

Building Code of Australia Assessment

Bettergrow Pty Ltd
Greenspot Resource Recovery
And Recycling Facility
24 Davis Road Wetherill Park NSW
Lot 18 DP249417

<i>Prepared For:</i>	Bettergrow Pty Ltd 48 Industry Road Vineyard NSW 2765
<i>Local Council:</i>	Fairfield City Council 86 Avoca Rd, Wakeley NSW 2176
<i>Prepared By:</i>	Style Developments Pty Ltd Architectural, Environmental & Building Consultants, Structural & Civil Engineering, Project and Construction Managers
<i>Revision:</i>	Rev A – 7 th April 2017

Contents

1. Introduction	3
1.1. Proposed development Description	3
1.2. Building Information	3
1.3. BCA Assessment	3
2. Section B - Structure	4
3. Section C - Fire Resistance	5
4. Section D – Access and Egress	6
5. Section E – Services and Equipment	8
5.1. Sprinklers	9
5.2. Fire Hydrants	10
5.2.1. Proposed New Hydrant Locations	11
6. Section F Health and Amenity	12
7. Section J – Energy Efficiency	13

1. Introduction

This National Construction Code - Building Code of Australia 2015 (BCA) assessment is for the purpose of assisting in the design of the Greenspot Resource Recovery and Recycling Facility and also provides the applicant the necessary information in making the decisions required to achieve a compliant building.

Note: The following comments are provided for the basis of further review upon preparation of the Construction Certificate documentation which will be prepared once the development conditions of consent are issued. The report does not cover the existing buildings on site.

1.1. Proposed development Description

The proposal is for the construction of three new buildings on the existing site as follows:

- Organics Receivals and Processing Building
- Food Depackaging and Process Building
- Organics Process Office Building
-

1.2. Building Information

Building Classification	Floor Area	Type of Construction	No of Storeys
Organics Reveal Building Class 8	2259m ²	Type B	1
Food Depackaging Building Class 8	961m ²	Type C	1
Offices Class 5	112.8m ²	Type C	1

1.3. BCA Assessment

Following are the summary points from NCC - BCA 2015 that are the requirements to be taken into account in the design and decision making process.

Note: Only the Deemed to satisfy provisions are addressed in this assessment.

2. Section B - Structure

[B1.1] *The resistance of a building or structure must be greater than the most critical action effect resulting from different combinations of actions, where—*

- (a) the most critical action effect on a building or structure is determined in accordance with B1.2 and the general design procedures contained in AS/NZS 1170.0; and*
- (b) the resistance of a building or structure is determined in accordance with B1.4.*

The engineer is to design the building structure so that it complies with this clause and the Australian Standards

[B1.2] *Determination of Individual actions; the magnitude of individual actions must be determined in accordance with this clause. Including part (a) to (e) and:*

Table B1.2a Importance Levels of Buildings and Structures; and
Table B1.2b Design Events For Safety

The structural engineer is to prepare design drawings to comply with this part

[B1.4] *Determination of structural resistance of materials and forms of constructions in accordance with this section and part (a) to (m) and Table B1.4 Material and Thickness of Glazing.*

The engineer is to design building to comply with this part and the relevant Australian Standards.

[B1.5]

(a) Structural software used in computer aided design of a building or structure, that uses design criteria based on the Deemed-to-Satisfy Provisions of the BCA, including its referenced documents, must comply with the ABCB Protocol for Structural Software.

(b) The requirements of (a) only apply to structural software used to design steel or timber trussed roof and floor systems and framed building systems for buildings within the following geometrical limits:

- (i) The distance from ground level to the underside of eaves must not exceed 6 m.*
- (ii) The distance from ground level to the highest point of the roof, neglecting chimneys must not exceed 8.5 m.*

(iii) *The building width including roofed verandahs, excluding eaves, must not exceed 16 m.*

(iv) *The building length must not exceed five times the building width.*

(v) *The roof pitch must not exceed 35 degrees.*

(c) *The requirements of (a) do not apply to design software for individual frame members such as electronic tables similar to those provided in AS 1684.*

The Engineer is to ensure compliance where relevant for the appropriate building designs

3. Section C - Fire Resistance

[C1.1] Type of construction required

In accordance with Table C.1.1 the following Construction types have been applied:

- Organics Building – Class 8 Type B
- Food Depackaging – Class 8 Type C
- Office – Class 5 Type C

Maximum size of fire compartment in accordance with Table C2.2

- Class 8 building Type B construction
 - (a) Area 3500m²
 - (b) Volume 21,000m³
- Class 8 building Type C construction
 - (a) Area 2000m²
 - (b) Volume 12,000m³
- Class 5 building Type C construction
 - (a) Area 3000m²
 - (b) Volume 18,000m³

Proposed;

- Organics Processing Building Class 8 Type B = 2259m² and 17,918.9m³
- Food Depackaging Building Class 8 Type C = 961m² and 6,936.21m³
- Office Class 5 building Type C = 112.8m² and 380m³

For fire resistance levels of construction refer to the following:

Specification C1.1 Fire Resisting Construction

- Part 4 Type B Fire Resisting Construction
- Part 5 Type C Fire Resisting Construction

[C2.13] Electricity Supply Systems

Any electricity supply room within a building must comply with this part and must be separated from the remainder of the building by a construction having a FFL 120/120/120 and any doorway in that construction protected with a self-closing fire door having an FRL of not less than -/120/30

4. Section D – Access and Egress

[D1.4] (c) Class 5, 6, 7, 8 or 9 buildings — Subject to (d), (e) and (f)—

- (i) *no point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 m; and*
- (ii) *in a Class 5 or 6 building, the distance to a single exit serving a storey at the level of access to a road or open space may be increased to 30 m.*

In the Organics Building and the Food Depackaging Building 2 exits have been provided travel distance less than 40m, therefore compliance is achieved.

In the Office 1 exit has been provided travel distance less than 30m, therefore compliance is achieved.

[D1.5] Distance between Alternative Exits – Separation of exits to comply with this part cannot be less than 9m apart therefore compliance is achieved.

[D1.6] Dimension of exits – The unobstructed width of each exit path must be not less than 1m and the height not less than 2m except for a door way which may be reduced to not less than 1.980m

[D1.10] Discharge from Exit – An exit must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the exits or access to it.

[D2.20] Swinging Doors- Doors must swing in the direction of egress

[D2.21] Operation of latch – For a required exit or in the path of travel to a required exit must be readily openable without a key from the side that faces the person seeking egress by a single

downward action or pushing action on a single device which is located between 900mm and 1.1m from the floor.

[Part D3] – Access for People with Disability – All buildings are to comply with this part and Australian Standards AS 1428.1- 2009 Design for Access and Mobility Part 1- General Requirements and AS 1428.2 1992 Part 2 – Enhanced and additional requirements – buildings and Facilities.

[Part D3.4] - Exemptions

The following areas are not required to be accessible:

- (a) An area where access would be inappropriate because of the particular purpose for which the area is used.
- (b) An area that would pose a health or safety risk for people with a disability.
- (c) Any path of travel providing access only to an area exempted by (a) or (b).

Based on the above Exemption, it is considered that the Organics Building and Food depackaging building would be inappropriate for access by people with a disability. The office will be made accessible to comply.

5. Section E – Services and Equipment

All services must be installed in accordance with this part and the relevant Australian Standards

Fire Safety Schedule:

BCA Clause	Design / Installation Standard	Required	Comments
[E1.6] Portable Fire Extinguishers	BCA Clause & AS 2444-2001	Yes	Install in accordance with Table E1.6 of the BCA & AS 2444-2001
[E1.9] Fire precautions during construction	BCA Clause E1.9	Yes	In a building under construction – not less than 1 fire extinguisher to suit class A, B and C fires and electrical fires must be provided at all times adjacent to each required exit.
[E4.2] Emergency Lighting	BCA Clause E4.2 AS 2293.1-2005	Yes	Emergency lighting is required throughout the transfer building and the offices/amenities
[E4.5] Exit Signs	BCA Clause E4.5 AS 2293.1-2005	Yes	Exit sign must be clearly visible to persons approaching the exit, and must be installed on, above or adjacent to each required exit. Comply with AS 2293.1 - 2005
[E4.6] Direction Signs	As required by E4.6		
[E4.8] Design and Operation of Exit Signs	To comply with AS 2293.1		
[D1.10] Exit Doors	BCA Part D Clause D1.10	Yes	See Section D
[E1.5] Sprinkler System	AS 2118-2006	No	Table E1.5 Required where “Occupancies of excessive fire hazard” applicable where the storage of Combustible goods exceeds 1000m ³ and stored at a height of more than 4m

[E1.4] Fire Hose Reels	BCA E1.4 AS 2441 - 2005	Yes	Building is greater than 500m ² in area
[E1.3] Fire Hydrants	AS 2419 – Part 1 - 2005	Yes	Fire Hydrant required where building is greater than 500m ² in and where a fire brigade is available to attend
[E2.2a] Smoke Detection system	AS 1603.8- 1996	Yes	In kitchens and other areas
Fire Doors	BCA Clause C3.5	Yes in switch rooms and transformer rooms	If switch room is provided within the building

5.1. Sprinklers

Although the Organics building will be storing materials in excess of 1000m³ and in some areas a height greater than 4m, the stored materials are not considered to be of an excessive fire hazard or listed as a 'Combustible Goods' as per Table E1.5 Requirements for Sprinklers, Notes item 3:

For the purposes of this Table, occupancies of excessive fire hazard comprise buildings which contain—

(a) hazardous processes or storage including the following:

- (i) Aircraft hangars.*
- (ii) Cane furnishing manufacture, processing and storage.*
- (iii) Fire-lighter and fireworks manufacture and warehousing.*
- (iv) Foam plastic and foam plastic goods manufacture, processing and warehousing e.g. furniture factory.*
- (v) Hydrocarbon based sheet product, manufacture, processing and warehousing e.g. vinyl floor coverings.*
- (vi) Woodwool and other flammable loose fibrous material manufacture.*

(b) Combustible goods with an aggregate volume exceeding 1000 m³ and stored to a height greater than 4 m including the following:

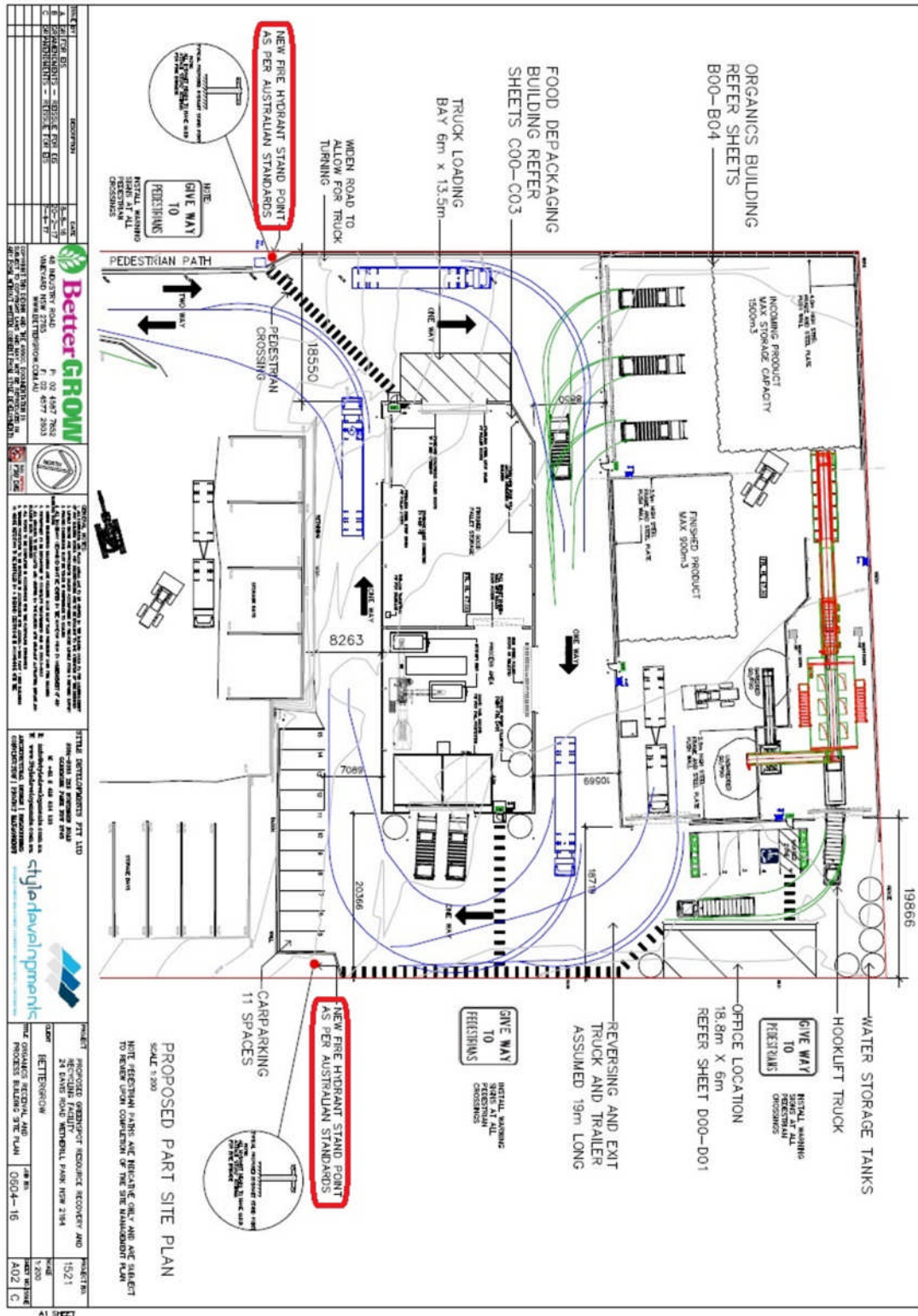
- (i) Aerosol packs with flammable contents.*
- (ii) Carpets and clothing.*
- (iii) Electrical appliances.*
- (iv) Combustible compressed fibreboards (low and high density) and plywoods.*
- (v) Combustible cartons, irrespective of content*
- (vi) Esparto and other fibrous combustible material.*
- (vii) Furniture including timber, cane and composite, where foamed rubber or plastics are incorporated.*
- (viii) Paper storage (all forms of new or waste) e.g. bales, sheet, horizontal or vertical rolls, waxed coated or processed.*
- (ix) Textiles raw and finished, eg, rolled cloth, clothing and Manchester*
- (x) Timber storage including sheets, planks, boards, joists and cut sizes.*
- (xi) Vinyl, plastic, foamed plastic, rubber and other combustible sheets, offcuts and random pieces and rolled material storage, eg, carpet, tar paper, linoleum, wood veneer and foam mattresses.*
- (xii) All materials having wrappings or preformed containers of foamed plastics.*

5.2. Fire Hydrants

The proposal includes for the installation of two (2) new hydrant stand points which will cover the new buildings as shown on the architectural plans A02 – Part Site Plan

The hydrants will be installed in Accordance with Australian Standards and appropriate flow tests will be conducted to ensure appropriate water pressure and volume is provided as required.

Proposed New Hydrant stand point locations circled in Red below. Refer architectural plans sheet A02 – Part Site Plan



6. Section F Health and Amenity

[F1.1] Stormwater Drainage – Must comply with AS 3500.3

Design of the storm water system is to be carried by the hydraulic engineer in accordance with AS 3500.3

[F1.5] Roof Covering – Must comply with for metal roofing AS 1562.1

[F2.3] Facilities in Class 3 to 9 buildings

Sanitary facilities must be provided for Class 5 and Class 8 buildings in accordance with Table F2.3

Summary:

Class 5 offices – Male employees	- Closet pan	1 - 20 = 1
	- Urinals	1 – 10 = 0
	- Washbasins	1 – 30 = 1
Class 8 – Male employees -	- Closet pan	1 - 20 = 1
	- Urinals	1 – 10 = 0
	- Washbasins	1 – 20 = 1
Class 5 offices – female employees	- Closet pan	1 - 15 = 1
	- Washbasins	1 – 30 = 1
Class 8 – Female employees	- Closet pan	1 - 20 = 1
	- Washbasins	1 – 20 = 1

The sanitary facilities have been provided and accessible by all employees in the proposed Office building.

[F2.4] – Accessible Sanitary facilities – All buildings are to comply with this part and Australian Standards AS 1428.1- 2009 Design for Access and Mobility Part 1- General Requirements and AS 1428.2 1992 (R2015) Part 2 – Enhanced and additional requirements – buildings and Facilities.

[F4.4] Artificial Lighting – is to be provided in Class 5 and Class 8 buildings - To all rooms that are frequently occupied all spaces required to be accessible; all corridors, lobbies, internal stairways and other circulation spaces and paths of egress.

The artificial lighting system must comply with AS 1680

[F4.5] Ventilation of rooms – required in, Factory and Offices must have

- a) Natural Ventilation complying with F4.6 – Natural ventilation – Must consist of permanent openings, windows, doors or other devices which can be opened – with an aggregate openable size not less than 5% of the floor area of the room required to be ventilated and open to the sky; or
- b) A mechanical ventilation system or air-conditioning system complying with AS 1668.2 and AS 3666.1

7. Section J – Energy Efficiency

Part	Identification	Comments
J0	Energy Efficiency	Assessment is required for building Class 8 Assessment is required for Offices building Class 5
J1	Building Fabric	Not applicable to the building Class 8 Assessment is required for Offices building Class 5
J2	Glazing	Not applicable to the building Class 8 Assessment is required for Offices building Class 5
J3	Building Sealing	Not applicable to the building Class 8 Assessment is required for Offices building Class 5
J4	Air Movement	Not applicable
J5	Air Conditioning & Ventilation Systems	Not applicable to the building Class 8 Assessment is required for Offices building Class 5
J6	Artificial Lighting & Power	Assessment is required for building Class 8 Assessment is required for Offices building Class 5

J7	Swimming Pool and Spa Pool Plant	Not applicable to the building Class 8 Not Applicable for Offices building Class 5
J8	Facilities for Energy Monitoring	Assessment required