





# DA Stage BCA Report

132 Warren Road, Smithfield



<b>Project:</b>	132 Warren Road, Smithfield
<b>Reference No:</b>	115082-BCA-r1
<b>Date:</b>	19 November 2021
<b>Client:</b>	Polytrade
<b>Client Contact:</b>	Paul Antony
<b>Email:</b>	Paul.antony@smec.com.au
<b>BCA Logic Contact:</b>	Warwick Hunter
<b>Direct:</b>	8484 4077
<b>Email:</b>	whunter@bcalogic.com.au

**Document Control**

Revision	Date	Description	
115082-BCA-r1	19 November 2021	BCA Report (DA Stage)	
		Prepared/Verified by	Reviewed by
		Warwick Hunter	Alexanda Lederthoug
		Accredited Certifier Grade A1, No. BDC 2417	Assistant Building Surveyor
			

## Table of Contents

<b>1</b>	<b>BASIS OF ASSESSMENT .....</b>	<b>5</b>
1.1.	Location and Description.....	5
1.2.	Purpose.....	5
1.3.	Building Code of Australia.....	5
1.4.	Limitations .....	6
1.5.	Design Documentation.....	6
<b>2</b>	<b>BUILDING DESCRIPTION.....</b>	<b>7</b>
2.1.	Number of Storeys (Clause C1.2).....	7
2.2.	Classification & Use (Clause A6.0) .....	7
<b>3</b>	<b>FRNSW Guideline for Waste Facilities .....</b>	<b>9</b>
<b>4</b>	<b>Fire Upgrade - Environmental Planning and Assessment Regulation.....</b>	<b>10</b>
<b>5</b>	<b>BCA Assessment.....</b>	<b>11</b>
5.1.	Introduction.....	11
5.2.	Section C - Fire Resistance .....	11
5.3.	Section D (Parts D1 & D2) – Provision for Escape and Construction of Exits.....	13
5.4.	Section D (Part D3) – Access .....	14
5.5.	Section E – Services & Equipment .....	15
5.5.1.	Fire Hydrant – BCA Clause E1.3 .....	15
5.5.2.	Fire Hose Reels – BCA Clause E1.4 .....	15
5.5.3.	Sprinklers – BCA Clause E1.5/E1.10.....	15
5.5.4.	Special Hazards - BCA Clause E1.10/E2.3 .....	16
5.5.5.	Portable Fire Extinguishers – BCA Clause E1.6.....	17
5.5.6.	Smoke Hazard Management – BCA Clause E2.2 .....	17
5.6.	Section F - Health & Amenity .....	18
5.6.1.	Damp & Weatherproofing.....	18
5.6.2.	Room Heights.....	18
5.6.3.	Natural Light & Ventilation.....	18
5.6.4.	Sanitary Facilities – BCA Clause F2.3.....	18
5.7.	Section G – Minor Construction and Components.....	18
5.8.	Section J – Energy Efficiency.....	19
<b>6</b>	<b>Schedule of Fire Safety Measures .....</b>	<b>20</b>
<b>7</b>	<b>BCA Compliance Statement .....</b>	<b>21</b>

## EXECUTIVE SUMMARY

This document provides an assessment of the architectural design drawings for the proposed waste management facility development at 132 Warren Road, Smithfield, against the Deemed-to-Satisfy provisions of the Building Code of Australia (BCA) 2019, Volume 1 Amendment 1.

Within waste management facilities there are overlying and varying requirements between the provisions of the Building Code of Australia (BCA) and the guideline prepared by Fire and Rescue NSW (FRNSW).

The FRNSW guideline generally applies to a facility which processes more than 50m<sup>3</sup> waste and states that waste management facilities are a “special hazard” which would at all times require a performance based assessment by an accredited fire safety engineer.

This Building Code of Australia report assesses the development against the key compliance matters necessary for the proposed waste management facility.

Item	Description	BCA Provision
<b>Performance Solutions Required</b>		
1.	Perimeter access to front elevation is located more than 18 metres away from the building	Clause C2.3(a)(ii) / C2.4(b)
2.	Exit travel distance exceeds 40 metres to an exit and more than 60 metres between alternative exits	Clause D1.4
3.	Waste management facility is deemed a special hazard in accordance with FRNSW guideline and will require consideration of smoke hazard management systems and onsite stockpile configurations and associated perimeter wall enclosures	E1.10 / E2.3
<b>Building Code of Australia Compliance Matters to be Addressed</b>		
1.	All existing perimeter doors to be made operable, all locks to be removed and lever action hardware installed in accordance with AS1428.1-2009	D2.21
2.	Upgrade fire hydrant system to comply with AS2419.1-2005 and FRNSW waste facilities guideline	E1.3
3.	Upgrade fire hose reel system in accordance with AS2441-2005	E1.4
4.	Install automatic fire suppression system in accordance with AS2118.1-2017 & FRNSW waste facilities guideline	C2.3/E1.10/E2.3
5.	Installation of additional smoke hazard management systems may be subject to the outcome and recommendations of the future fire engineering report	E1.5/E1.10/E2.2/E2.3
6.	Install portable fire extinguishers throughout the building in accordance with AS2444-2001	Clause E1.6
7.	Exit and Emergency Lighting to be installed throughout in accordance with AS2293.1-2018	Clauses E4.2, E4.4, E4.5, E4.6 & E4.8
<b>Further Information Required</b>		
1.	With design development the exact heights of plant and equipment and available egress paths beneath equipment to be detailed to enabled exact exit travel distance calculation. If exit travel distance complies with BCA Clauses D1.4 & D1.5 it will not be necessary for a fire engineered performance solution to be formulated	D1.4/D1.5

## 1 BASIS OF ASSESSMENT

### 1.1. Location and Description

The existing building development, the subject of this report, is located at 132 Warren Road, Smithfield.

The site contains an existing vacant commercial/industrial building with associated office at the front portion of the building and it is proposed to change the use of the main factory portion of the building to a waste management facility.

The facility will have plant and equipment installed internally for the sorting and separation of waste materials for recycling and is accessed around the perimeter of the building via roller shutter doors and perimeter driveway.

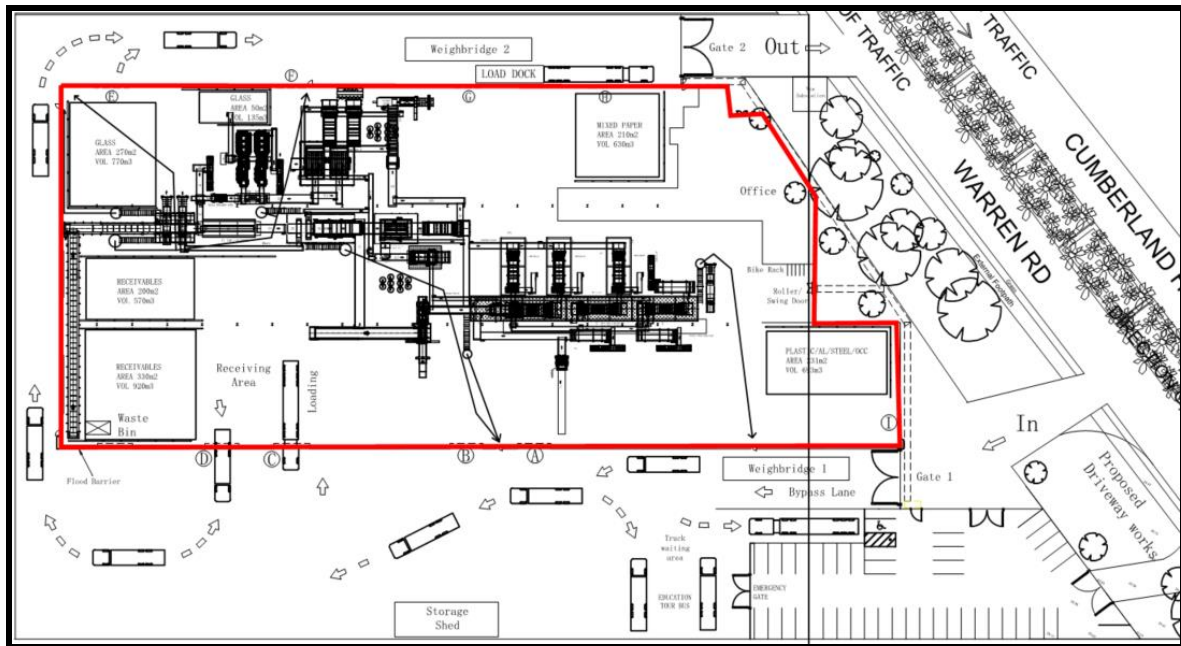


Figure 1. Site Plan

### 1.2. Purpose

The purpose of this report is to assess the current design proposal against the Deemed-to-Satisfy Provisions of BCA 2019, and to clearly outline those areas (if any) where compliance is not achieved, where areas may warrant redesign to achieve strict BCA compliance or where areas may be able to be assessed against the relevant performance criteria of BCA 2019. Such assessment against relevant performance criteria will need to be addressed by means of a separate Performance Based Fire Safety Engineered Assessment Report to be prepared under separate cover.

### 1.3. Building Code of Australia

This report is based on the Deemed-to-Satisfy Provisions of the National Construction Code Series Volume 1 – Building Code of Australia, 2019 Edition (BCA) incorporating the State variations where applicable. Please note that the version of the BCA applicable to new building works is the version applicable at the time of the lodgement of the Construction Certificate application to the Accredited Certifying Authority. The BCA is updated generally on a three-yearly cycle, starting from the 1st of May 2016.

#### **1.4. Limitations**

This report does not include nor imply any detailed assessment for design, compliance or upgrading for:

- (a) the structural adequacy or design of the building;
- (b) the inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to); and
- (c) the design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.

This report does not include, or imply compliance with:

- (a) the National Construction Code – Plumbing Code of Australia Volume 3
- (b) the Disability Discrimination Act 1992 including the Disability ((Access to Premises – Buildings) Standards 2010 – unless specifically referred to), (Note: The provision of disabled access to the subject development has been assessed against the deemed to satisfy provision of Part D3 and F2.4 of BCA2019 only);
- (c) Demolition Standards not referred to by the BCA;
- (d) Work Health and Safety Act 2011;
- (e) Requirements of Australian Standards unless specifically referred to;
- (f) Requirements of other Regulatory Authorities including, but not limited to, Telstra, Telecommunications Supply Authority, Water Supply Authority, Electricity Supply Authority, Work Cover, Roads and Maritime Services (RMS), Local Council, ARTC, Department of Planning and the like; and
- (g) Conditions of Development Consent issued by the Local Consent Authority.

#### **1.5. Design Documentation**

This report has been based on the Design plans and Specifications listed in Annexure A of this Report.

## 2 BUILDING DESCRIPTION

For the purposes of the Building Code of Australia (BCA) the development may be described as follows.

### 2.1. Number of Storeys (Clause C1.2)

The building has the following rise in storeys two (2)

### 2.2. Classification & Use (Clause A6.0)

The key buildings have been classified as follows:

Table 1. Building Classification

Class	Level	Use
5	Part ground	Main office
5	Part first floor	Main office
7b	Part ground	Storage component
8	Part ground	Waste processing and sorting facility

Note: Due to the Class 5 & 7b parts being less than 10% of the floor area of the building the Class 8 use has been applied throughout.

### 2.3. Type of Construction Required (Table C1.1)

The building is required to be of Type C Construction.

### 2.4. Floor Area and Volume Limitations (Table C2.2)

The building is subject to maximum floor area and volume limits of:-

Class 7b/8	Maximum Floor Area	5000m <sup>2</sup>
	Maximum Volume	30,000m <sup>3</sup>

### 2.5. Fire Compartments

The entire building is considered to be a single *fire compartment*.

### 2.6. Exits

The following points in the building have been considered as the exits:

- (a) External doorways opening to open space
- (b) Top riser of internal non-fire isolated stairs.

### 2.7. Climate Zone (Clause A1.0)

The building is located within Climate Zone 6

### 2.8. Location of Fire-source features

The fire source features for the subject development are:

North: The far boundary of Warren Road

South: The side allotment boundary

East: The side allotment boundary

West: The side allotment boundary

In accordance with Clause 2.1 of Specification C1.1, a part of a building element is exposed to a *fire-source feature* if any of the horizontal straight lines between that part and the fire-source feature, or vertical projection of the feature, is not obstructed by another part of the building that–

- (a) has an FRL of not less than 30/–/–; and
- (b) is neither transparent nor translucent.



---

### **3 FRNSW GUIDELINE FOR WASTE FACILITIES**

The FRNSW guideline applies to this site due to the facility being proposed to process and store more than 50m<sup>3</sup> of combustible waste material.

It should be noted that the guideline is not a statutory document and is provided to assist the consent authority when determining a Development Application for a waste facility.

It is stated within the guideline that specialist consultant advice be sought on the application of the guideline and this report serves to provide a high level review of the specific requirements and highlight inconsistencies with the Building Code of Australia, specifically where there may be differences in sprinkler protection of buildings.

From review of the guideline, it is apparent that the key requirements are to ensure limited stockpiles to reduce fire load/intensity and to provide enhanced access for fire brigade intervention.

This guideline will be required to be considered by the Fire Engineer when developing the required performance solutions nominated within this report.

## 4 FIRE UPGRADE - ENVIRONMENTAL PLANNING AND ASSESSMENT REGULATION

As this is a change in use with no proposed building works (other than installation of plant and equipment) the relevant upgrading requirements of the building are more closely aligned to Clause 93 of the Environmental Planning and Assessment Regulation, 2000. The specific requirements of this Regulation are contained within the following Clauses:-

- 93(2) - *In determining the Development Application, “the consent authority is to take into consideration whether the fire protection and structural capacity of the building will be appropriate to the building’s proposed use”.*

**Comment:** The proposed change in use seeks a change in use of the existing commercial/industrial building to a waste management facility.

Whilst there is no requirement of the Building Code of Australia 2019 (BCA2019) to have any fire protection to external walls of the building due to the setbacks being more than 3 metres to the fire source feature at the allotment boundary, the existing level of fire protection would not be appropriate to the proposed new use due to the additional fire load being provided.

The level of fire protection to be applied to the building will be addressed within the proposed fire engineering report which will need to consider the smoke hazard management and stockpile location and volume and holistically assess in accordance with the special hazard provisions of Clauses E1.10 and E2.3 of BCA2019.

For structural capacity there is no alteration to existing arrangements as the proposed plant and equipment are all internally located on the existing concrete slab with no modification to existing structural capacity of the building.

- 93(3) - *Consent to the change of building use sought by a development application to which this clause applies must not be granted unless the consent authority is satisfied that the building complies (or will, when completed, comply) with such of the Category 1 fire safety provisions as are applicable to the building’s proposed use.*

**Comment:** The building has a floor area of greater than 500m<sup>2</sup> and in accordance with the relevant Category 1 Fire Safety Provisions the building will need to be served by a Fire Hydrant, Sprinkler System and Perimeter Access for FRNSW. The Category 1 Fire Safety Provisions will be considered within the proposed Fire Engineered Performance Solution.



### Large Isolated Building

In accordance with BCA Clause C2.3 a Class 7b/8 use building containing not more than two (2) storeys is permitted to have a floor area of up to 18,000m<sup>2</sup> and volume of up to 108,000m<sup>3</sup>. The building would meet the floor area and volume requirements for a large isolated building, however, it would be necessary for perimeter open space to be provided around the building.

Where a building has 18 metres clearance around the perimeter it would not require sprinkler protection in accordance with Clause C2.3 however, this building does not have 18 metres clearance due to the rear elevation (8 metres) and the southern elevation (12.5 metres). Due to sprinklers being required in accordance with this clause the perimeter open space requirements are a 6 metre width vehicular path not more than 18 metres away from the building which is achieved to the side and rear elevations only. The front elevation requires up to 21 metres due to the setback to Warren Road therefore, will require a fire engineered performance solution in accordance with this clause at Construction Certificate stage.

### **5.2.2 Separation to Side Allotment Boundary – Part C3**

The existing building is setback more than 3 metres from all side allotment boundaries and due to the building being a large isolated building of Type C Construction, it is not required to have a fire resistance level (FRL) in accordance with BCA Clause/Specification C1.1.

The closest boundary is the rear elevation which is approximately 8 metres from the external wall.

### Internal Stockpile

The internal stockpile volume includes the following:-

- Receivables – 920m<sup>3</sup>
- Receivables – 570m<sup>3</sup>
- Glass – 920m<sup>3</sup>
- Glass – 135m<sup>3</sup>
- Mixed Paper – 630m<sup>3</sup>
- Plastic/Aluminium/Steel - 693m<sup>3</sup>

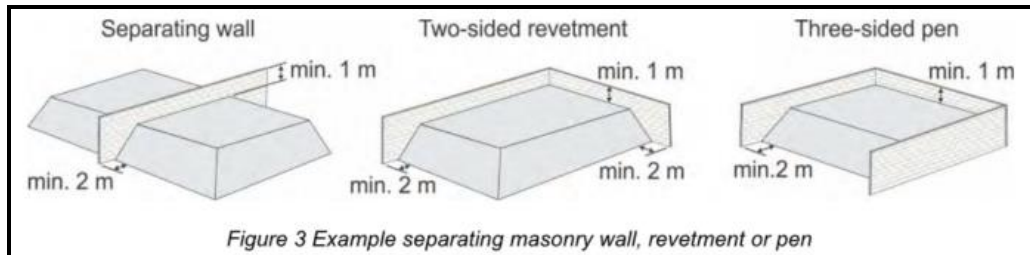
Total combustible waste storage component = 2813m<sup>3</sup>

In accordance with BCA Clause E1.5 this is considered an excessive hazard due to the volume being greater than 1000m<sup>3</sup> and potentially stored more than 4 metres in height and would require sprinklers to be installed. Furthermore, as an occupancy of excessive hazard this would be considered a special hazard in accordance with BCA Clause E1.10/E2.3 warranting a fire engineered performance solution.

The FRNSW guideline has additional specific requirements to limit internal stockpile sizes to 1000m<sup>3</sup> maximum by separation by a central masonry wall that extends at least 1 metre above the highest part of the stockpile as per figure 9 of that guideline.

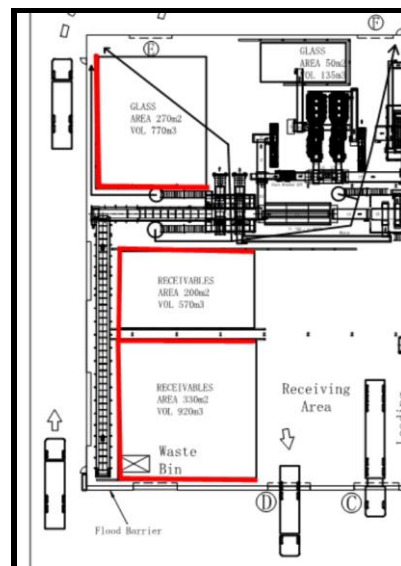
### 8.5 Internal stockpiles

- 8.5.1 Internal stockpiles of combustible waste material should be maintained as determined by the operations plan, and appropriate to the building size/layout, compartmentation, installed safety systems, process equipment and plant etc.
- 8.5.2 The maximum internal stockpile size in a building fitted with an automatic fire sprinkler system should be 1,000 m<sup>3</sup>.
- 8.5.3 Internal stockpiles should have a minimum of 6 m unobstructed access on each accessible side in a building fitted with an automatic fire sprinkler system, or a 10 m in a building not fitted with an automatic fire sprinkler system (see Figure 9).



Due to the complications with the special hazards contained within the building it would be necessary for a fire engineered performance solution to be formulated to address BCA Clauses E1.10 & E2.3 and consideration of separation of stockpile through that process.

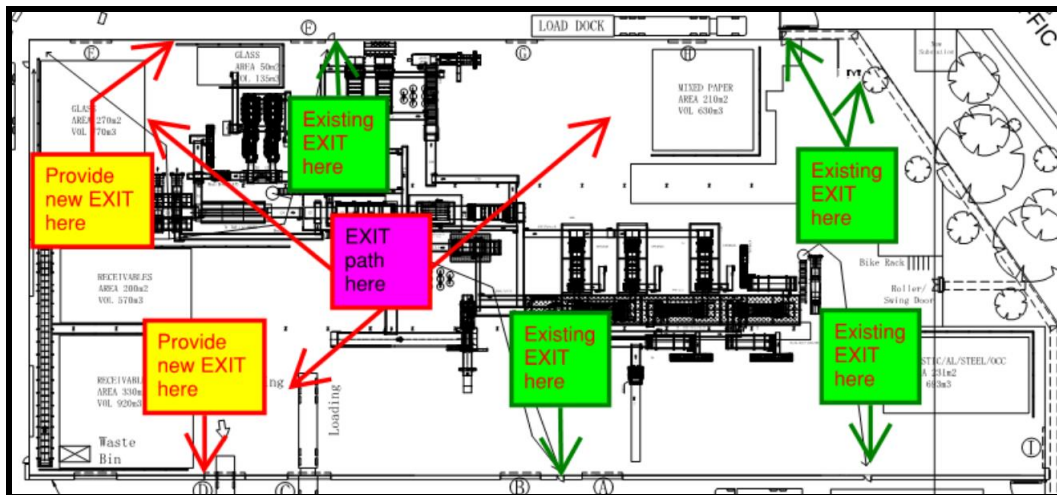
Within the proposed fire engineered performance solution for perimeter access, consideration to be given to provision of masonry walls to the rear elevation to provide protection to fire brigade vehicles should they need to pass around the building. See below mark up of stockpile walls backing onto the rear elevation narrow driveway.



### 5.3. Section D (Parts D1 & D2) – Provision for Escape and Construction of Exits

#### Travel Distance

The exit travel distance to the building appears to be generally compliant from most areas, however, once proposed plant and equipment is installed this will obstruct and extend the exit travel distance resulting in extended exit travel through the central part of the building.



With design development further details of the plant and equipment including clear heights and ability to traverse beneath will need to be assessed. Should exit travel distance exceed 20 metres to a point of choice, or more than 40 metres to an exit, or more than 60 metres between alternative exits it will be necessary for a fire engineered performance solution to be formulated at Construction Certificate stage.

To assist that performance solution, it would be likely that additional exit doors are provided as per the marked up drawing above.

#### Door Hardware

All existing exit doors to the perimeter of the factory building are currently bolted closed and do not contain compliant hardware. All doors to be upgraded in accordance with BCA Clause D2.21 and open outwards.

#### First Floor - Office

No works are proposed to the office and existing egress is via internal stair.

### **5.4. Section D (Part D3) – Access**

The proposed development is a change in use Development Application with new works to install plant and equipment to a part of a building whereby a Clause D3.4 exemption would be applicable.

The waste management facility portion of the building is an area where able bodied persons are required within an environment where due to work health and safety would not be appropriate for persons with a disability. For this reason, the provisions of the Disability (Access to Premises) Standard 2010 ('the Premises Standard') and an "affected part" path of travel would not apply.

Therefore, whilst the existing access from the property boundary from Warren Road frontage contains steps there is no mandatory requirement to provide access to the development.



## 5.5. Section E – Services & Equipment

### 5.5.1. Fire Hydrant – BCA Clause E1.3

The building has a floor area greater than of 500m<sup>2</sup> and requires a fire hydrant. The existing site has a fire hydrant booster and single attack hydrant located at the front of the property.



The system is an Ordinance 70 fire hydrant system and does not provide coverage to the building from the single attack hydrant at the front of the site and it will be necessary to upgrade the fire hydrant system in accordance with requirements of BCA Clause E1.3 and AS2419.1-2005 and FRNSW waste facilities guideline.

### 5.5.2. Fire Hose Reels – BCA Clause E1.4

The building has a floor area greater than of 500m<sup>2</sup> and requires fire hose reels. The existing site has fire hose reels located to the eastern external wall only, this would not provide coverage to the western side of the building due to building width being greater than 40 metres. Therefore, additional fire hose reels are required.

### 5.5.3. Sprinklers – BCA Clause E1.5/E1.10

From a BCA2019 perspective the use would be considered an 'occupancy of excessive hazard' with hazardous processes or storage and due to the fire compartment floor area/volume exceeding 2000 m<sup>2</sup>/12,000m<sup>3</sup>, and internally stored items likely to exceed an aggregate volume of 1000m<sup>3</sup> and stored higher than 4 metres height. Therefore, a sprinkler system would be required in accordance with BCA Clause E1.5.

This requirement mirrors the recommendations contained within Part 7.6 of the FRNSW guideline.

<b>7.6</b>	<b>Automatic fire sprinkler systems</b>
7.6.1	The waste facility is to have an automatic fire sprinkler system installed in any fire compartment that has a floor area greater than 1000 m <sup>2</sup> and contains combustible waste material.  <b>Note:</b> Unsorted mixed combustible waste material generally presents a greater ignition hazard than most other combustibles.
7.6.2	The fire sprinkler system should be demonstrated as being appropriate to the risks and hazards identified for buildings, including externally as necessary (e.g. drenchers to protect plant/equipment, exposures, high-risk external storage).
7.6.3	The fire sprinkler system design should be appropriate to the hazard class (e.g. 'high hazard class') and have enhanced standard of performance as appropriate to the special hazard.  <b>Note:</b> Any system design limitation set by specifying content and percentages are to be maintained for the building's operating life unless the system is upgraded.
7.6.4	To protect vital systems, storages or equipment or protect against high risk hazards, a deluge, drencher, fast response, mist or foam system should be provided.  <b>Note:</b> A localised system may be installed to protect specific areas or equipment if the whole building is not sprinkler protected.
7.6.5	The fire brigade booster assembly for the fire sprinkler system should be co-located with the fire hydrant system booster within sight of the designated site entry point, or in a location approved by the fire brigade.
7.6.6	The fire sprinkler system is to have a minimum water supply and capacity providing the maximum hydraulic demand (i.e. flow rate) for not less than two hours.  <b>Note:</b> The fire sprinkler system should contain fire spread and allow firefighters to enter the building, remove burning waste material and extinguish the fire.

#### 5.5.4. Special Hazards - BCA Clause E1.10/E2.3

A waste facility containing combustible waste is considered to be a "special hazard" in accordance with the provisions of the Building Code of Australia 2019, Clause E1.10 & Clause E2.3.

These clauses do not have prescriptive requirements, therefore, the most appropriate way to address the following clauses is to engage a fire engineer and formulate a fire engineered performance solution that would ultimately need to be referred to Fire and Rescue NSW (FRNSW) as a key stakeholder in the process.

The consideration of special hazards would consider suitable additional provision of fire services, fire brigade intervention and additional smoke hazard management that would be necessary and it is through this process that the FRNSW waste facilities guideline would be further considered and recommendations contained within that guideline document implemented accordingly.

Excerpts from BCA2019 included below:-

#### **E1.10 Provision for special hazards**

Suitable additional provision must be made if special problems of fighting fire could arise because of—

- (a) the nature or quantity of materials stored, displayed or used in a building or on the allotment; or
- (b) the location of the building in relation to a water supply for fire-fighting purposes.

#### **E2.3 Provision for special hazards**

Additional smoke hazard management measures may be necessary due to the—

- (a) special characteristics of the building; or
- (b) special function or use of the building; or
- (c) special type or quantity of materials stored, displayed or used in a building; or
- (d) special mix of classifications within a building or *fire compartment*, which are not addressed in *Tables E2.2a* and *E2.2b*.



### 5.5.5. Portable Fire Extinguishers – BCA Clause E1.6

Portable Fire Extinguishers are currently installed and as part of the proposed development shall be retained and extended throughout in accordance with clause E1.6 of the BCA and AS2444-2001.

### 5.5.6. Smoke Hazard Management – BCA Clause E2.2

In accordance with BCA Table E2.2 for a large isolated building with floor area less than 18,000m<sup>2</sup> and volume of 108,000m<sup>3</sup> the building has the option for either of the following systems to be installed:-

- a. Sprinklers and perimeter access complying with BCA Clause C2.4(b); or
- b. Automatic smoke exhaust system; or
- c. Automatic smoke and heat vents; or
- d. Natural smoke venting.

Due to the building already requiring sprinklers in accordance with other provisions of BCA2019 including Clause C2.3, E1.5 & E1.10, the requirements of Clause E2.2 would be met via the selection of sprinklers in lieu of the other options above.

Whilst BCA2019 does not stipulate specific additional smoke hazard management measures, the FRNSW guideline outlines under Part 7.7 & Part 7.8 that additional measures such as smoke detection and alarm system and a smoke venting or smoke exhaust system be provided and this would be able to be better defined within a site wide fire engineered performance solution report which considers Clause E1.10 and Clause E2.3 and relevant parts of the FRNSW waste management facility guideline. See below relevant parts:

#### 7.7 Fire detection and alarm systems

- 7.7.1 The waste facility is to have a fire detection and alarm system installed appropriate to the risks and hazards identified for each area of a building.
- 7.7.2 The fire detection and alarm system should warn all occupants of fire and to evacuate the facility, with each component being appropriate to the environment (e.g. flame detector or infrared detector in sorting area, visual alarms around noisy machinery).
- 7.7.3 Upon positive detection of fire, the system is to activate any required alarm, fire suppression system, passive measure (e.g. fire door, fire shutter) or plant/machinery override (e.g. shutdown of conveyor, shredder) as appropriate to the detector.
- Note:** The system may incorporate multiple levels of detection (e.g. fast acting IR detector to shutdown machinery and activate a local deluge system, and medium acting aspirating system to provide broad area detection).
- 7.7.4 Manual alarm points should be provided in clearly visible locations as appropriate to the environment so that staff can initiate early alarm of fire.

**7.8 Smoke hazard management**

- 7.8.1 Buildings containing combustible waste material are to have an automatic smoke hazard management system appropriate to the potential fire load and smoke production rate installed within the building.
- 7.8.2 Under Clause E2.3 of the NCC, additional smoke hazard management measures should be provided to vent or exhaust smoke so that in at least 90% of the compartment, the smoke layer does not descend below 4 m above floor level.
- Note:** To undertake firefighting intervention, visibility is needed so that piled waste can be safely removed using machinery.
- 7.8.3 Natural low-level openings, either permanent or openable such as roller doors, should be provided on two or more walls to assist with venting de-stratified (i.e. cooled) smoke and ensure minimum visibility is maintained during a fire.
- Note:** Roller doors should have manual override so that the door can be opened in the event of electrical isolation or failure during fire.
- 7.8.4 Any smoke exhaust system installed should be capable of continuous operation of not less than two hours in a sprinkler-controlled fire scenario, or four hours in any non-sprinkler-controlled fire scenario.
- 7.8.5 Automatic operation of the smoke hazard management system from smoke detection should not cause undue delay to the activation of any automatic fire sprinkler system.

**Exit and Emergency Lighting – BCA Clauses E4.2, E4.4, E4.5, E4.6 & E4.8**

The existing building has limited existing exits and emergency lighting installed. As a result of the change in use it will be necessary for exit and emergency lighting to be installed throughout in accordance with the provisions of BCA2019. Details of design to be formulated at Construction Certificate stage with consideration to plant and equipment and internal paths of travel.

**5.6. Section F - Health & Amenity****5.6.1. Damp & Weatherproofing**

No changes as a result of the proposed works.

**5.6.2. Room Heights**

The room heights to the areas of proposed new works are greater than 2400mm as required in accordance with Part F3 of the BCA2019.

**5.6.3. Natural Light & Ventilation**

There is no requirement to provide natural light to the proposed development and subsequently, artificial lighting would be appropriate to all existing and modified areas in which new works are proposed in accordance with AS1680.0-2009.

Ventilation of the proposed waste management facility would be via roller shutter doors, however, this would not be suitable alone for the proposed new use and a dedicated ventilation system would be required to be coordinated with the smoke hazard management system required by the fire engineered performance solution.

**5.6.4. Sanitary Facilities – BCA Clause F2.3**

The existing building development has multiple sanitary facilities located at ground floor level and will readily serve the likely staff populations.

**5.7. Section G – Minor Construction and Components**

There are no applicable requirements for the proposed development.

## 5.8. Section J – Energy Efficiency

### Office

No changes are proposed to the office area. Where a mechanical ventilation system or lighting is proposed to be altered, it would be necessary for compliance to be achieved with this clause. Details to be provided at Construction Certificate stage.

### Factory

The existing factory building portion is non-conditioned and the only likely changes would be the provision of task specific lighting.

Should lighting change as a result of the works the following maximum illumination power densities in table J6.2a (below) would apply to the areas concerned unless adjustment factors are applicable due to dimming or motion detection as outlined in table J6.2b. These include: -

Location	Maximum Illumination Power Density (W/m <sup>2</sup> )
Corridors	5
Entry Lobby from outside the building	9
Office	2.5
Plantroom	4
Service area, cleaner's room and the like	1.5
Toilet, locker room, staff room, rest room and the like	3

Note: The requirement for the maximum lamp/illumination power density does not apply to emergency lighting and signage and display lighting within cabinets and display cases.

- (a) Artificial lighting switches must be located in a visible position from the room being switched, and not operate an area of more than 250m<sup>2</sup> (Clause J6.3 (c)).
- (b) 95% of artificial lighting in the building (where new works are proposed ) must be controlled by a time switch, or an occupant sensing device such as a security key card reader, or motion detector (Clause J6.3 (d)).
- (c) Artificial lighting adjacent windows must be switched separately from other internal lighting (Clause J6.3 (e)).

## 6 SCHEDULE OF FIRE SAFETY MEASURES

The building does not currently have a fire safety schedule and only has non-compliant installations of fire hydrant, portable fire extinguishers and exit signage.

As a result of the change in use a formal fire safety schedule will be triggered by the approvals process and will require the following proposed fire safety schedule.

Item	Proposed Essential Fire and Other Safety Measures	Standard of Performance
1.	Emergency lighting	<b>BCA E4.2, E4.4</b> AS/NZS 2293.1 –2018
2.	Exit signs	<b>BCA E4.5</b> (Exit Signs) <b>BCA E4.6</b> (Direction Signs) <b>BCA E4.8</b> (Design and Operation - Exits) AS/NZS 2293.1 –2018
3.	Portable fire extinguishers	<b>BCA2019 E1.6</b> AS2444–2001
4	Fire hydrant	<b>BCA2019 E1.3</b> AS2419.1-2005 FRNSW Waste facility guideline
5	Fire hose reels	<b>BCA2019 E1.4</b> AS2441-2005
6	Automatic fire suppression system (sprinklers)	<b>BCA2019 E1.5</b> AS2118.1-2017 <ul style="list-style-type: none"> <li>FRNSW Waste facility guideline</li> <li>Proposed fire engineering report</li> </ul>
7	Large Isolated Building Perimeter emergency vehicle access	<b>BCA2019 C2.3, C2.4(b)</b> <ul style="list-style-type: none"> <li>FRNSW Guide No. 4 'Guidelines for Emergency Vehicle Access' (current version 02 dated 27 Oct 2010)</li> <li>FRNSW Waste facility guideline</li> <li>Proposed fire engineering report</li> </ul>
8	Paths of travel <ul style="list-style-type: none"> <li>Extended exit travel distance</li> </ul>	<b>BCA2019 Clause E1.4</b> Proposed fire engineering report
9	Special Hazards	<b>BCA2019 E1.10 &amp; E2.3</b> Proposed fire engineering report

The above schedule will need to be further developed at Construction Certificate stage once fire engineered performance solutions are developed.

## 7 BCA COMPLIANCE STATEMENT

The plans assessed were developed to a standard suitable for submission as a development application and do not contain all the details necessary to allow a CC to be issued. As such, this assessment was limited to the major items of the BCA with the view of identifying any items that may result in a modified development consent being required, or additional key items that need to be included in the design.

The architectural design documentation as referred to in report has been assessed against the applicable provisions of the Building Code of Australia (BCA), and it is considered that such documentation complies or is capable of complying with that Code subject to the following upgrading matters being addressed:-

1. Fire engineered Performance Solution report is required due to the building being considered a special hazard in accordance with BCA Clauses E1.10 and E2.3 and FRNSW waste management facility guideline.

In addition, the following Performance Solutions will need to be addressed:-

- a. BCA Clause C2.3(a)(ii) / C2.4(b) - Perimeter access to front elevation is located more than 18 metres away from the building
  - b. BCA Clause D1.4/D1.5 - Exit travel distance exceeds 40 metres to an exit and more than 60 metres between alternative exits
  - c. BCA Clause E1.10/E2.3 - Waste management facility is deemed a special hazard in accordance with FRNSW guideline and will require consideration of smoke hazard management systems and onsite stockpile configurations and associated perimeter wall enclosures
2. All existing perimeter doors to be made operable, all locks to be removed and lever action hardware installed in accordance with AS1428.1-2009.
  3. Upgrade fire hydrant system to comply with AS2419.1-2005 and FRNSW waste facilities guideline.
  4. Upgrade fire hose reel system in accordance with AS2441-2005.
  5. Install automatic fire suppression system in accordance with AS2118.1-2017 & FRNSW waste facilities guideline.
  6. Installation of additional smoke hazard management systems may be subject to the outcome and recommendations of the future fire engineering report.
  7. Install portable fire extinguishers throughout the building in accordance with AS2444-2001.
  8. Exit and Emergency Lighting to be installed throughout in accordance with AS2293.1-2018.