.
  vi. DDA 1992.
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A.7 TERMINOLOGY

Alternative Solution

A Building Solution which complies with the Performance Requirements other than by reason of satisfying the DtS Provisions.

Building Code of Australia (BCA)

Document published on behalf of the Australian Building Codes Board. The BCA is a uniform set of technical provisions for the design and construction of buildings and other structures throughout Australia and is adopted in New South Wales (NSW) under the provisions of the EPA Act and Regulation. Building regulatory legislation stipulates that compliance with the BCA Performance Requirements must be attained and hence this reveals BCA's performance based format.

Construction Certificate

Building Approval issued by the Certifying Authority pursuant to Part 4A of the EP&A Act 1979.

Construction Type

The construction type is a measure of a buildings ability to resist a fire. The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1, except as allowed for—

(i) certain Class 2, 3 or 9c buildings in C1.5; and

(ii) a Class 4 part of a building located on the top storey in C1.3(b); and

(iii) open spectator stands and indoor sports stadiums in C1.7.

Note: Type A construction is the most fire-resistant and Type C the least fire-resistant of the types of construction.

Climatic Zone

Is an area defined in BCA Figure A1.1 and in Table A1.1 for specific locations, having energy efficiency provisions based on a range of similar climatic characteristics.

Deemed to Satisfy Provisions (DtS)

Provisions which are deemed to satisfy the Performance Requirements.

Effective Height

The height to the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units) from the floor of the lowest storey providing direct egress to a road or open space.

Fire Resistance Level (FRL)

The grading periods in minutes for the following criteria-

(a) structural adequacy; and

(b) integrity; and

(c) insulation,

and expressed in that order.

Fire Source Feature (FSF)

The far boundary of a road which adjoins the allotment; or a side or rear boundary of the allotment; or an external wall of another building on the allotment which is not a Class 10 building.

National Construction Code Series (NCC)

The NCC was introduced 01 May 2011 by the Council of Australian Governments. The BCA Volume One (Class 2 to 9 Buildings) is now referenced as the National Construction Code Series Volume One — BCA.

Occupation Certificate

Building Occupation Approval issued by the Principal Certifying Authority pursuant to Part 4A of the EPA Act 1979.

Open Space

A space on the allotment, or a roof or other part of the building suitably protected from fire, open to the sky and connected directly with a public road.

Performance Requirements of the BCA

A Building Solution will comply with the BCA if it satisfies the Performance Requirements. A Performance requirement states the level of performance that a Building Solution must meet.

Compliance with the Performance Requirements can only be achieved by-

(a) complying with the DtS Provisions; or

(b) formulating an Alternative Solution which-

(i) complies with the Performance Requirements; or

(ii) is shown to be at least equivalent to the DtS Provisions; or

(c) a combination of (a) and (b).

Sole Occupancy Unit (SOU)

A room or other part of a building for occupation by one or joint owner, lessee, tenant, or other occupier to the exclusion of any other owner, lessee, tenant, or other occupier and includes a dwelling.

B. BUILDING CHARACTERISTICS

B.1 BUILDING CLASSIFICATION

The following table presents a summary of relevant building classification items of the proposed warehouse extension development:

▪ **BCA Classification:**	Class 5 (Offices) Class 7b (Warehouse)
▪ **Rise in Storeys:**	The building has a rise in storeys of 2.
▪ **Effective Height:**	Less than 12m
▪ **Type of Construction:**	Type C Construction
▪ **Climate Zone:**	Zone 6
▪ **Maximum Floor Area:**	Large Isolated Building – >18,000m² (Architect to confirm combined floor area of existing building and proposed extension)
▪ **Maximum Volume:**	Large Isolated Building – >108,000m³ (Architect to confirm combined volume of existing building and proposed extension)

B.2 FIRE SOURCE FEATURE

The distances from the nearest Fire Source Features are:

Boundary	Distance to Fire Source Feature
Northern Boundary	>3.0m
Southern Boundary	>3.0m
Eastern Boundary	>3.0m
Western Boundary	>3.0m

C. BCA ASSESSMENT

C.1 BCA DEEMED-TO-SATISFY COMPLIANCE ISSUES:

The following comments have been made in relation to the relevant BCA provisions relating to the compliance issues associated with the proposed warehouse extension.

Note: The following is a précis of the provisions and should be read in conjunction with the BCA.

1. Part B1 – Structural Provisions

Structural engineering details prepared by an appropriately qualified structural engineer to be provided to demonstrate compliance with Part B1 in relation to the new structural elements of the building.

Comments: Structural design and certification will be required at CC application stage.

SECTION C – FIRE RESISTANCE

FIRE RESISTANCE AND STABILITY

2. Clause C1.1 – Type of Construction Required

The minimum type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1 except as allowed for in this clause.

Comments: Type C Construction – Large Isolated Building.

3. Clause C1.2 – Calculation of Rise in Storeys

The rise in storeys of a building is the sum of the greatest number of storeys at any part of the external walls of the building and any storeys within the roof space calculated in accordance with the requirements set out in this clause.

Comments: Rise of 2 Storeys – the proposed warehouse offices are a 2 storey portion within the building.

4. Clause C1.10 – Fire Hazard Properties

The fire hazard properties of the following linings, materials and assemblies in a Class 2 to 9 building must comply with **Specification C1.10** and the additional requirements of the **NSW Provisions** of the Code.

Note: See NSW C1.10(a) & (b).

Comments: Note: Design certification required at CC application stage.

COMPARTMENTATION AND SEPARATION

5. Clause C2.2 – General Floor Area and Volume Limitations

Sets out the parameters for the area and volume of Class 5, 6, 7, 8 & 9 buildings as required by sub-clauses (a), (b) & (c).

Note: Table C2.2 maximum size of Fire Compartments or Atriums.

Comments: The building is currently and will be a Class 7b – Large Isolated Building of Type C Construction.

6. Clause C2.3 – Large Isolated Buildings

A Large Isolated Building that exceeds 18 000 m2 in floor area or 108 000 m3 in volume, is required to be—

(i) protected throughout with a sprinkler system complying with Specification E1.5; and

(ii) provided with a perimeter vehicular access complying with C2.4(b).

Comments: The combined building (existing & proposed) will exceed the area and volume set out in (b) and as such is required to be sprinkler protected throughout and provided with compliant perimeter vehicular access.

7. Clause C2.4 – Requirements for Open Spaces & Vehicular Access

An open space and vehicular access required by C2.3 must comply with the requirements of sub-clauses (a) & (b) of this Part as that they must be 6m wide within 18m of the building and of a suitable bearing capacity and unobstructed height to permit the operation and passage of F&RNSW vehicles.

Comments: The proposed extension of the warehouse complies with the provisions of C2.4 in that a compliant 6m wide driveway is provided around the full perimeter of the proposed warehouse extension. Structural Certification of the load-bearing capacity of the driveway is required to be provided at CC Application stage.

8. Clause C2.12 – Separation of Equipment

Equipment as listed below must be separated from the remainder of the building with construction complying with (d), if that equipment comprises –

(i) Lift motors and lift control panels; or

(ii) Emergency generators used to sustain emergency equipment operating in the emergency mode; or

(iii) Central smoke control plant; or

(iv) Boilers; or

(v) A battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours.

Note: Separating construction must have –

(A) an FRL as required by Specification C1.1, but not less than 120/120/120/; and

(B) any doorway protected with a self-closing fire door having an FRL of not less than -/120/30; or

Comments: Where appropriate, details demonstrating compliance are to be included in the CC Application plans for the new extension.

9. Clause C2.13 – Electricity Supply System

(a) An electricity substation, main switchboard which sustains emergency equipment operating in the emergency mode, located within a building must –

(i) Be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and

(ii) Having any doorway in that construction protected with a self-closing fire door having an FRL of not less then -/120/30

(i) Be separated from any other part of the building by construction having an FRL of not less than -/120/30.

(ii) Have any doorway in that construction protected with a self-closing fire door having an FRL of not less than -/120/30.

(b) Electrical conductors located within a building that supply –

Note: Where emergency equipment is required in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment switchgear is separated from the non-emergency equipment switchgear by metal partitions designed to minimise the spread of fault from the non-emergency equipment switchgear.

Comments: Where appropriate, details demonstrating compliance are to be included in the CC Application plans for the new extension.

PROTECTION OF OPENINGS

10. Clause C3.16 – Construction Joints

Construction joints, spaces and the like in and between building elements required to be fire-resisting with respect to integrity and insulation must be protected in a manner identical with a prototype tested in accordance with AS 1530.4 to achieve the required FRL.

Comments: Note.

SPECIFICATIONS

11. Specification C1.1 – Fire Resisting Construction

The new building works are required to comply with the requirements detailed under Table 5 of Specification C1.1 for Type C Construction. In this regard the proposed building elements are required to comply with the following.

Comments: Refer to Appendix A of this report that includes the relevant FRL requirements for each classification from Table 5 of Spec C1.1.1 – details of the proposed FRL's of the relevant building elements are to be referenced in the CC Application plans.

12. Specification C1.10 – Fire Hazard Properties.

This Specification sets out requirements in relation to the fire hazard properties of linings, materials and assemblies in Class 2 to 9 buildings as set out in the Tables.

Comments: Refer to comments under Clause C1.10 above – certification will be required at both CC and OC Application stages.

13. Specification C1.11 – Performance of External Walls in Fire

This specification contains measures to minimise in the event of fire the likelihood of external walls collapsing outwards as complete panels and the likelihood of panels separating from supporting members.

Comments: Design certification and details demonstrating compliance are required to be provided at CC Application stage.

SECTION D – ACCESS & EGRESS

PROVISION FOR ESCAPE.

14. Clause D1.4 – Exit Travel Distances

This clause specifies the permitted travel distances allowable from Class 2 to Class 9 buildings. Sub-clauses (a) to (f) specify the maximum distances to be taken into account for the various uses in each Class of building.

Comments: The travel distance to exits in the existing warehouse / freezer exceeds the requirements of clause D1.4. The non-compliance was addressed by an alternative solution, from the fire safety engineer, when the base building was constructed.

The proposed warehouse extension and reconfiguration/ripening rooms to the existing freezer has been re-assessed and we note that due to the increased size of the building and the additional spacing of the exits the exit travel distances in the central portions of the warehouse and ripening rooms have increased as follows:

- Warehouse Extension (Central Area)– Maximum Exit Travel distances of 75 in the 3° New Produce Chamber & 55m in the 14° New Produce Chamber.
- Existing Freezer Area– Maximum Exit Travel Distances of 85m.

It is considered that the proposed exit travel distances in the warehouse extension will be required to be addressed by a new alternative solution prepared by the fire safety engineer to demonstrate compliance with the Performance Requirements of DP4 & EP2.2.

Note: An assessment of egress distances from the ceiling void above the Coolroom areas in the warehouse extension has not been carried out as these areas are not considered as occupied spaces as they are infrequently accessed for maintenance purposes under controlled conditions by specially trained personnel.

15. Clause D1.5 – Distances Between Alternative Exits

Exits required as alternative exits must be –

(a) not less than 9m apart; and

(b) not more than – 60m apart.

(c) Located so that the alternative paths of travel do not converge such that they become less than 6m apart.

Comments: The distance between alternative exits in the existing warehouse building, exceeds the requirements of clause D1.5 as established in our comments under D1.4 above. Similarly the non-compliance was addressed by an alternative solution, from the fire safety engineer, at the time of construction of the base building, however the proposed warehouse extension has increased these non-compliances as follows;

- Warehouse Extension (Central Area) – The maximum distance between alternative exits is extended to 150m in in the 3° New Produce Chamber & 110m in the 14° New Produce Chamber.

- Existing Freezer Area – The maximum distance between alternative exits is extended to 170.

It is considered that the proposed distances between alternative exits in the warehouse extension and modified areas of the existing warehouse will be required to be addressed by a new alternative solution prepared by the fire safety engineer to demonstrate compliance with the Performance Requirements of DP4 & EP2.2.

Note: An assessment of egress distances from the ceiling void above the Coolroom areas in the warehouse extension has not been carried out as these areas are not considered as occupied spaces as they are infrequently accessed for maintenance purposes under controlled conditions by specially trained personnel.

16. Clause D1.6 – Dimensions of Exits

This clause details the minimum dimensions such as height and width of paths of travel from Class 2 to 9 buildings. It also specifies the minimum dimensions of doorways from the various compartments and the width of exit doors from buildings depending on the uses and functions carried out within them.

Comments: Advice from Coles / Goodman Property Services on proposed population numbers in the building has been received and it is noted that during the busiest shift of 2pm-10pm (Afternoon) a worst case warehouse population of 260 persons is expected. Based upon this advice compliance with D1.6 is readily achievable.

17. Clause D1.10 – Discharge From Exits

Requires that an exit must not be blocked at the point of discharge. Barriers such as bollards must be installed to prevent vehicles from blocking the discharge from exits.

This clause also provides the methods of construction, location and separation, at exit discharge points for all building Classes.

Comments: All discharge points from the building are required to be protected in accordance with the requirements of this clause.

18. Clause D1.13 – Number of Persons Accommodated

Clause D1.13 and Table D1.13 are used to calculate the anticipated number of people in particular types of buildings so that minimum exit widths and the required number of sanitary and other facilities can be calculated. This clause and table are not to be used for non-BCA purposes.

Comments: Details of the numbers of additional employees has been provided by Coles / Goodman Property Services on proposed population numbers in the building has been received and it is noted that during the busiest shift of 2pm-10pm (Afternoon) a worst case warehouse population of 260 persons is expected.

CONSTRUCTION OF EXITS

19. Clause D2.7 – Installations in Exits & Paths of Travel

This clause restricts the installation of certain services in fire-isolated exits, non-fire-isolated exits and certain paths of travel to exits. Sub-clauses (a) to (e) prescribes which services **shall not be installed** as well as the circumstances in which certain services **may be installed** in fire-isolated and non-fire-isolated exits.

Comments: This requirement applies in relation to the new dock offices if any electrical distribution boards or Comms. equipment are to be installed.

20. Clause D2.15 – Thresholds

The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless –

(i) the doorway opens to a road or open space, external stair landing or external balcony; and

(ii) the door sill is not more than 190mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.

Comments: Architect to note, details demonstrating compliance will be required to be included in the CC plans.

21. Clause D2.16 – Balustrades or Other Barriers

This clause details where balustrades are required to be provided and sets out in specific detail the construction requirements in sub-clauses (a) to (i) and Tables D2.16(a), D2.16(b) & D2.16(c).

Comments: Architect to note, details demonstrating compliance will be required to be included in the CC plans.

22. Clause D2.17 – Handrails

This Clause sets out the requirements regarding the location, spacing and extent of handrails required to be installed in buildings.

Comments: Architect to note, details demonstrating compliance will be required to be included in the CC plans.

23. Clause D2.20 – Swinging Doors

A swinging door in a required exit or forming part of a required exit must be installed to the requirements of sub-clauses (a), (b) & (c). This clause only applies to swinging doors in doorways serving a required exit or forming part of a required exit. It does not apply to other doorways – see notes in the Guide to the BCA.

Comments: Architect to note, details demonstrating compliance will be required to be included in the CC plans. In this regard the proposed exit doors from the eastern end of the New Produce Office is required to be modified to swing outwards in the direction of egress.

24. Clause D2.21 – Operation of Latch

A door in a required exit or forming part of a required exit and in a path of travel to a required exit must be readily openable without a key from the side that faces a person seeking egress, by a single downward action or pushing action on a single device which is located between 900mm & 1.1m from the floor. This clause prohibits the use of devices such as deadlocks and knobs where knobs must be operated in a twisting motion in accordance with sub-clauses (a) & (b). D2.21 also sets out exceptions in relation to buildings where special security arrangements are required in relation to the uses carried out.

Comments: Architect to note, details demonstrating compliance will be required to be included in the CC plans.

ACCESS FOR PEOPLE WITH A DISABILITY [incl. DDA (ACCESS TO PREMISES – BUILDINGS) STANDARDS 2010]

25. Clause D3.2 –Access to Buildings

This part requires accessways to be provided to accessible buildings from the main points of pedestrian entry at the allotment boundary and any accessible car parking space or accessible associated buildings connected by a pedestrian link.

Comments: Access is provided to the existing building at the entry level from the carpark into the main entry and throughout the main office areas. Refer to comments below under D3.4 in relation to the new area of works.

26. Clause D3.3 – Parts of the Building to be Accessible

This part specifies the requirements for accessways within buildings which must be accessible.

Comments: Access is provided to the existing building at the entry level from the carpark into the main entry and throughout the main office areas. Refer to comments below under D3.4 in relation to the new area of works.

27. Clause D3.4 – Exemptions

This part provides exemptions to the Deemed-to-Satisfy provisions for access by people with a disability. This part provides details on buildings or parts of buildings not required to be accessible under the BCA where providing access would be inappropriate because of the nature of the area or the tasks undertaken.

Comments: Due to the likely nature of work and the low temperature environment within the new warehouse extension and the modified freezer area, it is considered appropriate to apply the concession provisions of D3.4(b) on health and safety grounds. In this regard confirmation is to be provided from Coles / Goodman at the CC Application stage that from an OH&S perspective access for persons with disabilities into the warehouse areas and new dock office is inappropriate.

28. Clause D3.6 – Signage

This section provides requirements for signage in buildings required to be accessible By Part D3.

Comments: See notes under D3.4 above.

29. Clause D3.8 – Tactile Indicators

This clause provides for the installation of tactile indicators in buildings required to be accessible and must be provided to warn people who are blind or have a vision impairment that they are approaching a stairway, escalator , passenger conveyor, ramp, overhead obstruction or an accessway meeting a vehicular way, except for areas exempted by D3.4.

Comments: Tactile indicators are required in areas of the buildings affected by the proposed works, to the new stair ways and ramps, with the exception of areas exempted under the concession provisions of D3.4.

30. DDA (Access to Premises – Buildings) Standards 2010

In accordance with Clause 2.1 of the Standards, the subject facility is subject to the "Affected Part" upgrade requirements and as such consideration has been given to the existing main entry of the Coles CDC Facility (via the main office on the western side of the building) and the accessible path from this entry to the area of new works, being the warehouse extension and the modified areas in the existing freezer.

In this regard it is considered that the existing on-grade accessible path into the main building entry complies with the current provisions of AS 14528.1-2009 and as such no additional works are required. In relation to the accessible path to the area of new works, it is noted that due to the nature of the work in the warehouse areas and the low temperature environment the provisions of D3.4 are applicable and as such an upgrade to the accessible path is not considered necessary. In this regard, confirmation is to be provided from Coles / Goodman at the CC Application stage that from an OH&S perspective access for persons with disabilities into the warehouse areas and new dock office is inappropriate.

SECTION E – SERVICES AND EQUIPMENT

FIRE FIGHTING EQUIPEMENT

31. Clause E1.3 -.Fire hydrants

E1.3(a) – A fire hydrant system must be provided to serve a building having a total floor area greater than 500m² and where a fire brigade is available to attend a building fire.

E1.3(b) – Requires that the fire hydrant system must be installed in accordance with the provisions of AS2419.1 and also details where internal hydrants must be located.

Comments: The proposed building extension and modified areas of the existing warehouse freezer area are required to be served by compliant external fire hydrants on the existing ring main. Details demonstrating compliance are to be submitted at the CC application stage. Note: Confirmation is required to be provided by the fire services consultant as to whether the existing fire hydrant system has shared infrastructure with the existing sprinkler system serving the building. If this is the case, details of the

performance of these systems are to be specifically referenced in the Fire Engineering Report.

32. Clause E1.4 – Fire hose reels

A fire hose reel system must be provided to serve a building where one or more internal fire hydrants are installed or in a building with a floor area greater than 500m².

This clause requires that the fire hose reel system must be installed in accordance with AS 2441 and sets out the detail for location and uses of fire hose reels.

Comments: The proposed building extension and modified areas of the existing warehouse freezer area are required to be served by compliant fire hose reels. If this is not achievable due to the temperature of the environment an alternative solution is to be considered by the fire safety engineer having regard to Performance Requirement EP1.1.

33. Clause E1.5 – Sprinklers

A sprinkler system must be installed in a building or part of a building when required by Table E1.5 and comply with Specification E1.5.

Table E1.5 sets out which types of building occupancies and Classes which are required to have sprinkler systems installed in them.

Specification E1.5 sets out requirements for the design and installation of sprinkler systems.

Comments: The existing building contains a sprinkler system which we understand will be extended into the proposed warehouse addition, modified areas of the existing warehouse freezer and new dock office to address the requirements of Clause C2.3 and Table E1.5. Details demonstrating compliance are to be submitted at the CC Application stage. Note: If the existing fire services infrastructure serving the site is a combined hydrant & sprinkler system, details of the standard of performance are to be referenced in the Fire Engineering Report.

34. Clause E1.6 – Portable fire extinguishers

Portable fire extinguishers must be provided as listed in Table E1.6 and must be selected, located and distributed in accordance with Sections 1, 2, 3 and 4 of AS 2444.

Comments: Fire extinguishers will be required to be installed in the new warehouse area in accordance with Table E1.6.

35. Clause E1.8 – Fire control centres

A fire control centre facility in accordance with Specification E1.8 must be provided for a building having an effective height of more than 25m and in a Class 6, 7, 8 or 9 building with a total floor area of more than 18,000m².

Specification E1.8 describes the construction and content of required fire control centres or rooms.

Comments: It is noted that the existing building is provided with a Fire Control Centre and it is assumed that the building extension will simply connect into this facility from a fire services perspective.

SMOKE HAZARD MANAGEMENT

36. Clause E2.2 – General Requirements

Class 2 to 9 buildings must comply with the provisions of this Clause to remove smoke during a fire, to control the operation of air handling systems and to prevent the spread of smoke between compartments.

Buildings must comply with the provisions of **Table E2.2a**, as applicable to Class 2 to 9 buildings. It deals with the design and construction of air handling systems that are part of a smoke hazard management system and air handling system that are not part of a smoke hazard management system.

The details relating to the installation and operation of the systems are set out in **Specifications E2.2a**, **E2.2b** and **E2.2c**.

Comments: As the floor of the extended Large Isolated Building exceeds 18,000m² and the Ceiling height will be more than 12m, an automatic smoke exhaust system is required to be installed in accordance with Specification E2.2b in both the new and existing portions of the warehouse. In this regard, it is noted that an alternative solution is currently in place for the base building; however, it relies on manual functions carried out by FRNSW personnel. A review of the existing alternative solution as it relates to the modified portions of the warehouse and a new Alternative Solution for the warehouse extension from the Fire Safety Engineer will be required to address compliance with Performance Requirement EP2.2.

EMERGENY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS

37. Clause E4.2 – Emergency Lighting Requirements

This clause details when emergency lighting must be installed in Class 2 to 9 buildings. The requirements for buildings and parts of buildings are detailed in sub-clauses (a) to (i) and each sub-clause must be considered as more than one may apply to any single building

Comments: Electrical Consultant to note.

38. Clause E4.4 – Design & Operation of Emergency Lighting

Every required emergency lighting system must comply with AS2293.1.

Comments: Electrical Consultant to note, details demonstrating compliance will be required to be included in the CC plans.

39. Clause E4.5 – Exit Signs

An exit sign must be clearly visible to persons approaching the exit and must be installed on, above or adjacent to each door providing egress form a building. Sub-clauses (a) to (d) set out the situations where exit signs are required to be installed.

Comments: Electrical Consultant to note, details demonstrating compliance will be required to be included in the CC plans.

40. Clause E4.6 – Direction Signs

If an exit is not readily apparent to persons occupying or visiting the building then exit signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a required exit.

Note: NSW E4.6.

Comments: Electrical Consultant to note, details demonstrating compliance will be required to be included in the CC plans.

41. Clause E4.8 – Design & Operation of Exit Signs

Every required exit sign must comply with AS/NZS 2293.1 and be clearly visible at all times when the building is occupied by any person having the legal right of entry into the building.

Comments: Electrical Consultant to note, details demonstrating compliance will be required to be included in the CC plans.

SECTION F – HEALTH & AMENITY

DAMP AND WEATHERPROOFING.

42. Clause F1.1 – Stormwater drainage

Stormwater drainage must comply with AS/NZ 3500.3.

Comments: Details of stormwater disposal, from a suitably qualified consultant are required to be submitted with documentation for the CC.

43. Clause F1.5 – Roof Coverings

This clause details the materials and appropriate standards, with which roofs must be covered with. The roofing requirements are set out in sub-clauses (a), (b) (c), (d), (e) & (f) which set out the types of materials that may be used and the adopted Australian Standards that apply to their quality and installation.

Comments: Note.

44. Clause F1.6 – Sarking

Sarking-type materials used for weatherproofing of roofs must comply with AS/NZS 4200 parts 1 and 2.

Comments: Note.

45. Clause F1.7 – Waterproofing of Wet Areas

This clause requires that wet areas in Class 2 to 9 buildings must be waterproofed. It prescribes the standards to which the work must be carried out in sub-clauses (a) to (e) with emphasis in sub-clauses (c), (d) & (e) on the construction of rooms containing urinals and their installation.

Note: Figures F1.7(1) & F1.7(2) of the Guide to the BCA contain diagrams indicating the areas of walls and floors to be protected around baths, washbasins and showers.

Comments: Note

SANITARY AND OTHER FACILITIES

46. Clause F2.3 – Facilities in Class 3 to 9 Buildings

This clause provides the requirements for sanitary facilities to be installed in Class 3, 5, 6, 7, 8 and 9 buildings in accordance with **Table F2.3**. The requirements and variations are set out in sub-clauses (a) to (h).

Comments: Existing sanitary facility numbers will need to be assessed against the proposed population numbers for the warehouse extension at CC Application stage to establish confirmation of compliance in relation to the number of facilities provided.

47. Clause F2.4 – Accessible Sanitary Facilities

Accessible unisex sanitary compartments must be provided, in accordance with **Table F2.4(a)** and unisex showers must be provided in accordance with **Table F2.4(b)**, in buildings or parts that are required to be accessible. The details for the provision of disable facilities and the standard, AS 1428.1, are set out in sub-clauses (a) to (i).

Comments: It is noted that the existing accessible sanitary facilities in the main office on the ground floor level are considered adequate to address the requirements of F2.4 and the DDA (Access to Premises – Buildings) Standards 2010 Affected Part upgrade requirements. Refer to comments under D3.4 above in relation to the warehouse extension and new Dock Office.

48. Clause F2.5 – Construction of Sanitary Compartments

(a) Other than in an early childhood centre sanitary compartments must have doors and partitions tat separate adjacent compartments and extend –

  (i) from floor level to the ceiling in the case of a unisex facility; or

  (ii) a height of not less than 1.5m above the floor if primary school children are the principal users; or

  (iii) 1.8 above the floor in all other cases.

(b) The door to a fully enclosed sanitary compartment must-

  (i) open outwards; or

  (ii) slide: or

  (iii) be readily removable from the outside of the sanitary compartment,

unless there is a clear space of at least 1.2m, measured in accordance with **Figure F2.5** between the closet pan within the sanitary compartment and the doorway.

Comments: Details demonstrating compliance to be submitted with documentation for the CC Application.

LIGHT AND VENTILATION

49. Clause F4.4 – Artificial Lighting

Artificial lighting is required where it is necessary to minimise the hazard to occupants during an emergency evacuation. Sub-clauses (a), (b) & (c) sets out the places where artificial lighting is always required in all classes of buildings and the standard to which it must be installed.

Comments: Design certification to be submitted at CC Application Stage.

50. Clause F4.5 – Ventilation of Rooms

A habitable room, office, shop, factory, workroom, sanitary compartment, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have natural ventilation complying with F4.6 **or** a mechanical or air-conditioning system complying with AS1668.2 and AS/NZS 3666.1.

Note: NSW F4.5(b) a mechanical ventilation or air-conditioning system complying with AS 1668.2 – the reference to AS/NZS 2666.1 is deleted from the BCA in NSW as the need to comply with this standard is regulated under the relevant section of the Public Health Act 1991.

Comments: Design certification to be submitted at CC Application Stage.

SECTION J – ENERGY EFFICIENCY

51. PART J1 – BUILDING FABRIC

The provision of insulation to the building envelope will be required in the proposed Building, in accordance with **Clauses J1.0 to J1.6**, and the **Tables therein**, including Thermal Construction General, Roof and Ceiling Construction, Roof-lights, Walls, and Floors.

Comments: This section applies to the proposed new Dock Office & Conditioned Spaces in the Warehouse extension (noting the concessions for air-conditioning under the definition in Clause A1.1). Design details and/or certification of design will be required to be submitted with the application for a Construction Certificate.

52. PART J2 – GLAZING

Glazing within the external building envelope will be required to be assessed/designed to achieve compliance with **Clauses J2.0 to J2.5**, including the **Tables therein**, having regard to the maximum aggregate air-conditioning energy attributable to each façade of the proposed building.

Comments: This section applies to the proposed New Dock Office & Conditioned Spaces in the Warehouse extension (noting the concessions for air-conditioning under the definition in Clause A1.1). A calculation demonstrating that the proposed design of the building complies with the requirements of **Part J2** is required to be submitted with the application for a Construction Certificate.

53. PART J3 – BUILDING SEALING

The proposed building envelope will be required to be sealed to prevent air infiltration in accordance with the requirements of **Clauses J3.0 to J3.6**. is required to be provided.

Comments: This section applies to the proposed New Dock Office & Conditioned Spaces in the Warehouse extension (noting the concessions for air-conditioning under the definition in Clause A1.1). Details or certification that the proposed building design complies with the requirements of **Part J3** will need to be submitted with the application for a Construction Certificate.

54. PART J5 – AIR-CONDITIONING & VENTILATION SYSTEMS

Details and/or design certification which confirm that any proposed air-conditioning system or unit within the proposed building achieves compliance with the relevant requirements of **Part J5** will be required to be provided from the Mechanical Engineer.

Comments: Details and/or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate for the proposed warehouse extension area and new dock office.

55. SECTION J6 – ARTIFICIAL LIGHTING & POWER

Details and/or design certification which confirm that all artificial lighting, power control, and boiling/chilled water units within the proposed building achieves compliance with the relevant requirements of **Part J6** will be required to be provided from the Electrical Engineer.

Comments: This section applies to the whole of the new Warehouse extension project - Consultant certification required at CC Application Stage.

56. SECTION J7 – HOT WATER SUPPLY & SWIMMING POOL & SPA POOL PLANT

Details and/or design certification which confirm that any proposed hot water supply system within the proposed building achieves compliance with the relevant requirements of **Part J7** (Section 8 of AS 3500.4) will be required to be provided from the Hydraulic Engineer.

Comments: Consultant certification required at CC Application Stage where relevant.

57. SECTION J8 – ACCESS FOR MAINTENANCE & FACILITIES FOR MONITORING

See NSW Subsection J8 for access to maintenance.

Access must be provided to all plant, equipment and components that require maintenance in accordance with Part I2.

Comments: Consultant certification required at CC Application Stage for the new monitoring equipment associated with the warehouse extension project.

Details are to be provided from the design consultants for their respective disciplines for proposed new ventilation, electrical and hydraulic systems that compliance with the requirements of Section J has been achieved.

D. CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed warehouse extension at the Coles CDC Facility – M7 Business Hub – Old Wallgrove Road, Eastern Creek against the Deemed-to-Satisfy Provisions of the BCA 2012. Arising from the review, it is considered that the proposed development can readily achieve compliance with the relevant provisions of the BCA.

The following fire safety measures are required for the new building works:

Essential Fire and Other Safety Measures	Standard of Performance
Alarm Signaling Equipment	AS1670.3 – 2004
Automatic Smoke Detection System	BCA Spec. E2.2a & AS 1670.1 – 2004 & AS/NZS 1668.1 - 1998.
Automatic Fire Suppression Systems	BCA Spec. E1.5 & AS 2118.1-1999 or AS2118.4, 6 - 1995
Building Occupant Warning System activated by the Sprinkler System	BCA Spec E1.5 Clause 8 and/ or Clause 3.22 of AS 1670.1 – 2004
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 - 2005

Essential Fire and Other Safety Measures	Standard of Performance
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8 and AS 2293.1 – 2005
Fire Control Centre	BCA Spec E1.8
Fire Doors	BCA Clause C2.12, C2.13, and AS 1905.1 – 2005
Fire Hose Reels	BCA Clause E1.4 & AS 2441 – 2005
Fire Hydrant Systems	Clause E1.3 & AS 2419.1 - 2005
Paths of Travel	EP & A Regulation Clause 186
Perimeter Vehicular Access	BCA Clause C2.4
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
Smoke Hazard Management Systems	BCA Part E2 & AS/NZS 1668.1 - 1998

Note: The subject Building is subject to an existing Fire Engineering Report / Alternative Solutions – copies of these reports will need to be obtained and the existing alternative solutions will need to referenced by the fire safety engineer in relation to the new warehouse extension works.

APPENDIX 1

Table 5 TYPE C CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	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 therein) 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	–/–/–	–/–/–	–/–/–	–/–/–