BETTERGROW WETHERILL PARK

Modification of the Bettergrow Resource Recovery and Recycling Facility

Response to Submissions

SSD 7401 – MOD1

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Bettergrow Wetherill Park
2
17 December 2020

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Prepared by:

RPS Australia East Pty Ltd

Shaun Smith
Principal Environmental Planner

Unit 2A, 45 Fitzroy Street
Carrington NSW 2294

T +61 2 4940 4200
E shaun.smith@rpsgroup.com.au

Prepared for:

BETTERGROW PTY LTD

Neil Schembri
Managing Director

PO Box 945
Vineyard NSW 2756

T +61 2 4587 7852
E neil@bettergrow.com.au

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1 INTRODUCTION

The following document has been prepared to address submissions received for SSD 7401 – MOD1 as a result of the exhibition period between 29 September 2020 to 13 October 2020 inclusive.

1.1 Background

Bettergrow Pty Ltd (the Applicant) is proposing to modify an existing approved Resource Recovery and Recycling Facility at 24 Davis Road Wetherill Park, NSW.

On 22 December 2017, Bettergrow received State Significant Development approval (SSD 7401) for the subject Resource Recovery and Recycling Facility on Lot 18 DP249417. The development was approved to accept and recycle up to 160,000 tonnes per annum (tpa) of garden organics, mixed food and garden organics, and hydro-excavated drill muds, and receive up to 40,000tpa of bulk landscape materials for on sale. To date, development of the site has not occurred, however Bettergrow are preparing to commence the development of the site in late 2020.

Since consent was issued in late 2017, market factors have changed and so too has the demand for the recycling of various waste streams. In order to meet this demand and changing needs of the market, Bettergrow is proposing to make modifications to the development that will provide for increased recycling capacity, the ability to process a broader range of waste streams, and also reduce the impacts to environmental amenity.

The proposed modification seeks to to increase the processing capacity of the recycling and resource recovery facility from 160,000 tpa up to 350,000tpa, install a large partly enclosed shed over the existing drill mud processing area and bulk landscape area, and include additional waste streams for processing.

The proposed new limits for each waste stream and the proposed wastes to be received include:

- 100,000 tonnes per year of hydro-excavation drilling muds and fluids for storage, separation and consolidation (**being a 40,000tpa increase above currently approved levels**)
- 150,000 tonnes per year of General Solid Waste, including VENM, ENM, soils, gravels, aggregates, street sweepings, clean timber, asphalt waste, cured concrete, rail ballast, and C&D waste (**this is a new waste stream for processing**)
- 70,000 tonnes of Garden Organics (GO) and Mixed Food and Garden Organics (FOGO) (**no change to approved levels**)
- 30,000 tonnes of Food Organics (**no change to approved levels**).

The above processing limits would be in addition to the existing approval for up to 40,000 tpa landscaping material supplies to be stored (but not processed) at the site and sold.

The existing approved development is also proposed to be modified to allow for the construction of additional shedding which would provide all-weather processing and the covering of plant and equipment. This would have benefits for onsite water and noise management. Below are the proposed buildings and infrastructure under the modified development:

- A main administration building, office, and car park
- Drill mud processing plant and equipment, including 4 x hydro-tips and 4 corresponding weighbridges, and 1 x tip-pit
- 1 x additional weighbridge within the proposed shelter for weighing-off trucks as they exit
- Partially enclosed shed over the drill mud processing plant and equipment, including truck unloading area
- Screening walls
- Biorention basin for onsite stormwater retention and treatment
- Rainwater/raw water storage tanks

- Internal roadways and hardstand areas
- Bulk landscape material storage bays within shed
- Food de-packaging building (no change)
- Garden and food organics sorting building (no change)
- Garden and food organics office (no change).

1.2 Document Purpose and Structure

This **Response to Submissions** report has been prepared by RPS Australia East Pty Ltd on behalf of Bettergrow Pty Ltd to address submissions received following the public exhibition of the Statement of Environmental Effects for SSD 7401 – MOD1. This report has been structured as follows:

- **Section 1** - Project background information and report structure
- **Section 2** – Summary of Submissions Received
- **Section 3** - Response to Submissions Requesting Further Information
- **Section 4** - Conclusions
- **Section 5** - References

2 SUMMARY OF SUBMISSIONS RECEIVED

The submissions received in relation to the proposed development are summarised below in **Table 1**. Full details of the submissions and can be viewed on the Department of Planning, Industry, and Environment's (DPIE) website at https://www.planningportal.nsw.gov.au/major-projects/project/36996 or attached as **Appendix A** to this report.

Table 1 Summary of Received Submissions

Submission Source	Objection / Comments
Public Authorities	
Department of Planning, Industry, and Environment	Comments to be addressed
Crown Lands NSW	No further comments to be addressed
Water NSW	No further comments to be addressed
NSW Fire and Rescue	No further comments to be addressed
Environment Protection Authority	Comments to be addressed
Transport for NSW	No further comments to be addressed
DPIE – Water	No further comments to be addressed
Fairfield City Council	Comments to be addressed
Organisations	
Universal Mobile Tower Hire - Wetherill Park, NSW	Objects
Public	
Anonymous – St Clair, NSW	Concerns regarding air quality
Christine Shaw – South Penrith, NSW	Invalid objection. Wrong Project.

In total, 11 responses were received for the modified development, including an RTS request from DPIE. The breakdown includes 3 submissions requesting further information from public authorities, 1 objection from a neighbouring business, 1 objection from an anonymous member of the public in a neighbouring suburb, and 1 objection regarding a Cleanway Project that is unrelated to the subject application. Five (5) State government agencies also responded with 'no further comments'.

Only submissions requiring a response will be discussed further in this document. Refer to **Section 3** below for further details.

3 SUBMISSIONS REQUESTING FURTHER INFORMATION

Submissions were received from 8 government agencies following the public exhibition of the Project modification, with 3 of these agencies requesting further information. The issues raised by these 3 agencies are detailed below in ***bold italic*** text, followed by the response from the proponent in normal text.

3.1 Department of Planning, Industry, and Environment

The submission received from the DPIE requested additional information on a number of matters in relation to the operation of the expanded development. The issues and responses are provided below.

1. Air Quality

To address air quality comments from DPIE, Advanced Environmental Dynamics (AED) have prepared an addendum report. This report is attached as **Appendix B** and summary responses are provided below.

Comment

The Dust Assessment appears to compare the development in isolation against the air quality assessment criteria. Further detail on the potential cumulative dust impacts at industrial receivers is required. The background data showed the maximum 24-hour average concentration of PM10 during 2013 and 2015 exceeded the goal of 50 µg/m3. Provide details on the dust mitigation measures proposed to address any potential cumulative dust concentrations which exceed the assessment criteria.

Proponent Response

Additional modelling for industrial receivers has been undertaken and is provided as Attachment A of **Appendix B** to this RTS report. Results indicate the potential for one additional exceedance at both Industrial Receptor (West) (2015) and Industrial Receptor (East) (2013) over the 5 years of meteorology considered. Note that the results presented correspond to the Project "Peak" Emissions Scenario" (refer to Section 4.1 of Appendix K of the SEE, September 2020).

Dust mitigation measures to manage potential impacts at off-site locations were discussed in AED's Air Quality Impact Assessment prepared as part of the modification Statement of Environmental Effects (Appendix K of the SEE, September 2020). Section 2.3 of that assessment include the following mitigation measures:

- Ceasing activities that are producing dust to the extent that visible dust is seen to be passing the site boundary;
- Use of fogging unit or sprinkling units located around the landscaping bunds;
- Driveways and haulage paths must be regularly swept;
- All incoming and outgoing loads of bulk landscaping materials must be effectively tarped; and
- If required bulk landscaping supplies must be wetted so as to minimise the release of dust at the time of unloading or loading.

Comment

The vehicle movements used in the predicted dust generation (Table 5 of the Dust Assessment) differ from the vehicle movements predicted in the Traffic Impact Assessment.

Proponent Response

The traffic data presented in the Dust Assessment within the modification SEE is a subset of that used in the Traffic Impact Assessment. The dust assessment focused on dust generation associated with material handling as not all waste streams are considered to be associated with the generation of dust (ie. drill mud waste is not dust generating as it is wet). The Traffic Impact Assessment has considered all vehicle movements related to all activities.

2. Waste Management

Comment

The SEE provides a process description for the drill mud processing plant and equipment. However, the SEE does not provide this level of detail for the receipt and processing of general solid waste. Provide a detailed process description, including flow diagrams where applicable, for all new waste streams introduced as part of the modification application.

Proponent Response

All waste streams proposed to be accepted as part of this modified development will be processed through the CD Enviro plant and equipment, therefore the process is the same as that already provided in the process diagram within the modification SEE (refer Figure 11 of the SEE).

Further detail on the operation of the CD Enviro processing equipment is provided below.

CD Enviro Process and Capabilities

All of the waste materials proposed to be accepted as part of this application are able to be processed through the CD Enviro equipment. The flow diagram provided with the modification SEE (Figure 11) is relevant for all wastes to be received. The CD Enviro equipment allows the processing of both wet and dry materials. There are 4 screens to accept the wet materials and 1 screen that can accept dry materials. Prior to the processing of materials, loads are inspected both onboard and as the wastes are tipped to ensure that no unsuitable waste is received.

All materials go through the CD Enviro system in the same way. The system removes oversize material, trash and organics, and metals. All other particles are scrubbed and washed before being separated into various sizes. Sand, 5-20mm, 20-40mm, and 40-80mm

Liquids are then sent to the liquid processing component of the plant. At this stage liquids still contain fine material that are not removed in the above processes.

The liquids are treated with polymer and coagulant and put through a clarifier and centrifuge. This removes the majority of the remaining particles. This generally produces of a clay like material.

The clean water is then recycled back through the system to assist with washing out trucks and cleaning more incoming material. If there is a water excess, it will be discharged to sewer under a trade waste licence with Sydney Water.

3. Fire and Incident Management

Comment

The SEE does not provide technical information on the environmental protection equipment to be installed on the premises (e.g. air, water and noise controls, spill clean-up equipment and fire management). Please demonstrate how the proposal is consistent with the NSW Fire and Rescue's document Fire Safety Guideline: Fire Safety in Waste Facilities (2020), including minimising fire spread and facilitating emergency vehicle access.

Proponent Response

Affinity Fire Engineering and Blackett Maguire Goldsmith were engaged to address the Fire and Incident Management aspects of this RTS. Information relevant to this response is provided as **Appendix D** and includes a Fire Engineering statement, BCA Assessment, and a Fire Engineering Brief Questionnaire.

4. Truck Manoeuvring and Queuing

Additional information has been prepared by Pavey Consulting Services and is summarised below. A full copy of the information prepared is also attached as **Appendix C**.

Comment

During the assessment of the original development, the Applicant indicated the weighbridge operations are capable of handling 30 heavy vehicles per hour under the approved development. Further information is requested which demonstrates the additional processing capacity will not result in heavy vehicles queuing on Davis Road (e.g. a truck queuing analysis, details of how peak traffic volumes are managed, etc.).

Proponent Response

The current proposal includes 5 weighbridges all situated within the building(s) and at a considerable distance from the entrance to the site. It is envisaged that each weighbridge will have a capacity of approximately 12 vehicles per hour as a minimum depending on the type of vehicles and their load. This means that the minimum hourly processing rate would be in the order of 60 vehicles per hour. In addition, many of the trucks accessing the site, and all the loaders, will have onboard weighing systems or load cells which minimises the need to access the weighbridges.

As detail in the Traffic Impact Statement, the anticipated hourly vehicle movements, at its peak, is in the order of 44 movements (22 in and 22 out). As this is less than the anticipated capacity of the combined weighbridges it is highly unlikely that any vehicles will queue onto David Road.

Comment

The development as approved includes separate accesses for light vehicles and heavy vehicles. Provide clarification on whether the site access arrangements would change as part of the modification application.

Proponent Response

Due to the relocation of the weighbridges into the site (as compared to the approved development) a combined light and heavy vehicle access is now required. Many of the light vehicles will be employee vehicles, and it is anticipated that they will generally arrive and depart outside of heavy vehicle access times. In addition, a separate entrance is available for service and emergency vehicles and it is considered that the combination of these two will meet the needs of the site.

Comment

During the assessment of the original development, the Applicant confirmed the site could accommodate onsite parking for 20 heavy vehicles. Provide further information on parking requirements and whether the amended site plan can still accommodate parking for 20 heavy vehicles.

Proponent Response

With the combination of the 5 weighbridges, and other onboard weighing systems, it is considered that the need for onsite parking will be minimised. The information provide with the original modified application is still applicable, and states:

- There is the capacity to have up to 20 trucks temporarily onsite at any one time. This would never be the case however this shows the ability to have a variety of trucks on the site temporarily parked while wait to enter a shed, be loaded, unloaded, inspected, washed down, weighed, and then exit the facility.
- In order to manage the movement and stacking of trucks within the site during the peak periods the following mitigation measures are to be applied:
  - Delineation of two-way traffic flows through the provision of direction arrows on the internal roadway
  - Delineation on the access driveway would be provided in accordance with RMS' Delineation Guidelines Section 4 – Longitudinal Markings and Section 10 – Pavement Arrows
  - Traffic control will be provided onsite and would be coordinated by the individual process area supervisors and weighbridge operator, with direct 2-way radio contact with the truck drivers. As such all trucks will be required to have a 2-way radio programmed with a dedicated site channel

- All process area supervisors will be required to carry portable 2-way radios to allow for constant contact with truck drivers
- The Site Manager and the process area supervisors will be responsible for overseeing the general driver behaviour, including any drivers disobeying internal traffic signage and road markings
- Use of swipe tags at the weighbridges for incoming and outgoing loads to reduce the amount of time trucks are held onsite
- Within the site, hold lines will be established where trucks can temporarily wait to enter the relevant process area
- Management of vehicles within the hold lines would be overseen by the process area supervisors.

5. Construction

Comment

Describe any changes to the anticipated construction staging and timing.

Proponent Response

A staging plan was provided as part of the modification SEE (refer Figures 9 and 10 of the SEE). A previous staging plan for the existing approved development was provided as part of the CEMP for the Project. For completeness, both the existing approved staging plan and the staging plan for the modified development are provided as **Appendix E** to this report.

Construction of Stage 1 (as per the provided plan in **Appendix E**) is proposed to take 6 months and would likely occur between February and July 2021.

Comment

The dust and air quality impacts have not been considered for construction works associated with the modification application. Similarly, clarification is sought on whether there would be additional construction traffic associated with the modification. It is noted the modification application involves the construction of a new partially enclosed shed.

Proponent Response

The major change to the development is the construction of a partially enclosed metal shed. The modified construction phase of the project is not expected to be associated with the generation of any additional dust impacts due to the fact that the shed is of steel construction and the majority of the pavement surfaces within the site are sealed.

With regard to construction traffic and construction of the partially enclose metal shed, there is not anticipated to be any significant increase in traffic between the existing approved development and the modified application. The traffic impact assessment and the revised truck movements were reviewed as part of this modification.

6. Flooding

Comment

Clarify whether any structures are below the 1 in 100 flood level, include the onsite detention basin on the south-west corner of the site.

Proponent Response

A Flood Information Sheet has been provided by Fairfield City Council for this site. This provided the flood level information of 1:100 Year Flood Level ranges between 36.9 - 36.4 m AHD.

The extent of the above 1:100 year flood level has been plotted on the proposed site plan below (**Figure 1**)

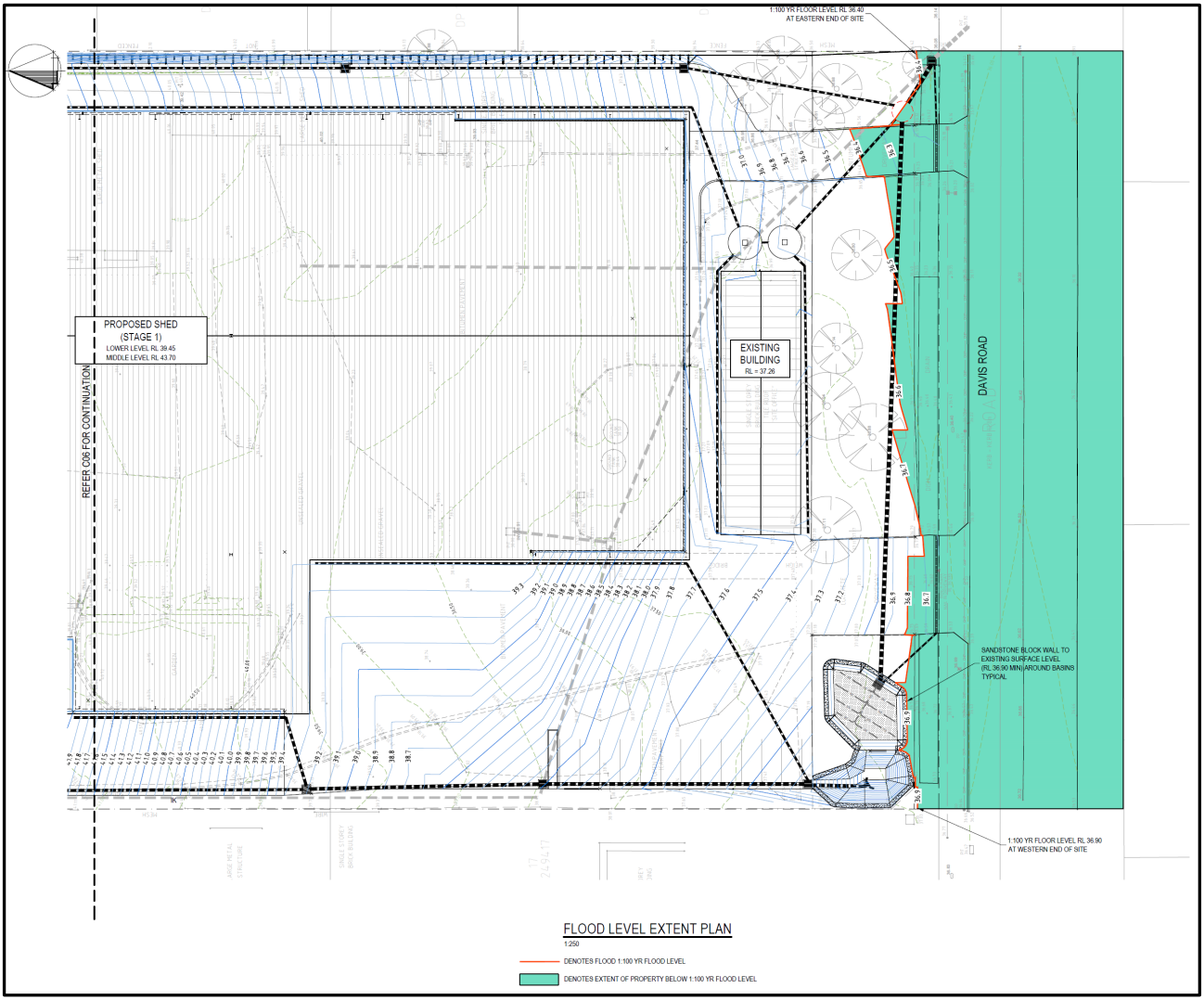


Figure 1 1:100 Flood Level (Green Shading)

As can be seen from Figure 1, the 1:100 Year flooding extent does not encroach on any of the existing or proposed building or within the proposed on-site detention basin or the bioretention basin.

3.2 Fairfield City Council

The submission received from Fairfield City Council has requested further information on traffic generation and on-site manoeuvring. The issues and responses are provided below.

Traffic Generation

Additional information has been prepared by Pavey Consulting Services and is summarised below. A full copy of the information prepared is also attached as **Appendix C**.

Comment

The Traffic Impact Assessment Report indicates that 10-11 trucks will be using the site during the PM peak hour during a 1 hour period. The proponent shall confirm whether sufficient loading area/ bays are provided on-site to accommodate the peak loading demand without impacting the traffic flow on site.

Proponent Response

Refer to above - **4. Truck Manoeuvring and Queuing** - which provides detail of site operation and the ability of the site to management anticipated numbers of vehicles in the peak hour (externally to the site) and

internally. The current layout and proposed weighbridges will accommodate loading and unloading without impacting the traffic flow within the site or along Davis Road.

Onsite Manoeuvring

Additional information has been prepared by Pavey Consulting Services and is summarised below. A full copy of the information prepared is also attached as **Appendix C**.

Comment

The submitted turning path diagram illustrates heavy vehicles manoeuvring within the site are impacted by trucks parking within the site and concrete slab structure for mud processing area. Clarification is sought as to how truck movement will not impact on the mud processing area.

Proponent Response

Refer to Pavey Consulting Services drawings SK2021-006-001, 002 and 003 revision 0 dated 1.9.2020 provided in Appendix C of the Traffic Impact Assessment. These internal vehicle movement plans provide details for a range of vehicles. These movement diagrams indicate that all vehicles can manoeuvre within the site without impacting buildings, plant, retaining walls, or other vehicles.

Comment

It is noted that the swept path diagram demonstrates two-way traffic movement for 19m trucks can be accommodated near the entry/exit driveway. The proposed driveway shall be in accordance with AS 2890.2:2018 and turning path analysis.

Proponent Response

The applicant confirms that all driveways will be built in accordance with AS2890.2.2018 and that a suitable splay on the left turn outside will be included in accordance with Council Guidelines and the above-mentioned diagrams.

3.3 Environment Protection Authority

The submission received from the Environment Protection Authority requested further information on the air quality impact assessment, consent conditions to be modified, and waste product re-use. The detail on each issue and responses are provided below.

Industrial and Commercial Receptors

Comment

The EPA recommends the AQIA is revised to include:

- ***The industrial and commercial receptors in the complete assessment of air quality impacts.***
- ***The background meteorological data be correlated against a longer duration database of at least five years and that the data adequately describes the expected meteorological pattern be established, the background air quality data should be contemporaneous to the meteorological determined to be most representative.***
- ***Contour plots are presented that are clear to read and evaluate the impacts from.***

Proponent Response

Results provided in the AQIA as part of the modification SEE were based on model outputs at the site boundary and were presented as a conservative estimate of worst-case impacts at neighbouring industrial receptor locations.

As requested, additional modelling for industrial receivers has been undertaken and is provided in Attachment A of **Appendix B** to this RTS report. Results indicate the potential for one additional exceedance at both Industrial Receptor (West) (2015) and Industrial Receptor (East) (2013) over the 5 years of

meteorology considered. Note that the results presented correspond to the Project "Peak" Emissions Scenario" (refer to Section 4.1 of Appendix K of the SEE, September 2020).

Five (5) years of meteorological data (i.e. 2013 through 2017) has now been modelled as part of this RTS response and the results are presented in Attachment A and Attachment B of **Appendix B** to this RTS report. Ambient air monitoring data corresponding to these 5 years has been considered and results included in Attachment A of **Appendix B**.

Revised contour plots are also provided in Attachment B of **Appendix B** to this RTS report.

Identification of Conditions to be Modified

Comment

The EPA notes that a complete list of all the development consent (SSD 7401) conditions that require modifying was not provided with the SEE as required by the SEARs. In order for the EPA to properly assess SSD-7401-Mod-1 its recommended that a complete list of all conditions that require modifying as a result of the proposed modification to the resource recovery facility be provided for review prior to determination.

Proponent Response

Proposed DRAFT conditions for SSD 7401-MOD 1 are provided as **Appendix F**.

Lawful Use for Finished Products

Comment

The EPA notes that not all processed waste products identified in the SEE currently have an approved lawful beneficial reuse in accordance with a resource recovery order and exception. The proponent must ensure that there is a lawful reuse pathway for processed waste finished products prior to sale of these products.

Proponent Response

Provided below are revised tables for the proposed **Wastes and Raw Materials** (**Table 2**) and proposed **Finished Products** (**Table 3**). These tables are provided as updated versions of Tables 6 and 7, respectively, from the modification SEE.

Table 2 Wastes and Raw Materials

Received Wastes and Raw Materials	Waste Classification	
Soils (ENM and VENM)	General Solid Waste (non-putrescible)	
Clay/Sands/Stone/Gravels/Aggregates (VENM)	General Solid Waste (non-putrescible)	
Drilling mud and/or muddy waters from hydro excavation, drilling and pot holing operations	Liquid Waste	
Garden Mixes/Top Dressings/Mulches	General Solid Waste (non-putrescible)	
Garden Organics	General Solid Waste (non-putrescible)	
Food and Garden Organics	General Solid Waste (putrescible)	
Solid Food Waste	General Solid Waste (putrescible)	
Liquid Food Waste	Liquid Waste	
Sawdust	General Solid Waste (non-putrescible)	
Spent filter sand media	General Solid Waste (non-putrescible)	
Street Sweepings	General Solid Waste (non-putrescible)	
Stormwater Waste	Liquid Waste	
Wood Waste	General Solid Waste (non-putrescible)	
Asphalt Waste (including asphalt resulting from road construction)	General Solid Waste (non-putrescible)	
Building and demolition waste	General Solid Waste (non-putrescible)	
Rail Ballast	General Solid Waste (non-putrescible)	
Concrete washout from concrete batch plants	Liquid Waste	
Residual batch concrete from agitator trucks	Liquid Waste	
General or Specific exempted waste	Basalt fines, Excavated public road material, Reclaimed asphalt pavement, Foundry sand, Recovered aggregate, Recovered fines (continuous) & Recovered fines (batch)	
Soils	Soil that meets the General Solid Waste Classification (assessed against the CT1 thresholds, Table 1) of the Waste Classification Guidelines as in force from time to time with exception of the maximum threshold values for contaminants specified in the “Other Limits” column	Arsenic:40mg/kg; Cadmium: 2mg/kg Copper: 200mg/kg; Mercury: 1.5mg/kg; Zinc: 600mg/kg; Total Petrol Hydrocarbons C6 to C9: 150mg/kg; Total Petroleum Hydrocarbons: 1,600mg/kg; Polycyclic Aromatic Hydrocarbons: 80mg/kg; Polychlorinated Biphenyls (individual): 1mg/kg. No acid sulfate soil or potential acid sulfate soil is to be received at the premises. See conditions L2.2 and L2.3

Table 3 Finished Products

Received Wastes and Raw Materials	Processing or End Use	Finished Products
Soils (ENM and VENM)	Sold as raw product	Finished Products include Mine Mix, Naturaliser, BioNRich, Earth4Turf
Clay/Sands/Stone/Gravels/Aggregates (VENM)	Sale to end user	Clay/Sands/Stone/Gravels/Aggregates
Drilling mud and/or muddy waters from hydro excavation, drilling and pot holing operations	Screening and Processing through CD Enviro System	Engineering material as per the EPA exemption
		Liquid fraction either to sewer, to composting facility, or to another licenced facility for further processing/re-use
Garden Mixes/Top Dressings/Mulches	Sale to end user	Garden Mixes/Top Dressings/Mulches
Garden Organics	Decontamination & shredding	Material transferred to EPA licenced composting sites for the production of a range of growing media suitable for domestic and agricultural use
Food and Garden Organics		
Solid Food Waste	De-packaging and decontamination	Material transferred to EPA licenced composting sites for the production of a range of growing media suitable for domestic and agricultural use
Liquid Food Waste		Liquid fraction applied to processed FOGO, composting, or sent to another licenced facility for further re-use
Sawdust	Sale to end user	Sawdust
Spent filter sand media	Sold as raw product	Component of Mine Mix, Naturaliser, BioNRich, Earth4Turf
Street Sweepings	Screening and Processing through CD Enviro System	Washed aggregate, organics transferred to EPA licenced composting site
Stormwater Waste	Screening and Processing through CD Enviro System	Washed aggregate, organics transferred to EPA licenced composting site
Wood Waste	Decontamination & shredding	Screened and re-used in particle board manufacture, unsuitable wood sent to an EPA licenced facility
Asphalt Waste (including asphalt resulting from road construction)	Screening and Processing through CD Enviro System	Washed aggregate for re use in recycled products
Building and demolition waste	Screening and Processing through CD Enviro System	Washed aggregate for re use in recycled products
GSW CT1	Screening and Processing through CD Enviro System	Washed aggregate for re use in recycled/stabilised products
Concrete washout from concrete batch plants	Screening and Processing through CD Enviro System	Washed aggregate for re use in recycled/stabilised products
Residual batch concrete from agitator trucks	Screening and Processing through CD Enviro System	Washed aggregate for re use in recycled/stabilised products
General or Specific exempted waste	Screening and Processing through CD Enviro System	Recover resources for use in construction markets and to seek specific exemptions for future projects
Rail Ballast	Screening and Processing through CD Enviro System	Washed aggregate for re use in recycled products

Further to the above tables, below is an overview of the materials that can be accepted by the proposed processing plant at the site and a lawful end use for the products.

- VENM

Process through the system to recover resources for use on approved sites for remediation/earthworks.

- ENM

For use on approved sites for remediation/earthworks. If deemed appropriate by the EPA Bettergrow would also like to explore the potential to place the material through the CD Enviro wash system and recover resources. Test as per EPA requirements would be undertaken to ensure lawful use of all final products.

- Clay

Process through system to recover resources. Use on approved sites for remediation/earthworks

- Sand

Washed through the system and use in RMS specification products, garden products, and construction products.

- Stone

Washed through the system for use in RMS specification products, earthworks, and construction markets.

- Gravel

Washed through the system for use in RMS specification products, earthworks, and construction markets.

- Aggregates

Washed through the system for use in RMS specification products, earthworks, and construction markets.

- Drilling mud and/or muddy waters from hydro excavation, drilling and pot holing operations

Washed through the system and used as per EPA exemptions.

- Spent filter sand media

Washed through the system to recover resources for re-use.

- Street sweepings

Washed through the system to recover resources for re-use. A minor fraction of trash and organics is generated that will be sent to landfill.

- Stormwater waste

Washed through the system and recover resources for re-use. A minor fraction of trash and organics is generated that will be sent to landfill.

- Asphalt waste

Recover resources for re-use in construction projects.

- C&D building and demolition waste (aggregates and concrete only)

Wash through the system to recover resources.

- Rail ballast

For washing and re-use.

- Concrete washout from concrete batch plant

Wash through the system to recover aggregates and other resources for re-use in construction projects.

- Residual batch concrete from agitator trucks

Wash through the system to recover aggregates and other resources for re-use in construction projects.

- Soils

That meet the General Solid Waste Classification (assessed against the CT1 thresholds, Table 1) of the Waste Classification Guidelines as in force from time to time with exception of the maximum threshold values for contaminants specified in the “Other Limits” column

Other limits

Arsenic: 40mg/kg; Cadmium: 2mg/kg Copper: 200mg/kg; Mercury: 1.5mg/kg; Zinc: 600mg/kg; Total Petrol Hydrocarbons C6 to C9: 150mg/kg; Total Petroleum Hydrocarbons: 1,600mg/kg; Polycyclic Aromatic Hydrocarbons: 80mg/kg; Polychlorinated Biphenyls (individual): 1mg/kg. No acid sulfate soil or potential acid sulfate soil is to be received at the premises. See conditions L2.2 and L2.3.

- General or specific exempted material

The CD Enviro equipment can also handle the majority of the general or specific exempted materials. This includes:

  - Basalt fines
  - ENM
  - Excavated public road material
  - Reclaimed asphalt pavement
  - Foundry sand
  - Recovered aggregate
  - Recovered fines (continuous)
  - Recovered fines (batch)

All of the above materials, and more, can be processed through the CD Enviro system to create washed products for re-use. It is proposed to test all end products to ensure there are no contamination issues as per EPA exemptions. Any products that don’t comply will be disposed of lawfully.

Bettergrow would also like to explore the possibility of creating stabilised sand and no-fines concrete as a sustainable alternatives to virgin materials.

If there aren’t any general exemptions/orders, Bettergrow will follow the protocols required to acquire specific exemptions.

4 OBJECTIONS

4.1 Organisation

Universal Mobile Tower Hire – Wetherill Park, NSW

Comment

The subject organisation objects to the application due to their concerns regarding impacts on:

1. ***Traffic levels on Davis Road***
2. ***Air Quality - Ancillary noise associated with air quality***
3. ***The contribution this application makes to a location with a number of similar waste industry proposals concentrated around Davis Road and the effect on amenity of the area on smaller business and those that work in open air***
4. ***A lack of community consultation.***

Proponent Response

The following responses are provided in relation to the above comments:

1. ***Traffic levels on Davis Road***

Project SEARs issued by DPIE for the modified project requested the preparation of a Traffic Impact Assessment. The report has assessed the existing road traffic, the traffic generation from the modified development, intersection performance, and road network capacity.

The assessment concluded the following:

- The on-site parking provisions are adequate to accommodate for projected demand given the likely number of employees and visitors on-site at any one time provided by the applicant
- The proposed site access arrangements provide for the safe and efficient conditions with which to access and vacate the site
- The internal circulation arrangements are projected to provide for safe and efficient internal movements and are capable of accommodating the peak operation demands of the use, wholly within the site
- The surrounding road network in particular the junction of Elizabeth Street/Davis Road and the intersection of Victoria Street/Elizabeth Street operates with a satisfactory level of service during peak and non-peak periods (including weekends)
- The proposed use is projected to generate up to 44 peak hour trips (comprising both passenger and heavy vehicles) to and from the site corresponding to peak commuter periods
- The surrounding road network is capable of accommodating the vehicular traffic generated by the proposal at all times.

The Traffic Impact Assessment has been reviewed by DPIE, Transport for NSW (TfNSW), and Fairfield City Council (FCC). No comments were received from TfNSW, and only minor comments were received from DPIE and FCC. The comments from DPIE and FCC have been addressed as part of this RTS.

Both the Traffic Impact Assessment and the addendum report prepared as part of this RTS have determined that there are no traffic engineering related matters that would preclude approval of the proposed modified development.

2. *Air Quality - Ancillary noise associated with air quality*

Project SEARs issued by DPIE for the modified project requested the preparation of an Air Quality Impact Assessment. The SEARs did not request the consideration of dust impacts on the adjacent powerlines nor any resulting noise produced from the powerlines.

The Air Quality Impact Assessment prepared for the modified development determined that no exceedances of the project goals for the annual average concentration of PM_{10} or TSP are predicted to occur as a result of cumulative impacts of dust from the development combined with background levels of dust as measured at the Prospect monitoring station. It is estimated that the development will contribute less than 0.1 $\mu g/m^3$ to the annual average concentration of PM_{10} and less than 0.1 $\mu g/m^3$ to the annual average concentration of TSP.

As part of the RTS, DPIE and the EPA requested additional modelling be undertaken utilising a 5 year set of meteorological data and that cumulative impacts at industrial receptors be modelled.

Additional modelling for industrial receivers has been undertaken and is provided in Attachment A of **Appendix B** to this RTS report. Results indicate the potential for one additional exceedance at both Industrial Receptor (West) (2015) and Industrial Receptor (East) (2013) over the 5 years of meteorology considered. Note that the results presented correspond to the Project "Peak" Emissions Scenario (refer to Section 4.1 of Appendix K of the SEE, September 2020).

Five (5) years of meteorological data (i.e. 2013 through 2017) has now been modelled as part of this RTS response and the results are presented in Attachment A and Attachment B of **Appendix B** to this RTS report. Ambient air monitoring data corresponding to these 5 years has been considered and results included in Attachment A of **Appendix B**.

Revised contour plots are also provided in Attachment B of **Appendix B** to this RTS report.

Air quality results from both modelling runs show that there will be no significant impacts from the modified development. Similarly, Noise Impact Assessment results show that the proposed site is considered a good location for an operation of this nature and compliance with development consent limits is predicted for all activities.

3. *The contribution this application makes to a location with a number of similar waste industry proposals concentrated around Davis Road and the effect on amenity of the area on smaller business and those that work in open air*

The proposed development has been shown to be consistent with the relevant local, State and Commonwealth government planning instruments. A range of environmental issues were identified and assessed with appropriate mitigation and management measures proposed to be carried through to the construction and operational phases.

Cumulative impacts of the development with other waste operations in the vicinity of the site have been considered in technical studies undertaken as part of the original EIS in 2017, particularly in relation to odour, traffic and noise.

The mitigation measures proposed for each impact assessed in the original EIS have been designed to ameliorate potential impacts associated with the development in its own right as well as minimising overall cumulative impacts of the development when considered alongside other future developments.

It is considered that these cumulative impacts will not be altered by the proposed modification, accordingly, no additional assessment of cumulative impacts has been undertaken. For completeness, a revised summary of the Potential Cumulative Impacts for those impacts assessed as part of this modification are provided below in **Table 4**.

Table 4 Summary of Potential Cumulative Impacts – MOD 1

Issue	Potential Cumulative Impacts
Dust	Due to the types of wastes and resources intended to be received at the proposed facility, it is unlikely that environmental amenity will be impacted by dust (fine of particulate materials). A quantitative dust assessment against the assessment criteria contained within the *DECC Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* has been prepared. Activities are not anticipated to affect the background concentrations of total suspended particulate by any measurable degree due to the practices and process that will be adopted at the facility. Due to the low potential for the proposed waste facility to generate dust beyond the site boundary, the high moisture content of the majority of wastes being handled, and the level of mitigation measures to be employed across the site, the development will most likely have negligible dust impacts on the surrounding areas. Based on the above, cumulative impacts from the facility would be negligible.
Noise and Vibration	A noise and vibration impact assessment was undertaken against the amenity criteria as set out in the Industrial Noise Policy. The assessment of noise and vibration impacts was based on noise criteria specific to the land use and associated activities. If existing noise levels from industry approach the criterion value, then noise levels from new industries need to be designed so that the cumulative effect does not produce noise levels that would significantly exceed the criterion. The assessment concluded that the development would not be expected to result in any material increase in cumulative industrial noise levels experienced by existing residents. Future development in the local area would be subject to the same assessment process as discussed within the noise assessment, thereby limiting the potential for industrial noise over time.
Traffic and Transport	The development is located within a developed industrial area which would most likely be operating at peak traffic flows. A cumulative assessment has been undertaken to assess the traffic impact on the local road network from the proposed development. A minor deterioration of Av Delay, Degree of Saturation or Level of Service, when development traffic is added to either of the 2021, 2026 in AM and PM simulations, however the overall intersection performance remains at level of Service D or better. Accordingly, no road network upgrades are required to support future development with the industrial precinct, based on the outcomes of the Traffic Impact Assessment.
Visual Amenity	Cumulative visual impacts are limited given the industrial nature of the immediate surrounding area, the distance to residential areas, and the existence of relevant planning controls.
Surface Water and Flooding	The waste facility is not anticipated to impact negatively on the surrounding surface water environment, flow regimes, quality, quantity, features, or local or regional hydrology. The proposal has considered suitable containment and treatment practices through the identification of potential pollution risks and has been designed to maximise onsite reuse. The implementation of rainwater harvesting measures at the proposed facility is predicted to reduce the amount of potable water usage by 65%-90% within the individual systems.

	Generated pollutant loads conveyed in stormwater runoff are to be mitigated via the proposed treatment train consisting of rainwater harvesting tanks, a sediment trap, and a proprietary hydrodynamic separator. Adoption of regular monitoring and maintenance practices will ensure the proposed devices within the stormwater management system function as designed. Wastewater leachate generated from received organics will be managed within a closed system, either applied to outgoing product or trucked from site for re-use or disposal at licenced facilities. A qualitative flood impact assessment has been undertaken which indicates that structures located within the PMF extent are expected to have a negligible impact on the flood behaviour. In terms of cumulative impacts, any future development in the Wetherill Park area with the potential to impact on the Prospect Creek catchment should implement similar surface water controls during construction and operation.
Biodiversity	The subject site is a highly modified area of land with small elements of the natural environment and original native vegetation remaining. A patch of native vegetation at the front of the site conforms to the description of Cumberland Plain Woodland, a critically endangered ecological community. The proposed development will impact a small amount (240m^2 approx.) of native vegetation in the form of mature canopy trees with no potential fauna habitat, to accommodate stormwater treatment in the south west corner of site adjacent to the existing main access. No significant fauna habitat features were observed. Therefore, impacts to threatened species and/or habitat, or threatened ecological communities are unlikely to occur. The proposed development is not considered to impact habitat connectivity within the site or surrounding area.
Greenhouse Gas	Australia's annual total emissions for the year to December 2019 were estimated to be 532.4 megatonnes of $CO_{2\text{-}e}$ (DEE, 2020). A comparison of the project emissions with those of the waste sector suggests that the project will contribute an additional 0.022% to this sector and an additional 0.0005% to the annual national total (excluding land use, land use change and forestry). A number of energy efficiency measures will be implemented and will be in accordance with the requirements of the National Code of Construction.

The proposed modified operations will provide enhanced social and economic benefits by increasing the processing capacity for commercial and industrial waste into recycled materials, thereby reducing the amount of waste going to landfill, and increasing availability of recycled products. Utilisation of recycled materials contributes to the conservation of natural resources and is consistent with the principles of ESD.

It was demonstrated throughout the SEE that any minor impacts associated with the proposed modification can be addressed through the implementation of appropriate management and mitigation strategies. Overall, the modified facility in the form proposed has significant environmental, sustainability and public interest benefits that far outweigh any of the residual impacts.

4. A lack of community consultation

Consultation has been ongoing throughout the preparation of the modification application.

On 19 September 2019, an initial meeting was held with assessment officers from DPIE to discuss the proposed modification and to seek feedback on the approval pathway and key environmental concerns. A further meeting was held by phone on 7 May 2020 with DPIE assessment officers to discuss further details of the Project and some further changes to the development. DPIE requested the provision of legal advice on the approval pathway and also that a request for Secretary's Environmental Assessment Requirements (SEARs) was required. A request for SEARs was lodge with DPIE on 17 June 2020 and SEARs were received on 15 July 2020.

A summary of stakeholder engagement activities undertaken is presented in **Table 5**.

Table 5 Stakeholder Engagement

Stakeholder	Details
Department of Planning, Industry and Environment	Preliminary project discussion at DPIE offices
	Provision of correspondence detailing the proposed modification
	Scoping meeting by phone
	Individual telephone conversations
	Lodgement of PEA and request for SEARs
Fairfield City Council	Provision of a Project factsheet
Environment Protection Authority	Provision of a Project factsheet
DPIE Water and NRAR	Provision of a Project factsheet
Transport for NSW	Provision of a Project factsheet
Sydney Water	Provision of a Project factsheet
Fire and Rescue NSW	Provision of a Project factsheet
Adjacent Businesses	Provision of a Project factsheet

Relationships have been established and engagement will continue with key stakeholder's during assessment and determination of the modified development.

Two (2) government agencies acknowledged receipt of the Project factsheet and one (1) surrounding business made contact via email regarding the Project factsheet. No feedback was provided from either the government agencies or the surrounding businesses.

Consultation with surrounding businesses was undertaken by way of a Project factsheet. Factsheets were provided to all businesses on Davis Road. The letterbox drop was undertaken during COVID and as such a lot of businesses were either closed or had their gates lock. Under these circumstances' factsheets were either placed in mailboxes or left at boundary gates as no direct assess was available. Further, COVID restrictions made direct consultation difficult. All factsheets contained contact details where business could request further information by email or phone.

4.2 Public

Anonymous – St Clair, NSW

Comment

This will affect the air quality in my area

Proponent Response

An Air Quality Impact Assessment has been prepared for the subject modification (refer Appendix K of modification SEE).

The key dust emission sources were determined to be associated with the material handling of bulk landscape materials within the partially enclosed shed in the middle section of the site. Results of the dust dispersion modelling for the two scenarios considered have not highlighted any air quality issues beyond the site boundary.

The risk of adverse impacts of dust from the facility will be minimised through the strict adherence to dust management strategies, including:

- Ceasing activities that are producing dust to the extent that visible dust is seen to be passing the site boundary
- Use of sprinkler units located around the landscaping bunds
- Driveways and haulage paths must be regularly swept
- All incoming and outgoing loads of bulk landscaping materials must be effectively tarped

- In adverse weather conditions bulk landscaping supplies must be wetted so as to minimise the release of dust at the time of unloading or loading.

Results of the dust assessment indicate that the mitigation measures and management strategies proposed for the operation of the facility will be sufficient to comply with regulatory requirements for dust.

In addition, further modelling at industrial and commercial receptors has been undertaken for this RTS, including the addition of 5 years of meteorological data (refer to **Appendix B** of this report). Results show ('worst case scenario') that there are no dust impacts beyond boundary with the proposed mitigation measures in place.

As such, dust impacts from this development will not impact on air quality in the St Clair, NSW area.

Christine Shaw – South Penrith, NSW

Comment

I wish to add my name to submissions list against Cleanaway's amended application to build Western Sydney Energy & Resource Recovery centre or as we the residents know it as - Toxic incinerator. Each time Cleanaway, Dial-a-dump or any of the 4 other companies that are trying to force this development onto the residents of Western Sydney come back with amendments the original idea is the same - burning toxic rubbish to make poisonous pollution. There are no benefits to local residents if they die because of toxic fumes being breathed in. Cheap electricity isn't that cheap if you are dead. The idea of a 24/7 operation turning waste into electricity is a dangerous concept if it means killing residents, or worse giving them cancers so they linger in agonising limbo for years. These companies keep trying to get their ideas approved but they don't change the base concept of TOXIC incineration. The evidence from overseas models of this type of incinerator should be enough for any government to block this development, why must residents continually have to fight these companies for their right to live without being poisoned. I live in Penrith, but the pollution from this development will impact my health as all Sydney's pollution gets carried by winds and gets trapped by mountains to hover over Penrith. I refuse to be forced out of my region due to the short-sighted vision of politicians that do not live in this area, therefore will not be poisoned. Politicians that make decisions based on money and not facts are dangerous people to have in leadership.

Proponent Response

This submission relates to a Cleanaway Project – not the Bettergrow Project at Wetherill Park. Therefore, no further discussion has been provided due to this objection not being related to the subject application.

5 CONCLUSIONS

The information provided in this RTS document has been developed to respond to regulator concerns and questions raised in their submissions to the modification SEE. A considerable amount of information provided in this RTS document has been drawn from the modification SEE, while other information has been developed and prepared to address specific concerns raised. Additional information prepared and includes:

- Revised dust modelling
- Additional traffic and truck manoeuvring information and justification
- Additional flooding clarification
- Fire protection and incident management information
- Draft conditions.

Based on the information provided in the modification SEE, and the additional information provided in this report, it has been demonstrated that the proposal will not result in significant impacts to the environment through the implementation of management and mitigation strategies.

The proposal provides enhanced social and economic benefits by increasing the processing capacity for resource recovery, thereby reducing the amount of waste going to landfill, and increasing availability of recycled products. Utilisation of recycled materials contributes to the conservation of natural resources and is consistent with the principles of Ecologically Sustainable Development and Government waste initiatives.

Appendix A – Submissions Received

GOVERNMENT

Mr Neale Hogarth
Operations Director
48 Industry Road
VINEYARD 2765

19 October 2020

Dear Mr Hogarth

Bettergrow Resource Recovery Facility Wetherill Park (SSD-7401-Mod-1)
Response to Submissions

The exhibition of the development application including the Statement of Environmental Effects (SEE) for the above proposal ended on 13 October 2020. All submissions received by the Department during the exhibition of the proposal are available on the Department's website at https://www.planningportal.nsw.gov.au/major-projects/project/36996.

At the time of writing, the Department has not received responses from the Environment, Energy and Science, Sydney Water and the Department's Water Group. Fairfield City Council (Council) and the Environment Protection Authority (EPA) have indicated they will be providing comments on the proposal. The submissions from Council and the EPA, along with any other agency, will be provided upon receipt. Please note the Department will also be providing comments.

The Department requests you provide a response to the issues raised in these submissions (including the additional ones which we will send separately) within two months of the date of the issue of this letter.

If you have any questions, please contact Bianca Thornton, who can be contacted on 02 8217 2040 or at bianca.thornton@planning.nsw.gov.au.

Yours sincerely

Chris Ritchie
Director
Industry Assessments
as delegate for the Planning Secretary

Mr Neale Hogarth
Operations Director
48 Industry Road
VINEYARD 2765

29 October 2020

Dear Mr Hogarth

Bettergrow Resource Recovery Facility Wetherill Park (SSD-7401-Mod-1)
Response to Submissions

I refer to the Department's letter of 19 October 2020, which advised it would be providing comments following the exhibition of the above proposal.

The Department has since received submissions from Fairfield City Council and the Environment Protection Authority. All submissions received by the Department, including these, are available on the Department's website at https://www.planningportal.nsw.gov.au/major-projects/project/36996.

The Department requests you provide a response to the issues raised in the submissions as well as the additional comments included in **Attachment 1**.

If you have any questions, please contact Bianca Thornton, who can be contacted on 02 8217 2040 or at bianca.thornton@planning.nsw.gov.au.

Yours sincerely

Chris Ritchie
Director
Industry Assessments
as delegate for the Planning Secretary

ATTACHMENT 1

1. Air Quality

- The Dust Assessment appears to compare the development in isolation against the air quality assessment criteria. Further detail on the potential cumulative dust impacts at industrial receivers is required. The background data showed the maximum 24-hour average concentration of PM_{10} during 2013 and 2015 exceeded the goal of 50 $\mu g/m^3$. Provide details on the dust mitigation measures proposed to address any potential cumulative dust concentrations which exceed the assessment criteria.
- The vehicle movements used in the predicted dust generation (Table 5 of the Dust Assessment) differ from the vehicle movements predicted in the Traffic Impact Assessment.

2. Waste Management

- The SEE provides a process description for the drill mud processing plant and equipment. However, the SEE does not provide this level of detail for the receipt and processing of general solid waste. Provide a detailed process description, including flow diagrams where applicable, for all new waste streams introduced as part of the modification application.

3. Fire and Incident Management

- The SEE does not provide technical information on the environmental protection equipment to be installed on the premises (e.g. air, water and noise controls, spill clean-up equipment and fire management). Please demonstrate how the proposal is consistent with the NSW Fire and Rescue's document *Fire Safety Guideline: Fire Safety in Waste Facilities* (2020), including minimising fire spread and facilitating emergency vehicle access.

4. Truck Manoeuvring and Queuing

- During the assessment of the original development, the Applicant indicated the weighbridge operations are capable of handling 30 heavy vehicles per hour under the approved development. Further information is requested which demonstrates the additional processing capacity will not result in heavy vehicles queuing on Davis Road (e.g. a truck queuing analysis, details of how peak traffic volumes are managed, etc.).
- The development as approved includes separate accesses for light vehicles and heavy vehicles. Provide clarification on whether the site access arrangements would change as part of the modification application.
- During the assessment of the original development, the Applicant confirmed the site could accommodate on site parking for 20 heavy vehicles. Provide further information on parking requirements and whether the amended site plan can still accommodate parking for 20 heavy vehicles.

5. Construction

- Describe any changes to the anticipated construction staging and timing.
- The dust and air quality impacts have not been considered for construction works associated with the modification application. Similarly, clarification is sought on whether there would be additional construction traffic associated with the modification. It is noted the modification application involves the construction of a new partially enclosed shed.

6. Flooding

- Clarify whether any structures are below the 1 in 100 flood level, include the on site detention basin on the south-west corner of the site.

Bianca Thornton

From: Lands Ministerials Mailbox
Sent: Wednesday, 7 October 2020 9:48 AM
To: Bianca Thornton
Subject: Major Projects – New Request for Advice - Bettergrow Resource Recovery Facility Wetherill Park -Mod-1 - Increased Processing Capacity, Additional Wastes Streams and New Shedding (SSD-7401-Mod-1) (Fairfield)

Hi Bianca

I am emailing you with Crown Lands' comments as this proposal was not shared with us via the Major Projects website.

Crown Lands has no comments for this proposal.

Thanks
Kirstyn

Lands Stakeholder Relations

Team telephone numbers: Rebecca Johnson, Principal Project Officer, 4920 5040; Kirstyn Goulding, Administration Officer - Customer Liaison, 4920 5058; Kim Fitzpatrick, Senior Project Officer, 4920 5015, Deb Alterator, Project Support Officer 4920 5172

Crown Lands | Department of Planning, Industry and Environment
E lands.ministerials@dpie.nsw.gov.au
Level 4, 437 Hunter Street Newcastle NSW 2295
www.dpie.nsw.gov.au

WINNER AR BLUETT MEMORIAL AWARD 2018
'Most progressive council in NSW'

In reply please quote: 20/11476 or SSD-7401(MOD 1) **Contact**: Kerren Ven on (02) 9725 0878

16 October 2020

Ms Bianca Thornton
Industry Assessments
Department of Planning, Industry and Environment
4 Parramatta Square,
12 Darcy Street,
PARRAMATTA NSW 2150

Dear Ms Thornton

REQUEST FOR ADVICE (SSD-7401-MOD-1) PROPOSED INCREASE IN PROCESSING CAPACITY, ADDITIONAL WASTE STREAMS AND NEW SHREDDING.

I refer to the above mentioned State Significant Development that seeks to modify the existing consent (SSD 7401) to increase the processing capacity and provide new additional waste streams and shredding to a licensed waste facility.

It is noted the proposal seeks the following modifications to the existing consent:

- 24/7 operation,
- Reconfiguration of plant equipment and shed structures,
- Increase the processing capacity of the resource recovery facility from 160,000 tpa to 350,000 tonnes per annum,
- Install a large partly enclosed shed over the existing drill mud processing area for additional waste streams for processing, and
- Construction of an amenity building to services the development.

As part of the Secretary Environmental Assessment Requirements (SEARs) issued in July 2020, Council requested amended Stormwater Concept Plans, details of biodiversity impacts and a traffic impact assessment to determine whether the modified development is minor in nature and does not increase the impacts of the development.

Council officers have reviewed the Environmental Impact Statement (EIS) prepared by RPS Group dated 14 September 2020 including the technical assessment reports that were provided as part of the EIS and request further clarification regarding traffic management issues as detailed below.

Traffic generation

The Traffic Impact Assessment Report indicates that 10-11 trucks will be using the site during the PM peak hour during a 1 hour period.

The proponent shall confirm whether sufficient loading area/ bays are provided on-site to accommodate the peak loading demand without impacting the traffic flow on site.

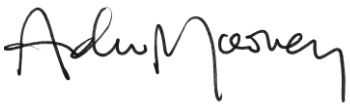
On-site manoeuvring

The submitted turning path diagram illustrates heavy vehicles manoeuvring within the site are impacted by trucks parking within the site and concrete slab structure for mud processing area. Clarification is sought as to how truck movement will not impact on the mud processing area.

It is noted that the swept path diagram demonstrates two-way traffic movement for 19m trucks can be accommodated near the entry/exit driveway; The proposed driveway shall be in accordance with AS 2890.2:2018 and turning path analysis.

If you have any questions regarding the above, please do not hesitate to contact Ms K Ven of (02) 9725 0878. Thank you for providing Council the opportunity of commenting on the proposal.

Yours faithfully,



Andrew Mooney
ACTING MANAGER, STRATEGIC LAND USE PLANNING

Bianca Thornton

From: Fire Safety <FireSafety@fire.nsw.gov.au>
Sent: Wednesday, 23 September 2020 9:11 AM
To: Bianca Thornton; 'urbangrowth@sydneywater.com.au'
Subject: RE: Notice of Exhibition - Bettergrow Resource Recovery Facility Wetherill Park (SSD-7401-Mod-1)
Attachments: Request for Input - SEARs - Modification to Wetherill Park Resource Recovery Facility (SSD-7401-Mod-1). BFS20/1862

Good Morning Bianca,

I have attached a response from FRNSW dated 23/6/2020 in response to your application for SEARs - Modification to Wetherill Park Resource Recovery Facility (SSD-7401-Mod-1).

Hoping the information is of assistance. If your require additional information please don't hesitate to contact us.

Kind regards
Julie Gilmore

Administration Officer
Fire Safety Administration Unit
Community Safety Directorate | Fire and Rescue NSW
T: (02) 9742 7434
1 Amarina Ave, Greenacre, NSW 2190 | Locked Bag 12, Greenacre, NSW 2190

PREPARED FOR ANYTHING.

www.fire.nsw.gov.au

Bianca Thornton

From: Brendan.M Hurley <Brendan.M.Hurley@fire.nsw.gov.au>
Sent: Tuesday, 23 June 2020 2:41 PM
To: Bianca Thornton
Cc: Fire Safety
Subject: Request for Input - SEARs - Modification to Wetherill Park Resource Recovery Facility (SSD-7401-Mod-1). BFS20/1862

Request for Input - SEARs - Modification to Wetherill Park Resource Recovery Facility (SSD-7401-Mod-1)

Dear Bianca,

Fire & Rescue NSW (FRNSW) acknowledge the receipt of your email on the 19th June 2020, requesting input into the preparation of the Secretary's Environmental Assessment Requirements (SEARs) Modification 1 for the preparation of an Environmental Impact Statement (EIS) for the Wetherill Park Resource Recovery Facility (SSD-7401-Mod-1).

FRNSW have reviewed the documentation (scoping report) that was provided in support of the development and will not be providing comment at this time as there is currently insufficient information available regarding the fire safety and emergency response management aspects of the project.

An assessment of the project in accordance with SEPP 33 will be undertaken during the EIS to confirm the proposed development is not offensive or hazardous. FRNSW request that we be given the opportunity to review and provide comment once approvals have been granted and the project has progressed such that there is more relevant detailed information available.

As additional details become available Fire & Rescue NSW requests to be consulted with respect to the *proposed fire and life safety systems* and their configuration at the project's preliminary and final design phases.

While there is currently no requirement for a fire safety study, FRNSW may request one be undertaken at a later stage should information be provided such it is deemed that the development poses unique challenges to the response to and management of an incident.

For further information please contact the Fire Safety Infrastructure Liaison Unit, referencing FRNSW file number BFS20/1862. Please ensure that all correspondence in relation to this matter is submitted electronically to firesafety@fire.nsw.gov.au.

Regards
Brendan

A/INSPECTOR BRENDAN HURLEY
TEAM LEADER INFRASTRUCTURE LIAISON
FIRE SAFETY | Fire and Rescue NSW
E: brendan.m.hurley@fire.nsw.gov.au
M: 0438601582
1 Amarina Ave, Greenacre, NSW 2190

Key Sites and Industry Assessments
Department of Planning, Industry & Environment
GPO Box 39
Sydney NSW 2001

ATTN: Bianca Thornton

Dear Ms Thornton

New Request for Advice – MOD 1 - Increased Processing Capacity, Additional Wastes Streams and New Shedding (SSD-7401-Mod-1) (Fairfield)

Thank you for your correspondence via the Major Projects Planning Portal (ref: PAE-9399900) dated 22 September 2020 requesting Transport for NSW (TfNSW) provide comment on SSD-7401-Mod-1 above.

Legislation came into effect on 1 December 2019 that brings together Roads & Maritime Services (Roads and Maritime), and TfNSW. This response reflects the advice from the new organisation.

The supporting documentation provided for the proposed development application modification has been reviewed, and TfNSW has no further comment.

Should you require clarification of any issue raised, please don't hesitate to contact Robert Rutledge, Principal Transport Planner, Land Use Planning and Development at Robert.rutledge@transport.nsw.gov.au.

Yours sincerely

Robert Rutledge
Principal Transport Planner, Land Use Planning & Development
Customer Strategy and Technology

CD20/07623

Submission for: MOD 1 - Increased Processing Capacity, Additional Wastes Streams and New Shedding

Comments

WaterNSW

PARRAMATTA, New South Wales

Message

Thank you for the opportunity to provide comment on the above Modification. As the site is located downslope of Prospect Reservoir with a large earth bund associated with the Sydney Water supply pipeline between the site and the Reservoir, WaterNSW considers the potential for impact on our assets and Special Area is low, and therefore have no comments or particular requirements.
WaterNSW requests that the Department continue to refer proposals for comment that have the potential to impact on our land, assets and infrastructure using the email address Environmental. Assessments@waternsw.com.au

DOC20/792462-5

Ms Bianca Thornton
Industry Assessments
Planning and Assessment Division
Department of Planning, Industry and Environment
Locked Bag 5022
PARRAMATTA NSW 2124
Email: bianca.thornton@planning.nsw.gov.au

23 October 2020

EPA Response to SSD7401-Mod-1 - Bettergrow Resourse Recovery Facility Wetherill Park

Dear Ms Bianca Thornton

Thank you for requesting the review by the NSW Environment Protection Authority (EPA) of the Statement of Environmental Effects for the modification of the Bettergrow Resource Recovery Facility Wetherill Park (Application SSD 7401- Mod-1) at 24 Davis Road Wetherill Park on land described as Lot 18 DP249417.

The EPA has reviewed the following documents:

- Statement of Environmental Effects (SEE), Prepared by RPS Australia East Pty Ltd, 14 September 2020.
- Noise and Vibration Impact Assessment, Prepared by Global Acoustics Pty Ltd, August 2020.
- Surface water Assessment, Prepared by Eclipse Consulting Engineers, 1 September 2020.
- Erosion and Sediment Control Plan
- Air Quality Impact Assessment, Prepared by Advanced Environmental Dynamics Pty Ltd, 15 September 2020.
- Greenhouse Gas Assessment, Prepared by Advanced Environmental Dynamics Pty Ltd, 27 August 2020.
- Waste Management Plan, Prepared by RPS Australia East Pty Ltd

The EPA understands the proposed modification involves receival and processing of up to 350,000 tonnes per annum (tpa) of waste materials. The proposed waste streams include hydro-excavation and drill mud/fluids, general solid waste, bulk landscaping supplies, garden organics (GO) or combined GO and food organics (FOGO); and other source-separated commercial and industrial (C+I) organics.

The proponent is also proposing to:

- Modify operations at site, including receival of material and all processing activities to 24 hours per day, 7 days per week.

- Demolition of site buildings to reconfigure plant equipment and shed structures,
- Install a large partly enclosed shed over the existing drill mud processing area for additional waste streams for processing, and
- Construction of a building infrastructure to service the development.

Based on the information provided, the proposal will require a variation of environment protection licence (EPL) number 21092 issued under section 47 of the *Protection of the Environment Operations Act 1997* (POEO Act) for Scheduled Development works. Prior to commencing operations, the proponent will require an EPL issued under section 48 of the POEO Act to authorise the carrying out of Scheduled activities Waste Processing (non-thermal treatment) (clause 41), Waste Storage (clause 42) and Resource Recovery (clause 34).

The EPA has reviewed the SEE and notes that the SEE does not provide the information required by the Secretary's Environmental Assessment Requirements (SEARs) issued on 15 July 2020. The SEE did not include a list of conditions to be modified and proposed wording of any new or modified condition as required by the SEARs. This is matter is discussed further below.

The EPA has the following additional comments and recommendations:

1. Matters to be addressed prior to determination

Industrial and commercial receptors not included in assessment

The Air Quality Impact Assessment (AQIA) has only considered residential receptors in the assessment of impacts, with the closest receptor (R01) 1500 m from the proposed facility. No industrial and commercial receptors have been considered.

EPA advise that a sensitive receptor is defined in the Approved Methods for Modelling and Assessment of Air Pollutants in NSW as a location where people are likely to work or reside and that future sensitive receptors should be considered.

The AQIA states that no additional exceedances are predicted at the identified receptors, however, there remains uncertainty regarding the potential impacts at the nearest receptors, which are industrial and commercial. Table A (AQIA, Appendix K) gives the maximum 24-hour PM10 concentration beyond the boundary as 4.7 µg/m3. However, the impact assessment criteria for particulates are applied at the nearest receptors, inclusive of industrial and commercial receptors.

The contour plots provided for incremental impacts in the AQIA are blurry and difficult to interpret. In addition, only three years of the maximum 24-hour measurements of background data have been provided and we note they are significantly different to each other. Therefore, any additional exceedances and cumulative impacts from the proposal at the nearest receptors have not been adequately assessed.

The EPA recommends the AQIA is revised to include:

- The industrial and commercial receptors in the complete assessment of air quality impacts.
- The background meteorological data be correlated against a longer duration database of at least five years and that the data adequately describes the expected meteorological pattern be established, the background air quality data should be contemporaneous to the meteorological determined to be most representative.
- Contour plots are presented that are clear to read and evaluate the impacts from.

2. Matters to be addressed with conditions

Identification of conditions to be modified and proposed wording of any new or modified conditions not provided

The EPA notes that a complete list of all the development consent (SSD 7401) conditions that require modifying was not provided with the SEE as required by the SEARs. In order for the EPA to properly assess SSD-7401-Mod-1 its recommended that a complete list of all conditions that require modifying as a result of the proposed modification to the resource recovery facility be provided for review prior to determination.

3. Minor matters

Lawfully use for finished products

The EPA notes that not all processed waste products identified in the SEE currently have an approved lawful beneficial reuse in accordance with a resource recovery order and exception. The proponent must ensure that there is a lawful reuse pathway for processed waste finished products prior to sale of these products. Please refer to current resource recover orders and exemptions at https://www.epa.nsw.gov.au/your-environment/recycling-and-reuse/resource-recovery-framework/current-orders-and-exemption

The EPA is willing to engage with the proponent to discuss this matter further.

If you have any questions about this request, please contact Luke Davsion on 02 6659 8250 or via email at luke.davison@epa.nsw.gov.au.

Yours sincerely

Scott Hunter
Unit Head Regulatory Operations

Major Projects

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Submission for: MOD 1 - Increased Processing Capacity, Additional Wastes Streams and New Shedding

Comments

Water Group

Message

The Department of Planning, Industry and Environment - Water and the Natural Resources Access Regulator (NRAR) have reviewed the modification and have no issues to raise.

The Department of Planning, Industry and Environment acknowledges the Traditional Custodians of the land and pays respect to all Elders past, present and future.

ORGANISATION

Stanton Corporation Pty Ltd T/as Universal Mobile Tower Hire
Allison Feldman – Director 18 Davis Road W/park 2164

Industry Assessments, Planning and Assessment,
Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta
NSW 2124

11/10/2020

RE: **Application No** SSD-7401-Mod-1
Location 24 Davis Road, Wetherill Park
Applicant Bettergrow Pty Limited
Council Area Fairfield City Council
Consent Authority Minister for Planning and Public Spaces

Dear Sir or Madam:

I object to the application to increase the capacity and type of waste to be processed at 24 Davis road as applied for. I believe the site location is unsuitable for scope and scale of the proposed amendments and their impact on:

1. Traffic levels on Davis Road
2. Air Quality -Ancillary noise associated with air quality
3. The contribution this application makes to a location with a number of similar waste industry proposals concentrated around Davis Road and the effect on amenity of the area on smaller business and those that work in open air.
4. A lack of community consultation.

Traffic Levels

As mentioned in the Davis Road is one lane each way with parking permitted on most of either side of the street. A number involve heavy vehicles, heavy haulage and in the case of Suez, loading, unloading and transfer of containers between vehicles on the public road, including the handling of asbestos at all hours and in the case of Infra Build large vehicles lined up to dislodge often on both sides of the street requiring personnel to signal to trucks they have to park up. Our own vehicles parked on the street have been hit over the years by other heavy vehicles attempting to navigate the street.

Our security cameras which capture only a small portion of Davis Road in their front gate view can confirm that this street is heavily utilised 24 hours a day. A number of business on this road operate 24 hours.

The application indicates that the traffic will increase roughly 74 additional movements but maintain the ratio of heavy vehicles, yet it is doubling the number of weighbridges. While I appreciate if the number of vehicles is accurate, they potentially will flow faster, it can also indicate that the actual number vehicles will be more and Bettergrow is building-in, future vehicle capacity.

This road in our view is at maximum safe utilisation given the type of goods typically carried as well as the style of utilisation - as it is not just a throughfare but a transfer point. Additionally, the on street public parking available is typically utilised by heavy vehicles queuing up. The vehicles are often blocked from turning towards the main road on exit, and longer vehicles turn towards the cul-de sac for a clearer turning point.

Over the years including recently there have been queries from the council about dirt and debris on the road. I can only see this increasing.

The traffic report does not adequately consider the M4/Davis Road Route and its impact on Davis Road as a whole. It is not to the point what route the applicant says it will be used; unless there is a logical reason why it is not feasible that the M4 route will not end up being used. Egress to, and entry from, the M4, is a boon to every business on Davis Road.

While the report considers most dust implications while processing within the confines of the site**,** it does not adequately consider the dust and dirt implications on the transporting of materials, and the possibility of less than optimal containment practices by transporters.

<u>Air Quality and Ancillary Noise.</u>

24 Davis Road is not affected by Power Line issues and there is no suggestion otherwise. However, Power Lines run along the other side of Davis Road in Reasonable Proximity to the road. There has been in recent years an upgrade to those lines for 330kv capacity, and the electricity authority has flagged that over time, the voltage will probably increase in lock step with demands by consumers. The noise emitted by the lines is (on the information provided to us) impacted significantly, but not solely, by the amount of dust and dirt in the air. The application does not address this impact.

We work primarily outdoors as we need to test equipment at full height. Our clients are primarily B2B but do pick up and undergo some induction on site. The single most common complaint is noise on the lines and anxiety over sound and we are concerned that the scale

of the increase and the nature of the material being transported will have an impact on the factors affecting the noise both currently and at the planned increased load going forward.

The application states open air or partially open-air storage of organic matter. Davis road is already an odour challenged location for those that work in open air at this end of the road. Any increase in the odour adds to that handicap.

Overdevelopment and Similar Industry Applications

It is not clear to me how much waste industry development is going be permitted in Davis Road. Suez in recent years was granted and increase in capacity and is increasing its asbestos handling. Halgan at 10 Davis Road also has application in that will also increase traffic on Davis Road. It is not clear on where the oversight is for the area as a whole and at what point amenity of the area for a more diverse range of businesses is adversely affected.

There have been a few articles recently on these concerns. One I believe citing a number of pending proposals. The most recent general article on community concern is the one in the Telegraph:

> https://www.dailytelegraph.com.au/newslocal/fairfield-advance/wetherill-park-grease-trap-waste-facility-50000-tonnes-to-be-treated-each-year/news-story/6241ebd4decdd78cf91bfaf9cf30f5ee

I accept that this is an industrial precinct, but it is not clear whether this is not considered exclusive a waste processing and handling area and diversity of SME's in other open-air industries are to be discouraged.

Community Consultation

I do not accept there has been much community consultation as at least a handful of businesses listed in the proposal no longer operate at those locations. I received one flyer that ended up on the ground in the rain and had someone not been at the gate we would have never known.

Conclusion

Universal did not object to the original proposal and it is not the activity we object to it is simply the scale of the increase in context with the surrounding area.

Submission for: MOD 1 - Increased Processing Capacity, Additional Wastes Streams and New Shedding

Objects

Christine Shaw

SOUTH PENRITH, New South Wales

Message

I wish to add my name to submissions list against Cleanaway's amended application to build Western Sydney Energy & Resource Recovery centre or as we the residents know it as - Toxic incinerator. Each time Cleanaway, Dialadump or any of the 4 other companies that are trying to force this development onto the residents of Western Sydney come back with amendments the original idea is the same - burning toxic rubbish to make poisonous pollution. There are no benefits to local residents if they die because of toxic fumes being breathed in. Cheap electricity isn't that cheap if you are dead. The idea of a 24/7 operation turning waste into electricity is a dangerous concept if it means killing residents, or worse giving them cancers so they linger in agonising limbo for years. These companies keep trying to get their ideas approved but they don't change the base concept of TOXIC incineration. The evidence from overseas models of this type of incinerator should be enough for any government to block this development, why must residents continually have to fight these companies for their right to live without being poisoned. I live in Penrith, but the pollution from this development will impact my health as all Sydney's pollution gets carried by winds and gets trapped by mountains to hover over Penrith. I refuse to be forced out of my region due to the short sighted vision of politicians that do not live in this area, therefore will not be poisoned.Politicians that make decisions based on money and not facts are dangerous people to have in leadership

The Department of Planning, Industry and Environment acknowledges the Traditional Custodians of the land and pays respect to all Elders past, present and future.

Submission for: MOD 1 - Increased Processing Capacity, Additional Wastes Streams and New Shedding

Objects

Name Withheld

ST CLAIR, New South Wales

Message

This will affect the air quality in my area

Appendix B – Additional Air Quality Information

Memorandum

To: Shaun Smith (RPS)

From: Darlene Heuff

Date: 02/12/2020

Subject: Bettergrow Wetherill Park Dust Assessment AED Report# 959516.2.1 – Response to comments

---

AED has prepared this response to comments provided by the NSW Government Department of Planning, Industry and Environment (DPIE) in relation to AED Report # 959516.2.1 *Bettergrow Wetherill Park Dust Assessment* dated 15 September 2020 which was prepared by AED on behalf of Bettergrow Pty Ltd.

In particular we note the following extracts from the NSW EPA letter dated 23 October 2020:

Recommendation: The EPA recommends that the AQIA is revised to include:

- ***The industrial and commercial receptors in the complete assessment of air quality impacts.***

  AED Comment: Results provided in the AQIA based on model outputs at the site boundary were presented as a conservative estimate of worst-case impacts at neighbouring industrial receptor locations.

  Additional results are presented in Attachment A to this memo.

- ***The background meteorological data be correlated against a longer duration database of at least five years and that the data adequately describes the expected meteorological patter be established, the background air quality data should be contemporaneous to the meteorological pattern determined to be most representative.***

  AED Comment: Results from the dispersion modelling are presented in Attachment A and Attachment B for five years of meteorology (i.e. 2013 through 2017).

Ambient air monitoring data corresponding to these 5 years has been considered and results included in Attachment A at Industrial Receptor locations.

- ***Contour plots are presented that are clear to read and evaluate the impacts from.***
  AED Comment: AED notes that unfortunately image quality did deteriorate with conversion to PDF. Revised contour plots are proved in Attachment B.

Additionally, the following comments from DPIE are noted:

- ***The Dust Assessment appears to compare the development in isolation against air quality assessment criteria. Further detail on the potential cumulative impacts at industrial receivers is required. The background data showed the maximum 24 hour average concentration of PM10 during 2013 and 2015 exceed the goal of 50 µg/m^3. Provide details on the dust mitigation measures proposed to address any potential cumulative dust concentrations which exceed the assessment criteria.***
  AED Comment: Section 5.2 of the Dust Assessment considered cumulative impacts and residential locations. Additional results for neighbouring industrial receptors are provided in Attachment B of this memo.
  Dust mitigation measures to manage potential impacts at off-site locations were discussed in Section 2.3 of the Dust Assessment and include:
  - Ceasing activities that are producing dust to the extent that visible dust is seen to be passing the site boundary;
  - Use of fogging unit or sprinkling units located around the landscaping bunds;
  - Driveways and haulage paths must be regularly swept;
  - All incoming and outgoing loads of bulk landscaping materials must be effectively tarped;
  - If required bulk landscaping supplies must be wetted so as to minimise the release of dust at the time of unloading or loading.

- ***The vehicle movements used in the predicted dust generation (table 5 of the dust assessment) differ from the vehicle movements predicted in the Traffic Impact assessment.***
  AED Comment: The traffic data presented in the Dust Assessment is a subset of that used in the Traffic Assessment. The dust assessment focused on dust generation associated

with material handling and not all waste streams were considered to be potentially associated with the generation of dust. The traffic assessment would have considered all vehicle movements.

- ***The dust and air quality impacts have not been considered for construction works associated with the modification application. Similarly, clarification is sought on whether there would be additional construction traffic associated with the modification. It is noted the modification application involves the construction of a new partially enclosed shed.***
  AED Comment: It is noted that the construction phase of the project is not expected to be associated with the generation of dust due to the fact that the shed is of steel construction and the road surfaces are sealed.

I trust you will not hesitate to contact me on 0400 661 182 should you require any additional clarification and/or information.

Regards,

Dr Darlene Heuff
Director and Principal Applied Scientist

Attachment A: Background Levels

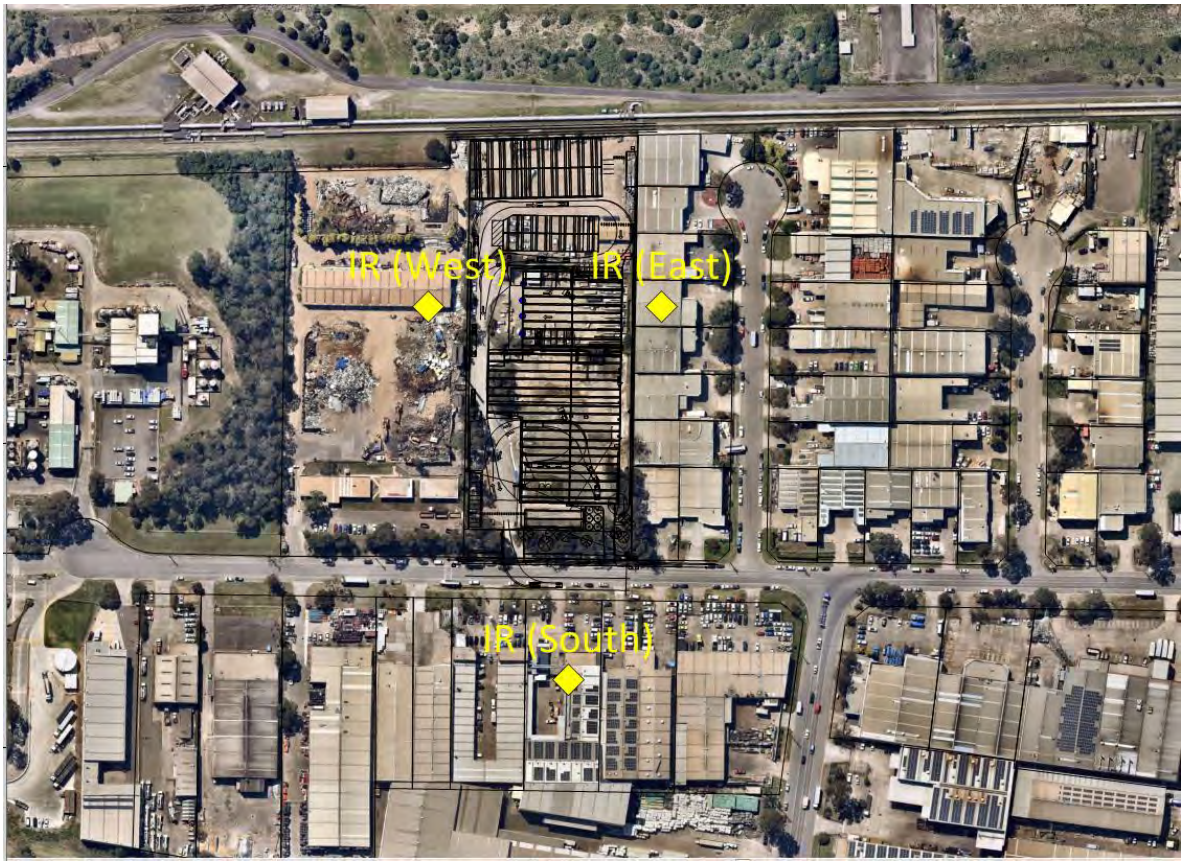
Presented in Figure 1 are five years of 24 hour average concentration data from the EPA's Prospect Park ambient air monitoring station which has been used to assess cumulative impacts.

Figure 1: Five Years of Background Levels of the 24 Hour average Concentration of PM_{10} ($\mu g/m^3$)

Attachment B: Cumulative Impact Assessment at Industrial Receptor Locations

Presented in Figure 2 is the location of the Industrial Receptors for which a detailed cumulative impact assessment has been undertaken. Note that the receptors to the east and to the west are in closest proximity to potential dust generating sources which are located in the middle section of the facility.

Figure 2: Location of Industrial Receptors



A summary of the predicted cumulative impacts for the 24 hour average concentration of PM_{10} at the location of the three Industrial Receptors indicated in Figure 2 is provided in Table 1.

Results presented in the table suggest the potential for one additional exceedance at both Industrial Receptor (West) (2015) and Industrial Receptor (East) (2013) over the 5 years of meteorology considered. Note that the results presented correspond to the Project "Peak" Emissions Scenario" (refer to Section 4.1 of the Dust Assessment).

Mitigation measures to minimise the risk of adverse dust impacts at off-site locations were provided in the response to comments earlier in this memo.

Table 1: Cumulative Impact Scenario: The Number of Predicted Exceedances of the Project Goal for the 24 Hour Average Concentration of PM_{10} based on the Project "Peak" Scenario ($\mu g/m^3$)

Location	2013	2014	2015	2016	2017
Background	4	0	1	4	1
Industrial Receptor (South)	4	0	1	4	1
Industrial Receptor (West)	4	0	2	4	1
Industrial Receptor (East)	5	0	1	4	1

Table 2: Cumulative Impact Scenario: Percentiles of the 24 Hour Average Concentration of PM_{10} at Industrial Receptor Locations based on the Project "Peak" Scenario ($\mu g/m^3$)

2013				
Percentile	**Industrial Receptor (South)**	**Industrial Receptor (West)**	**Industrial Receptor (East)**	**Background (2013)**
1	82.2	82.6	83.5	81.8
0.99	49.8	50.2	51.5	49.9
0.95	32.6	33.9	33.4	32.7
0.9	29.7	30.2	30.5	29.8
0.8	24.5	25.4	25.6	24.5
0.7	21.4	22.3	22.4	21.6
2014				
Percentile	**Industrial Receptor (South)**	**Industrial Receptor (West)**	**Industrial Receptor (East)**	**Background (2014)**
1	44.3	44.8	44.3	44.3
0.99	35.5	36.5	36.5	35.0
0.95	29.4	30.3	29.9	29.9
0.9	25.6	26.1	26.2	25.5
0.8	21.8	22.8	23.1	22.5
0.7	20.0	20.8	20.8	20.0

Table 2: Cumulative Impact Scenario: Percentiles of the 24 Hour Average Concentration of PM_{10} at Industrial Receptor Locations based on the Project "Peak" Scenario ($\mu g/m^3$)				
2015				
Percentile	**Industrial Receptor (South)**	**Industrial Receptor (West)**	**Industrial Receptor (East)**	**Background (2015)**
1	69.1	69.2	71.9	68.7
0.99	36.6	38.4	37.1	37.1
0.95	29.9	30.8	30.8	29.8
0.9	26.1	26.9	26.6	25.9
0.8	22.7	23.5	23.6	22.8
0.7	19.9	20.5	21.2	19.9
2016				
Percentile	**Industrial Receptor (South)**	**Industrial Receptor (West)**	**Industrial Receptor (East)**	**Background (2016)**
1	110.6	110.7	113.0	110.1
0.99	44.8	45.8	45.2	44.8
0.95	33.8	34.6	34.2	33.7
0.9	29.9	30.5	30.8	29.6
0.8	25.0	25.6	25.8	24.9
0.7	21.5	22.4	22.9	21.5
2017				
Percentile	**Industrial Receptor (South)**	**Industrial Receptor (West)**	**Industrial Receptor (East)**	**Background (2017)**
1	61.1	61.1	62.6	61.1
0.99	38.0	38.8	39.1	37.7
0.95	32.2	33.0	33.4	32.0
0.9	28.2	28.9	29.0	28.0
0.8	24.2	25.0	25.3	23.8
0.7	21.5	21.8	22.3	21.1

Presented in Figure 3 through Figure 5 are the time series of the 24 hour average concentration of PM_{10} for the cumulative impacts at the three Industrial Receptor locations indicated in Figure 2. These results correspond to the Project "Peak" Emissions Scenario (Table 1).

Figure 3: Cumulative Impacts for the 24 Hour average Concentration of PM_{10} at Industrial Receptor (South) based on the Project "Peak" Scenario ($\mu g/m^3$)

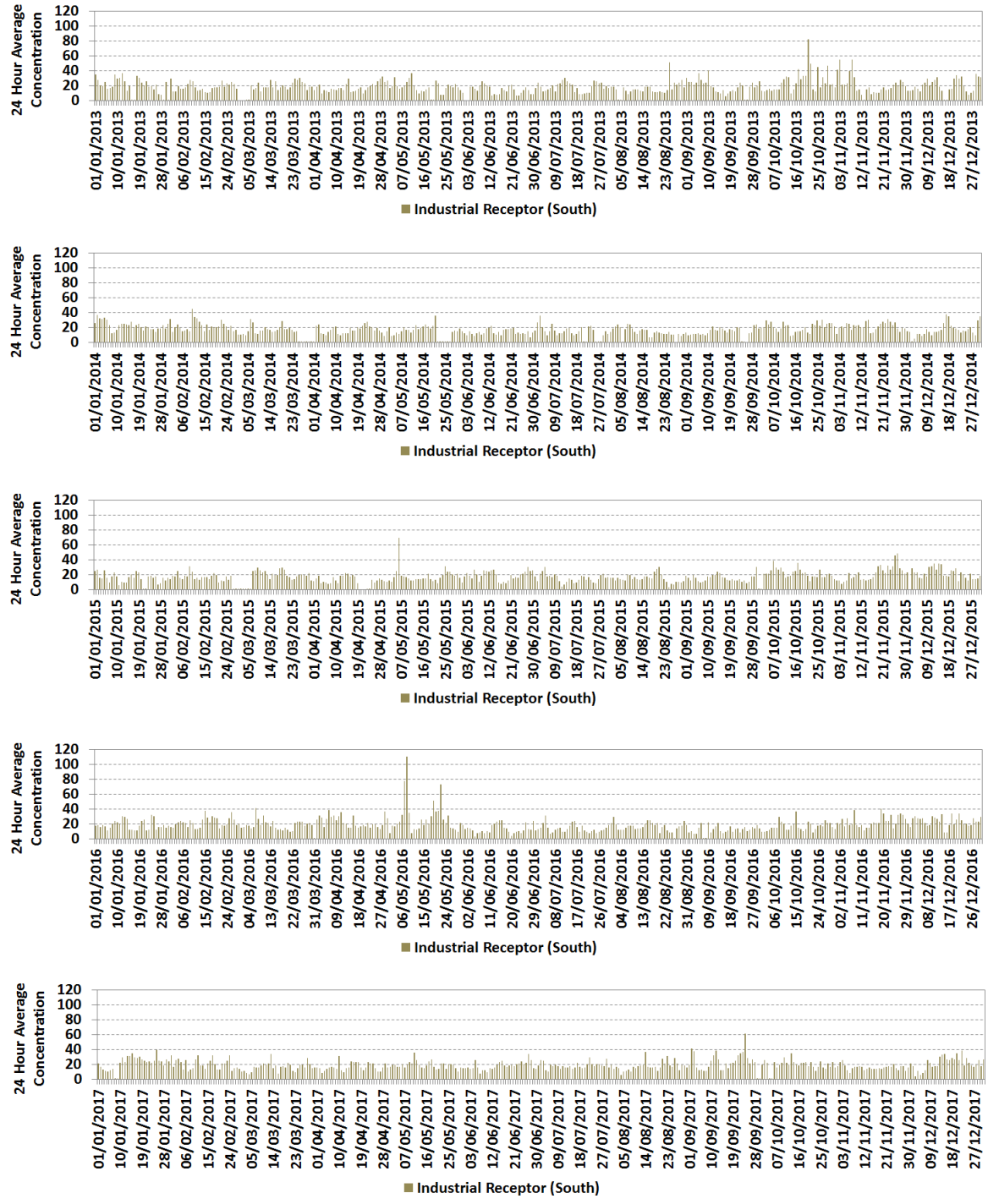


Figure 4: Cumulative Impacts for the 24 Hour average Concentration of PM_{10} at Industrial Receptor (West) based on the Project "Peak" Scenario ($\mu g/m^3$)

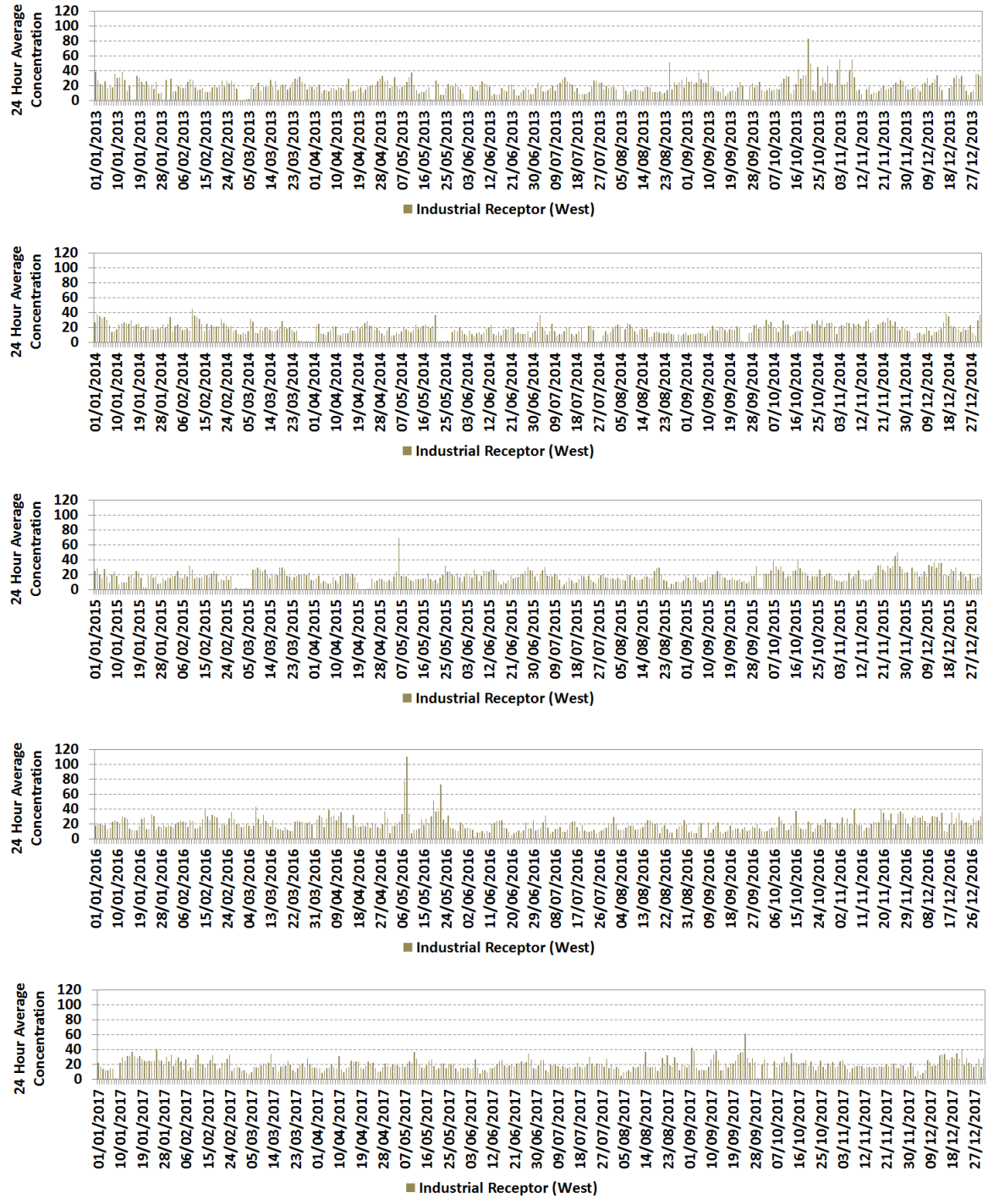
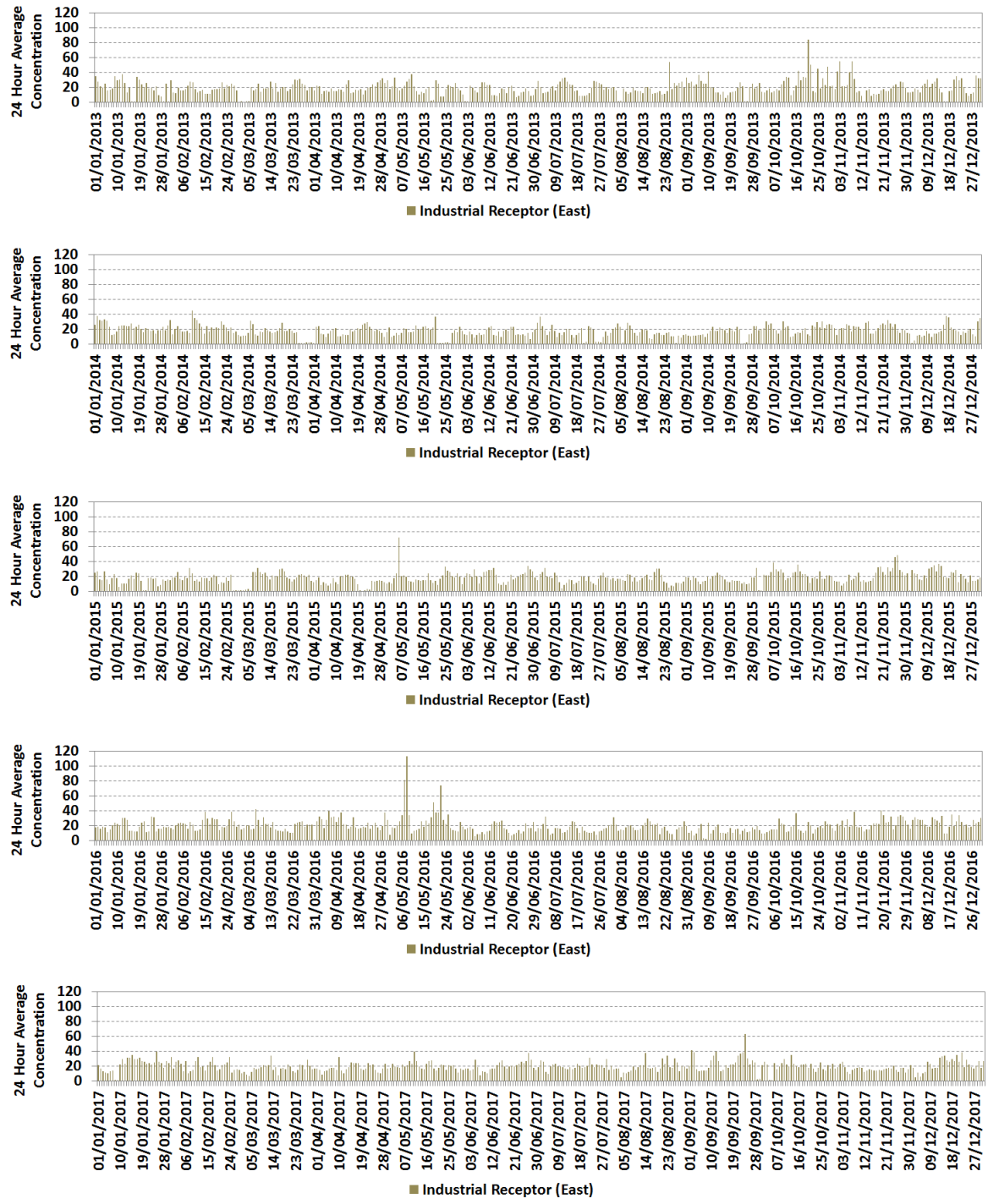


Figure 5: Cumulative Impacts for the 24 Hour average Concentration of PM_{10} at Industrial Receptor (East) based on the Project "Peak" Scenario (µg/m^3)



Presented in Table 3 are the results for the cumulative impact scenario for the annual average concentration of PM_{10} at the location of the Industrial Receptors. Results are based on the Project "Peak" emissions scenario. . No exceedances of the Project goal of 25 µg/m^3 are predicted to occur.

Table 3: Cumulative Impact Scenario: Annual Average Concentration of PM_{10} at Industrial Receptor Locations based on the Project "Peak" Scenario (µg/m^3)

Year	Industrial Receptor (South)	Industrial Receptor (West)	Industrial Receptor (East)	Background
2013	18.4	18.9	19.3	19.2
2014	16.7	17.3	17.5	17.6
2015	17.0	17.5	17.9	17.6
2016	19.0	19.5	19.9	18.9
2017	18.9	19.5	19.7	18.6

Presented in Table 4 are the results for the cumulative impact scenario for the annual average concentration of TSP at the location of the Industrial Receptors. Results are based on the Project "Peak" emissions scenario. No exceedances of the Project goal of 90 µg/m^3 are predicted to occur as a result of Project-related activities.

Table 4: Cumulative Impact Scenario: Annual Average Concentration of TSP at Industrial Receptor Locations based on the Project "Peak" Scenario (µg/m^3)

Year	Industrial Receptor (South)	Industrial Receptor (West)	Industrial Receptor (East)	Background
2013	39.2	41.0	42.2	38.4
2014	36.0	37.9	38.7	35.1
2015	35.9	37.8	39.0	35.1
2016	38.7	40.5	41.7	37.8
2017	38.0	40.0	40.8	37.3

Presented in Table 5 are the results for the maximum monthly dust deposition for the project in isolation based on the "peak" emissions scenario. Estimates for the background level of dust deposition have not been estimated. Results suggest that it is unlikely that the project goal of 4 g/m^2/month would be exceeded due to emissions of dust associated with the project.

Table 5: Cumulative Impact Scenario: Maximum Monthly Dust Deposition at Industrial Receptor Locations based on the Project "Peak" Scenario (g/m^2/month)			
Year	**Industrial Receptor (South)**	**Industrial Receptor (West)**	**Industrial Receptor (East)**
2013	0.02	0.48	0.05
2014	0.02	0.45	0.05
2015	0.02	0.30	0.08
2016	0.02	0.21	0.06
2017	0.03	0.26	0.06

Attachment B: Revised Contour Plots

Presented in Figure 6 are the revised contour plots of the annual average concentration of TSP.

Figure 6: BWP In Isolation: The Annual Average Concentration of TSP

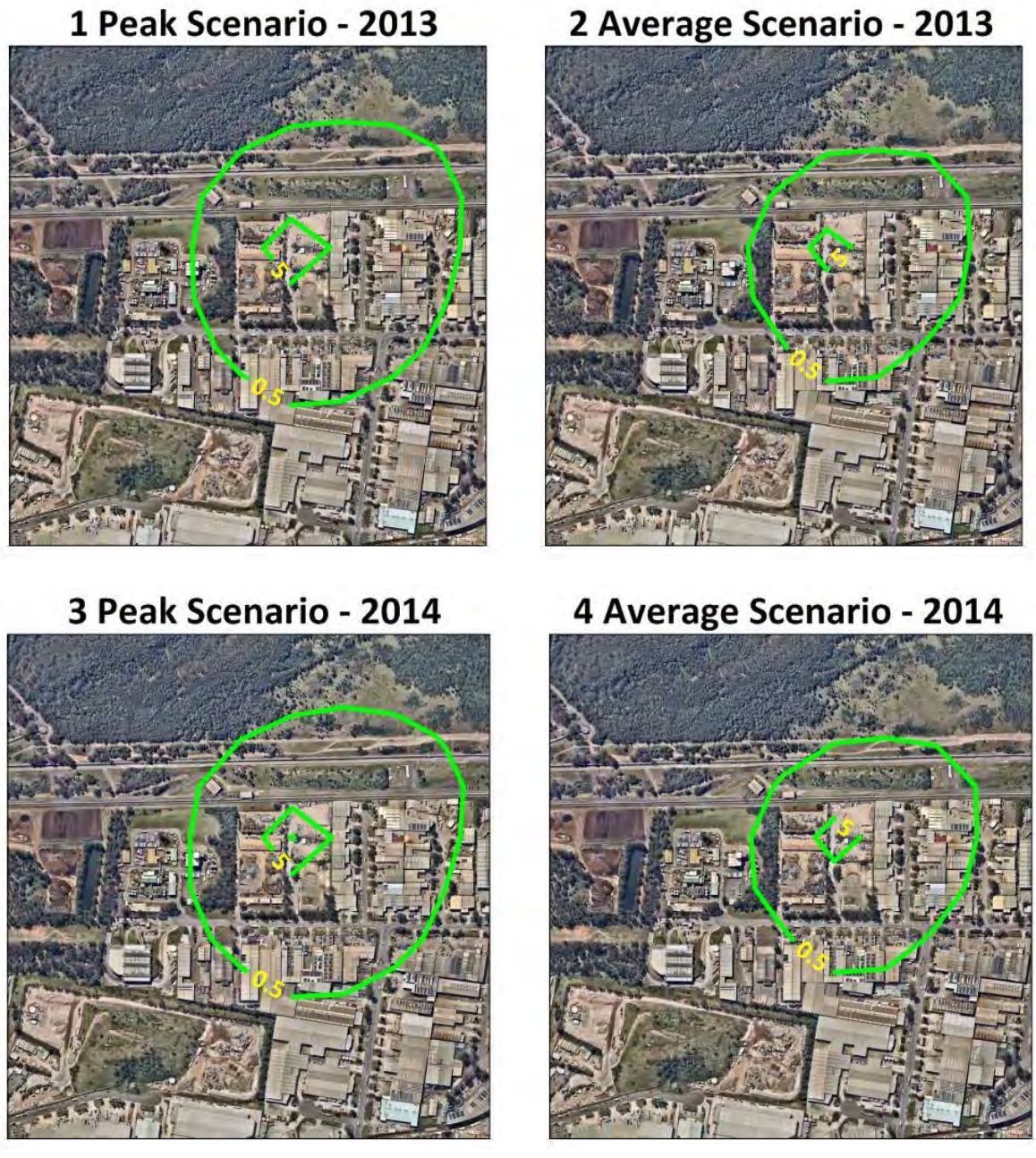


Figure 6: BWP In Isolation: The Annual Average Concentration of TSP

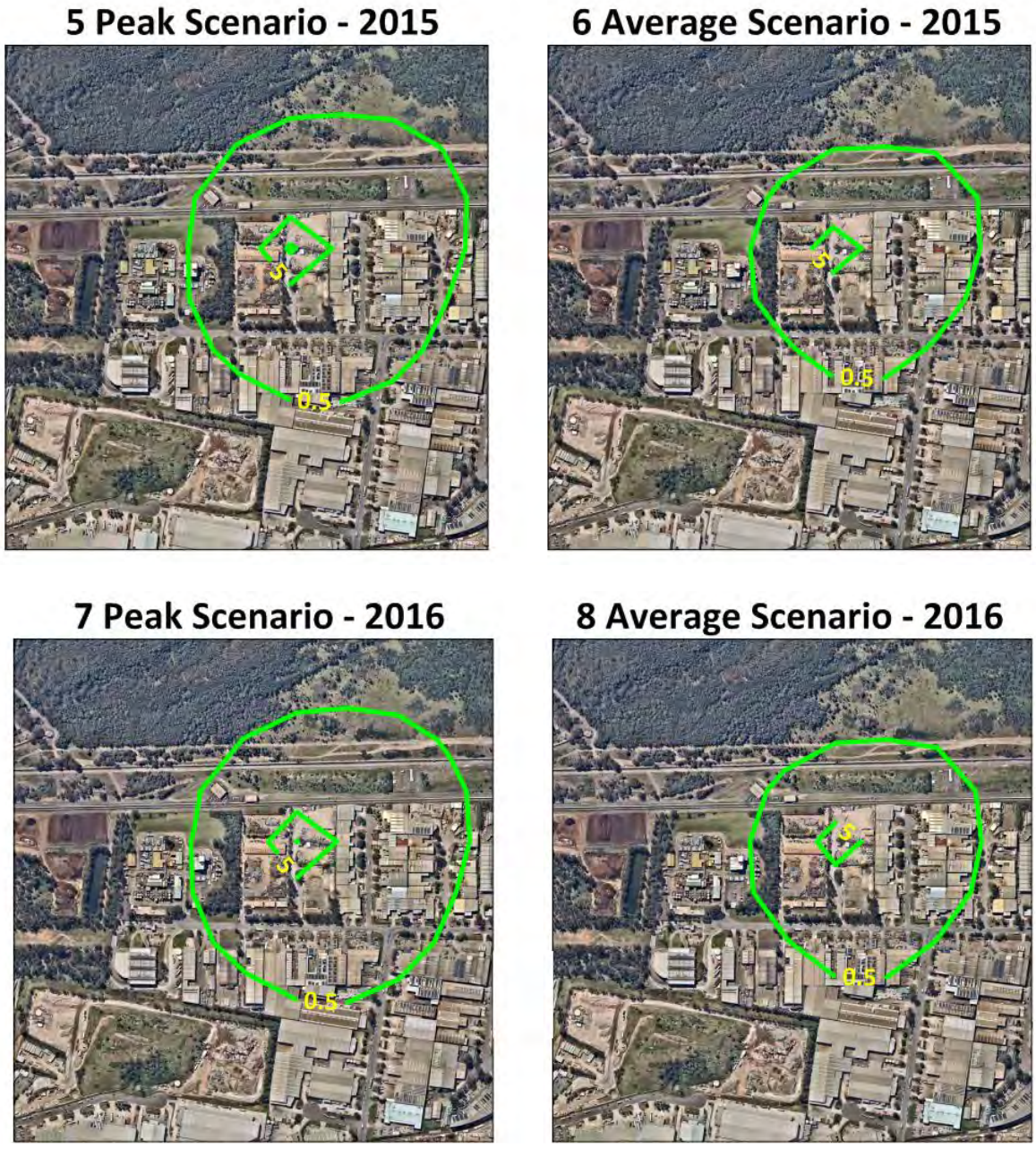
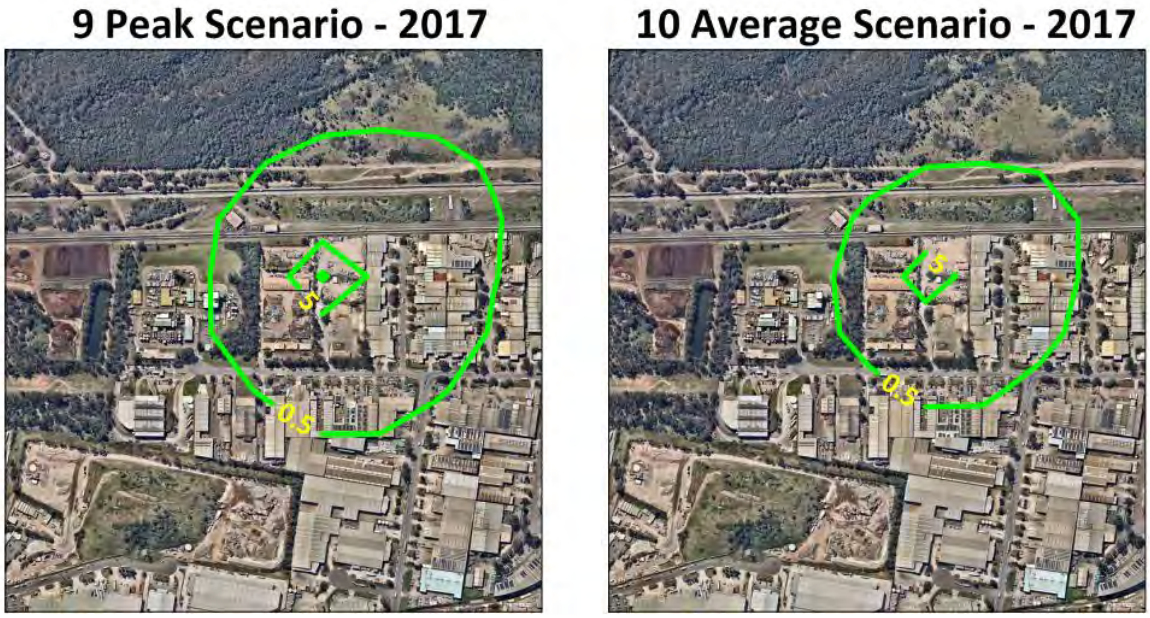


Figure 6: BWP In Isolation: The Annual Average Concentration of TSP



Scenario: Peak and Average		**Sources included:** Truck dumping and FEL	
Pollutant:	TSP	Averaging Period:	annual
Background-level:	Not included	Rank:	N/A
Project Goal:	90 µg/m^3	Contour level(s):	0.5, 5, 10, 30, 50 and 90 µg/m^3

Presented in Figure 7 are the revised contour plots of the 24 hour average concentration of PM_{10}.

Figure 7: BWP In Isolation: The Maximum 24 Hour Average Concentration of PM_{10}

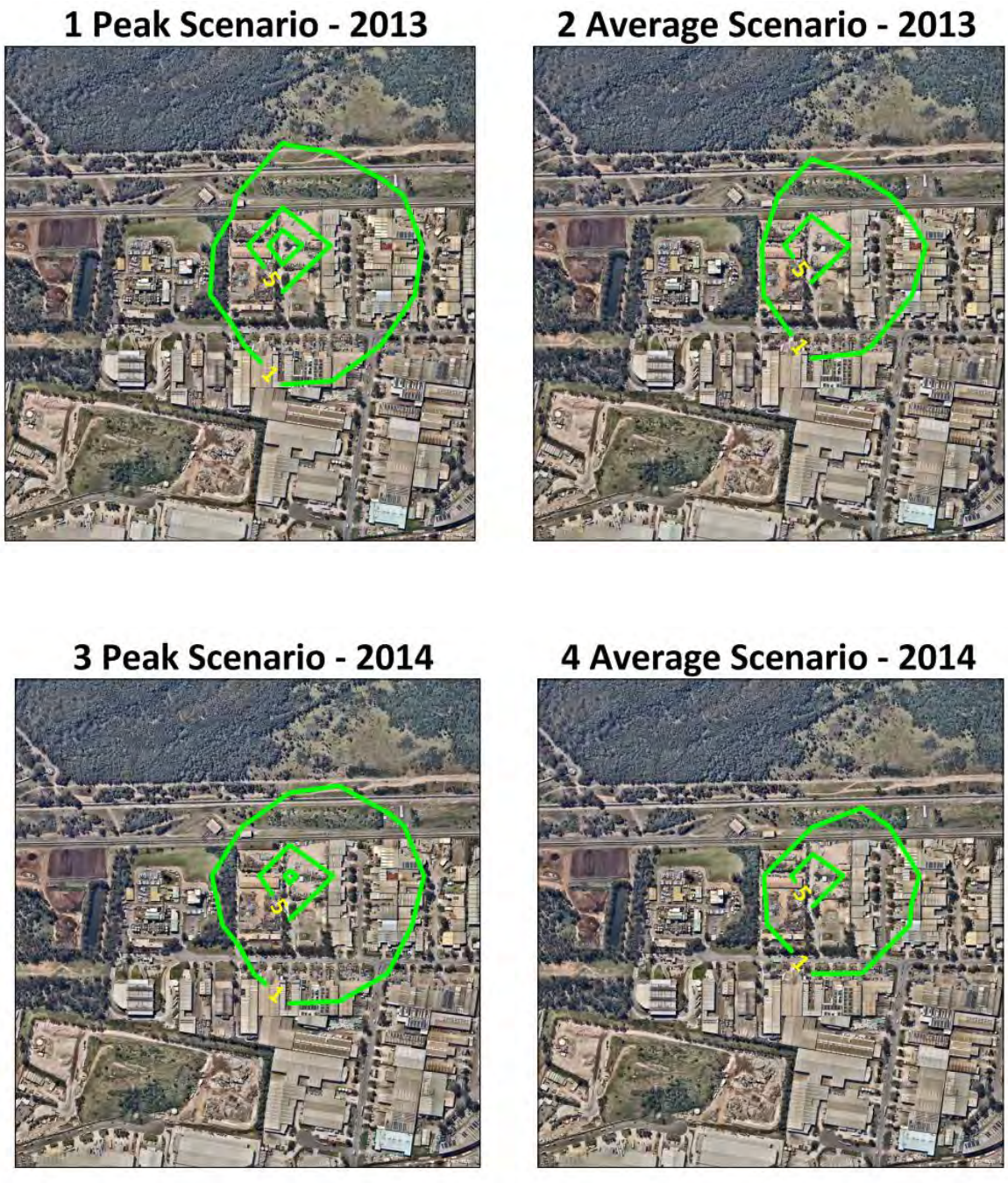


Figure 7: BWP In Isolation: The Maximum 24 Hour Average Concentration of PM_{10}

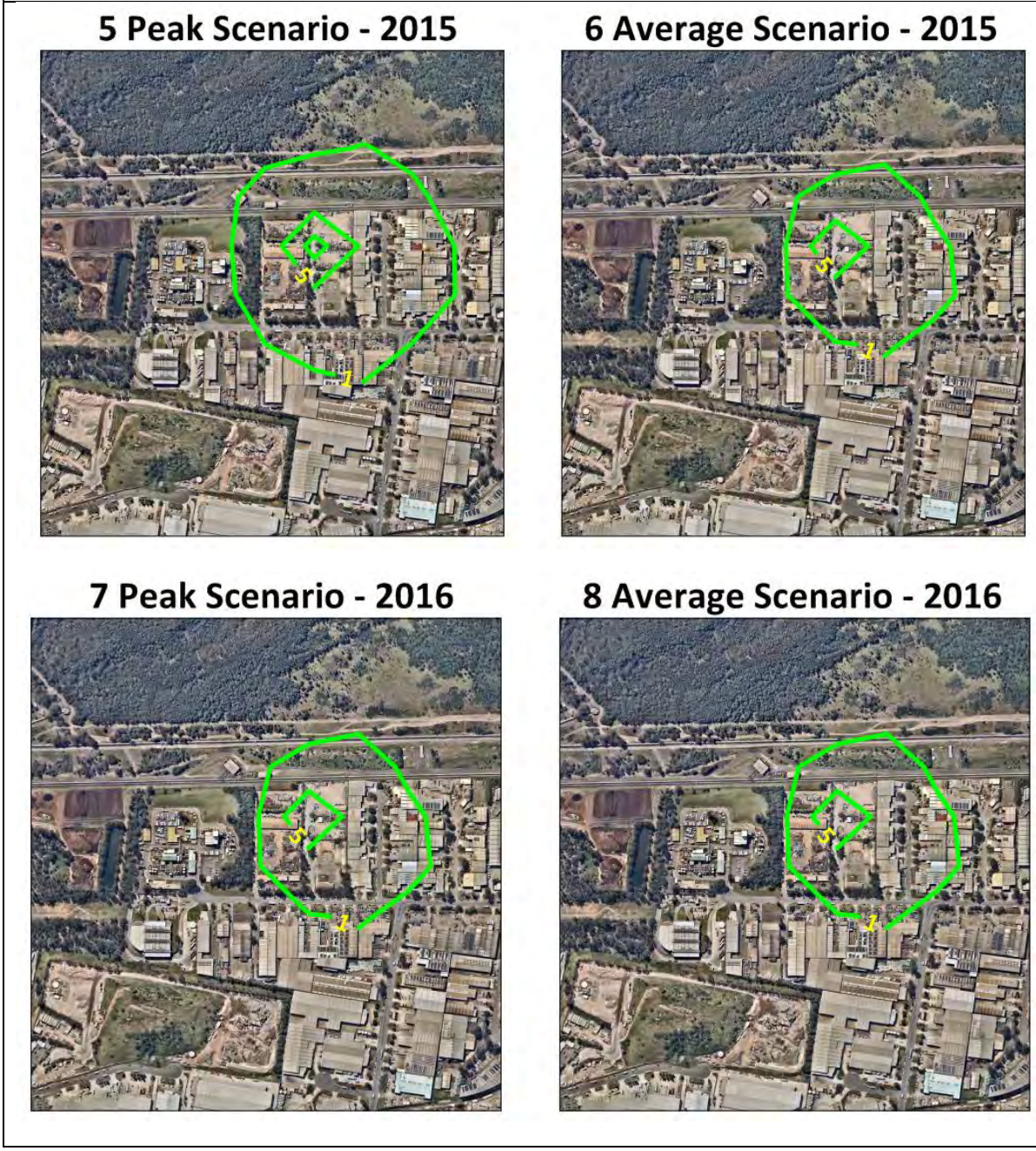
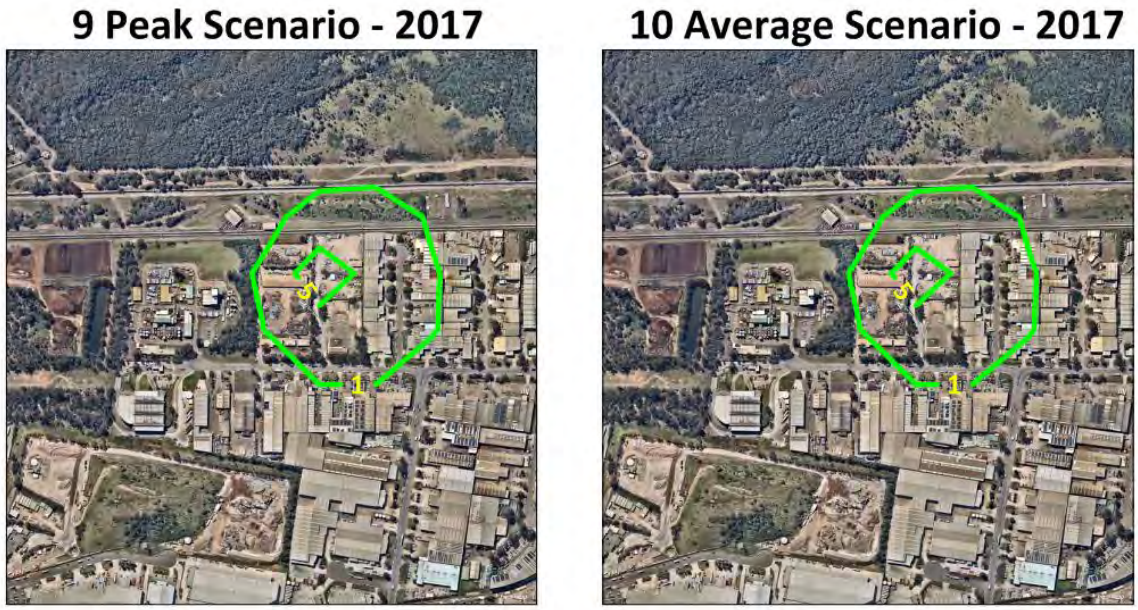


Figure 7: BWP In Isolation: The Maximum 24 Hour Average Concentration of PM_{10}



Scenario: Peak and Average		**Sources included:** Truck dumping and FEL	
Pollutant:	PM_{10}	Averaging Period:	24-hour
Background-level:	Not included	Rank:	maximum
Project Goal:	50 µg/m^3	Contour level(s):	1, 10, 20, 30, 40 and 50 µg/m^3

Presented in Figure 8 are the revised contour plots of the annual average concentration of PM_{10}.

Figure 8: BWP In Isolation: The Annual Average Concentration of PM_{10}

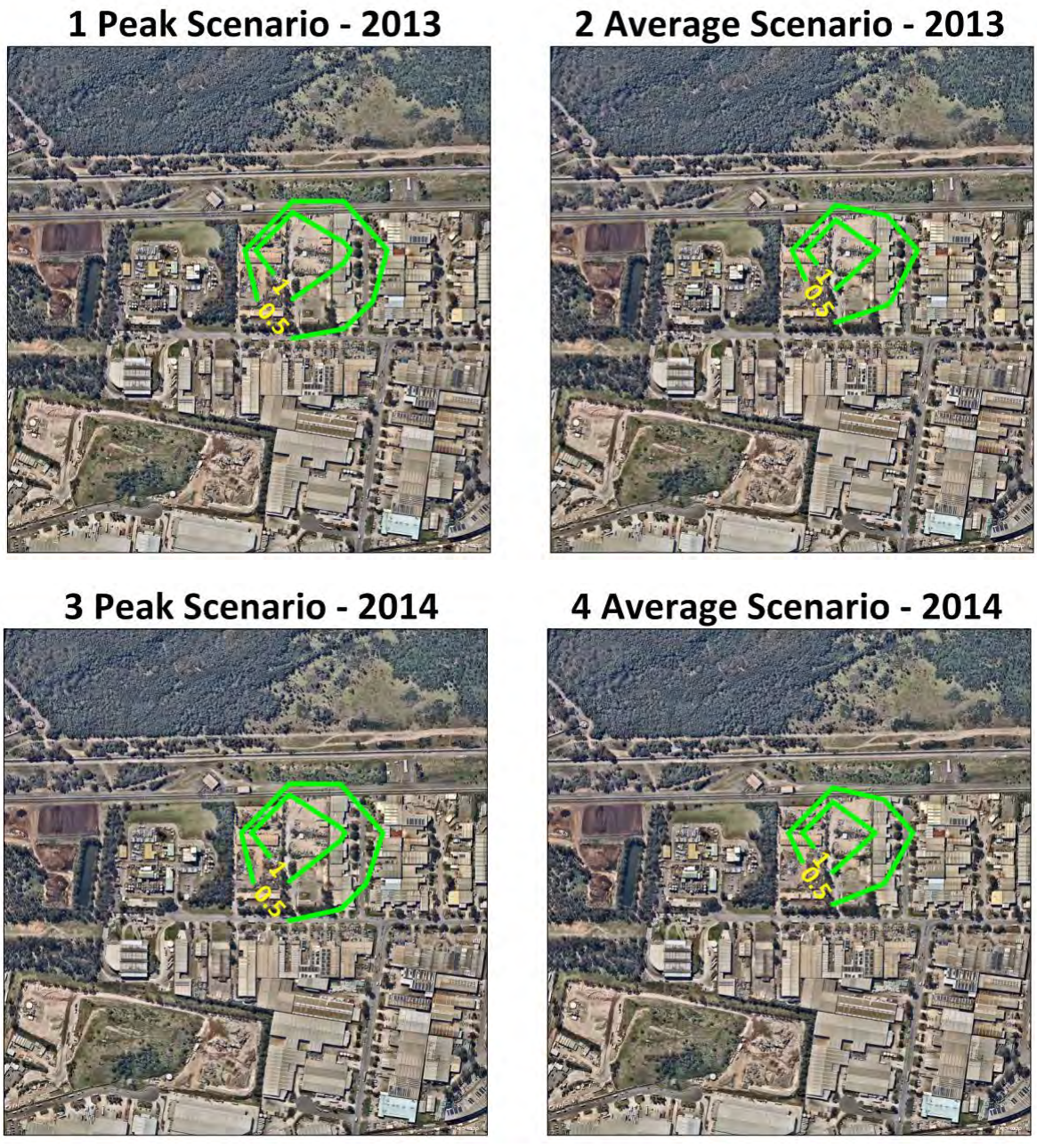


Figure 8: BWP In Isolation: The Annual Average Concentration of PM_{10}

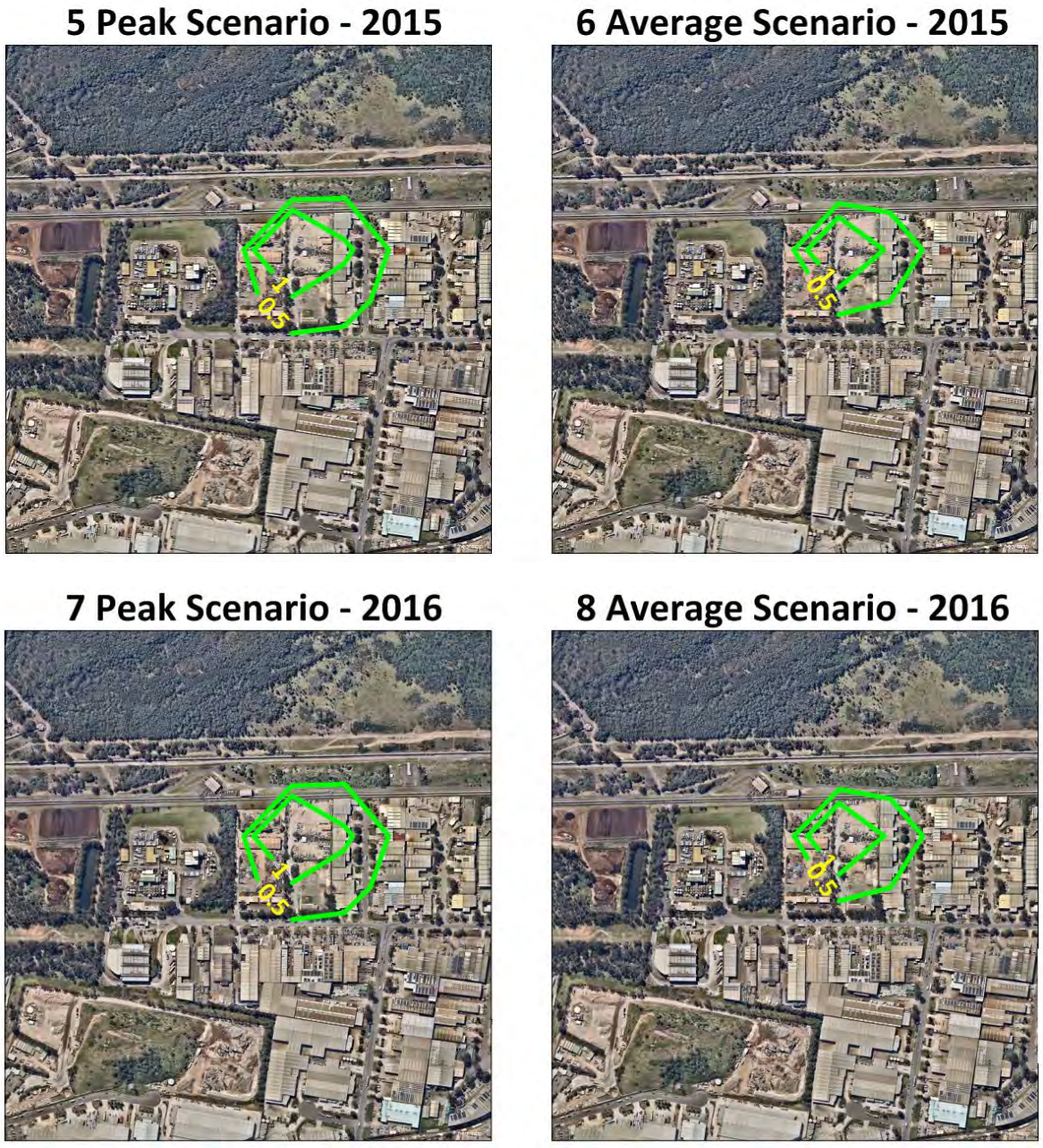
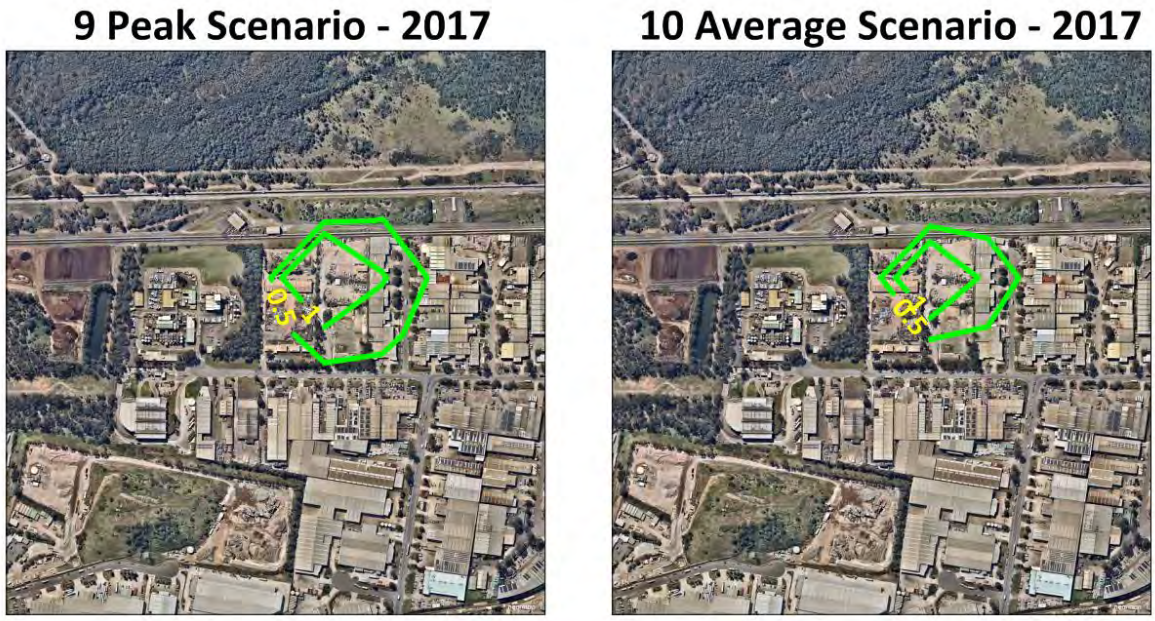


Figure 8: BWP In Isolation: The Annual Average Concentration of PM_{10}



Scenario: Peak and Average		**Sources included:** Truck dumping and FEL	
Pollutant:	PM_{10}	Averaging Period:	annual
Background-level:	Not included	Rank:	N/A
Project Goal:	25 µg/m^3	Contour level(s):	0.5, 1, 10, 15, 20 and 25 µg/m^3

Appendix C – Additional Traffic Information

David Pavey Pty Ltd trading as
Pavey Consulting Services
Specialising in
Traffic Studies and Transportation Planning
Road Safety Reviews
Civil and Structural Design
Project Management and Contract Administration
Mediation and Government Relations

November 23, 2020

In response to submission Pavey Consulting Services (PCS) offers the following comments and advice.

ISSUES RAISED BY Dept of Planning, Industry, and Environment

Issue No:4 Truck Manoeuvring and Queuing

Item A *During the assessment of the original development, the Applicant indicated the weighbridge operations are capable of handling 30 heavy vehicles per hour under the approved development. Further information is requested which demonstrates the additional processing capacity will not result in heavy vehicles queuing on Davis Road (e.g. a truck queuing analysis, details of how peak traffic volumes are managed, etc.).*

PCS Response:

- The current proposal includes 5 weighbridges all situated within the building(s) and at a considerable distance from the entrance to the site. It is envisaged that each weighbridge will have a capacity of approximately 12 vehicles per hour, as a minimum, depending on the type of vehicles and their load. This means that the minimum hourly processing rate would be in the order of 60 vehicles per hour. In addition, many of the heavy vehicles accessing the site. and the loaders, will have onboard weighing apparatus or load cells which will reduce the use of the weighbridges.
- As detailed in the Traffic Impact Statement, the anticipated hourly vehicle movements at its peak is in the order of 44 (22 in and 22 out) movements as this is less than the anticipated capacity of the combined weighbridges. It is highly unlikely that any vehicles will queue onto David Road.

Item B *The development as approved includes separate accesses for light vehicles and heavy vehicles. Provide clarification on whether the site access arrangements would change as part of the modification application.*

PCS Response

- Due to the relocation of the weighbridges into the site (as compared to the approved development) a combined light and heavy vehicle access is proposed. Many of the light vehicles are employee vehicles, and it is anticipated that they will generally arrive/depart prior to or after the facility is open. In addition, a sperate entrance is available for service and emergency vehicles and it is considered that the combination of these two will meet the needs of the site.

Item C *During the assessment of the original development, the Applicant confirmed the site could accommodate onsite parking for 20 heavy vehicles. Provide further information on parking requirements and whether the amended site plan can still accommodate parking for 20 heavy vehicles.*

PCS Response:

- With the combination of 5 weighbridges and other methods of weighing vehicles its is considered that the need for onsite parking will be minimised. Having said that the information provide with the original application is still applicable, namely:

- Upon a count of the number of trucks shown on these drawings there is the capacity to have up to 20 trucks temporarily onsite at any one time. This would never be the case however this shows the ability to have a variety of trucks on the site temporarily parked while wait to enter a shed, be loaded, unloaded, inspected, washed down, weighed, and then exit the facility.
- In order to manage the movement and stacking of trucks within the site during the peak periods the following mitigation measures are to be applied:
  - Delineation of two-way traffic flows through the provision of direction arrows on the internal roadway,
  - Delineation on the access driveway would be provided in accordance with RMS' Delineation Guidelines Section 4 – Longitudinal Markings and Section 10 – Pavement Arrows,
  - Traffic control will be provided onsite and would be coordinated by the individual process area supervisors and weighbridge operator, with direct 2-way radio contact with the truck drivers. As such all trucks will be required to have a 2-way radio programmed with a dedicated site channel,
  - All process area supervisors will be required to carry portable 2-way radios to allow for constant contact with the weighbridge operator and truck drivers,
  - The Site Manager and the process area supervisors will be responsible for overseeing the general driver behaviour, including any drivers disobeying internal traffic signage and road markings,
  - Use of swipe tags at the weighbridges for incoming and outgoing loads to reduce the amount of time trucks are held at the entry/exit,
  - Within the site, hold lines will be established where trucks can temporarily wait to enter the relevant process area or the outgoing weighbridge (refer to attached plans), and
  - Management of vehicles within the hold lines would be overseen by the process area supervisors and weighbridge operator.

ISSUES RAISED BY Fairfield City Council

Traffic Generation

The Traffic Impact Assessment Report indicates that 10-11 trucks will be using the site during the PM peak hour during a 1 hour period The proponent shall confirm whether sufficient loading area/ bays are provided on-site to accommodate the peak loading demand without impacting the traffic flow on site.

PCS Response:

- Please see our response to DPIE - Issue Item A to C which provides detail of site operation and the ability of the site to management anticipated numbers of vehicles in the peak hour (externally to the site) and internally. The current layout and proposed weighbridges will accommodate loading and unloading without impacting the traffic flow within the site or along Davis Road.

On-site manoeuvring

Issue A: The submitted turning path diagram illustrates heavy vehicles manoeuvring within the site are impacted by trucks parking within the site and concrete slab structure for mud processing area. Clarification is sought as to how truck movement will not impact on the mud processing area.

PCS Response:

- We refer to Pavey Consulting Services drawings SK2021-006-001, 002 and 003 revision 0 dated 1-09-20 provided in Appendix C of our Traffic Impact Assessment. These internal vehicle movement plans provide details for a range of vehicles. These movement diagrams indicate that all vehicles can manoeuvre within the site without impacting buildings, retaining walls, or other vehicles.

Issue B: It is noted that the swept path diagram demonstrates two-way traffic movement for 19m trucks can be accommodated near the entry/exit driveway; The proposed driveway shall be in accordance with AS 2890.2:2018 and turning path analysis.

PCS Response:

- The applicant confirms that all driveways will be built in accordance with AS2890.2.2018 and that a suitable splay on the left turn outside will be included in accordance with Council Guidelines and the above mention moment diagrams

Conclusions

With respect to the above comments and the previously submitted Traffic Impact Assessment, the assessment of the traffic generation, access and safety considerations associated with a proposal for the establishment of a Resource Recovery & Waste Recycling Facility at 24 Davis Road, Wetherill Park remains the same.

Having regard to the contents of this letter, and the submitted Traffic Impact Assessment, the following conclusions are made:

- The on-site parking provisions are adequate to accommodate for projected demand given the likely number of employees and visitors on-site at any one time provided by the applicant;
- The proposed site access arrangements provide for safe and efficient conditions with which to access and vacate the site;
- The internal circulation arrangements are projected to provide for safe and efficient internal movements and are capable of accommodating the peak operation demands of the use, wholly within the site;
- The surrounding road network, in particular the junction of Elizabeth Street/Davis Road, and the intersection of Victoria Street/Elizabeth Street, operates with a satisfactory level of service during peak and non-peak periods (including weekends); and
- The surrounding road network is capable of accommodating the vehicular traffic generated by the proposal at all times.

Based on the findings of this report, Pavey Consulting Services is of the opinion that there are no traffic engineering related matters that should preclude approval of this development application.

Prepared By

David Pavey
Director
B.E (Civil) Grad Dip LGE. LGE Cert. MAIPM, MAICD, MAITPM
Pavey Consulting Services
Email; paveyconsulting@iinet.net.au
Phone: 0419696212

David Pavey Pty Ltd
23 Stanley Street
Merewether
NSW 2291
ABN 12 150 774 413
ACN 150 774 413

Appendix D – Fire Management and Safety

Reference: 1202075_SEARs_01

15 December 2020

Crossmuller Pty Ltd
2 Wella Way
Somersby NSW 2250

Attention: Mark Daniels

RE: Fire Safety advice of SEARs Response | 26 Davis Rd, Wetherill Park

The purpose of this statement is to provide confidence to the Consent Authority that prior to the issue of Modification Application (SSD-7401-Mod-1) consent, the proposed industrial development located at 26 Davis Street Wetherill Park will meet the fire safety requirements of Attachment 1 – Requirement 11 as stated in the SEARs Advice from the NSW Government Planning, Industry and Environment Department dated: 15 July 2020. Requirement 11 of the SEARs Report is repeated as per the following:

11. ***Fire and incident management, including:***
    - ***technical information on the environmental protection equipment to be installed on the premises such as air, water and noise controls, spill clean-up equipment and fire management***
    - ***the measures that would be implemented to ensure that the development is consistent with the Fire safety in waste facilities (FRNSW).***

The subject advice relates to the fire safety of the building and hence is specific to the fire management within the facility and compliance with the FRNSW guideline for Fire safety in waste facilities. The following advice excludes air, water and noise control and also spill clean-up equipment.

Site Overview:

The existing site operates for the same function as is proposed under the current design. It is used by Bettergrow of which the new works mainly includes the construction of a warehouse/shed to provide extra weatherproofing to the existing operation. The focus of the Fire engineering that is to be undertaken on the subject development is relative to the large shed within the southern portion of the site.

The site is bound by Davis Road to the south, warehouses to the east and west and bounds the Prospect Reservoir and surrounding bushland to the north. The building is considered to be a large isolated building and hence shall be afforded with full hydrant and fire hose reel coverage and fire brigade vehicular access around the site.

Fire Management:

In regard to understanding the fire management of the building one must first understand the use. The proposed building is used to wash and sort non-combustible aggregate for on-sale/distribution. The weather protecting warehouse is significant open on the sides which shall allow sufficient venting of any potential fire which in turn will assist the FRNSW in undertaking the required fire attack on a potential fire. With consideration of the likely fire scenario (within a loader not the non-combustible aggregate stockpiles) it is considered that in addition to the significant natural ventilation there is also sufficient firsthand firefighting equipment for staff use via the afforded Fire Hose Reels and Fire Extinguishers. Additionally, for use by the attending firefighters, a Fire Hydrant system shall be afforded to protect all parts of the building.

FRNSW Guideline – Fire Safety in Waste Facilities:

In regard to understanding the FRNSW guideline on waste facilities and the level of compliance that the subject building is afforded. It is highlighted the purely based on the operations within (i.e. washing and sorting non-combustible aggregate). the guideline is understood to not be applicable to the subject building. The guideline states the following:

In Section 1 (Purpose)

"The purpose of this document is to provide guidance of fire safety in waste facilities that receive combustible waste material..."

In Section 3 (Application)

"The Guideline applies to any waste facility within NSW involved in the storage, processing or resource recovery of combustible waste material..."

With consideration of the documented qualifications within the guideline it is the opinion of Affinity Fire Engineering that the Guideline does not apply to the subject building. Nonetheless, to aid and assist the FRNSW in undertaking their firefighting operations the building is afforded with full fire hydrant coverage, full fire hose reel coverage and a significant degree of natural venting on multiple sides along with brigade access on all sides. Hence, the building is afforded with an appropriate degree of firefighting operations

In addition to the above, due to the identified deviations to the prescriptive provisions of the BCA, Affinity Fire Engineering will be undertaking a Fire Engineering Brief which will be issued with the FRNSW for consultation and their review to ensure that the requirement of the FRNSW is applied to the building. This process will then follow a formal EP&A Regulation Clause 144 submission of an FER to the FRNSW. This process will form a key element of the Construction Certificate application.

We trust that the above information is sufficient for Consent Authority's needs with respect to fire safety design and compliance with the relevant building regulations in this regard. Should any further information be required for a determination to be made please contact the undersigned on 02 9194 0590.

Yours faithfully

Thomas O'Dwyer

Director,

Affinity Fire Engineering

Fire Safety Engineer BPB 0766

M: 0499 977 202

BLACKETT MAGUIRE+ GOLDSMITH

BCA ASSESSMENT REPORT

Bettergrow Resource Recovery Facility
24 Davis Road, Wetherill Park

Prepared For:
Borg & Crossmuller Construction

Revision 0

Date: 04 December 2020

Project No.: 200206

Address | Suite 2.01,
22-36 Mountain St
Ultimo NSW 2007

Contact | Ph: 02 9211 7777
Fax: 02 9211 7774

CONTENTS

REPORT STATUS				
DATE	**REVISION**	**STATUS**	**AUTHOR**	**REVIEWED**
04.12.2020	0	Preliminary Assessment – Draft Report for Client & Consultant Review	DG	SB

Prepared by:

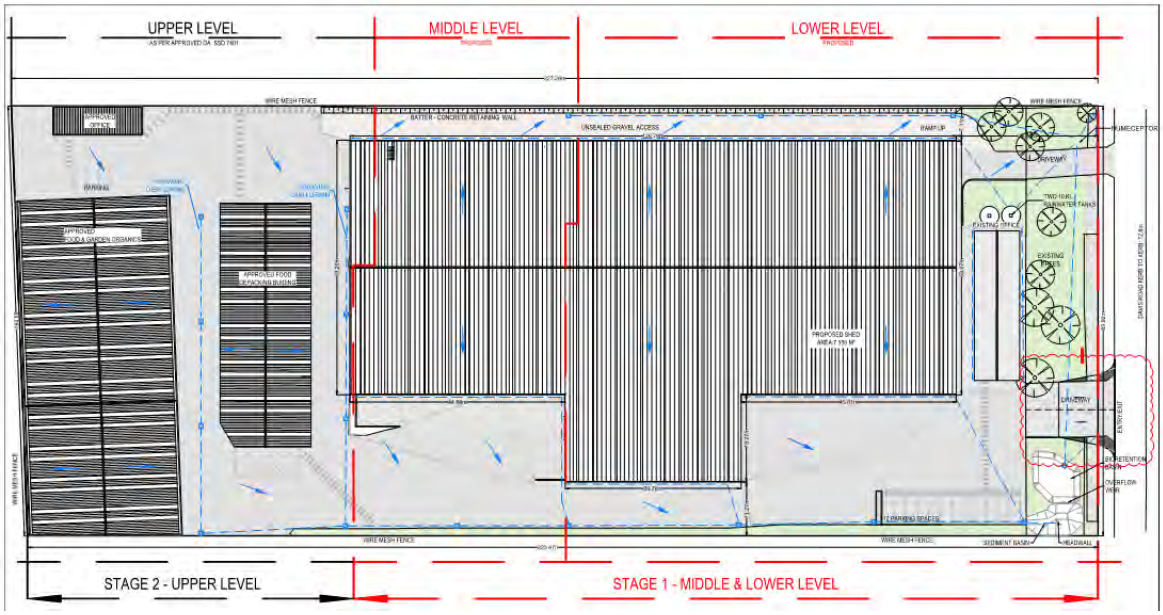
Dean Goldsmith
Director
Blackett Maguire + Goldsmith

1.0 INTRODUCTION

1.1 BACKGROUND / PROPOSAL

Blackett Maguire + Goldsmith Pty Ltd (BM+G) have been commissioned by Borg to undertake a preliminary review of the proposed industrial development, against the deemed-to-satisfy (DTS) provisions of the Building Code of Australia 2019 Amendment 1 (BCA) pursuant to the provisions of Clause 145 of the *Environmental Planning & Assessment Regulation 2000* and the *Building & Development Certifiers Act 2018 & Regulation 2020*.

The proposed development involves construction of the Stage 1 portion of the approved development on the Middle & Lower levels of the site (per the Site Plan below), consisting of a 7,350m² partially open shed structure containing equipment and storage areas for the Resource Recovery (RR) facility, along with a stand-alone single storey office, hardstand area and associated car parking.



Source: Crossmuller Drawing No. 2020/04 CC003 (1) dated 12.11.2020

1.2 AIM

The aim of this report is to:

- Undertake an assessment of the proposed industrial building against the Deemed-to-Satisfy (DtS) Provisions of the BCA 2019 Amendment 1.
- Identify any BCA compliance issues that require resolution/attention for the proposed development at the CC Application stage.

1.3 PROJECT TEAM

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

- Dean Goldsmith (Director)
- Sabine Blakeman (Junior Building Surveyor)

1.4 DOCUMENTATION

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

- BCA 2019 Amendment 1
- Guide to the BCA 2019 Amendment 1.
- Draft FEBQ prepared by Affinity dated 26.10.2020
- Architectural Plans prepared by Crosmuller:

Drawing No.	Rev.	Date	Drawing No.	Rev.	Date
CC000	02	-	CC008	02	25.11.2020
CC001	01	12.11.2020	CC009	02	25.11.2020
CC002	01	12.11.2020	CC010	01	12.11.2020
CC003	01	12.11.2020	CC100	01	12.11.2020
CC004	01	12.11.2020	CC101	01	12.11.2020
CC005	01	12.11.2020	CC102	01	12.11.2020
CC006	01	12.11.2020	CC103	01	12.11.2020
CC007	01	12.11.2020			

1.5 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.

1.6 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. The building owner should be satisfied that their obligations under the DDA have been addressed. In this regard, however, the provisions of the DDA Access to Premises – Buildings Standards have been considered as they are generally consistent with the accessibility provisions of the BCA.
- The Report does not address matters in relation to the following:
  - Local Government Act and Regulations.
  - NSW Public Health Act 1991 and Regulations.
  - Occupational Health and Safety (OH&S) Act and Regulations.
  - Work Cover Authority requirements.
  - Water, drainage, gas, telecommunications and electricity supply authority requirements.
  - DDA 1992.
- BM+G Pty Ltd do not guarantee acceptance of this report by Local Council, FRNSW or other approval authorities.
- No part of this document may be reproduced in any form or by any means without written permission from BM+G Pty Ltd. This report is based solely on client instructions, and therefore, should not be used by any third party without prior knowledge of such instructions.
- This report is intended to cover the key issues associated with the masterplan of the site and as such, separate BCA assessment reports will be required to be undertaken for each building individually.

1.7 TERMINOLOGY

+ **Alternative Solution / Performance 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 6 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 6 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 Performance 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).

2.0 BUILDING CHARACTERISTICS

2.1 BUILDING CLASSIFICATION

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

BCA Class:	Class 5 (Office Building) & Class 8 (RR Industrial Shed)
Rise in Storeys:	One (1) – Office Building & Two (2) - RR Industrial Shed *(See4 C1.2 below)*
Effective Height:	Less than 12m – both buildings *(Note: Does not relate to the Roof Height)*
Type of Construction:	Type C Construction – both buildings (RR Shed - Large Isolated Building)
Climate Zone:	Zone 6
Maximum Floor Area:	Class 8 (RR Industrial Shed -Large Isolated Building) - 7,350m^2; Class 5 (Office Building) - 215m^2.
Maximum Volume:	Class 8 (RR Industrial Shed -Large Isolated Building) – Less than 108,000m^3 (TBC by Architect) Class 5 (Office Building) – Less than 18,000m^3

3.0 BCA ASSESSMENT

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 industrial building.

3.1 SECTION B – STRUCTURE

PART B1 – STRUCTURAL PROVISIONS

+ Structural engineering details prepared by an appropriately qualified structural engineer to be provided to demonstrate compliance with Part B1. This will include the following Australian Standards (where relevant):

  - AS 1170.0 – 2002 General Principles
  - AS 1170.1 – 2002, including certification for balustrades (dead and live loads)
  - AS 1170.2 – 2011, Wind loads
  - AS 1170.4 – 2007, Earthquake loads
  - AS 3700 – 2018, Masonry Structures
  - AS 3600 – 2018, Concrete Structures
  - AS 4100 – 1998, Steel Structures and/or
  - AS 4600 – 2018, Cold formed steel Structures.
  - AS 2159 – 2009, Piling Design &Installation
  - AS 1720 – 2010, Design of Timber Structure
  - AS/NZS 1664.1 & 2 – 1997, Aluminium Structures
  - AS 2047 – 2014, Windows and External Glazed Doors in buildings.
  - AS 1288 – 2006, Glass in buildings.
  - AS 3660.1 – 2014, Termite control (or confirmation no primary building elements are timber).

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

3.2 SECTION C – FIRE RESISTANCE

FIRE RESISTANCE AND STABILITY

+ **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: T*ype C Construction applies to both proposed buildings (RR Industrial Shed & Office) as it has a rise in storeys of two (2) – – see notes under Spec. C1.1 below regarding applicable FRL's from Table 5.*

+ **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: The proposed RR Industrial Shed building has a rise in storeys of Two (2) based on the area on the Lower Level below the Control Room. The proposed Office Building has a rise in storeys One (1).

+ **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.

Comments: Design certification required at CC application stage and installation certification (including relevant test reports confirming the critical radiant flux of floor linings and group number of wall and ceiling linings) required at OC stage.

COMPARTMENTATION AND SEPARATION

+ **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 proposed RR Industrial Shed building is a Class 8 Large Isolated Building of Type C Construction (as identified under Clause C1.1 above) – as such the provisions for maximum fire compartment size under Table C2.2 do not apply. Refer to comments under C2.3 & C2.4 below. Note: The proposed Office Building is a single fire compartment that is compliant with Table C2.2.

+ **Clause C2.3 – Large Isolated Buildings**

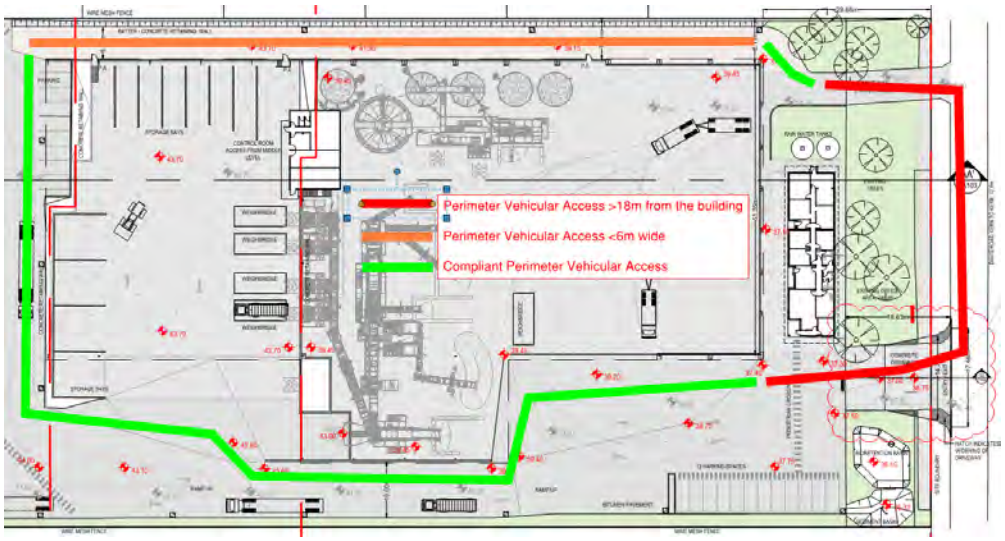
A Large Isolated Building that contain Class 5, 6, 7, 8 or 9 parts, is required to be—
(i) protected throughout with a sprinkler system complying with Specification E1.5; and
(ii) provided with a perimeter vehicular access complying with C2.4(b).

Comments: The proposed RR Industrial Shed building is required to be sprinkler protected throughout, and provided with perimeter vehicular access in accordance with Clause C2.4 (see notes below) pursuant to the Large Isolated Building designation under this clause. See comments under E1.5 below regarding sprinkler requirements.

+ **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 building does not comply with the provisions of C2.4 and thus the following non-compliance areas identified on the site plan below are required to be addressed as a Performance Solution by the Fire Safety Engineer:



Note 1: The driveways providing vehicular perimeter access must be designed with adequate loading capacities to withstand a fire truck and the gradients of the ramps should take into consideration to the FRNSW Policy 4 Vehicular Access Guideline.

Note 2: This non-compliance is currently addressed in the Affinity FEBQ.

+ **Clause C2.8 – Separation of Classifications in the Same Storey**

If a building has parts of different classifications located alongside one another in the same storey, each element must have the required higher FRL for the classifications concerned.

Alternatively, the parts must be separated by a fire wall having the higher FRL for the classifications prescribed in Table 3 or 4 of BCA Specification C1.1 (for Type a), or Table 5 for Type C Construction.

Comments: Not Applicable.

+ **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 –

- Lift motors and lift control panels; or
- Emergency generators used to sustain emergency equipment operating in the emergency mode; or
- Central smoke control plant; or
- Boilers; or
- A battery system installed in the building that has a voltage of 12 volts or more and a storage capacity of 200kWh or more.

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.

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

+ **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 –

- Be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and
- Having any doorway in that construction protected with a self-closing fire door having an FRL of not less then -/120/30
- Be separated from any other part of the building by construction having an FRL of not less than -/120/30.
- 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.

PROTECTION OF OPENINGS

+ **Clause C3.2 – protection of Openings in External Walls**

Openings in an external wall required to have an frl must be protected in accordance with c3.4 if the distance between the opening and the fire-source feature is less than-

- 3m from a side or rear boundary of the allotment; or
- 6m from the far boundary of a fire-source feature if not located in a storey at or near ground level; or
- 6m from another building on the allotment that is not class 10

If required to be protected, the opening must not occupy more than 1/3 of the area of the external wall of the storey in which it is located.

Comments: As the external walls of both the Type C Construction RR Industrial Shed and Class 5 Office are located greater than 3m from a Fire Source Feature they are not required to be constructed with an FRL: per Table 5 of Spec. C1.1. As the external walls in both buildings do not require an FRL, the provisions of C2.3 are not applicable.

+ **Clause C3.15 – Openings for Services Installations**

All opening for services installations in building elements required to be fire-resisting with respect to integrity and insulation must be protected in accordance with the provisions of Spec. C3.15.

Comments: Note – see C2.12 & C2.13. Certification and appropriate test reports will be required for assessment at OC Application stage (if applicable).

SPECIFICATIONS

+ **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.

Comments: The proposed buildings will be subject to the compliance with the Type C Construction provisions of Table 5 of Spec. C1.1 – see Appendix 1. Based on the location of the buildings (included the setback between them being greater than 3m, there are no building elements in either (in addition to those identified under C2.12 & C2.13 above) that require an FRL.

+ **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.

+ **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: Structural Design certification and details demonstrating compliance are required to be provided at CC Application stage for the RR Industrial Shed.

3.3 SECTION D – ACCESS & EGRESS

PROVISION FOR ESCAPE

+ **Clause D1.2 – Number of Exits Required**

This clause requires the provision of sufficient exits to enable safe egress in case of an emergency. D1.2 provides that all buildings must have at least one exit from each storey and sets out circumstances in which more than one exit may be required.

Note 1: Not less than 2 exits must be provided from any storey that involves a vertical rise within the building of more than 1.5m unless the floor area of the storey is not more than 50m^2 and the distance of travel from any point on the floor to a single exit is not more than 20m.

Comments: The number of exits provided to the buildings complies with the requirements of this Clause.

+ **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 exit travel distances in the proposed RR Industrial Shed building are non-compliant and will be required to be addressed as Performance Solutions by the Fire Safety Engineer to demonstrate compliance with Performance Requirements DP4 & EP2.2.

- *Up to 55m to an exit from the Lower Level of the RR Industrial Shed building.*
- *Up to 26m to a point of choice to alternative exits from the Lower Level of the RR Industrial Shed building.*

Note: The exit travel distances in the Office Building are considered compliant with the provisions of D1.4 on the condition that at least two of the external doors are identified as compliant exits.

+ **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 are non-compliant within the Lower Level of the RR Industrial Shed building. In this regard the following non-compliance issues will be required to be addressed as Performance Solutions by the Fire Safety Engineer to demonstrate compliance with Performance Requirements DP4 & EP2.2.*

- *Up to 110m between alternative exits from the Lower Level of the RR Industrial Shed building.*

+ **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: *Population numbers for the building are detailed under D1.13 below and based on these numbers compliance with D1.6 is readily achievable. Final details showing compliant dimensions of all exits (including minimum 1m wide clearances and min. clear height of 2.1m) from each building are to be confirmed on the CC Application plans.*

+ **Clause D1.9 – Travel by Non-fire-isolated Stairways or Ramps**

Sub-clauses (a) to (f) set out the prescribed travel distances to be provided in required exits of Class 2 to 9 buildings and Class 4 parts of buildings. The sub-clauses set out the maximum distances to be taken into account for the various uses in each Class of building.

Comments: The proposed exit stairs are compliant with discharge distances of D1.9.

+ **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 exit discharge points from the building are required to be protected in accordance with the requirements of this clause.*

Note: The external egress paths around the building to the road must achieve minimum 1m unobstructed width.

+ **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: The following population numbers have been calculated in accordance with Table D1.13 based on 10m² per person in the Office Building; and 30m² per person for the RR Industrial with 75% of the being allocated to circulation space and conveyors and equipment / structures:

Office Building – 13 persons
RR Industrial Shed – 60 persons

The above population numbers may be considered excessive for the proposed buildings and as such, population numbers may be provided by Bettergrow/Borg at CC application stage in order to confirm compliance with D1.6 and F2.3 if preferable.

CONSTRUCTION OF EXITS

+ **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 to all cupboards containing electrical distribution boards or comms. equipment that are located in a path of travel to an exit in the Office Building or Control Room in the RR Shed. In this regard, such cupboards are to be enclosed in non-combustible materials and are to be suitably sealed against the spread of smoke.

+ **Clause D2. 8 – Enclosure of Space under Stairs and Ramps**

The space below a required fire-isolated stairway or ramp in a fire-isolated shaft must not be enclosed to form a cupboard or other enclosed space. If the required stairway or ramp is non-fire-isolated, (including an external stairway) any cupboard underneath must have an FRL of 60/60/60, with a self-closing -60/30 door.

Comments: If the space under any of the required exit stairs at the change in level in the RR Industrial Shed building are proposed to be enclosed to form a cupboard or the like, the enclosing walls and ceilings will need to achieve an FRL of 60 minutes and the doorway will need to be fitted with a self-closing -/60/30 fire door. Details demonstrating compliance are to be shown on the CC Application plans where applicable.

+ **Clause D2.13 – Goings & Risers**

This clause sets out the detailed requirements for the construction and geometry of the goings and risers in required stairways. These details are set out in sub-clauses (a) to (c) and Table D2.13 Riser and Going Dimensions.

Comments: All stairs are to have dimensions that comply with Table D.13 (below), have solid risers, and are to have contrasting nosings and slip resistant surfaces throughout in accordance with clause 11 of AS1428.1-2009. (See diagram in Part D3 below).

Note: Refer to the slip resistance requirements for stairs below under Clause D2.14.

Riser and Going Dimensions (mm)			
	Riser (R)	**Going (G)**	**Quantity (2R + G)**
Maximum	190	355	700
Minimum	115	250	550

+ **Clause D2.14 – Landings**

The dimensions and gradients of landings in stairways are set out in this clause; the configuration will depend on the proposed use of a building.

Landing surfaces must be slip resistant OR have slip resistant nosings not less than that listed in Table D2.14 when tested in accordance with AS4586.

Comments: Architect to note.

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

+ **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 –

In a building required to be accessible by Part D3, the doorway –

(i) Opens to a road or open space; and
(ii) Is provided with a threshold ramp or step ramp in accordance with AS1428.1;

In other cases –

(i) 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.*

+ **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. Typically, the following will apply to this class of building:

- Balustrades are required where the fall to the level below is more than 1m in height. The minimum height of a balustrade is 1m above the floor of the landing, walkway or the like; and 865mm above the floor of a stairway or a ramp.
- For a fall of more than 4m to the surface level below, a window sill must be a minimum of 865mm in height above the height of the floor surface.
- Where the floor is more than 4m above the surface beneath the balustrade any horizontal or near horizontal members between 150mm and 760mm above the floor must not facilitate climbing.
- Balustrades must be constructed so as to not permit a sphere of 125mm diameter to pass through. The exception to this is within fire isolated exits within the building, or internal stairs within a Class 7b or 8 building, where the rails can be positioned a maximum of 460mm apart, so long as a bottom rail is located so a sphere of 150mm cannot pass through the opening between the nosing of the stair treads and the rail or between the floor of the landing, balcony or the like. External stairs associated with a Class 7b or 8 building are required to have gaps no greater than 125mm.

Comments: Details demonstrating compliance are to be submitted with the CC Application drawings for assessment against the above criteria.

+ **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. Handrails serving all stairs and ramps both internally and externally to the buildings are required to comply with the accessibility requirements of Clause D3.3 and AS 1428.1-2009.*

+ **Clause D2.19 – Doorways and Doors**

This clause applies to all doorways and refers to the types of doors that cannot be used in buildings of prescribed uses, the use of power operated doors and the force required to operate sliding doors.

If the door is also power operated, it must be opened manually under a force of not more than 110N if there is a malfunction or failure to the power source; or upon the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.

Comment: Architect to note. Details demonstrating compliance will be required to be included in the CC plans.

+ **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: The proposed egress doors are required to swing in the direction of egress in accordance with D2.20(a) – in this regard, the current design complies, however, the exit doors from the Office Building are to be nominated on plans.

+ **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

+ **Clause D3.2 – General Building Access Requirements for People with Disabilities**

Access must be provided to and within all areas normally used by occupants (as required by Clause D3.1) within this building from the main points of pedestrian entry at the allotment boundary; from another accessible building connected by a pedestrian link; and any accessible car parking space.

Access must be provided through the principal pedestrian entrance and through not less than 50% of all pedestrian entrances (including the principal pedestrian entry). In addition, as the buildings are greater than 500m^2, the non-accessible entrance must not be greater than 50m from an accessible entrance.

Comments: *Compliant access is required from the allotment boundary to the main entry of the each building, between buildings connected by a pedestrian link, and from accessible parking spaces to each building in accordance with AS 1428.1-2009. Refer to D3.3 and D3.4 below. Compliance is readily achievable in this regard.*

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

This part specifies the requirements for accessways within buildings which must be accessible. In accordance with Clause D3.3; ramps & stairways must comply with Clause 10 & 11 of AS 1428.1-2009 (respectively), whilst fire isolated stairs must comply with Clauses 11.1(f) & (g) of AS 1428.1-2009 only. In addition, any storey with a floor area more than 200m² must be served by a passenger lift that is designed to comply with Clause E3.6, and all accessways must include passing & turning spaces per AS 1428.1-2009.

Comments: *As indicated above, the proposed buildings are required to be accessible throughout in accordance with AS1428.1-2009. It is assumed that a D3.4 concession (see below) will apply to the RR Industrial Shed building and as such the following relates to the Office Building only.*

The following is a summary of some of the key matters which need to be considered from Clause D3.3 and AS 1428.1-2009 in relation to the current design of the Office Building:

- *Access for persons with disabilities must be provided, at a minimum, to and within all areas normally used by the occupants.*
- *The main entry to the office must be accessible – details of the proposed entry levels are to be included on the CC plans.*
- *An accessway complying with AS1428.1-2009 is required from the allotment boundary to the main entry of the office. This is not currently shown on the current Architectural Plans and as such may need to be addressed as a Performance Solution by the Access Consultant.*
- *The minimum width of an accessible doorway must have a clear opening of not less than 850mm and a minimum clear height of not less than 1980mm. An accessway must have a minimum clear width of 1000mm and 2000mm clear height*
- *All doorways on a continuous path of travel shall have a minimum luminance contrast of 30% provided between: door leaf and door jamb; or door leaf and adjacent wall; or architrave and wall; or door leaf and architrave; or door jamb and adjacent wall. The minimum width of the area of luminance contrast shall be 50mm.*
- *Clause D3.3(g) and (h) requires that the pile height or pile thickness shall not exceed 11mm and the carpet backing thickness shall not exceed 4mm. Moreover, the carpet pile height or pile thickness dimension shall not exceed 11mm, the carpet backing thickness dimension shall not exceed 4mm and their combined dimension shall not exceed 15mm.*
- *Circulation space to the new doorways that are required to be accessible are to comply with Section 13 of AS1428.1-2009. There are a number of doors in the current office design that DO NOT COMPLY with these circulation space requirements*
- *Turning Spaces and Passing Spaces in all areas are required to be provided on each level of the building in accordance with Clauses 6.4 & 6.5 of AS 1428.1-2009. The main access corridor in the Office Building does NOT COMPLY with this requirement.*

Stairways

- *Every common area and external stairway serving must be constructed in accordance with Clause 11 of AS1428.1 or serve the areas in the building that a D3.4 Exemption has been applied to.*

- *Stairs shall have opaque risers (i.e. Solid)*
- *Stair nosing's shall comply with the following diagram, which achieve a colour contrast luminance of 30% to the background (tread):*
- *Stairways are to be served by Tactile Ground Surface Indicators in accordance with AS1428.4.1, except if they are within a fire isolated exit.*

Handrails

- *Handrails shall be installed along stairways as follows:*
  - *Shall be continuous through the flight and where practicable, around landings and have no obstruction on or above up to a height of 600mm,*
  - *Installed along both sides of the stairway (giving consideration also to 1m unobstructed width),*
  - *Shall have a compliant hand clearance in accordance with Figure 29 of AS 1428.1-2009.*

Clause D3.4 – Exemptions

This clause 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/use or the tasks undertaken.

Comments: It is noted that an exemption for the processing areas (on health & safety risk basis) may be appropriate in the RR Industrial Shed Building. Confirmation from Bettergrow/Borg will be required that includes a request for concession, where this would be applied and the reasons why it would be inappropriate for access for people with disabilities within the facility.

Clause D3.5 – Accessible Parking

This clause provides details of the number of accessible carparking spaces required in a carpark depending on the classification of the building.

Comments: Compliant Accessible Parking spaces are to be provided at a rate of 1 per 100 spaces for the buildings. The current plans DO NOT comply with the requirements of this clause, as there are no accessible compliant spaces shown on the Site Plan.

Clause D3.6 Signage

Braille and tactile signage must be provided to required accessible sanitary facilities, spaces with hearing augmentation, ambulant sanitary facilities, pedestrian entrances that are not accessible, **and** to each door required by Clause E4.5 to be provided with an exit sign. The latter is to state EXIT and state the level eg. LEVEL 1.

Comments: Architect to note – will apply to the Office Building only per D3.4 comments above.

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: Stairways and ramps, any overhead projections less than 2m in height and any paths leading directly to a driveway or roadway without a kerb - will need to be provided with Tactile Ground Surface Indicators in accordance with AS1428.4 in the Office Building.

Clause D3.11 – Ramps

Ramps may be used as part of an accessway where there is a change of level and must comply with the requirements set out in AS1428.1.

Comments: Architect to note – will apply to the Office Building only per D3.4 comments above. Details demonstrating compliance will be required to be included in the CC plans where applicable.

Clause D3.12 – Glazing on an Accessway

This part requires the provision of a contrasting strip, chair rail, handrail or transom across all frameless or fully glazed doorways and surrounding glazing capable of being mistaken for an opening.

Comments: *Glazing capable of being mistaken for an opening as listed above must be clearly marked for its full width with a solid and non-transparent contrasting line being not less than 75mm wide and the lower edge must be located between 900mm and 1000mm above the plane of the finished floor level.*

3.4 SECTION E – SERVICES AND EQUIPMENT

FIRE FIGHTING EQUIPEMENT

+ **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 RR Industrial Shed building is required to be served by a compliant hydrant system incorporating a ring main. Details demonstrating compliance with the provisions of E1.3 and AS 2419.1-2005 are required to be provided at CC Application stage.*

Hydrant booster assemblies are required to be accessible to the brigade, located within sight of each main entry, at least 10m from any proposed substation, and adjacent to the main vehicular and pedestrian entry into the site.

As the location of hydrant booster will likely not comply with the above provisions, it will need to be addressed as a Fire Engineered Performance Solution to demonstrate compliance with Performance Requirement EP1.3.

Additionally, where hydrants that are located outside the building but are not open to the sky (e.g. located under an awning or the like) are proposed to be treated as external hydrants, and/or where external hydrants are not proposed to be provided with a radiant heat shield, a Performance Solution from the Fire Engineer will be required demonstrating compliance with Performance Requirement EP1.3.

+ **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 RR Industrial Shed Building is required to be served by a compliant fire hose reel system; however, the Office Building does not require coverage as they are subject to the Class 5 concession. Details demonstrating compliance are to be provided at the CC application stage.*

+ **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 proposed Large Isolated Building is required to be sprinkler protected throughout in order to address the requirements of Clause C2.3 and Table E1.5. It is noted that the Fire Engineer has proposed a Performance Solution to delete the sprinkler system from the RR Industrial Shed Building.*

+ **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 proposed buildings in accordance with Table E1.6 and AS 2444-2001 including the Class 5 Office.*

SMOKE HAZARD MANAGEMENT

+ **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 area and volume of the RR Industrial Shed building is less than 18,000m^2 and 108,000m^3 respectively, a system of smoke hazard management is not required. Note: As indicated above a detailed calculation of the proposed building volume is to be provided by the Architect to confirm the above.

EMERGENCY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS

+ **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: Emergency Lighting is required throughout the buildings in accordance with E4.2, E4.4 and AS/NZS 2293.1-2018.

+ **Clause E4.4 – Design & Operation of Emergency Lighting**

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

Comments: Electrical Consultant to note.

+ **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 from 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.

+ **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.

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

+ **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.

3.5 SECTION F – HEALTH & AMENITY

DAMP AND WEATHERPROOFING

+ **Performance Requirement FP1.4**

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

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

Note 1: There are no Deemed-to-Satisfy provisions for this Performance Requirement in respect to External Walls.

Note 2: Refer to Clause F1.5 for roof coverings.

Comments: Design statement and a documented Performance Solution is to be provided with the Construction Certificate application for the Office Building only, either by using:

- *The Verification Methods in Clause FV1; or*
- *Other verification methods deemed acceptable by the Certifier; or*
- *Evidence to support that the use of the material or product, form of construction or design meets the Performance Requirements or the DTS provisions, such as a Certificate of Conformity (eg. CodeMark); or*
- *By way of Expert Judgement.*

+ **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.

+ **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 – design certification required at CC Application stage.

+ **Clause F1.6 – Sarking**

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

Comments: Note.

+ **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.

+ **Clause F1.13 – Glazed Assemblies**

Glazed assemblies in an external wall must comply with AS2047 requirements for resistance to water penetration for windows, sliding doors with a frame, adjustable louvres, shop fronts and windows with one-piece framing

Comments: Details to be provided with the application for the Construction Certificate.

SANITARY AND OTHER FACILITIES

+ **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)-(h).

Comments: The required sanitary facilities for the Office and RR Industrial Shed Building have been calculated as an aggregate based on the proposed population numbers detailed under Clause D1.13 above. The minimum required sanitary facilities from Table F2.3 are detailed below for reference:

Class 5 Office:

8 Males – 1 Closet Pan, 0 Urinals, 1 Washbasin – Complies

8 Females – 1 Closet Pan & 1 Washbasin – Complies

Class 8 RR Shed:

30 Males – 2 Closet Pans, 2 Urinals, 1 Washbasins – Does not Comply

30 Females – 2 Closet Pans & 2 Washbasins – Does Not Comply

As indicated under D1.13 above confirmation of the population number is required to further assess this requirements and potentially revise the above – see further comments under F2.4 below.

+ **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: The proposed accessible toilet facilities and ambulant sanitary facilities in the Office building do NOT appear to meet design requirements for either accessible or ambulant sanitary facilities per AS 1428.1. A revised deign will be required for the Office Building to demonstrate compliance with the requirements of F2.4 for accessible sanitary facilities.

ROOM HEIGHTS

+ **Clause F3.1 – Height of Rooms and Other Spaces**

The ceiling heights in Class 2 to 9 buildings must not be less than required in sub-clauses (a) to (f) of this clause.

The minimum ceiling heights for a Class 5, 7 & 8 building are as follows:
- Corridor or Passage, Bathroom, Storeroom, etc. – 2.1m
- Remainder – 2.4m.

Comments: Architect to ensure compliance. Ceiling heights to be reviewed at the CC application stage with the detailed section drawings.

LIGHT AND VENTILATION

+ **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.

+ **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 Stage.

3.6 SECTION J – ENERGY EFFICIENCY

+ **Part J1 – Building Fabric**

The provision of insulation of 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, Rooflights, Walls, and Floors. Design details and/or certification of design will be required to be provided in this regard.

Comments: This section applies to any air-conditioned spaces proposed within the proposed Office building and within the Control Room of the RR Industrial Shed Building. Design details and/or certification of building envelope design will be required to be submitted with the application for a Construction Certificate.

+ **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**. Details or certification that the proposed building design complies with the requirements of **Part J3** is required to be provided.

*Comments: This section applies to any air-conditioned spaces proposed within the proposed Office building and within the Control Room of the RR Industrial Shed Building. Details or certification that the proposed design complies with the requirements of **Part J3** will need to be submitted with the application for a Construction Certificate.*

+ **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 or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate for the buildings.

+ **Part J6 – Artificial Light & 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: Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate for the buildings.

+ **Part 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: Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate for the buildings.

+ **Part J8 – Facilities for Energy Monitoring**

Provision for monitoring of energy consumption must be provided to a building where the floor area exceeds 500m², and must be capable of recording the consumption of gas and electricity. In addition, where the floor area of the building exceeds 2,500m² the energy monitoring facilities must be capable of individually recording air-conditioning, lighting, appliance power, central hot water supply, lifts/escalators, and other ancillary plant.

Comments: Details or certification demonstrating compliance will need to be submitted with the application for a Construction Certificate. Note: J8.3 does not apply to the Office Building as it is under 500m².

4.0 CONCLUSION

This report contains an assessment of the referenced architectural documentation for the proposed Bettergrow Resource Recovery Facility against the Deemed-to-Satisfy Provisions of the BCA 2019 Amendment 1. Arising from the review, it is considered that the proposed development can readily achieve compliance with the relevant provisions of the BCA. Where compliance matters are proposed to comply with the Performance Requirements (rather than DtS Provisions), the development of a Performance Solution Report will be required prior to the issue of the Construction Certificate.

The following fire safety measures are required for the new buildings:

Statutory Fire Safety Measure	**Design / Installation Standard**
Automatic Fire Suppression Systems *(subject to a Performance Solution to delete)*	BCA Spec. E1.5 & AS 2118.1 – 2017
Building Occupant Warning System activated by the Sprinkler System *(subject to a Performance Solution to delete)*	BCA Spec. E1.5, Clause 8 and / or Clause 3.22 of AS 1670.1 – 2018
Emergency Lighting	BCA Clause E4.4 & AS 2293.1 – 2018
Exit Signs	BCA Clauses E4.5, E4.6 & E4.8; and AS 2293.1 – 2018
Fire Doors	BCA Clause C2.12, C2.13 and AS 1905.1 – 2015 and manufacturer's specification
Fire Hose Reels (Class 8 Building only)	BCA Clause E1.4 & AS 2441 – 2005

Statutory Fire Safety Measure	Design / Installation Standard
Fire Hydrant Systems (Class 8 Building only)	BCA Clause E1.3 & AS 2419.1 – 2005
Fire Seals	BCA Clause C3.15, AS 1530.4 – 2014 & AS 4072.1 – 2005 and manufacturer's specification
Paths of Travel	EP&A Regulation Clause 186
Perimeter Vehicular Access (Class 8 Building only)	BCA Clause C2.4
Portable Fire Extinguishers	BCA Clause E1.6 & AS 2444 – 2001
Warning & Operational Signs	AS 1905.1 – 2015, BCA Clause D3.6

5.0 APPENDIX 1 – SPEC. C1.1 FRL REQUIREMENTS (TYPE C CONSTRUCTION)

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 within it) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—				
Less than 1.5 m	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
1.5 to less than 3 m	–/–/–	60/ 60/ 60	60/ 60/ 60	60/ 60/ 60
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is—				
Less than 1.5 m	90/–/–	90/–/–	90/–/–	90/–/–
1.5 to less than 3 m	–/–/–	60/–/–	60/–/–	60/–/–
3 m or more	–/–/–	–/–/–	–/–/–	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90	90/ 90/ 90
INTERNAL WALLS—				
Bounding *public corridors*, public lobbies and the like—	60/60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—	60/60/ 60	–/–/–	–/–/–	–/–/–
Bounding a stair if *required* to be rated—	60/60/ 60	60/60/60	60/ 60/ 60	60/ 60/ 60
ROOFS	–/–/–	–/–/–	–/–/–	–/–/–

Notes:

1. New external walls that are located 1.5m or more from an allotment boundary / fire source feature require no FRL's.
2. An external wall required to have an FRL is only required from the outside.
3. Any lightweight construction in a fire wall or an internal wall required to have an FRL is to comply with Specification C1.8.
4. Any insulation installed in the cavity of the wall is required to be non-combustible.
5. The method of attaching or installing a finish, lining, ancillary element, or service installation to a building must not reduce the fire-resistance of that element to below that required.
6. Any internal loadbearing wall or column is required to achieve an FRL of not less than 90/90/90.
7. The floor separating the two storeys is required to achieve an FRL of not less than 90/90/90 to achieve separate fire compartments.
8. No structural elements are permitted to pass through fire-rated walls.
9. Fire rated shafts are required to be enclosed at the top and bottom by construction having an FRL of not less than what the shaft requires.

Fire Engineering Brief Questionnaire (FEBQ)

1 Document control

Applicant reference number 202075 **FRNSW reference number** FRNSW use only

Ver.	Author	Organisation	Status	Date
1.0	Michelle Quach	Affinity Fire Engineering	Issue for internal QA review	26/10/2020

2 Applicant

2.1 Agreement

As the applicant, I confirm the following:

- I agree to pay Fire and Rescue NSW (FRNSW) the charges set out in Clause 46 of the *Fire Brigades Regulation 2014* (see Section 10).
- I agree to forward with this application the following documentation for FRNSW to review and provide advice on the assessment methods and acceptance criteria proposed for the given performance solution:

☑ Copy of proposed building plans and specifications
(e.g. relevant floor plans, elevations, site plan, section views, hydrant plan and schematic)
☑ BCA report or letter from an accredited certifier that identifies all non-compliances (if available)
☐ CFD/zone modelling inputs form (if applicable)
☐ Report extract of the trial design requirements/proposed fire safety measures (optional).

Name of fire engineer	Thomas O'Dwyer	BDC number	0766
Company name	Affinity Fire Engineering		
Fire engineer's phone no.	(02) 9194 0590		
Fire engineer's email	todwyer@affinity-eng.com		

2.2 Remittance advice information

Invoices will be issued based on the information provided below:

ASIC company name	Bettergrow Pty Ltd		
Australian business number	71 062 888 117	Trading name	Bettergrow Pty Ltd
Remittance contact name	Mark Daniels		
Remittance street address	2 Wella Way, Somerby NSW 2250		
Remittance email address	danielsm@borgs.com.au		
Remittance phone number	02 9230 7486	Remittance fax number	N/A
Purchase order ref. no.	N/A	Project code ref. no.	N/A
Project leader contact name	Mark Daniels		
Project leader contact email	danielsm@borgs.com.au		

3 Consultation

3.1 Stakeholders

Role	Name and BPB number	Organisation and phone	Email address
BCA consultant			
Certifier	Dean Goldsmith (A1 -BDC0141)	Blackett Maguire + Goldsmith	Dean@bmplusg.com.au
FRNSW reviewers	FRNSW use only FRNSW use only	Fire and Rescue NSW 02 9742 7434	firesafety@fire.nsw.gov.au

3.2 Meeting details

In conjunction with the written comments provided in response to this FEBQ, FRNSW may at its discretion hold a meeting with the applicant to discuss aspects of the proposed performance solution.

Type of meeting preferred ☐ No meeting ☑ Telephone meeting ☐ Face-to-face meeting

As proactive fire engineers, Affinity Fire Engineering are of the opinion that the best way for the FRNSW to gain a full understand of the design that a meeting should be held to discuss the layout of the site, the design of the building and the identified deviations from the prescriptive provisions of the BCA. This also allows Affinity Fire Engineering to fully understanding the concerns (if any) of the FRNSW.

4 Project details

4.1 Premises

Premises name	Bettergrow
Primary street address	24 Davis Road
Secondary street address	*N/A*
Premises suburb	Wetherill Park NSW 2164
Lot and DP numbers	Lot 11 DP 1144025

4.2 Proposed works

☑ New building
☐ Refurbishment of an existing building
☐ Extension of an existing building
☐ Change in use within an existing building
☐ Other: (provide details)

Applicable NCC: NCC 2019 Amendment 1

For existing buildings:
Approximate year of construction: **Year**
Building code when constructed: **Select**

How many performance solution issues are proposed in this FEBQ? 5

Note: The number of performance solution issues must address all identified non-compliances.

Have all departures from the deemed-to-satisfy (DtS) provisions of the *National Construction Code* (*NCC*) been identified for this proposed design (i.e. a BCA report or letter from an accredited certifier)? Yes

Note: Any advice given is subject to all non-compliances being identified. Any new DtS departures identified, including any from the certifier determining the application for construction certificate, may affect FRNSW advice in respect to this performance solution.

Identify if any previous performance solution applies to the building:

N/A

Identify if any application has been/will be submitted under Clause 188 of the *Environmental Planning and Assessment Regulation 2000*:

N/A

Identify if the premises is or will be subject to any development application (DA) conditions or special regulatory approvals (e.g. BPB conditions, ministerial conditions, crown building works):

Note: FRNSW will not comment on existing buildings subject to voluntary upgrade or change of use prior to the issuing of any DA conditions of consent, or conditions of an existing consent have been modified (i.e section 4.55 of *Environmental Planning and Assessment Act 1979*). Comment will also not be provided if an order has been issued unless the Council agrees. The Council may seek advice during the DA review.

The development is subject to a DA and that it must achieve compliance with the BCA.

Will the premises be subject to a fire safety study, risk assessment or dangerous goods study? No

Note: Any study/risk assessment should be completed prior to submitting this FEBQ and should be attached to this application.

4.3 Description of building occupancy

Main occupancy class	Class 7b Warehouse	Largest fire compartment (within the building)	Area (m^2)	~7,594m^2
Other occupancy classes	Class 5 Office		Volume (m^3)	TBC
Type of construction	Type C		Height (m)	TBC
Effective height (m)	15.98m	Ground floor area (m^2)		~7,594m^2
Rise in storeys	One (1)	Total floor area (m^2)		TBC
Levels contained	One (1)	Total volume (m^3)		TBC

Outline any additional building characteristics:

SITE LOCATION

The development site is situated at 24 Davis Road, Wetherill Park which is approximately 34km west of Sydney's central business district in the local government area of City of Fairfield.

The existing site operates for the same function as is proposed under the current design. It is used by Bettergrow and the new development which mainly includes the construction of a warehouse shed only to provide extra weatherproofing to the existing operation. The focus of this FEBQ shall be the Stage 1 development located on the southern portion of the site. Future buildings on the northern portion of the site shall be developed at a later stage (Stage 2) which to our understanding shall be in accordance with the BCA. Stage 2 shall be reviewed by a certifier and any non-compliances shall be assessed through fire engineering at a later stage.

The site is bound by Davis Road to the south, warehouses to the east and west and bounds the Prospect Reservoir and surrounding bushland to the north. The site location is illustrated in Figure 4-1.

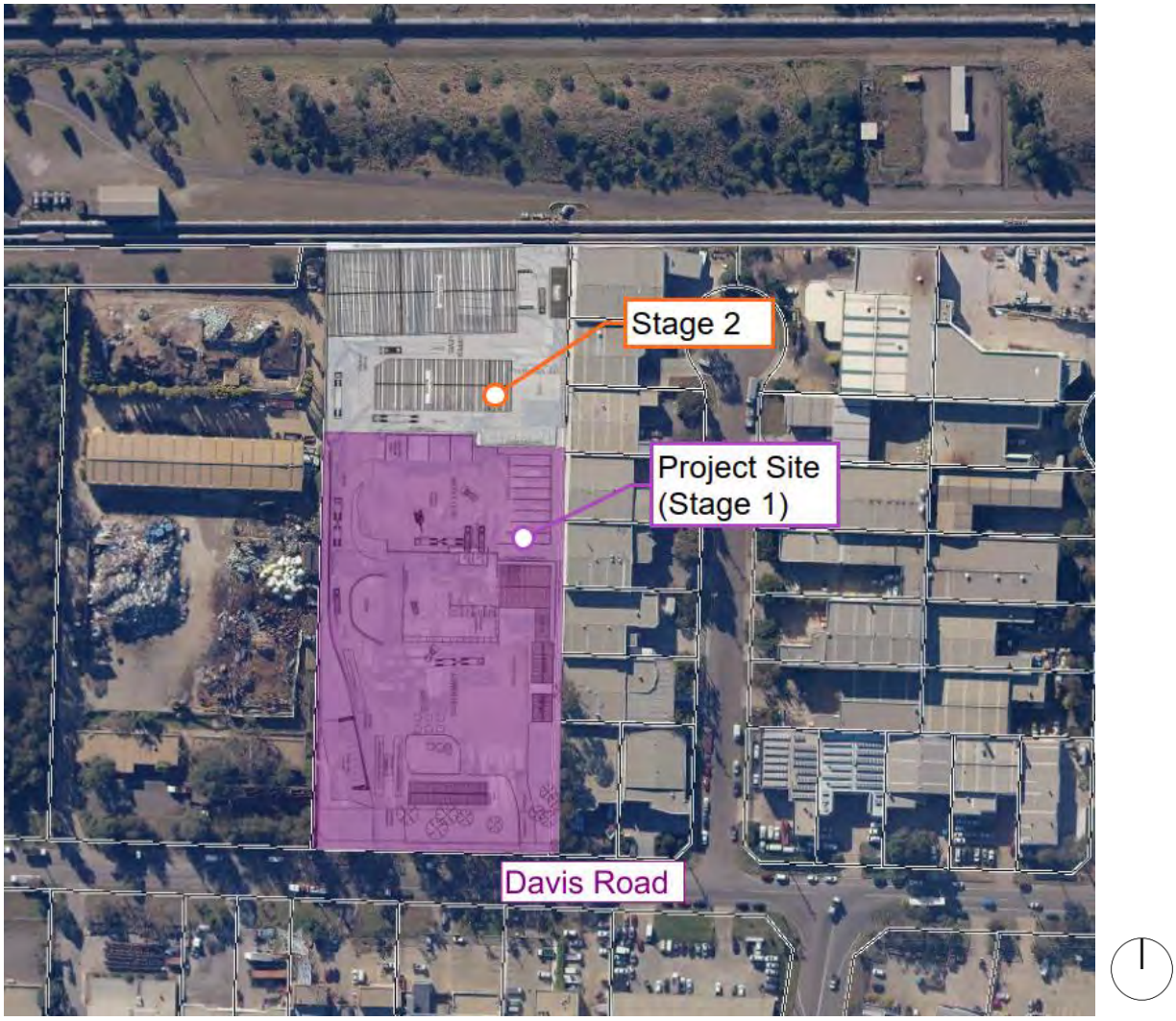


Figure 4-1: Context Plan

In regards to local settings the estate is within industrial area of Greater Western Sydney NSW, and the two nearest fire brigade stations that are provided with permanent staff are located in Smithfield and Cabramatta approximately 3.5km and 8.3km from the site respectively.

BUILDING DESCRIPTION

Warehouse / Weather proofing

- The warehouse has a rise in storeys of one (1) and is assessed as a Large Isolated Building with Type C construction.
- Consists of Class 7b Warehouse, Class 8 processing/sorting and Class 5 offices
- The new building shall be designed to accommodate a single tenancy for Bettergrow used for the washing and processing of soil, sand, aggregates and organics.
- The warehouse is split between a lower level and middle level as indicated in Figure 4-2.
- The main processing area on the lower level shall consist of the following procedure:
  - Trucks deliver and unload soil into the lower level of the warehouse as loose piles which is accessed via western side of the building.
  - Loaders move the soil onto the machinery located on the eastern side of the lower level where the soils are wash.
  - Soil is then moved into the western portion of the processing area where they are loaded onto conveyors and sorted into appropriate groups by size based on the following categories: oversize, sand, aggregates, organics and fines
  - Sorted soil is moved to the middle level via conveyors
  - Weigh bridges located on the middle level weigh the soil/aggregates in loose open bins and the soil is then loaded onto trucks for delivery or stored in the storage bays.
- Occupants are provided with a 2m clear head height throughout a large portion of the processing area underneath the plant machinery and conveyors, allowing occupants considerable free movement throughout the structure.

- The northern façade will be open and a large majority of the western façade will also be open to the atmosphere as indicated in the elevations in Figure 4-4 and Figure 4-5.
- Plant control rooms, office and amenities are situated centrally on the eastern side of the warehouse. Access is provided from the middle level.

Office

- An existing separate office building is located on the southern portion of the site. The warehouse and office building are considered one building as they are located within 6m of each other and hence are considered as a single large isolated building.

Future buildings on the northern portion of the site shall be developed at a later stage (Stage 2) which to our understanding shall be in accordance with the BCA. Any non-compliances in Stage 2 shall be reviewed and assessed through fire engineering. A separation distance of not less than 6m will be maintained between the subject building any future buildings.

A site plan with the Stage 1 development highlighted is detailed below.

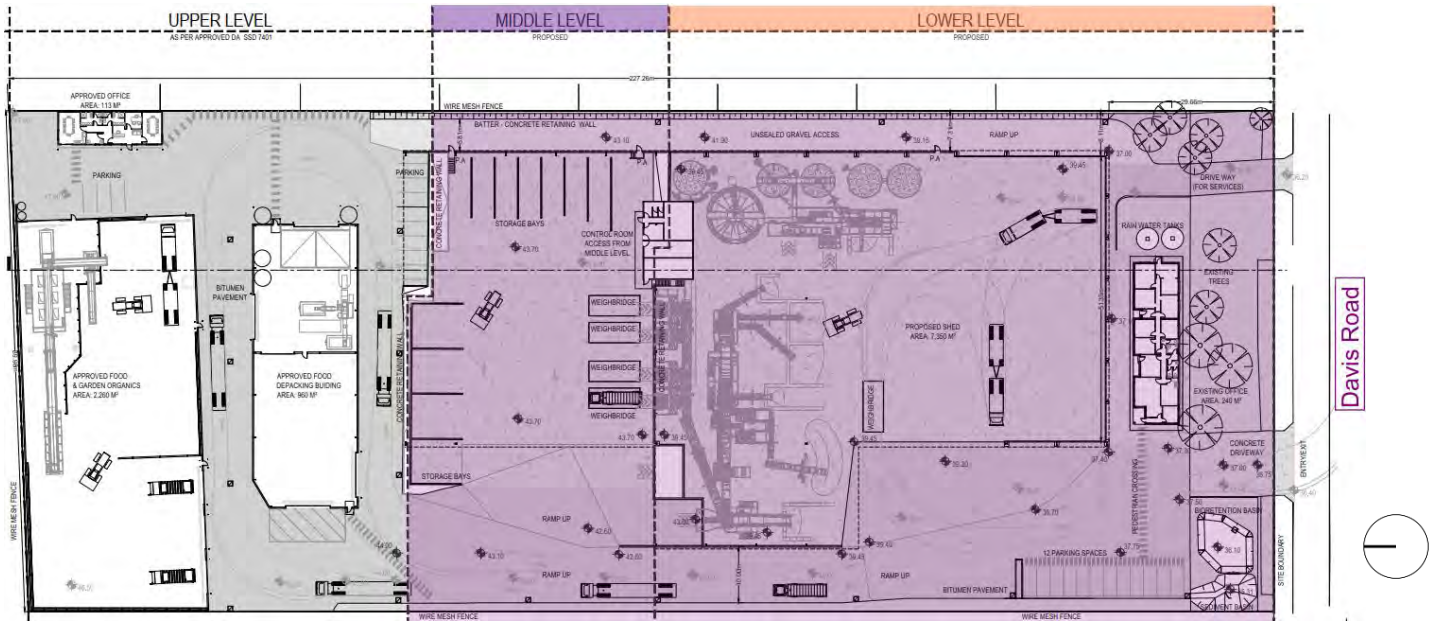


Figure 4-2: Stage 1 Highlighted in Purple on Site Plan

A descriptive mark-up of the warehouse is illustrated in Figure 4-3 with notable items as indicated.

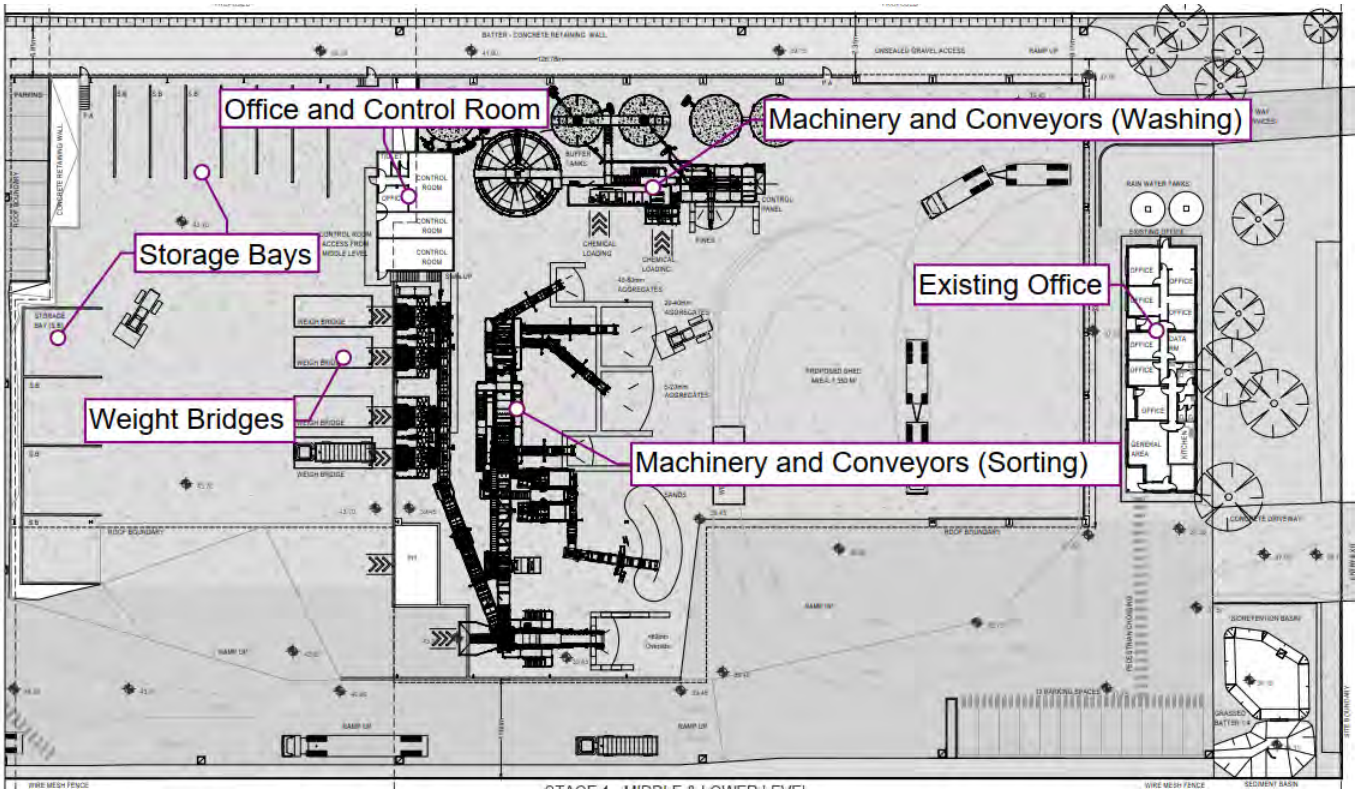


Figure 4-3: Stage 1 Middle and Lower Level Plan

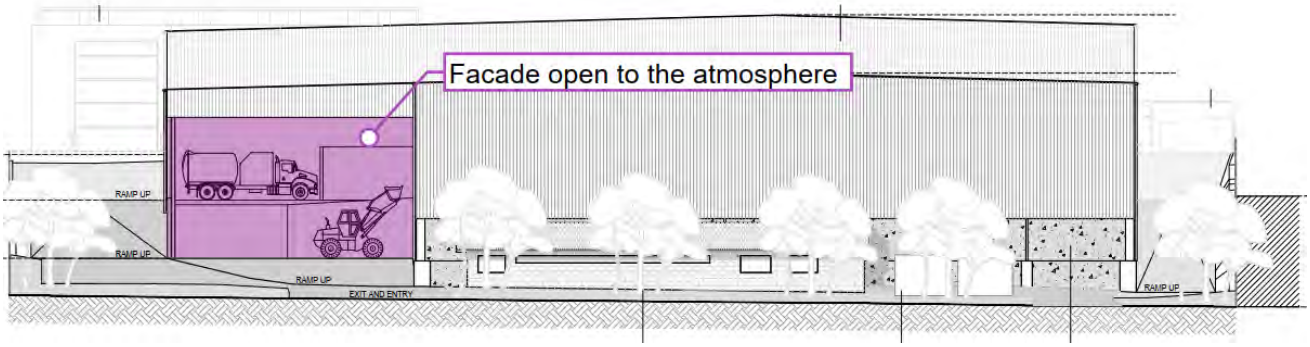


Figure 4-4: Street Elevation Highlighting the Section of the Façade Open to the Atmosphere

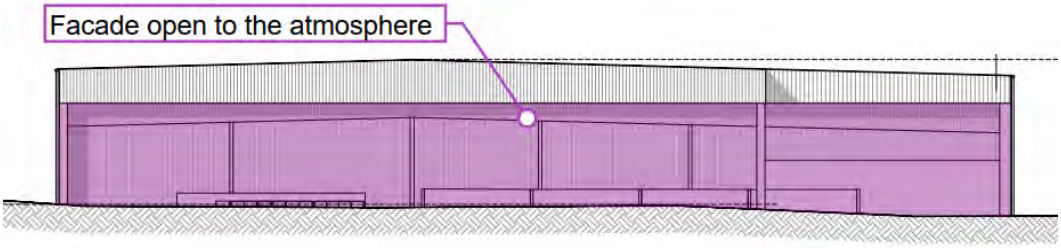


Figure 4-5: North Elevation Highlighting the Section of the Façade Open to the Atmosphere

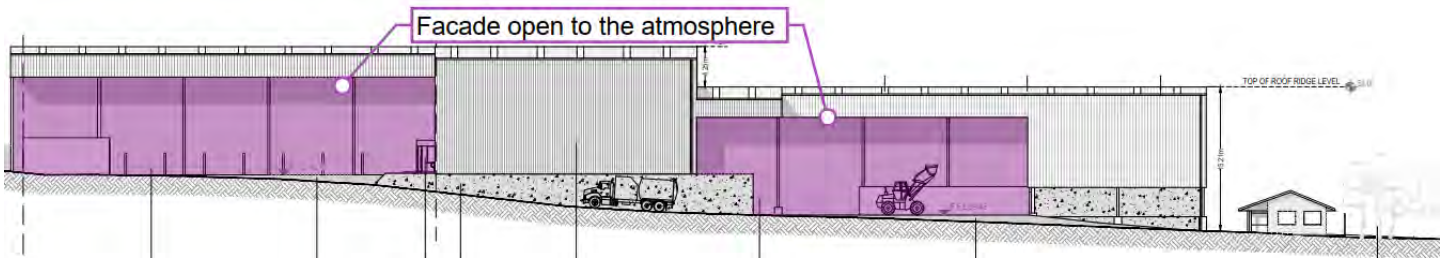


Figure 4-6: West Elevation Highlighting the Section of the Façade Open to the Atmosphere

FIRE SAFETY SYSTEMS

Fire Hydrant System

A dedicated fire hydrant system shall be installed in accordance with AS2419.1:2005 to cover the warehouse. The system shall include the following;

- Direct connection to the reticulated town mains water supply with an onsite pumpset installed in a parallel arrangement (not in series).
- A hydrant booster assembly located adjacent the main vehicular entry to the site – the booster shall be facing the public street.
- Full site blockplans shall be provided at the hydrant booster assembly and FIP.

Performance Solutions are included herein for the Hydrant system.

Fire Sprinkler System

The warehouse is deemed a large isolated building, and as such a fire sprinkler system in accordance with AS2118.1:2017 is required throughout. However, omission of the sprinkler system shall be proposed to be assessed as part of the Performance Solution as on the basis of limited combustible content within and the open nature of the warehouse.

Performance Solutions are included herein for the Sprinkler system.

Fire Indicator Panel

The FIP shall:

- be located at the main entrance of the existing office building.
- be connected to a building occupant warning system and direct brigade alarm.

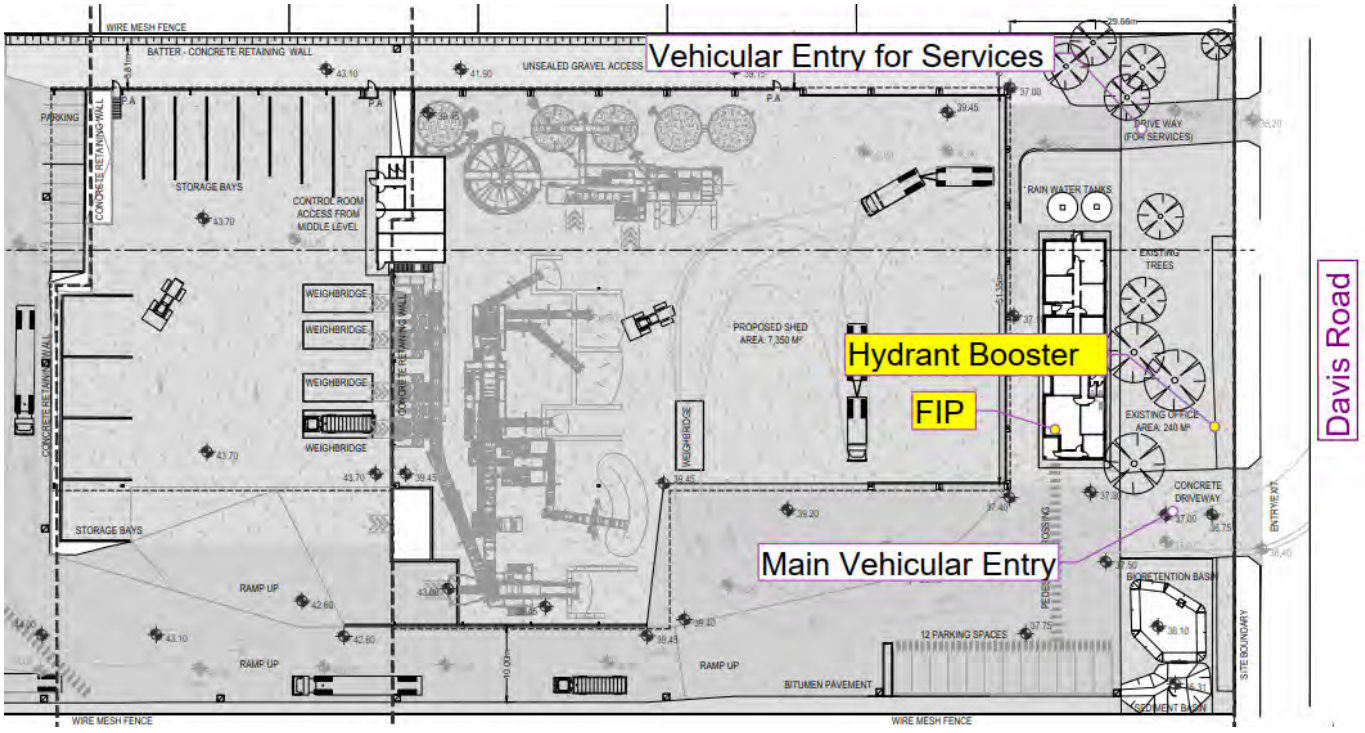


Figure 4-7: Location of Fire Services and FIP

List key occupant characteristics for the building:

OCCUPANT NUMBERS AND DISTRIBUTION

While operations may dictate a low population number, to allow flexibility in the design and any change in operational use in the future, all fire engineering analysis will consider populations per the recommended densities in BCA Table D1.13 (below) to ensure a conservative result.

- 1 person per 30m^2 in the storage/warehouse areas
- 1 person per 10m^2 in the office area

OCCUPANT ATTRIBUTES

Occupants in the buildings may be of mixed age, although elderly and children are generally not expected to be present in consideration of the expected facility purpose. The population is therefore expected to be that of the general working public of adults between 16 and 70 years of age. Due to the expected nature of the work conducted, the majority of occupants are assumed to be able bodied people with a small number of less mobile occupants requiring assistance during an evacuation.

All occupants are expected to be awake and alert or in the direct company of an adult, capable of entering and leaving the building under their own volition. Occupants in all these areas are not expected to be adversely impaired by drugs, alcohol, fatigue or other adverse conditions to degrees greater than in other typical warehouse buildings.

Staff and Security

Are expected to be mobile with normal hearing and visual abilities, and occupants in this group are considered to take and implement decisions independently and require minimal assistance during evacuation in a fire emergency. This occupant group is expected to be awake and fully conscious at all times when inside the building.

Clients and Visitors

Are expected to be mobile with normal hearing and visual abilities, this occupant group are expected to be capable of making and implementing decisions independently however may require assistance in locating the nearest and safest egress path in an emergency. The occupant group shall always be accompanied by a staff member who will be capable of assisting visitors in determining the appropriate response to fire alarm signals and direct them to the most suitable exit in an emergency.

External Maintenance Contractors

Are expected to be mobile with normal hearing and visual abilities where occupants in this group are considered to take and implement decisions independently and require minimal assistance during evacuation in a fire emergency. The contractors are expected to be fully awake and aware of their surroundings at all times when inside the building.

Fire and Rescue NSW

Are expected to be equipped with safety equipment and will be educated in fire-fighting activities and the dangers associated with fire incidents. This occupant group would be expected to be in a position to assist other occupants requiring assistance to evacuate. It is not expected that this occupant group would be present in the building at the time of fire ignition. They are however are expected to enter the building at a later stage to assist with the evacuation of occupants, if required, and to undertake fire suppression activities.

OCCUPANT FAMILIARITY

The majority of occupants within the building are expected to be staff and therefore the population in general are likely to react favourably in an emergency situation.

Staff, Maintenance and Security

Can be expected to have a good familiarity with the building and the fire safety systems provided and may be trained in emergency procedures.

Clients and/or Visitors

May or may not be familiar with the layout of the building and may require assistance in locating the exits. While these occupants may not have a good familiarity of the egress path, they will always be accompanied by a staff member who will direct them to the most suitable exit in an emergency.

External Maintenance Contractors

This occupant group is expected to have a reasonable familiarity with the building as they would have to undergo site specific induction prior to commencement or work on site.

Fire and Rescue NSW

Are not expected to have familiarity of the building layout, however are assumed to obtain the required information from the site block plans and tactical fire plans available prior to entering the building. Notwithstanding this they will be equipped.

Emergency Training

Occupants should be familiar with escape procedures through fire drills and designated fire wardens being appointed to mitigate risks under Workplace Health and Safety legislation (AS3745:2010). Clear escape routes should be maintained with doors unlocked, an no obstruction or rubbish to hinder evacuation.

Staff and visitors are not expected to have fire suppression training and such training is not relied upon for this building population. Staff are however expected to possibly attempt to extinguish a fire or limit fire spread by removing objects in the vicinity of the fire in order to defend their belongings.

5 Hazards

Outline any hazards unique to the building:

- ☐ Combustible external cladding
- ☐ Combustible waste (i.e. waste facility)
- ☐ Hazardous chemicals / dangerous goods
- ☐ Electricity supply system (e.g. substations)
- ☐ Battery system (e.g. BSS, BESS, ESS)
- ☐ Alternative electrical generation (e.g. solar, tri-gen)
- ☐ Insulated sandwich panels
- ☐ Podium type building
- ☐ A basement level
- ☐ An atrium (Part G3 of BCA)
- ☐ Car stacker
- ☐ Other: (provide details)

Note: Clauses E1.10 and E2.3 of the NCC should be addressed when special hazards exist (e.g. car stacker, hazardous chemicals/dangerous goods).

6 Preventative and protective measures

Identify fire safety measures that are, or will be, provided throughout the building, including anything undecided, which should be mentioned as part of the FEBQ review. Additional information may be added to the comments section below to better describe any systems or indicate systems that may be subject to a performance solution.

Suppression system	Detection system	Facilities for emergency services
☐ CA16 (existing building)	☐ AS 3786:2014	☐ Emergency lifts
☐ AS 2118.1-2017	☐ AS 3786-1993 (existing building)	☐ Fire control centre
☐ AS 2118.1-2006	☐ AS 1670.1:2018	☐ Fire control room
☐ AS 2118.1-1999	☐ AS 1670.1:2015	☑ Perimeter vehicular access
☐ AS 2118.2-2010 (wall-wetting)	☐ AS 1668.1:2015	☐ Standby power supply system
☐ AS 2118.3-2010 (deluge)	☐ AS 1670.3-2018 (monitored)	**Occupant warning system**
☐ AS 2118.4-2012 (residential)	☐ AS 1670.3-2004	☑ Building occupant warning
☐ AS 2118.5-2006 (domestic)	☐ Smoke alarms	☐ EWIS
☐ AS 2118.6-2012 (combined)	☐ Heat alarms	☐ SSISEP
☐ FPAA101D (class 2 or 3)	☐ Smoke detectors	☑ Break glass unit
☐ FPAA101H (class 2 or 3)	☐ Heat detectors	☐ Visual / tactile alarm devices
☐ Fast response heads	☐ Flame detectors	**Signage**
☐ ESFR	☐ CO detectors	☑ Emergency lighting
☐ Storage mode sprinklers	☐ Multi-criteria fire detectors	☑ Exit and direction signs
☐ Gaseous suppression system	☐ Aspirated smoke detection	☑ Warning and operational signs
☐ Water mist system	☐ Beam detection	**Protection of openings**
Hydrant system	**Water supply**	☐ Fire doors
☐ AS 2419.1-2017	☐ Reticulated town main	☐ Smoke doors
☑ AS 2419.1-2005	☐ Private water main	☐ Solid core doors
☐ AS 2419.1-1994 (existing building)	☐ Onsite storage tank	☐ Fire windows
☐ Ordinance 70 (existing building)	☐ Gravity tank/reservoir	☐ Fire shutters
☑ External hydrants	☐ Dual supply	☐ Wall-wetting sprinklers
☐ Internal hydrants	**Smoke hazard management**	☐ Fire curtain
☐ Internal dry-riser (for Class 2/3)	☐ Zone smoke control	☐ Smoke curtain
☐ Street hydrant coverage only	☐ Purge system (existing building)	☐ Safety curtain for openings
☑ Hydrant booster assembly	☐ Smoke and heat vents	☐ Fire dampers
☐ Pumpset	☐ Smoke exhaust	☐ Smoke dampers
Firefighting equipment	☐ Smoke baffles	☐ Fire seals (intumescent)
☑ Portable fire extinguishers	☐ Ridge vents	☐ Hot smoke seals (>200ºC)
☑ Fire hose reels	☐ Stair pressurisation	☐ Medium temp. smoke seals
	☐ Impulse / jet fans (in carpark)	
	☑ Significant natural ventilation via open sides of the building	

Additional information:

7 Departures from the Deemed-to-Satisfy provisions

Issue number: 1 **Title: Vehicle Perimeter Access Road**

Details of departures from DtS provisions:

BCA Clause C2.4 requires vehicular access as a continuous means of passage for emergency vehicles in a forward direction around the entire building. Further to this, the roadway is required to have a width of no less than 6m and be located within 18m of the building.

The following non-compliances have been identified:

Vehicular access is provided around the building, however the pathway deviates from the DtS provisions in the following areas:

- The vehicular access travels more than 18m from the external wall of the building on the southern side of the building along Davis Road (up to 27m)
- The vehicle access path temporarily reduces in width down to 5.5m in lieu of 6m on the eastern side of the building.

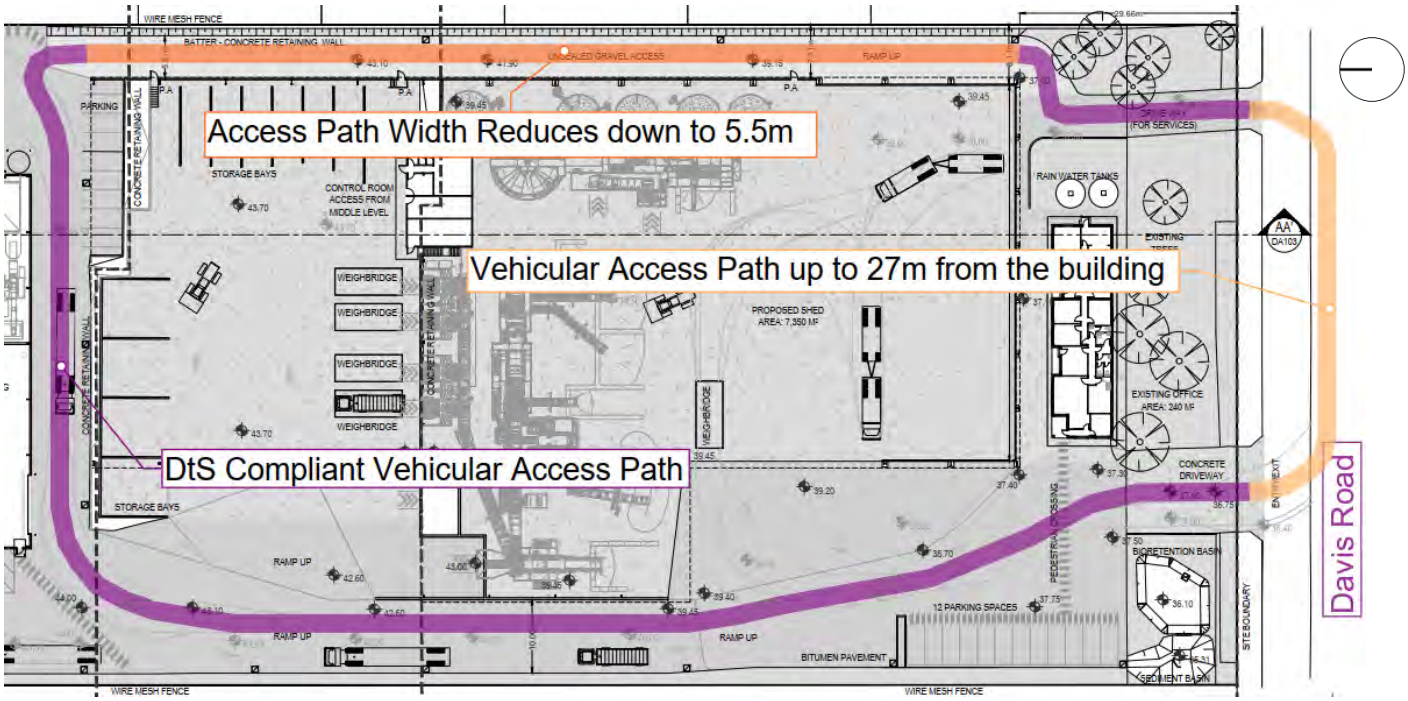


Figure 7-1: FRNSW Vehicular Access

Applicable DtS provisions:	C2.4	Performance requirements:	CP9

List key fire safety measures:

As part of the Performance Solution, the following key fire safety measures are required:

Building and Design Requirements

- Security and boom gates that cross the vehicular access path:

  Manually Operated Gates:

  o are to be locked with a loose chain and padlock unlockable by fire brigade 003 keys;

  Mechanically Driven Gates:

  o Are to have a manual overdrive provided at the gate motor to disengage the gearing and allow manual opening of the gate by FRNSW during a power failure scenario.

  - Operational instructions and diagrams illustrating the gate gear override mechanism will be provided at the FIP with those instructions able to be included in the brigade turnout information for attending fire fighters

- Roadway gradients shall not hinder vehicle response and must be suitable for heavy vehicles in accordance with Australian Standards and FRNSW Access for Fire Brigade Vehicles and Firefighters Guideline.

- The fire appliance access road and surface are all weather and are capable of supporting the maximum appliance weights expected during fire conditions. The roadway should be designed to withstand a uniformly distributed load over the entire area as per the fire and rescue requirements. This would provide the necessary stability for fire-fighting appliances (pumping), and, if necessary the use of a heavier fire-fighting (aerial) appliances.

Proposed alternative solution:

SUMMARISED PERFORMANCE SOLUTION

The assessment methodology will adhere to BCA Clause A2.2(1)(a) and Clause A2.2(2)(b)(ii). The analysis will be absolute and qualitative in demonstrating that the configuration of perimeter access ensures that firefighter capabilities are not adversely disadvantaged.

SUMMARISED ASSESSMENT

Assessment of the Access Path Being More than 18m from the Building

Parts of the vehicular access path are not within 18m of the building which may impair on brigade access to the building. The following sections of the access path have been identified as being further than 18m from the building:

- The southern side of the building along Davis Road (up to 27m)

The maximum requirement of 18m ensures the brigade have access to the building exits via foot and are able to quickly access the hydrants to initiate their firefighting operations without delay. It also allows the water stream from the appliance to reach the building when an external fire suppression strategy is applied.

Although the vehicle paths are further than 18m from the building, pedestrian access is always available around the building perimeter via hardstands and dedicated pathways. Hardstand is also provided around the warehouse which will allow FRNSW straightforward access to the building and appropriate setup and staging areas.

Where a change of level exists stairs will be provided or if fencing is provided between the access road and the building FRNSW gates will be provided (with 003 keys locks) to ensure the fire fighters can reach the building and hydrants from the designated hard stand.

Therefore, although the access distance to the building exceeds 18m, the attending fire fighters will still be able to navigate around the hardstand to access the building without significant increase in difficulty and carry out required operations.

Assessment of Reduced Access Path

The vehicle perimeter path is subject to a reduced along the eastern side of the building. Whilst these reductions in width are non-compliant to the provisions of the BCA, FRNSW Fire Safety Guideline “Access for fire brigade vehicles and firefighters” provides direction that a carriageway is considered to have constricted access due to a width reduction less than 4.5m and no less than 3.2m. To this regard the path width reductions no less than 5.5m should be considered suitable by FRNSW for appliances to travel along. The clear width of 6m for perimeter access carriageways is understood to facilitate safe working space for fire fighter to exit and move around the vehicle and stage speciality (aerial) appliances with stabilises as illustrated in Figure 7-2.

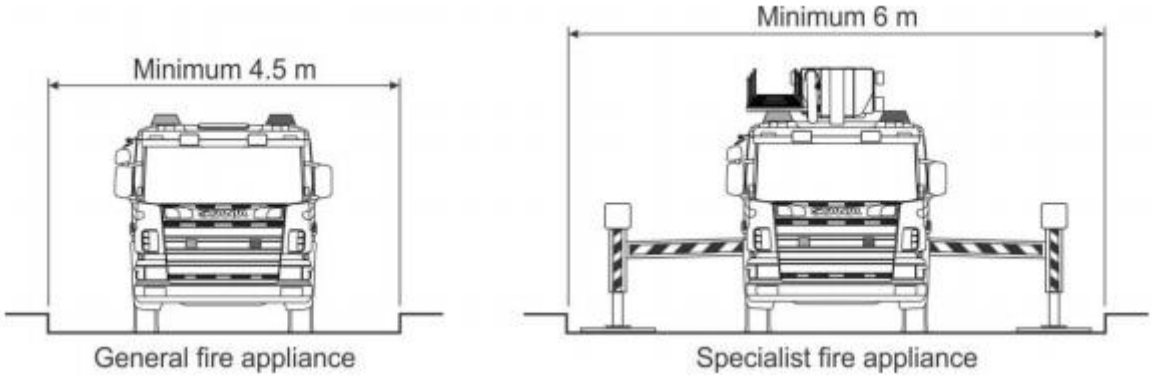


Figure 7-2: Minimum Carriageway Widths (FRNSW Excerpt)

The optimal staging setup of an aerial appliance is to have all four stabilisers reaching out the maximum potential, which ideally utilises a clear 6m access road width. This provides a more stable base for the appliance and allows the extended ladder to be able to reach around the vehicle to maximum capacity. It is noted that the narrow setup is also possible where stabilisers are not able to reach out to the maximum potential. This is possible and functional; this however restricts the range that the extended ladder can then sweep around the vehicle. It is considered that

aerial appliances will be staged in locations that are most structurally stable so as to minimise the risk to fire fighter and equipment. In general terms these locations are the corners of building as they are most likely to remain standing, or at least collapse inwards, when the structure is impacted by fire. In regard to staging areas are provided at all 4 corners of the building where the road width will achieve 6m wide. Additionally, the northern and western side of the building is significant open and hence water spray can be directed straight inside the building and therefore directed towards the fire from an external viewpoint. This open nature is also beneficial in removing any hot gasses that may typically build up in an enclosed warehouse.

Performance solution:

- ☑ A2.2(1)(a) - Comply with all relevant performance requirements
- ☐ A2.2(1)(b) - Be at least equivalent to the DtS provisions

Assessment methods:

- ☐ A2.2(2)(a) - Evidence of suitability
- ☐ A2.2(2)(b)(i) - Verification methods provided in the NCC
- ☑ A2.2(2)(b)(ii) - Other verification methods accepted by the appropriate authority
- ☐ A2.2(2)(c) - Expert judgement
- ☐ A2.2(2)(d) - Comparison with the DtS provisions

Assessment approach:

☐ Comparative	☑ Qualitative	☐ Deterministic
☑ Absolute	☐ Quantitative	☐ Probabilistic

IFEG sub-systems used in the analysis:

☑ A – Fire initiation and development and control	☐ D – Fire detection, warning and suppression
☑ B – Smoke development and spread and control	☐ E – Occupant evacuation and control
☑ C – Fire spread and impact and control	☑ F – Fire services intervention

Acceptance criteria and factor of safety:

The configuration of the perimeter access path will enable fire brigade access and intervention to the building.

Fire scenarios and design fire parameters:

N/A

Describe how fire brigade intervention will be addressed or considered:

Fire brigade intervention will be addressed and considered in the fire engineering report. This will take into account potential impacts on activities and tasks of the fire brigade.

Verification/validation analyses:

☐ Sensitivity studies ☐ Redundancy studies ☐ Uncertainty studies ☑ None

N/A

Provide details on proposed modelling/assessment tools:

N/A

Issue number: 2 **Title: Warehouse Travel Distances**

Details of departures from DtS provisions:

BCA Clause D1.4 states that the travel distance to the nearest exit must not exceed 40m where more than one exit is available.

BCA Clause D1.5 states that the travel distance between alternative exits must not exceed 60m.

The following non-compliances have been identified:

The travel distances exceed the BCA limitation of D1.4 and D1.5 as follows within the warehouse:

- Up to 28m to a Point of Choice in lieu of 20m
- Up to 59m to the nearest exit in lieu of 40m
- Up to 117m between alternative exits in lieu of 60m.

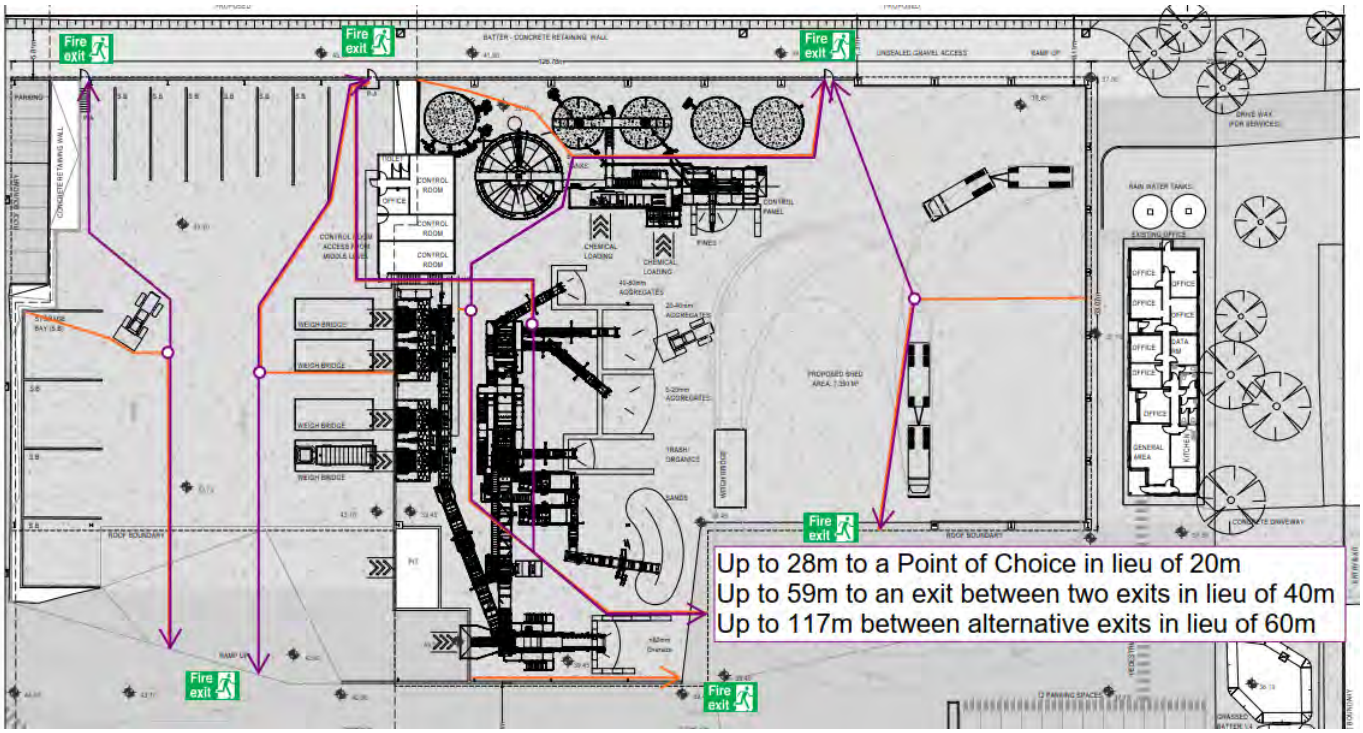


Figure 7-3: Most Onerous Non-Compliant Travel Distances within the Warehouse

Applicable DtS provisions:	D1.4, D1.5	Performance requirements:	DP4, EP2.2

List key fire safety measures:

As part of the Performance Solutions, the following key fire safety measures are required:

Machinery and Conveyor System

- The machinery and conveyor system shall shut down on general fire trip.

Active Fire Safety System

- Manual call points shall be provided at every exit of the building and the office.
  - Break glass alarms shall be linked to the Building Occupant Warning System and direct brigade alarm.
  - Occupants shall be provided with emergency training to activate the manual call points after initial detection of a fire

In addition to the above, the following key design features have been identified as advantageous to occupancy tenability:

- Large permanent open sections of the external wall of the building for smoke to vent directly out to the atmosphere (note the subject building is too small to require smoke exhaust or venting under DtS provisions).
- Occupant familiarity with the building and egress routes
- Exits distributed evenly around the perimeter of the building.
- Limited ignition sources and fuel loads
- Limited potential for fire spread to other parts of the building due to use and operation.
- The use as an aggregate washing and sorting plant is to be clearly listed on the Essential Services List and any change in use (i.e. change from washing and sorting soil) or building layout (i.e. any proposed enclosing of walls) must result in the building being re-assessed by an C10 Accredited Fire Engineer to determine the suitability.

Proposed alternative solution:

SUMMARISED PERFORMANCE SOLUTION

The assessment methodology will adhere to BCA Clauses A2.2(1)(a) and A2.2(2)(b)(ii) in an absolute, quantitative and deterministic analysis. CFD analysis is utilised to model the expected smoke behaviour and subsequently an ASET/RSET time-line analysis is undertaken to determine safe occupant evacuation and fire brigade intervention.

The large area of openings on the northern, eastern and southern facade of the warehouse shall allow smoke to vent directly to the outside, providing the population with adequate time to safely evacuate the building prior to the onset of untenable conditions.

SUMMARISED ASSESSMENT

In order to demonstrate that occupant tenability is satisfied, the FDS analysis undertaken is used to compare the time at which tenability conditions are deemed to be exceeded to the time required for occupant evacuation. This ASET/RSET analysis is based on occupants evacuating from the building, with consideration to visibility, temperature and toxicity conditions for all design fires scenarios.

To determine the available safe egress time (ASET) in the ASET/RSET analysis for the Performance Solution, the time taken to exceed the tenability limits for occupant life safety has been estimated using computational fluid dynamics (CFD) computer modelling. CFD modelling programs simulate the interaction of liquids and gases with specific boundary conditions.

The openings in the warehouse on the northern, eastern and southern facades allow smoke to directly vent into the atmosphere and shall provide the population with adequate time to safely evacuate the building prior to the onset of untenable conditions. There are many different facilities and working areas within the building and as such not all occupants will be able to physically recognise smoke cues and evacuate.

Travel distances to the nearest and alternative exit is used to calculate RSET. To provide a robust fire engineering analysis in accordance with the methods outlined in the IFEG, a sensitivity egress scenario has been utilised in which occupants first head towards the nearest exit, then back through the point of choice to an alternative exit. This egress sensitivity is not assessed against the fire sensitivity as it is deemed that an overly conservative design will result.

Calculation of RSET

To establish the Required Safe Egress Time (RSET), the egress analysis evaluates the time necessary to initiate occupant response to an alarm or cue of a fire and the required time for occupants to reach a safe place during evacuation. The RSET is measured from the same point in time as the initiation of ignition. The calculated RSET is the sum of times incurred during the following three stages of the evacuation process:

- Alarm Time: The time occupants are notified of the fire hazard (this may be via an automatic alarm system, verbal communication via an intercom system, occupants communication after an initial detection of danger or visual cues resulting from smoke accumulation in the enclosure).
- Recognition/Response Time: The time required for occupants to acknowledge the cues received and assess if they require direct action or if a second notification is required before the commencement of evacuation. This period is known as the pre-movement time and allows for occupant curiosity, manual suppression activities and gathering or notifying other occupants.
- Travel Time: Once occupants have decided to begin movement, the time required to travel to the point of choice shall be calculated.

Alarm Time

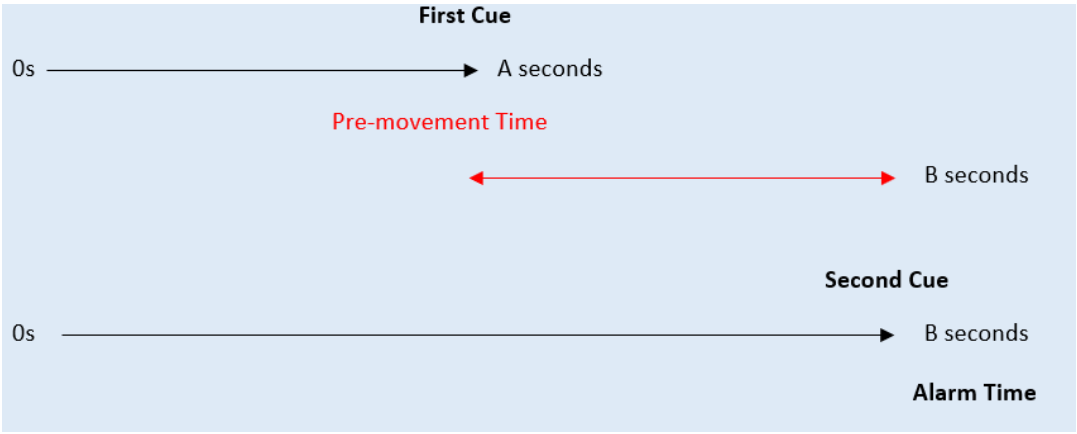


Figure 7-4: Relationship between the First Cue, Pre-Movement Time, Second Cue and Alarm Time

The alarm time for each scenario is calculated based on manual call points which shall be provided at every exit and the office. The break glass alarm will be linked to the Building Occupant Warning System and direct brigade alarm. Therefore, the time it takes for occupants to reach a manual call point from the worst credible location which then activates the building alarm will be used as the primary cue. It is noted that the Occupants must first become aware of the fire prior to travelling to the break glass alarm. Hence the alarm time shall also incorporate a delay associated with the smoke travelling and covering 10% of the roof area.

Pre-movement Time

The pre-movement time depends primarily upon the design behavioural scenario category and the fire safety management level, with some effect of building complexity. The occupants in this building are likely to be familiar with their surroundings and so more acutely aware of a fire event presenting unusual cues to arouse suspicion.

Pre-movement time typically applies only to areas remote from the area of fire origin where occupants may receive only a single cue to the presence of a fire and where those cues do not present an immediate threat to their health and safety. An example is where an occupant remote from the fire origin may smell smoke however would be unsure of its origin and may take investigative action or rationalise that it is a 'normal' event.

As such, the pre-movement time will be taken as the time in which two fire cues are present, namely the manual call point alarm times and visual cues from the smoke covering the warehouse ceiling.

The sounds and smells emanating from the fire are also likely to provide earlier cues to occupants than the sight of the smoke [PD7974.6-2004] however without a quantifiable method of assessing these, they are generally neglected.

As occupants inside the warehouse may focus on a certain task they are working on at the time of the fire, the smoke layer height will create a visual and/or olfactory cue to the fire, but it may not be adequate to prompt immediate evacuation. As part of the Performance Solution, building occupants shall be provided with emergency training and procedures to activate the manual call points upon initial detection of a fire through visual or olfactory cues. As such, the cue to commence egress to the exit and cause an end to the pre-movement time is based on the combination of both visual cue and initiation of the building alarm system via the manual call point.

Travel Time

Occupants are expected to be awake and familiar with the building layout and not expected to have difficulties in wayfinding.

A maximum travel speed of 1m/s is selected for all occupants. This is less than the mean of 1.19m/s from the research of Nelson and Mowrer for unimpeded travel speeds in corridors, ramps, aisles or doorways. Further, Proulx provides data that the average travel speed of mobility impaired occupants is 0.8m/s. Due to the nature of the work undertaken within the warehouse facility, occupants are expected to be mobile and as such, a travel speed of 1m/s is considered appropriate.

As a redundancy analysis, 50% of exits are considered unavailable. Under the redundancy scenario the distance occupants are required to travel to an exit is taken as a combination of the distance to an exit and the distance between alternative exits.

Performance solution:

☑ A2.2(1)(a) - Comply with all relevant performance requirements
☐ A2.2(1)(b) - Be at least equivalent to the DtS provisions

Assessment methods:

☐ A2.2(2)(a) - Evidence of suitability
☐ A2.2(2)(b)(i) - Verification methods provided in the NCC
☑ A2.2(2)(b)(ii) - Other verification methods accepted by the appropriate authority
☐ A2.2(2)(c) - Expert judgement
☐ A2.2(2)(d) - Comparison with the DtS provisions

Assessment approach:

☐ Comparative	☐ Qualitative	☑ Deterministic
☑ Absolute	☑ Quantitative	☐ Probabilistic

IFEG sub-systems used in the analysis:

☑ A – Fire initiation and development and control	☑ D – Fire detection, warning and suppression
☑ B – Smoke development and spread and control	☑ E – Occupant evacuation and control
☑ C – Fire spread and impact and control	☑ F – Fire services intervention

Acceptance criteria and factor of safety:

Occupants must be able to egress from the building under tenable conditions with full clear unobstructed view of the non-compliant exit signs with the following relationships satisfied:

- $ASET_{WC} \geq 1.5 \times RSET_{WC}$
- $ASET_{WC} \geq RSET_{RED}$
- $ASET_{SEN} \geq RSET_{WC}$

Occupant Tenability: The onset of untenable conditions is associated with the smoke layer descending and exposing occupants to any one of the following criteria at a height of 2.0 m above the level of egress

- Temperature > 60°C
- Visibility < 10 m
- CO toxicity > 1,400 ppm

Or a smoke layer height above 2.0m and:

- The smoke layer temperature is greater than 200°C.

Fire Brigade Tenability: Brigade must be able to access the building under operational conditions with the following relationships satisfied at a height of 1.5m above ground (per the FBIM):

- Maximum air temperature: 120°C (in lower layer).
- Maximum radiation: 3kW/m^2 for 10 minutes.

Fire scenarios and design fire parameters:

DESIGN FIRE SCENARIOS

Fire Sizes – Peak Heat Release Rate

The warehouse generally contains soil, sand, aggregates and organics, with low volumes of cellulosic materials, plastics and combustible materials. Additionally, there are a number of soil moving vehicles (delivery trucks and loaders generally containing dirt as their transport commodity). With consideration of the use of the subject building it is highlighted that there is very little risk of fire ignition. The likely fire scenarios would include an office fire, or a fire within a loader vehicle or a truck. It is highlighted that even these would not be a significant fire load due to the ignitable material being the cabin and vehicle itself as the transport material is considered to be non-combustible. It is further note due to the sparse nature, limited number of vehicles and the transported goods being non combustible it would be expected that only a single truck fire is likely and fire will not likely spread to other parts.

Based on the above the proposed fire shall be based on the following:

- A vehicle fire to cater for the accelerated risk associated with trucks unloading soil to the machinery at the southern side of the warehouse.
- The fire will be located at the corner of the warehouse, the furthest away from the warehouse openings. A corner fire will produce an uneven smoke spread over the roof due to the smoke interacting with roof space and bounding walls.

- The fire growth rate for the vehicle fire shall be conservatively adopted as an ultra fast t-squared fire growth rate.
- The PIARC report of 1987 suggests a peak heat release rate of between 20MW and 30MW for a HGV (Heavy Goods Vehicle). Similarly, NFPA 502 suggests that the peak heat release rate for heavy goods trucks is in the order of 20MW to 30MW (as depicted in the following figure). To be conservative, the vehicle fire will incorporate an ultra-fast t-squared growth rate and conservatively capped at 30MW. This is considered to be extremely conservative with consideration of the non-combustibility of the transported material.
- With consideration of the extreme fire adopted as a worst credible scenario a sensitivity scenario shall not be considered.

Table A.10.5.1 Fire Data for Typical Vehicles

Cause of Fire	Equivalent Size of Gasoline Pool		Fire HRR	Approx Energy Content	Smoke-Generation Rate		Maximum Temperature	
	ft²	m²	MW	MJ	ft³/min	m³/sec	°F	°C
Passenger Car	22	2	5	6000	42-63	20-30	750	400
Bus	86	8	20	41000	127-168	60-80	1290	700
Heavy Goods Truck	86	8	20-30	86000	127-168	60-80	1830	1000
Tanker	323-1076	30-100	100	1500000	212-530	100-300	2250-2525	1200-1400

Source: Fire and Smoke in Road Tunnels, 1999 Edition – Table 2.4.1, Section II.4.1, II.4.3 and Table 2.4.3

Source NFPA 502 - Road Tunnel and Highway Fire Protection

The design fire location is shown in the following figure.

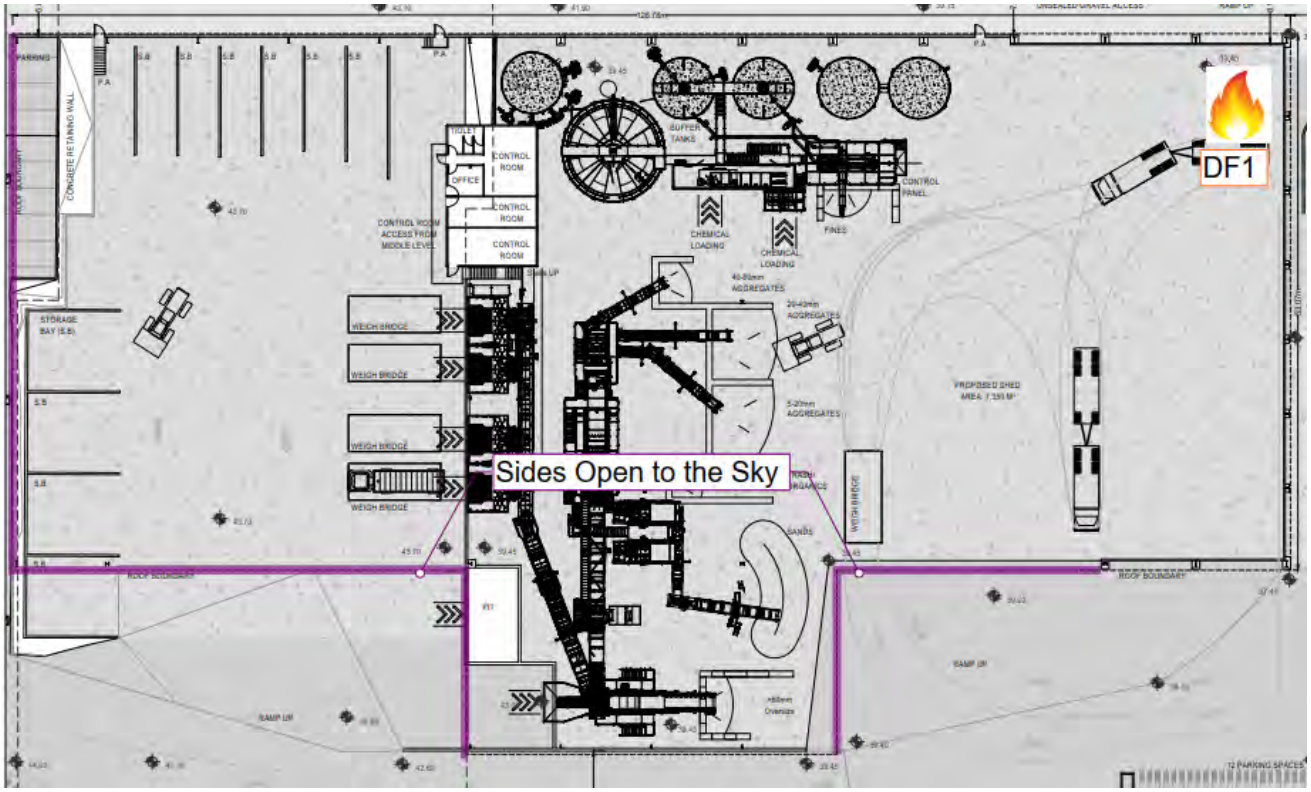


Figure 7-5: Design Fire locations

Table 7-1: Design Fire Summary

Design Fire	Growth Rate	Roof Height (m)	Maximum HRR (kW)	Time to Max HRR (s)
Design Fire 1 - Corner	Ultra-Fast	10.24	30,000	400

Please see CFDQ form for further fire design details and modelling inputs.

Describe how fire brigade intervention will be addressed or considered:

The Fire Engineering Assessment considers fire-fighter life safety where occupant tenability limits have been exceeded and intervention is required by the Fire Brigade. It is noted that it is proposed FRNSW notification shall be

provided via the use of MCP strategically located throughout the building (including at the exits and within the office). Additionally, the building has significant ventilation.

Search and rescue operations require enclosure to be safe for fire fighters. According to the Fire Brigade Intervention Model V2.2 the following criteria will be used to determine the tenable conditions for fire fighters relative to height of 1.5m above floor level:

Hazardous Condition

Where firefighters would be expecting to operate for a short period of time in high temperatures in combination with direct thermal radiation.

- Maximum time: 10 minutes
- Maximum Air Temperature: 120°C (in lower layer)

Maximum Radiation: 3kW/m^2

Verification/validation analyses:

☐ Sensitivity studies ☑ Redundancy studies ☐ Uncertainty studies ☐ None

Redundancy is considered in travel time calculations. Based on 50% of exits being compromised in the redundancy scenario.

Provide details on proposed modelling/assessment tools:

In order to demonstrate that occupant tenability is satisfied, the FDS analysis undertaken is used to compare the time at which tenability conditions are deemed to be exceeded to the time required for occupant evacuation. This ASET/RSET analysis is based on occupants evacuating from the building, with consideration to visibility, temperature and toxicity conditions for all design fires scenarios. To determine the available safe egress time (ASET) in the ASET/RSET analysis for the Performance Solution, the time taken to exceed the tenability limits for occupant life safety has been estimated using computational fluid dynamics (CFD) computer modelling. CFD modelling programs simulate the interaction of liquids and gases with specific boundary conditions.

Fire Dynamics Simulator (FDS) is a Computational Fluid Dynamics (CFD) model of fire-driven fluid flow that solves the governing equations of fluid dynamics with a particular emphasis on fire and smoke transport. The model solves numerically a form of the Navier-Stokes equations appropriate for low-speed, thermally driven flow with an emphasis on smoke and heat transport from fires. The partial derivatives of the conservation equations of mass, momentum and energy are approximated as finite differences, and the solution is updated in time on a three-dimensional, rectilinear grid. Thermal radiation is computed using a finite volume technique on the same grid as the flow solver. Lagrangian particles are used to simulate smoke movement and sprinkler sprays.

FDS is documented by two publications, the Technical Reference Guide and the FDS User's Guide. The FDS User's Guide describes how to use the model and the Technical Reference Guide describes the underlying physical principles, provides a comparison with some experimental data and discusses the limitations of this model.

Smokeview is a companion program that produces images and animations of the FDS calculations as documented in the Smokeview User's Guide.

FDS and Smokeview have been developed and are currently maintained by the Fire Research Division in the Building and Fire Research Laboratory (BFRL) at the National Institute of Standards and Technology (NIST). NIST has developed a public website to distribute FDS and Smokeview and support users of the programs.

Model Input Summary

- Soot Yield: The stock shall be majority soil and steel which is expected to have a limited soot yield. As a conservative measure to account for impurities, a soot yield of 0.015kg/kg is used based on the timber commodity *(SFPE 5th edition, Appendix 3, Table A.39).*
- The modelling time is 1800 seconds or until steady state conditions are formed.
- The HRR has been modelled as previously detailed; A ultra-fast growing vehicle fire at the corner of the warehouse where the ventilation is most restricted.
- Heat release rates shall be capped at 30,000kW at which point the HRR maintains constant.

Evacuation Modelling for The RSET Calculation

The following summarises the parameters used in the RSET calculations:

Worst Credible Evacuation Scenario (EV-WC)

- Population based on BCA Table D1.13 at a rate of 1 person/30m^2 floor area in warehouse
- The population use all exits equally.
- Occupants must traverse the non-compliant travel distance to reach a final exit.
- All exits are available.
- Travel speed is 1.0m/s

Redundancy Evacuation Scenario (EV-RED)

- Population based on BCA Table D1.13 at a rate of 1 person/30m^2 floor area in warehouse
- The population use all the available exits equally
- 50% of the aggregate exit width is compromised (to simulate a fire blocking one end of the warehouse).
- Occupants must traverse longer distances to reach a final exit due to half the exits being blocked.
- Travel speed is 1.0m/s

Issue number: 3 **Title: Fire Hydrant System Design**

Details of departures from DtS provisions:

BCA Clause E1.3 requires that a fire hydrant system is provided and installed in accordance with AS2419.1:2005, which in turn requires that:

- External hydrants located at the wall of the building must be provided with a radiant heat shield (90/90/90 FRL) a minimum 2m each side of the hydrant and 3m above the base of the hydrant.

The following non-compliances have been identified:

- The required 90/90/90 FRL protecting walls behind the external hydrants are to be omitted through the Performance Solution.

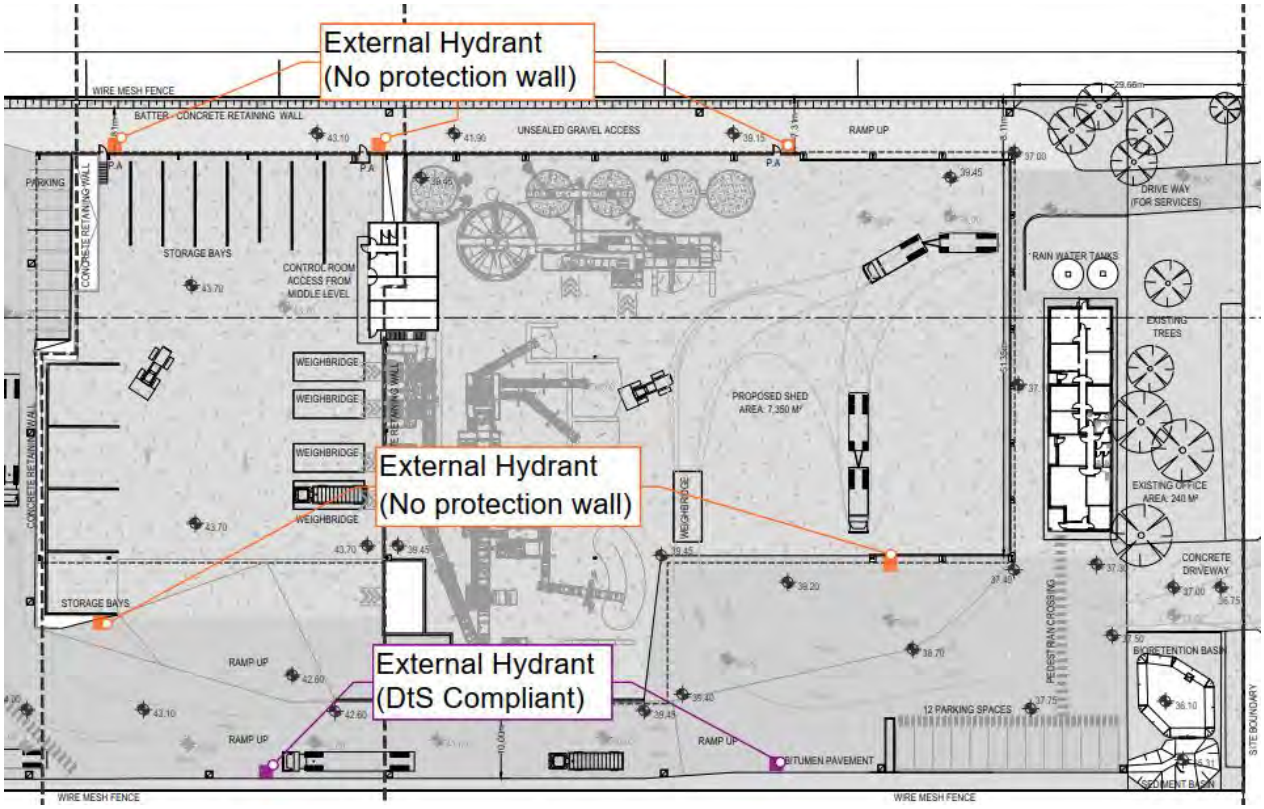


Figure 7-6: External Hydrant Locations

Applicable DtS provisions:	E1.3	Performance requirements:	EP1.3

List key fire safety measures:

- The required 90/90/90 protection walls shall be omitted from the external hydrants located at the walls of the warehouse.

Proposed alternative solution:

SUMMARISED PERFORMANCE SOLUTION

The assessment methodology will adhere to Clauses A2.2(1)(a) and A2.2(2)(b)(ii) of the BCA. The analysis will be absolute and qualitative in demonstrating that the omission of protection wall to the external hydrants does not negatively impact on fire brigade operations or ability to undertake intervention operations. Fire fighters accessing the hydrants must not be exposed to conditions at the external hydrants that adversely affect the firefighting operations.

SUMMARISED ASSESSMENT

The building design does not provide the required 90/90/90 FRL wall construction behind the external hydrants. The concern in the omission of the wall protection is the potential for a fire to overcome the building structure and project fire conditions via radiant heat onto fire fighters who are using the nearby fire hydrant.

As discussed above in Issue number: 4, the processing area of the warehouse consists of steel machinery and soil which are non-combustible, therefore the warehouse has limited fuel loads and ignition sources (worst case scenario is a single truck fire - noting that the truck fire is likely to isolated and only transporting non-combustible soils). As such, a fire is extremely unlikely to start or spread throughout the building. Additionally, any smoke from a fire shall

vent directly to the atmosphere through the northern, southern and western sides of the warehouse which shall alleviate the smoke and temperatures of a fire should a fire occur. This is expected to provide the fire brigade with better conditions at the external hydrants than an enclosed building scenario.

In the event of a fire starting and affecting an external hydrant adjacent the fire, fire fighters are not expected to use the same fire hydrant as there is an opportunity to attack the fire from a safe distance via the next adjacent hydrants or fall back hydrants. Only the external hydrants adjacent the fire are likely to be compromised. Moreover it is likely that that CFD modelling to be undertaken as part of the travel distances assessment for an extremely conservative fire scenario is likely to show that the temperatures throughout the warehouse is maintained throughout the 1800 second modelling duration and as such it is reasonable to draw that the fire brigade shall be able to access the external hydrants even without protection.

Additionally, fall back hydrants are provided on the western side of the warehouse, set back off the building. This enables fire suppression of areas around a hydrant by the use of fall-back hydrants. The locations of the fall-back hydrants are illustrated below in Figure 7-7.

Therefore, in the event of a vehicle fire next to the non-compliant hydrant (for example), access to the hydrant adjacent this area would not be required in this situation as fire brigade can utilise the adjacent external hydrants or fall-back hydrants to fight the fire and progress towards the affected hydrant if deemed appropriate.

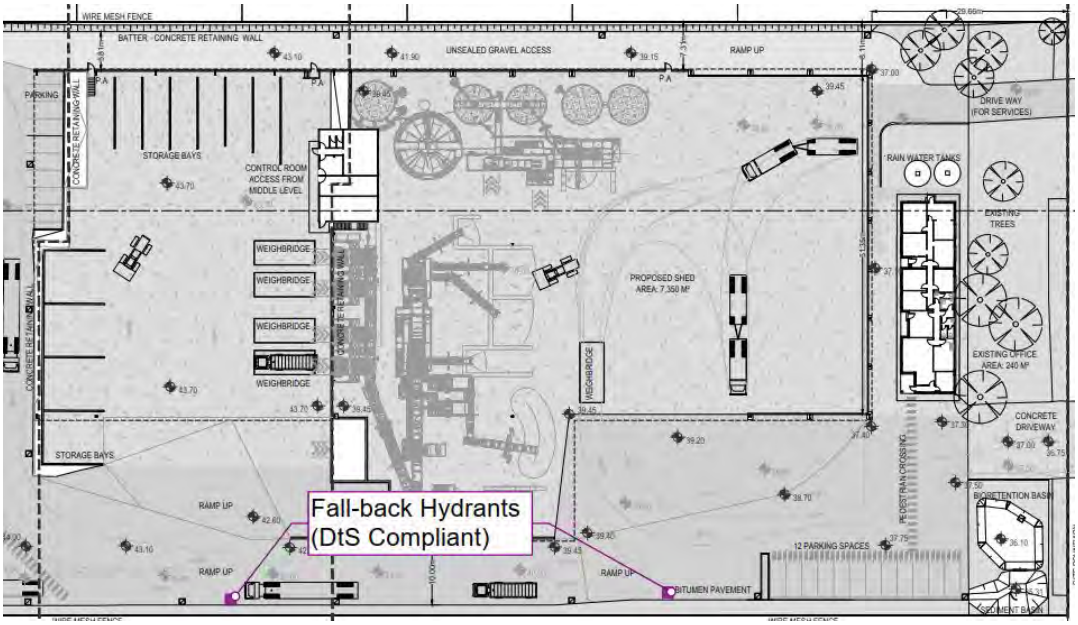


Figure 7-7: Location of Fall-back Hydrants

From the discussion above, it is considered that fire brigade operations will not be impacted by the Performance Solutions documented herein.

Performance solution:

- ☑ A2.2(1)(a) - Comply with all relevant performance requirements
- ☐ A2.2(1)(b) - Be at least equivalent to the DtS provisions

Assessment methods:

- ☐ A2.2(2)(a) - Evidence of suitability
- ☐ A2.2(2)(b)(i) - Verification methods provided in the NCC
- ☑ A2.2(2)(b)(ii) - Other verification methods accepted by the appropriate authority
- ☐ A2.2(2)(c) - Expert judgement
- ☐ A2.2(2)(d) - Comparison with the DtS provisions

Assessment approach:

☐ Comparative	☑ Qualitative	☐ Deterministic
☑ Absolute	☑ Quantitative	☐ Probabilistic

IFEG sub-systems used in the analysis:

☑ A – Fire initiation and development and control	☑ D – Fire detection, warning and suppression
☑ B – Smoke development and spread and control	☑ E – Occupant evacuation and control

☑ C – Fire spread and impact and control ☑ F – Fire services intervention

Acceptance criteria and factor of safety:

Fire fighters accessing the hydrants must not be exposed to conditions at the external hydrants that adversely affect the firefighting operations.

Fire scenarios and design fire parameters:

As per issue 2

Describe how fire brigade intervention will be addressed or considered:

The assessment will take into consideration the conditions that the brigade may be exposed to, to ensure that safe access to appropriate fire safety systems is available and intervention can be carried out.

Verification/validation analyses:

☐ Sensitivity studies ☐ Redundancy studies ☐ Uncertainty studies ☑ None

As per issue 2

Provide details on proposed modelling/assessment tools:

As per Issue 2

Issue number: 4 **Title: Omission of Sprinkler System**

Details of departures from DtS provisions:

BCA Clause C2.3 states that Class 5, 6, 7, 8 or 9 large isolated buildings exceed 18,000m^2 and 108,000m^3 are required to protected with a sprinkler system complying with Specification E1.5.

The following non-compliances have been identified:

- A sprinkler system shall be omitted from the warehouse shed due to its use and the significant ventilation that is afforded over and above the requirement of the DtS provisions.

Applicable DtS provisions:	E1.5	Performance requirements:	EP1.4

List key fire safety measures:

As part of the Performance Solutions, the following key fire safety measures are required:

Building Management Requirements

Any changes to the building use shall require the addition of a sprinkler system and/or re assessment by an Accredited C10 Fire Engineer. This shall be listed as an Essential Fire Safety Measure on the Fire Safety Schedule.

Active Fire Safety System

Manual call points shall be provided at every exit of the building and the office.

- Break glass alarms shall be linked to the Building Occupant Warning System and direct brigade alarm.
- Occupants shall be provided with emergency training to activate the manual call points after initial detection of a fire.

In addition to the above, the following key design features have been identified as advantageous to occupancy tenability:

- Large permanent open sections of the external wall of the building for smoke to vent directly out to the atmosphere (note the subject building is too small to require smoke exhaust or venting under DtS provisions).
- Occupant familiarity with the building and egress routes
- Exits distributed evenly around the perimeter of the building.
- Limited ignition sources and fuel loads
- Limited potential for fire spread to other parts of the building due to use and operation.
- The use as an aggregate washing and sorting plant is to be clearly listed on the Essential Services List and any change in use (i.e. change from washing and sorting soil) or building layout (i.e. any proposed enclosing of walls) must result in the building being re-assessed by an C10 Accredited Fire Engineer to determine the suitability.

Proposed alternative solution:

SUMMARISED PERFORMANCE SOLUTION

The assessment methodology will adhere to Clauses A2.2(1)(a) and A2.2(2)(b)(ii) of the BCA. The analysis will be absolute, qualitative and quantitative in demonstrating that the omission of the sprinkler system shall not increase the risk of fire spread within the building due to the warehouse's low fuel loads, non-combustible contents and open facades allowing venting to the atmosphere.

SUMMARISED ASSESSMENT

It is understood that large isolated buildings have an increased risk of fire growth and spread and impact on the brigade activities due to the large floor area and/or volumes which may potentially contain a larger total fuel load. To provide an additional level of fire protection and to assist the brigade in carrying out intervention activities, large isolated buildings are required to have sprinkler coverage throughout.

The deletion of a sprinkler system affects the design as a fire in the warehouse remains uncontrolled and freely develops. This results in direct exposure on the surrounding structure and may lead to the spread of fire beyond the room of fire origin. Based on the key nominated factors as outlined by the Guide to the NCC, the following key fire safety parameters are examined to evaluate the omission of sprinklers in the warehouse:

- The potential fuel load within the affected space:- this influences the potential fire size and resultant impact on the surrounding structure.
- The ignition sources present within the affected space:- this affects the likelihood of ignition which impacts on the overall fire hazard.
- The use of the space:- this impacts the number of occupants present (during a fire), physiological condition of occupants and the overall fire hazard.

- The height of the building:- this impacts brigade intervention when undertaking rescue above a certain height and also impacts evacuation time.

In this instance, the warehouse is proposed to omit the sprinkler system with consideration to the use of the building which includes washing and sorting dirt and hence the limitation of combustible contents within and the limited potential for fire spread to other parts. of the building, use of the space and expected behaviour of the smoke and fire. Noting that the worst case fire scenario may be a fire within a single dirt loader/deliver truck.

The expected fuel loads within the warehouse is reviewed as it influences the potential fire size and severity. The use of the space is an important factor in examining the fuel load as it will generally govern the presence of combustible materials. Areas where a large volume of combustible materials are stored require a higher level of passive and active fire safety systems to obviate the fire risk.

In this regard, the building is to contain steel machinery used for soil washing and sorting. A majority of the building shall be soil and steel machinery which are non-combustible. Considering the processes within the building and the non-combustible contents in the building, there are limited ignition sources and fuel loads within this space to start a fire. Within the middle level of the warehouse, there shall be storage bays for the temporary storage of soil before distribution. Similar to above, the soil is non-combustible and there are low ignition sources, therefore a fire is not expected to occur.

It is highlighted that a vehicle fire could start on the northern and southern sides of the building due to the movement of dirt trucks entering and leaving the building for soil delivery and distribution. It is noted that the trucks are not fixed elements and they are expected to be manned as they arrive and exit the warehouse during operating hours. Loaders are also used within the warehouse to move soil throughout the warehouse. However, should a fire occur in the building due to the vehicles, the fire is not expected to spread to the processing area as the area is made of steel machinery and soil which are non-combustible. The northern and southern sides of the warehouse where trucks unload and load soil are somewhat separated from the rest of the machinery, therefore a vehicle fire is expected to be contained in the same area. Additionally, the middle level of the warehouse is raised 4.14m from the lower level of the warehouse, allowing a form of separation between the main plant machinery area and soil storage bays. A fire starting on the southern side of the warehouse where the trucks unload soil into the washing machinery is not expected to spread to the processing machinery area and to the middle level of the warehouse.

Additionally, as part of the operations within the building a small the control room and office are situated on the middle level and it is expected that the occupants within this area shall be limited due to the size of the space. Occupants shall also familiar with the area as it is their place of employment and are expected to be aware of the exit locations and be able to evacuate efficiently. Additionally, a fire in the office is not likely to spread further due to the resultant non-combustible products located within the surrounding areas.

With consideration of the above mentioned possible fire scenario it is highlighted that full and complaint fire hose reel coverage is achieved and portable extinguishers shall be located as required by the BCA. This will allow staff to make an immediate attempt to supress a fire at the early development stages.

Furthermore, the warehouse is essentially a shed designed and built to provide additional waterproof cover to the existing water wash processing facilities at the Better Grow site. The warehouse is designed to have the northern western sides of the warehouse open as well as a portion of the southern facade open to the sky as shown in Figure 7-10 to Figure 7-9. The total area of the perimeter external wall that are proposed to be open on the multiple sides equates to approx. 40% of the total warehouse external wall. This creates significant open venting.

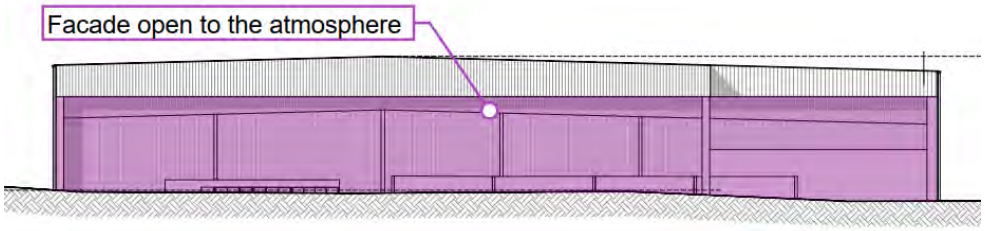


Figure 7-8: North Elevation Highlighting the Section of the Façade Open to the Atmosphere

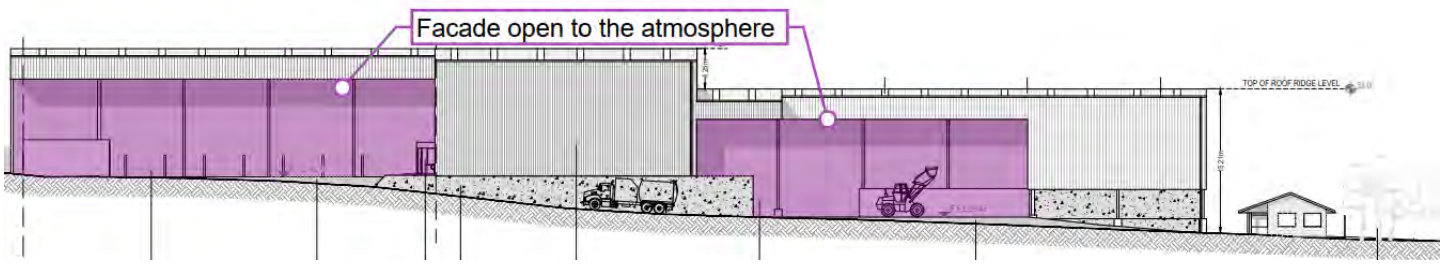


Figure 7-9: West Elevation Highlighting the Section of the Façade Open to the Atmosphere

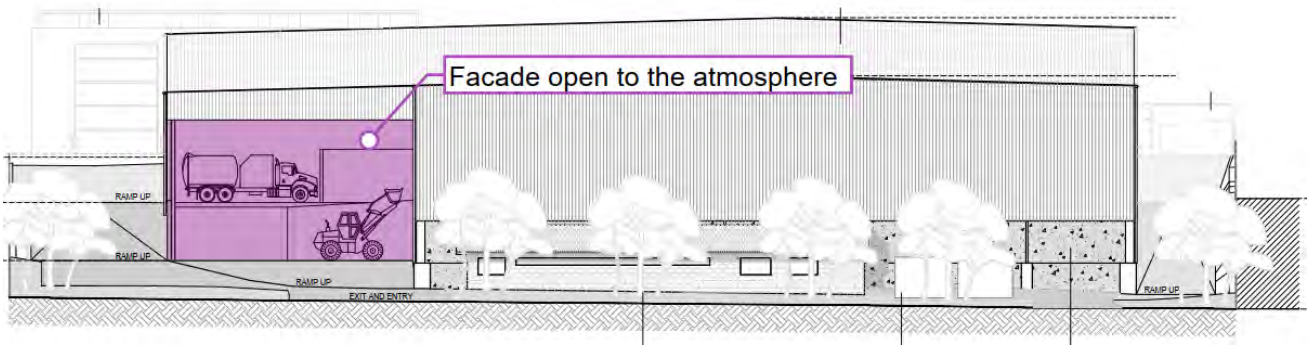


Figure 7-10: Street Elevation Highlighting the Section of the Façade Open to the Atmosphere

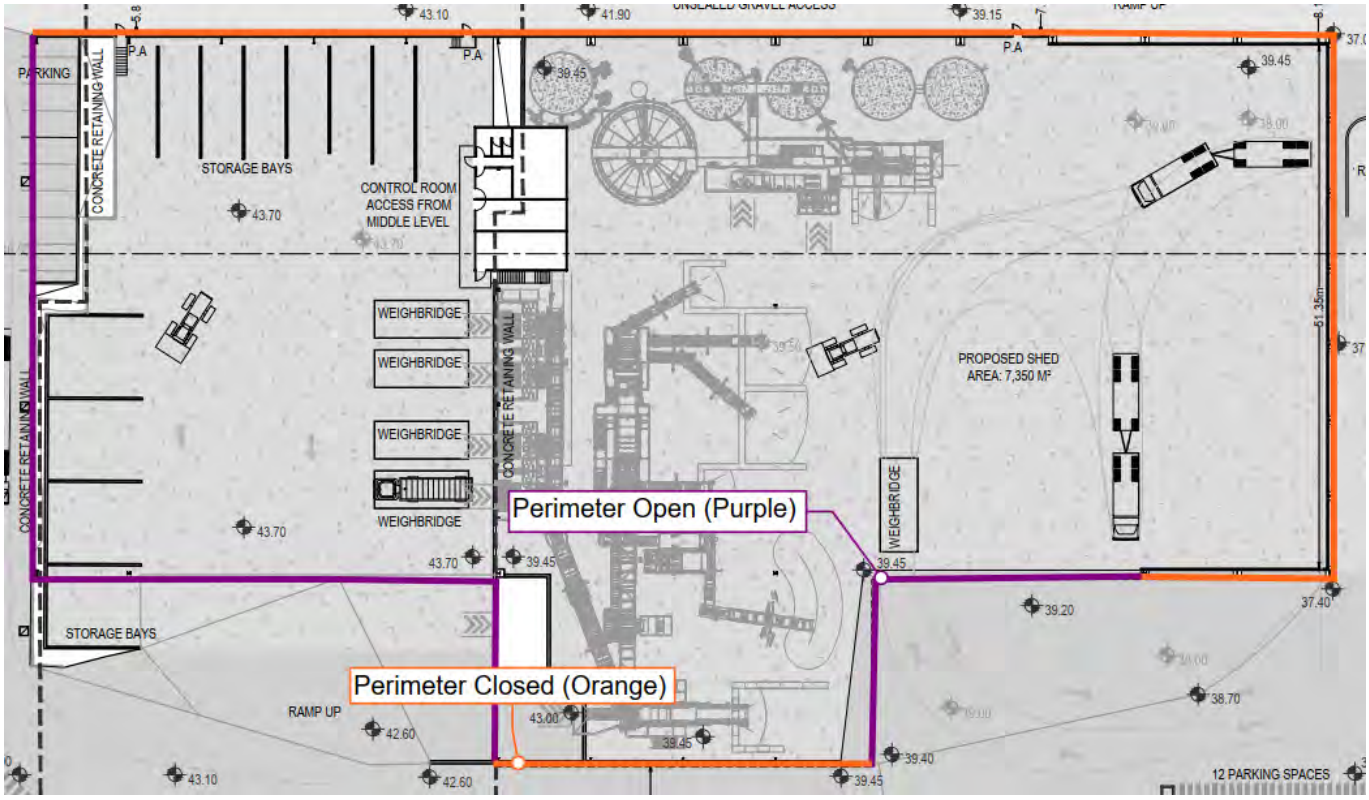


Figure 7-11: Ground Floor Plan Highlighting the Open and Closed Facades of the Perimeter

With consideration to the 40% perimeter of the warehouse being open to the sky as shown in Figure 7-11 above (highlighted in purple), any smoke from a fire within the warehouse is expected to vent directly out into the atmosphere instead of being trapped inside the warehouse. This shall help alleviate the smoke and temperature of a fire should a fire occur and help maintain occupant and fire fighter tenability and with consideration of the use and operation it is also considered unlikely that a fire will initiate and grow to a degree that it will impact on the adjacent parts of the building.

The above conditions are expected to be shown through the quantitative fire and smoke modelling undertaken as discussed in Issue 2 above. Noting that the fire assessed in this scenario is an extremely conservative Ultra-Fast growth rate to the peak of known tested truck fires of 30MW which then is controlled at this level rather then decaying due to a lack of fuel. Again, it is highlighted that the transport material is non- combustible (i.e. dirt) and there is little opportunity for fire spread to adjacent vehicles for plant. Additionally, there is complaint fire hose reels and fire extinguishers provided to the building to assist with any early fire development suppression.

Any changes to the building use shall require the addition of a sprinkler system or the building to be re assessed by an accredited C10 fire safety engineer. This shall be listed as an Essential Fire Safety Measure on the Fire Safety Schedule. With consideration to the low fuel loads and low ignition sources expected in the warehouse, the open building design and use of the warehouse, the omission of sprinklers to this area will not increase the risks of fire and smoke spread within the building.

Occupant and Brigade Notification

As part of the Performance Solution, manual call points shall be provided at strategic locations across the floor plate of the warehouse (at all exits and within the office) to retain the facility for activation of the BOWS in lieu of the

sprinkler system. The break glass alarms shall be linked to the Building Occupant Warning system and a direct brigade alarm. Occupants shall be provided with emergency training to activate the manual calls points after initial detection of a fire (via visual or olfactory cues). This shall be listed as a critical fire safety measure as part of the Fire Safety Schedule and Building Management Plan. The manual calls points will provide occupants with a warning alarm for building occupant evacuation when a fire is detected as well as early notice to the brigade.

Performance solution:

☑ A2.2(1)(a) - Comply with all relevant performance requirements
☐ A2.2(1)(b) - Be at least equivalent to the DtS provisions

Assessment methods:

☐ A2.2(2)(a) - Evidence of suitability
☐ A2.2(2)(b)(i) - Verification methods provided in the NCC
☑ A2.2(2)(b)(ii) - Other verification methods accepted by the appropriate authority
☐ A2.2(2)(c) - Expert judgement
☐ A2.2(2)(d) - Comparison with the DtS provisions

Assessment approach:

☐ Comparative ☑ Qualitative ☑ Deterministic
☑ Absolute ☑ Quantitative ☐ Probabilistic

IFEG sub-systems used in the analysis:

☑ A – Fire initiation and development and control
☑ B – Smoke development and spread and control
☑ C – Fire spread and impact and control
☑ D – Fire detection, warning and suppression
☑ E – Occupant evacuation and control
☑ F – Fire services intervention

Acceptance criteria and factor of safety:

The Performance Solution must demonstrate that the absence of a sprinkler system shall not increase the risk of fire spread within the building and adequate provisions to maintain tenable conditions for occupants and fire fighters.

Fire scenarios and design fire parameters:

As per Issue 2

Describe how fire brigade intervention will be addressed or considered:

The assessment will take into consideration the conditions that the brigade may be exposed to, to ensure that safe access to appropriate fire safety systems is available and intervention can be carried out.

Verification/validation analyses:

☐ Sensitivity studies ☑ Redundancy studies ☐ Uncertainty studies ☑ None

As per issue 2

Provide details on proposed modelling/assessment tools:

As per issue 2

Issue number: 5 **Title: Exit Signage Height**

Details of departures from DtS provisions:

BCA Clause E4.6 (NSW) states that if an exit is not readily apparent to persons occupying or visiting the building, then exit signs must be appropriately provided in accordance with AS 2293.1.

The following non-compliances have been identified:

The exit lighting design shall incorporate directional signage in the warehouse that is positioned above a height of 2.7m to permit the passage of machinery below. Signage is to be provided in accordance with BCA DtS Provisions E4.5, E4.6, E4.8 and AS 2293.1:2005 with the following exception:

- Signs may be installed up to approximately 4-5m above the finished floor level and will be required to be enlarged in size and illuminated. Actual height to be confirmed through fire modelling.

Applicable DtS provisions:	E4.6	Performance requirements:	EP4.2 AND EP2.2

List key fire safety measures:

The Performance Solution allows Directional exit signs to be installed up to approximately 4-5m above the finished floor level.

- Signs are required to be jumbo sized and illuminated.

Proposed alternative solution:

The Performance Solution will rely upon the large area of openings on the northern and eastern facades and a portion of the southern façade to allow smoke to vent directly to the outside, providing the population with adequate time to safely evacuate the building prior to the onset of untenable conditions. Additionally, the thermal detection shall also provide occupants with an earlier alarm to allow occupants to safely evacuate faster prior to the onset of untenable conditions.

The analysis will be based on FDS modelling to determine the smoke obscuration of exit signs for the duration of the RSET. In order to be deemed acceptable, the visibility criterion (10m visibility) must be demonstrated with a safety factor of 1.5x and 1.0x applied to worst case and redundancy fire scenarios respectively. A sensitivity measure shall not be considered as discussed in Issue number: 2 as the worst credible fire and fuel load size takes into account all scenarios and a delayed thermal detection shall not affect the fire growth size. The RSET will consider an occupant travelling to the nearest exit, finding the exit unavailable and then to the next closest available exit.

The occupant field of view along the egress path will be considered to ensure that an exit sign is always visually available during the time of evacuation. The assessment will not consider occupant warning via sensory cues such as olfactory, visual (smoke and flame illumination) auditory which occurs earlier to prompt occupants of an emergency evacuation; occupants intimate with the location of fire origin are understood to receive cues for evacuation immediately and may warn nearby occupants however this consideration is conservatively discounted.

Performance solution:

- ☑ A2.2(1)(a) - Comply with all relevant performance requirements
- ☐ A2.2(1)(b) - Be at least equivalent to the DtS provisions

Assessment methods:

- ☐ A2.2(2)(a) - Evidence of suitability
- ☐ A2.2(2)(b)(i) - Verification methods provided in the NCC
- ☑ A2.2(2)(b)(ii) - Other verification methods accepted by the appropriate authority
- ☐ A2.2(2)(c) - Expert judgement
- ☐ A2.2(2)(d) - Comparison with the DtS provisions

Assessment approach:

☐ Comparative	☑ Qualitative	☑ Deterministic
☑ Absolute	☑ Quantitative	☐ Probabilistic

IFEG sub-systems used in the analysis:

☑ A – Fire initiation and development and control	☑ D – Fire detection, warning and suppression
☑ B – Smoke development and spread and control	☑ E – Occupant evacuation and control
☑ C – Fire spread and impact and control	☑ F – Fire services intervention

Acceptance criteria and factor of safety:

Occupants shall have clear visibility of directional exit signs when navigating to an exit.

Fire scenarios and design fire parameters:

Please refer to Issue 2 for fire scenarios and design fire parameters.

Describe how fire brigade intervention will be addressed or considered:

The assessment will take into consideration the conditions that the brigade may be exposed to, to ensure that safe access to appropriate fire safety systems is available and intervention can be carried out.

Verification/validation analyses:

☐ Sensitivity studies ☑ Redundancy studies ☐ Uncertainty studies ☑ None

As per Issue 2

Provide details on proposed modelling/assessment tools:

Please refer to Issue 2 for details on FDS modelling.

8 Construction, commissioning, management, use and maintenance

What considerations does the performance solution require during the construction phase?

N/A

How will the performance solution affect commissioning of the systems (e.g. listed on fire safety schedule as essential or critical measure, combined new and old installations)?

All installed systems shall be appropriately commissioned and maintained in accordance with the relevant Australian Standards and manufacturer's guidance.

Visual inspections (where appropriate) and statements of conformance by contractors will be sought as required through the provision of the Fire Safety Certificate.

How will the performance solution be addressed for ongoing building management and use (e.g. details to be provided in a 'fire safety management plan' for the building manager)?

Fire safety systems required through the FER are to be listed on the annual fire safety statement.

The owner of the premises is required to provide a statement to the Council and Fire & Rescue NSW every 12 months and to display a copy of the current statement in a prominent position at the premises, such as in the entry foyer in accordance with the requirements of the Environmental Planning and Assessment Regulation.

The AFSS confirms that each essential fire safety measure (including those of the Performance Solution) as are specified in the statement has been assessed by a properly qualified person and was found, when it was assessed, to be capable of performing to a standard no less than that specified in the schedule, and that the building has been inspected by a properly qualified person and was found, when it was inspected, to be in a condition that did not disclose any grounds for a prosecution under the Regulation

How will any restrictions on fuel load/use/populations within the performance solution be managed and enforced (e.g. details to be provided in 'fire safety management plan')?

The management and control of risks within the remit of the Performance Solutions are minimised to the lowest reasonably practicable level. As the risk of fire cannot be eliminated in most cases a combination of engineering controls, administrative controls and PPE are chosen to effectively control the risks.

The Performance Solution does not invoke any administrative controls. In other words, the fire safety systems employed are engineering systems which do not require the provision of management in use plans by occupants in the event of a fire.

Regarding Workplace Health and Safety it is anticipated that the occupant and tenants will enact emergency management planning and training in accordance with the provisions of the Workplace Health and Safety Act and Regulations and preventative maintenance in accordance with the requirements of the Environmental Planning and Assessment Act and Regulations.

How will the performance solution be addressed for maintenance (e.g. details included on fire safety schedule, location of fire engineering report on site, plain English summary adjacent to FIP)?

Fire safety systems required through the FER are to be listed on the annual fire safety statement.

The owner of the premises is required to provide a statement to the Council and Fire & Rescue NSW every 12 months and to display a copy of the current statement in a prominent position at the premises, such as in the entry foyer in accordance with the requirements of the Environmental Planning and Assessment Regulation.

The AFSS confirms that each essential fire safety measure (including those of the Performance Solution) as are specified in the statement has been assessed by a properly qualified person and was found, when it was assessed, to be capable of performing to a standard no less than that specified in the schedule, and that the building has been inspected by a properly qualified person and was found, when it was inspected, to be in a condition that did not disclose any grounds for a prosecution under the Regulation

9 Additional comments

Note: Any in principle support extended for performance solution issues through consultation is contingent upon all assumptions, analyses and conclusions in the fire engineering report being fully justified, and referenced as appropriate, to demonstrate how the relevant performance requirements have been satisfied to the extent required by the agreed acceptance criteria.

10 Scheduled charges

FRNSW charge for the provision of services performed in connection with statutory fire safety as per the schedule of charges identified in clause 46 and schedule 3 of the *Fire Brigades Regulation 2014*.

The charge applicable is $2,600 for each day (or part of a day) spent by the Commissioner or a fire brigade member providing advisory, assessment or consultancy services.

Note: For a full description of the charges applicable including terms, payment options, applying for a waiver or reduction of the charges, please refer to the FRNSW website at firesafety.fire.nsw.gov.au.

11 Submission of this form

This completed form is to be emailed to firesafety@fire.nsw.gov.au.

All plans and specifications required by FRNSW for assessment are to be attached to the email (or sent separately if necessary due to file size). Refer to Submitting plans and specifications to FRNSW for further information.

12 Contact us

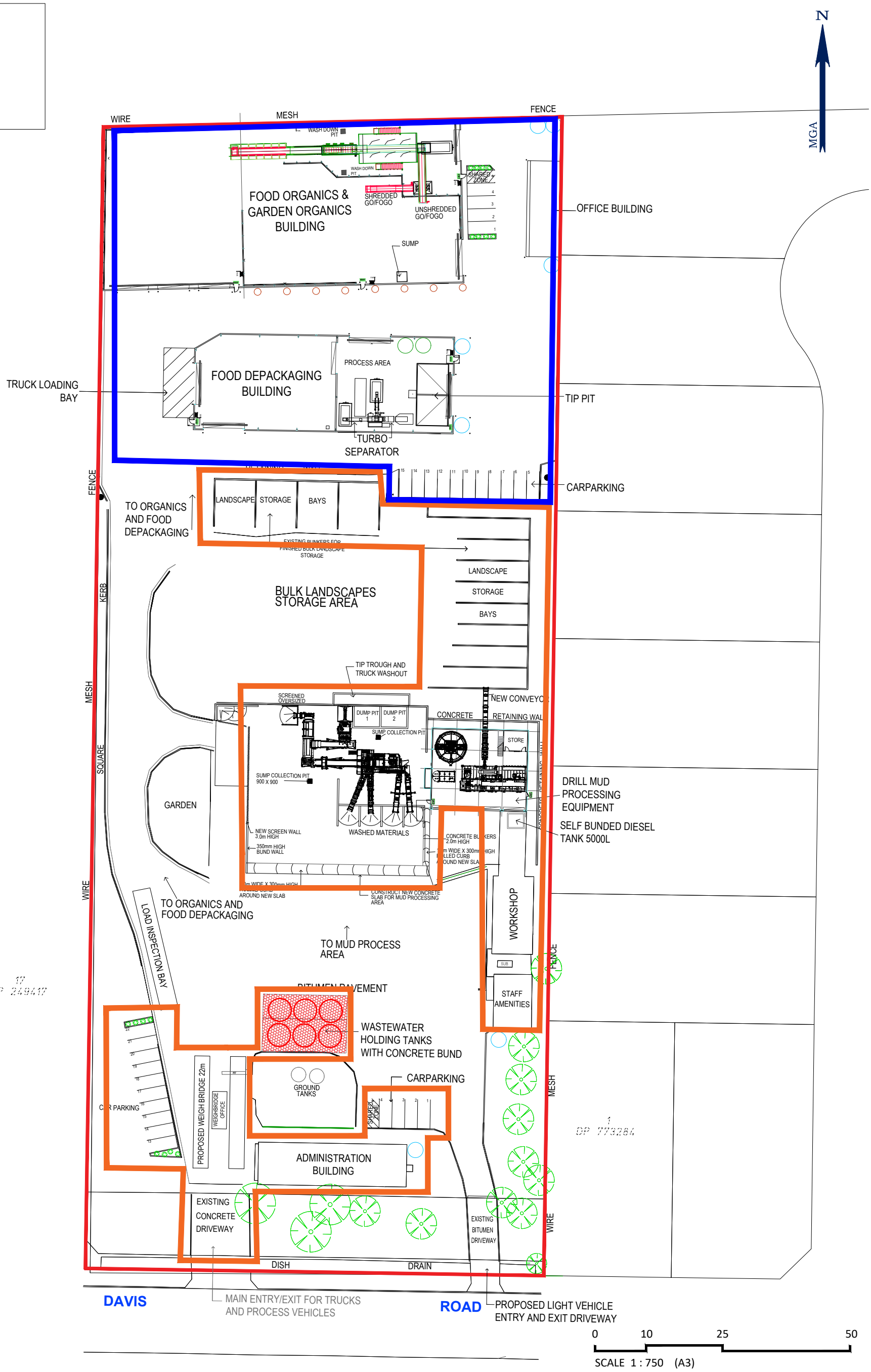
For further information contact the Fire Safety Branch on (02) 9742 7434 or email firesafety@fire.nsw.gov.au.

Appendix E – Existing and Proposed Staging Plan

LEGEND

STAGE 1

STAGE 2



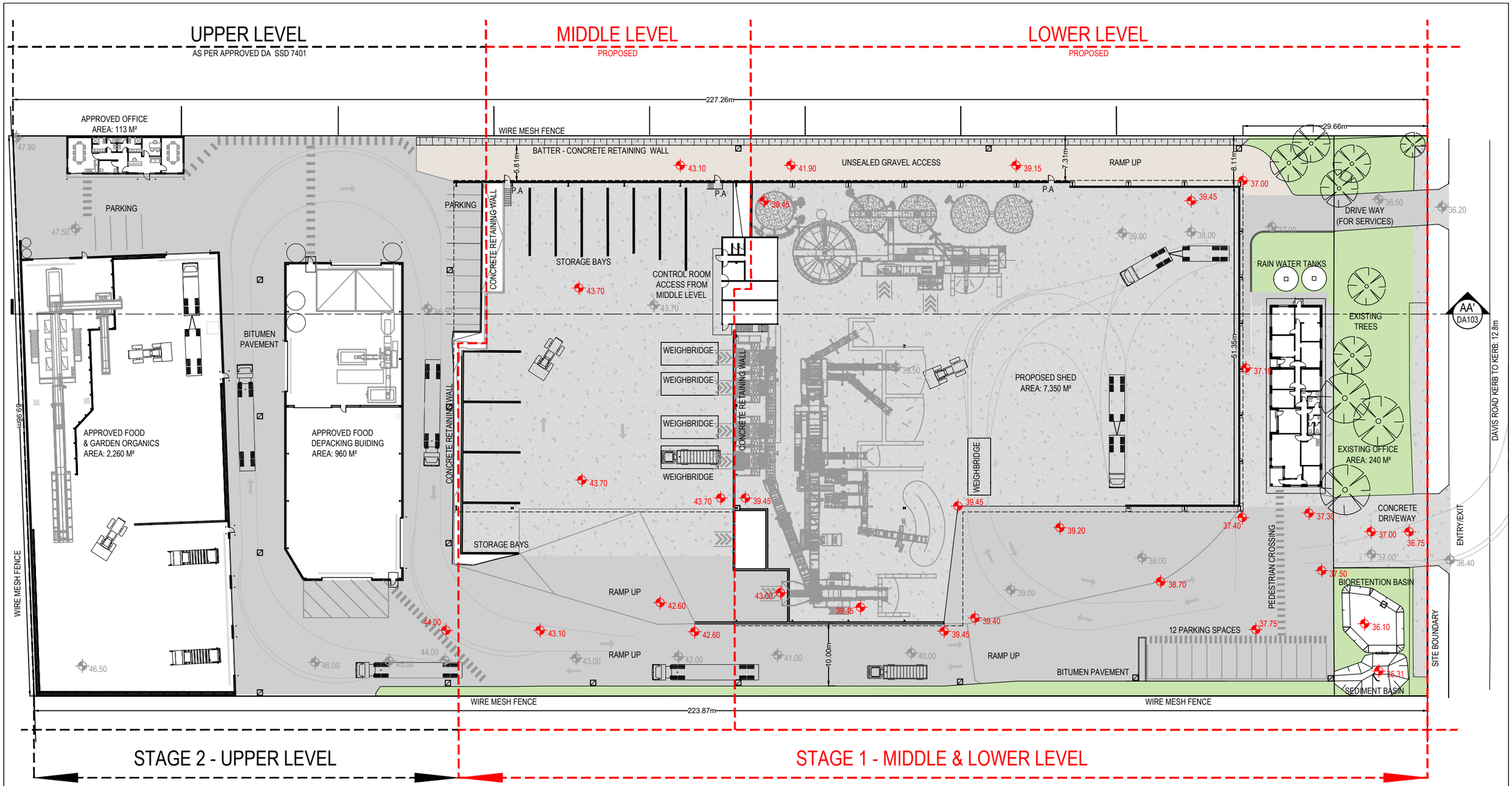
DIAL BEFORE YOU DIG www.1100.com.au

TITLE: STAGING PLAN - EXISTING	LOCATION: DAVIS RD WETHERILL PARK	DATUM: GDA 94 PROJECTION: MGA ZONE 56	DATE: 16/01/2019 PURPOSE: PLANNING	CAD REF: J:\JOBS\140k\140252 Wetherill Park\10 - Drafting\Acad Drawing Files VERSION : A A3 (JH-NW-SS)

CLIENT: BETTER GROW
JOB REF: PR140525

RPS AUSTRALIA EAST PTY LTD (ABN 44 140 292 762)
Unit 2A, 45 Fitzroy Street, Carrington, NSW, 2294
T: 02 4940 4200 F: 02 4940 4299 www.rpsgroup.com.au

RPS



01 PROPOSED SITE PLAN AT GROUND LEVEL
SCALE: 1:300 (A1)

LEGEND:

39.50 EXISTING SITE SPOT LEVELS

39.45 PROPOSED SITE SPOT LEVELS (RED IN COLOUR)

TRUCK MOVEMENT

NOTES:

TOTAL SITE AREA: 20,280m²

TOTAL ROOFED AREA: 11,450m²

ISSUE	DESCRIPTION	DATE	DRAWN	AUTH
A	Development Application	19-08-2020	DC	MD/JB

BetterGROW
48 INDUSTRY ROAD
VINEYARD NSW 2765
P: 02 4587 7852
F: 02 4577 2603
WWW.BETTERGROW.COM.AU

CROSSMULLER CONSTRUCTION
OFFICE:
2 WELLA WAY SOMERSBY, N.S.W. 2250 AUSTRALIA
Tel: 02 4340 9800 Fax: 02 4340 8293

PROJECT
PROPOSED BETTERGROW RESOURCE RECOVERY FACILITY

LOCATION
24 DAVIS ROAD
WETHERILL PARK NSW 2164

DRAWING
PROPOSED SITE PLAN AT GROUND LEVEL

SCALE: 1:300 @ A1, 1:600@A3

STAGE: DA

PROJECT NUMBER: 2020/04

DRAWING NUMBER: DA004

ISSUE: A

Appendix F– Proposed DRAFT Conditions

Development Consent

Section 4.38 of the *Environmental Planning and Assessment Act 1979*

As delegate of the Minister for Planning under delegation executed on X December 2020, I approve the Development Application referred to in Schedule 1, subject to the conditions specified in Schedule 2.

These conditions are required to:

- prevent, minimise, and/or offset adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the development.

Executive Director
Key Sites and Industry Assessments

Sydney

SCHEDULE 1

Application No:	SSD 7401
Applicant:	Bettergrow Pty Ltd
Consent Authority:	Minister for Planning
Land:	Lot 18 DP 249417 (24 Davis Road, Wetherill Park)
Development:	The construction and operation of a resource recovery facility to process up to 350,000 tonnes per year of waste comprising of: • 100,000 tpa of hydro-excavation, drill muds and fluids; • 150,000 tpa of general solid waste; • 70,000 tpa of food and garden organics; and • 30,000 tpa of packaged and bulk food and liquids. The operation of a landscaping material supplies facility for the storage and sale of up to 40,000 tpa of landscaping supplies.

TABLE OF CONTENTS

DEFINITIONS

24 hours	Relating to one day, or happening only on one day
Applicant	Bettergrow Pty Ltd, or any other person(s) carrying out any development to which this consent applies
AS	Australian Standard
BCA	Building Code of Australia
CEMP	Construction Environmental Management Plan
Certifying Authority	A person who is authorised by or under section 109D of the EP&A Act to issue Part 4A certificates
Construction	The demolition of buildings or works, the carrying out of works, including bulk earthworks, and erection of buildings and other infrastructure permitted by this consent
Council	Fairfield City Council
Day	The period from 7 am to 6 pm on Monday to Saturday, and 8 am to 6 pm on Sundays and Public Holidays
Demolition	The removal of buildings, sheds and other structures on the site
Department	Department of Planning, Infrastructure, and Environment
Development	The development as described in the EIS and RTS, and as generally depicted in Appendix A
EIS	Environmental Impact Statement titled *Greenspot Wetherill Park, Resource Recovery and Recycling Facility, Environmental Impact Statement, SSD 7401,* prepared by RPS, dated 11 April 2017
EPA	NSW Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act* 1979
EP&A Regulation	*Environmental Planning and Assessment Regulation* 2000
EPL	Environment Protection Licence issued by the EPA under the POEO Act
Evening	The period from 6 pm to 10 pm
FGO	Food and Garden Organics facility
FLD	Food and Liquid Depackaging facility
FRNSW	Fire and Rescue NSW
General solid waste (putrescible)	As defined in Part 3 Schedule 1 of the POEO Act
General solid waste (non-putrescible)	As defined in Part 3 Schedule 1 of the POEO Act
Heavy vehicle	Any vehicle with a gross vehicle mass of five tonnes or more
Incident	A set of circumstances causing or threatening material harm to the environment, and/or an exceedance of the limits or performance criteria in this consent
kL	Kilolitre
Land	In general, the definition of land is consistent with the definition in the EP&A Act
Landscaping Materials Supplies	means a building or place used for the storage and sale of landscaping supplies such as soil, gravel, potting mix, mulch, sand, screenings, rock and the like
Management & Mitigation Measures	The Applicant's management and mitigation measures contained in the EIS/RTS and included in Appendix B
Material harm to the environment	Harm to the environment is material if it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning (or delegate)
Mitigation	Activities associated with reducing the impacts of the development prior to or during those impacts occurring
Monitoring	Any monitoring required under this consent must be undertaken in accordance with section 122C of the EP&A Act
NCC	National Construction Code
Night	The period from 10 pm to 7 am on Monday to Saturday, and 10 pm to 8 am on Sundays and Public Holidays
OEMP	Operational Environmental Management Plan
Operation	The receipt, sorting, separating, processing and removal of waste or receival of product for the landscaping material supplies area
PCA	Principal Certifying Authority authorised under section 109D of the EP&A Act
POEO Act	*Protection of the Environment Operations Act* 1997
POEO (Waste) Regulation	*Protection of the Environment (Waste) Regulation* 2014
RTS	Response to Submissions titled *Greenspot Wetherill Park, Resource Recovery and Recycling Facility, Response to Submissions, SSD 7401,* prepared by RPS, dated 4 September 2017
Secretary	Secretary of the Department (or nominee)
Sensitive Receivers	A location where people are likely to work or reside, this may include a dwelling, school, hospital, office or public recreational area
Site	The land listed in Schedule 1
tpa	Tonnes per annum
Waste	Has the same meaning as the definition of the term in the dictionary to the POEO Act
Weighbridge	A weighbridge that is verified in accordance with the *National Measures Act* 1960
Year	A period of 12 consecutive months

SCHEDULE 2

PART A: ADMINISTRATIVE CONDITIONS

OBLIGATION TO MINIMISE HARM TO THE ENVIRONMENT

A1. In addition to meeting the specific performance criteria established under this consent, the Applicant must implement all measures to prevent and/or minimise any harm to the environment that may result from the Development.

TERMS OF CONSENT

A2. The Development may only be carried out in:
(a) in compliance with the conditions of this consent;
(b) in accordance with the directions of the Secretary;
(c) in accordance with the EIS and RTS;
(d) in accordance with development layout plans and drawings in the EIS (see Appendix A); and
(e) in accordance with the Management and Mitigation Measures (see Appendix B).

A3. If there is any inconsistency between the above documents, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.

A4. The Applicant must comply with all written requirement(s) of the Secretary arising from the Department's assessment of:
(a) any strategies, plans, programs, reviews, audits, reports or correspondence that are submitted in accordance with this consent;
(b) any reviews, reports or audits undertaken or commissioned by the Department regarding compliance with the consent; and
(c) the implementation of any actions or measures contained in these documents.

LIMITS OF CONSENT

A5. This consent lapses five years after the date from which it operates, unless the Development has physically commenced on the land to which the consent applies before the date on which the consent would otherwise lapse under section 95 of the EP&A Act.

A6. The Applicant must not cause, permit or allow any materials or waste generated outside the site to be received at the site for storage, use, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by an EPL.

A7. The Applicant must not receive or process more than 350,000 tonnes per year of waste comprising of:
(a) 100,000 tpa of hydro-excavation, drill muds and fluids, classed as general solid waste (non-putrescible);
(b) 150,000 tpa of general solid waste (non-putrescible);
(c) 70,000 tpa of food and garden organics classed as general solid waste (putrescible); and
(d) 30,000 tpa of packaged and bulk food and liquids, classed as general solid waste (putrescible) and liquid waste respectively.

A8. The Applicant must not store more than 40,000 tonnes per year of landscape material supplies at the site and no processing of landscape supplies is permitted.

A9. The Applicant must not store general solid (putrescible) and liquid waste at the site for more than 48 hours from the time of receival unless in the event of an emergency and approved by the Secretary.

A10. The storage of compost on the site is not permitted.

A11. Stockpiles of waste within the FGO and FLD buildings must not exceed 4 m in height measured from the finished floor level.

A12. Stockpiles of product stored at the landscaping material supplies facility must not exceed 4 m in height measured from the finished ground level.

A13. The Applicant shall aim to achieve a recycling rate of 97% of all waste and a disposal rate of not more than 2.5% to landfill.

A14. The Applicant must not receive, per week, more than:
(a) 1,750 tonnes of general solid waste (putrescible) within the FGO building; and

(b) 700 tonnes of general solid waste (putrescible) and liquid waste within the FLD building.

STAGED SUBMISSION OF PLANS OR PROGRAMS

A15. With the approval of the Secretary, the Applicant may:
(a) submit any strategy, plan or program required by this consent on a progressive basis; and/or
(b) combine any strategy, plan or program required by this consent.

A16. If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program. A clear relationship between the strategy, plan or program that is to be combined must be demonstrated.

REQUEST FOR INFORMATION

A17. The Applicant must retain all weighbridge records as required by the POEO (Waste) Regulation and for the life of the development. The weighbridge records must be made immediately available on request by the Secretary and/or the EPA.

A18. The Applicant must retain waste classification records for all wastes received on the site and waste disposed from the site for the life of the development. The waste classification records must be made immediately available on request by the EPA and/or the Secretary.

EVIDENCE OF CONSULTATION

A19. Where consultation with any public authority is required by the conditions of this consent, the Applicant must:
(a) consult with the relevant public authority prior to submitting the required documentation to the Secretary or the PCA for approval;
(b) submit evidence of such consultation as part of the relevant documentation required by the conditions of this consent;
(c) describe how matters raised by the public authority have been addressed and identify matters that have not been resolved; and
(d) include the details of any outstanding issues raised by the relevant public authority and an explanation of disagreement between any public authority and the Applicant.

STATUTORY REQUIREMENTS

A20. The Applicant must ensure that all licences, permits and approval/consents are obtained as required by law and maintained as required throughout the life of the Development. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approval/consents.

DEMOLITION

A21. The Applicant must ensure that all demolition associated with the Development is carried out in accordance with Australian Standard AS 2601:2001: *The Demolition of Structures*, or its latest version and the requirements of the *Work Health and Safety Regulation, 2011*.

STRUCTURAL ADEQUACY AND CERTIFICATION

A22. The Applicant must ensure all new buildings and structures, and any alterations or additions to existing buildings and structures are constructed in accordance with the EIS and relevant requirements of the BCA.

Note: Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for the proposed building works. Part 8 of the EP&A Regulation sets out the requirements for the certification of the Development.

A23. Prior to the issue of the Final Occupation Certificate, adjustments to any public utilities necessitated by the development are to be completed in accordance with the requirements of the relevant Authority. Any utility costs are to be at no cost to Council, unless otherwise agreed between the Applicant and Council.

UTILITIES AND SERVICES

A24. Prior to the construction of any utility works associated with the Development, the Applicant must obtain relevant approvals from service providers.

A25. Prior to the commencement of construction, Approved Plans must be submitted to the Sydney Water via their online service to determine if the development will have any impacts on Sydney Water assets.

A26. Prior to the commencement of operations, the Applicant must obtain a Compliance Certificate for water and sewerage infrastructure servicing of the site under section 73 of the *Sydney Water Act* 1994.

PROTECTION OF PUBLIC INFRASTRUCTURE

A27. Prior to the commencement of construction, the Applicant must:
(a) consult with the relevant owner and/or provider of services that are likely to be affected by the Development to make suitable arrangements for access to, diversion, protection, and/or support of the affected infrastructure;
(b) prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths); and
(c) submit a copy of this report to the Secretary and Council.

A28. Unless the Applicant and the applicable authority agree otherwise, the Applicant must:
(a) repair, or pay the full costs associated with repairing any public infrastructure that is damaged by the Development; and
(b) relocate, or pay the full costs associated with relocating any infrastructure that needs to be relocated as a result of the Development.

OPERATION OF PLANT AND EQUIPMENT

A29. The Applicant must ensure that all plant and equipment used for the Development is:
(a) maintained in a proper and efficient condition; and
(b) operated in a proper and efficient manner.

COMPLIANCE

A30. The Applicant must ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.

DEVELOPMENT CONTRIBUTIONS

A31. Prior to the issue of a Construction Certificate for any part of the Development, the Applicant must pay development contributions to Council in accordance with the Fairfield City Council Indirect (Section 7.12) Development Contributions Plan 2011. Following Councils approval, the Applicant may stage the payment of the 7.12 contributions in accordance with the construction stages.

Note: *The contribution and the amount payable may be adjusted at the date of payment. Any unpaid contributions will be adjusted on a quarterly basis to account for movements in the Australian Bureau of Statistics, producer Price index – Building Construction (NSW South Wales).*

PART B: ENVIRONMENTAL PERFORMANCE AND MANAGEMENT

WASTE MANAGEMENT

B1. All waste materials removed from the site must only be directed to a waste management facility or premises lawfully permitted to accept the materials.

B2. Waste generated outside the site must not be received at the site for storage, treatment, processing, reprocessing, or disposal, except as expressly permitted by an EPL.

B3. The Applicant must record the amount of waste (in tonnes) received at the site on a daily basis.

B4. The Applicant must retain all sampling and waste classification data for the life of the Development in accordance with the requirements of the EPA.

Receipt, Storage & Handling of Waste

B5. The Applicant shall only receive waste on site that is authorised for receipt by an EPL.

B6. The Applicant shall ensure any waste generated on the site during construction is classified in accordance with the EPA's *Waste Classification Guidelines*, *2014* or its latest version, and disposed of to a facility that may lawfully accept the waste.

B7. The Applicant shall:
- (a) implement auditable procedures to:
  - (i) ensure the site does not accept wastes that are prohibited; and
  - (ii) screen incoming waste loads.
- (b) ensure that:
  - (i) all waste types that are controlled under a tracking system have the appropriate documentation prior to acceptance at the site;
  - (ii) all waste received at the site must be recorded in accordance with clause 27 of the POEO (Waste) Regulation;
  - (iii) details of the quantity, type and source of wastes received on the site must be provided to the EPA and the Secretary when requested; and
  - (iv) staff receive adequate training to be able to recognise and handle any hazardous or other prohibited waste.

B8. The Applicant must assess and classify all liquid and non-liquid wastes to be taken off site in accordance with the EPA's *Waste Classification Guidelines Part 1: Classifying Waste, November 2014*, or its latest version and dispose of all wastes to a facility that may lawfully accept the waste.

B9. All waste must be:
- (a) stored wholly within the designated waste storage areas; and
- (b) loaded and unloaded within the designated loading and unloading areas.

B10. All loading and unloading of general solid waste (putrescible) and liquid waste must be carried out completely within the FGO and FLD buildings.

Waste Monitoring Program

B11. From the commencement of operation, the Applicant must implement a Waste Monitoring Program for the Development. The program must:
- (a) be prepared by a suitably qualified and experienced person(s) prior to the commencement of operation;
- (b) include suitable provision to monitor the:
  - (i) quantity, type and source of waste received on site;
  - (ii) quantity, type and quality of the outputs produced on site; and
- (c) ensure that:
  - (i) all waste that is controlled under a tracking system has the appropriate documentation prior to acceptance at the site; and
  - (ii) staff receive adequate training in order to be able to recognise and handle any hazardous or other prohibited waste, including asbestos.

Waste Management Plan

B12. Prior to the commencement of operation, the Applicant must prepare a Waste Management Plan for the Development to the satisfaction of the Secretary. The Waste Management Plan must form part of the OEMP required by Condition C4 and be prepared in accordance with Condition C7. The Plan must:
(a) detail the type and quantity of waste to be received during operation of the Development;
(b) include procedures for diversion of waste to other facilities during unexpected machinery breakdown; and
(c) details the requirements for non-conforming waste handling and removal.

B13. The Applicant must:
(a) not commence operation until the Waste Management Plan is approved by the Secretary; and
(b) implement the most recent version of the Waste Management Plan approved by the Secretary.

Construction Waste Management

B14. Prior to the commencement of construction, the Applicant must prepare a Construction and Demolition Waste Management Plan (CDWMP) for the Development to the satisfaction of the Secretary. The plan must form part of the CEMP required by Condition C1. The CDWMP must:
(a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations; and
(b) be implemented for the duration of construction works.

B15. The Applicant must:
(a) retain disposal records for all waste disposed of under the CDWMP for 4 years and provide these to the EPA as requested;
(b) not commence construction until the CDWMP is approved by the Secretary; and
(c) implement the most recent version of the CDWMP approved by the Secretary.

ODOUR AND AIR QUALITY

Meteorological Station

B16. Prior to the commencement of any works on-site, the Applicant must install a suitable meteorological station on the site. The meteorological station must generally comply with the requirements in the EPA's *Approved Methods for Sampling of Air Pollutants in New South Wales*.

Dust Management

B17. All reasonable steps must be taken to minimise dust generated during all works authorised by this consent.

B18. During construction, the Applicant must ensure that:
(a) all vehicles on site do not exceed a speed of 20 kilometres per hour;
(b) exposed surfaces and stockpiles are suppressed by regular watering;
(c) all trucks entering or leaving the site with loads have their loads covered;
(d) trucks associated with the Development do not track dirt onto the public road network; and
(e) public roads used by these trucks are kept clean.

B19. Prior to the commencement of operations, the Applicant must:
(a) ensure the interior of the FGO and FLD building is designed to facilitate wash down and leachate capture; and
(b) seal all trafficable areas.

B20. During operations, the Applicant must ensure that:
(a) all vehicles on site do not exceed a speed of 20 kilometres per hour;
(b) regular watering is conducted within the landscaping material supplies area to ensure dust impacts are minimised; and
(c) air quality and odour impacts of the Development are minimised during adverse meteorological conditions.

Odour

B21. The Applicant must ensure the Development does not cause or permit the emission of any offensive odour (as defined in the POEO Act).

Air Quality and Odour Mitigation

B22. The Applicant must:
- (a) operate the Development so that air and odour emissions are minimised during all meteorological conditions
- (b) implement best management practice, including all reasonable and feasible air and odour emission mitigation measures to minimise emissions from the Development, including but not limited to an odour management system comprising of:
  - (i) a system which ensures the FGO and FLD buildings would be held under negative pressure and fitted with automatically closing heavy vehicle roller doors;
  - (ii) installation of an air extraction device(s) which directs the air to eight carbon filters with a 99.9% odour elimination efficiency rate;
  - (iii) installation of a volatile organic compounds (VOC) breakthrough detection alarm in the FGO building which must be triggered once the carbon filters reach 90% saturation;
  - (iv) ducting the air from the FLD building to the FGO building to ensure the air is treated via the eight carbon filters;
  - (v) biological inoculums to deodorise plant and equipment areas; and
  - (vi) the installation of misting sprays above the truck entry/exit in the FGO and FLD building to supress odour emissions
  - (vii) conduct weekly cleaning of any tipping areas within the FGO or FLD building where interior walls have been contaminated with putrescible waste;
- (c) regularly maintain on-site surfaces to prevent dust re-entrainment from vehicle movements and other equipment use;
- (d) in accordance with the OEMP ensure the regular wash down of the FGO and FLD buildings to ensure a build-up of waste and odour does not occur;
- (e) ensure regular maintenance of the odour management system; and
- (f) record and respond to any air quality or odour complaints within 48 hours.

B23. Prior to acceptance of any waste at the FGO or FLD building, the odour management system identified in Condition B22(b) must be installed and operational.

Odour Management Plan

B24. Prior to commencement of operation of the FGO or FLD building, the Applicant must prepare an Odour Management Plan (OMP) to the satisfaction of the Secretary. The OMP must form part of the OEMP required by Condition C4 and be prepared in accordance with Condition C7. The OMP must:
- (a) be prepared by a suitably qualified and experienced person(s) in consultation with the EPA
  - (i) describe the measures that would be implemented on site to ensure all reasonable and feasible measures are employed to minimise odour emissions, including details of the odour management system and all other operational air quality mitigation measures;
  - (ii) demonstrate compliance with the relevant conditions of this consent;
  - (iii) detail on a site plan the location of any odour management infrastructure;
  - (iv) detail the contingency measures to be deployed to minimise impacts should adverse odour emissions occur or appear likely to occur;
  - (v) include an ongoing odour monitoring program;
  - (vi) include well defined triggers for the deployment of odour mitigation and contingency measures;
  - (vii) include contingency measures for design or system failure; and
  - (viii) include a system for monitoring and responding to any odour complaints.

B25. The Applicant must:
- (a) not commence operation of the FGO and FLD buildings until the OMP required by Condition B24 is approved by the Secretary; and
- (b) implement the most recent version of the OMP approved by the Secretary for the duration of the Development.

Odour Audit

B26. The Applicant must carry out an Odour Audit of the Development no later than six months after the commencement of operation of the FGO and FLD buildings. The audit must:
- (a) be carried out by a suitably qualified, experienced and independent person(s), whose appointment has been endorsed by the Secretary;
- (b) be carried out in accordance with the methodologies set out in the relevant EPA guidelines;
- (c) identify all significant odour sources at the site;
- (d) monitor odour and audit the Development whilst the FGO and FLD buildings are in full operation;
- (e) include a summary of air and odour emission related complaints and any actions that were carried out to address the complaints;

(f) validate the Development in consultation with the EPA against the odour predictions in the EIS and provide a comparison between the monitoring results and the relevant EPA guidelines;
(g) review the design and management practices of the Development against the industry best practice for odour emissions; and
(h) include an action plan that identifies, prioritises and provides timeframes for the implementation of any additional odour emission mitigation measures that may be necessary to reduce odour emissions to ensure the relevant odour criteria is met.

Note: *The Odour Audit may be prepared so that it addresses the requirements of this consent and the EPL for the Development.*

B27. Within six months of commissioning of the Odour Audit required by Condition B26, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the Odour Audit report to the satisfaction of the Secretary, together with the Applicant's response to any recommendations contained in the Odour Audit report.

B28. The Applicant must comply with any reasonable requirement(s) of the Secretary arising from the Odour Audit.

SOILS, WATER QUALITY AND HYDROLOGY

Wastewater and Leachate

B29. Any leachate generated on the site must be captured and re-used on-site or disposed of at a licenced facility, and no leachate is permitted to enter the stormwater system.

B30. The Applicant must ensure all wastewater is discharged to sewer in accordance with a Trade Waste Agreement with Sydney Water or tankered offsite for appropriate disposal at licenced facilities or further processing

B31. The Applicant must install an alarm system which sounds and flashes once the amount of wastewater contained within the site wastewater tanks reaches 80% of the total capacity.

B32. Wastewater from the hydro-excavation, drill mud and fluids processing facility is not permitted to enter the stormwater management system.

B33. Prior to commencement of operation of the hydro-excavation, drill mud and fluid processing facility, the Applicant must ensure:
(a) the wastewater management system is operational; and
(b) the ~~six 35 kL~~ wastewater tanks associated with the hydro-excavation, drill mud and fluid processing facility are bunded in accordance with:
(i) all relevant Australian Standards; and
(ii) NSW EPA's Spill Management Bunding guidelines.

Liquid Food Waste

B34. Prior to the commencement of operations of the FLD building, the Applicant must:
(a) ensure the base of the FLD tip pit is located at or above 44.5 m AHD (0.5 m above the groundwater table);
(b) line the FLD building tip pit with an impermeable barrier to prevent leachate from entering groundwater;
(c) install an alarm within the two 27 kL liquid food waste tanks which sounds and flashes once 75% of the total capacity is reached; and
(d) ensure the liquid food waste tanks are bunded in accordance with all relevant Australian Standards and NSW EPA's Spill Management Bunding guidelines.

B35. Any liquid food waste generated within the FLD building must be contained within the two 27 kL tanks within the FLD building.

Groundwater

B36. Every 12 months from commencement of the FLD operations, the Applicant must conduct groundwater monitoring and demonstrate that leachate from the FLD facility tip pit is not entering groundwater. The groundwater monitoring must be conducted by a suitably qualified and experienced expert whose appointment has been endorsed by the Secretary.

B37. Within two months of the groundwater monitoring being conducted, the Applicant must submit a Groundwater Report to the Secretary which:
(a) includes a plan showing the location of the groundwater monitoring well which was sampled in accordance with Condition B36;
(b) details the baseline data, groundwater levels and monitoring results against the relevant criteria;
(c) considers whether leachate from the FLD tip pit has entered groundwater; and

(d) if necessary, details the mitigation and contingency measures which would be implemented to prevent the FLD tip pit from leaking.

B38. Should it be determined that leachate has entered groundwater, the Applicant is not permitted to store waste within the FLD tip pit until the leak has been rectified.

Discharge Limits

B39. The Development must comply with section 120 of the POEO Act, which prohibits the pollution of waters, except as expressly provided for in an EPL.

Flood Management

B40. Prior to the commencement of construction, the Applicant must prepare a Flood Emergency Response Plan (FERP) for the Development in consultation with Council and to the satisfaction of the Secretary. The Plan must form part of the CEMP and OEMP required by Conditions C1 and C4 and must:
(a) be prepared by a suitably qualified and experienced person(s);
(b) include details of:
(i) the flood emergency responses for both construction and operation phases of the Development;
(ii) predicted flood levels;
(iii) flood warning time and flood notification;
(iv) assembly points and evacuation routes;
(v) evacuation and refuge protocols; and
(vi) awareness training for employees and contractors.

B41. The Applicant must:
(a) not commence construction until the FERP required by Condition B40 is approved by the Secretary; and
(b) implement the most recent version of the FERP approved by the Secretary for the duration of the Development.

B42. All floor levels must be no lower than the 1% Annual Exceedance Probability flood plus 0.5 m of freeboard.

Stormwater Management System

B43. The Applicant must design, install and operate a stormwater management system for the Development. The system must:
(a) be designed by a suitably qualified and experienced person(s);
(b) be generally in accordance with the conceptual design in the SEE and applicable Australian Standards;
(c) ensure that the system capacity has been designed in accordance with *Australian Rainfall and Runoff (Engineers Australia, 2016) and Managing Urban Stormwater: Council Handbook* (EPA, 1997);
(d) divert existing clean surface water around operational areas of the site;
(e) prevent firewater and contaminated water from entering the stormwater system; and
~~(f) direct all sediment laden water from the landscaping material supplies area to a minimum 41 kL sediment trap and a minimum 27 kL humeceptor (or equivalent).~~
~~(g) ensure roof water run-off from the FGO building, FLD building, administration and staff amenities buildings is captured and stored in one of the seven rainwater harvesting tanks, the seven rainwater tanks must have a combined volume of 120 kL.~~
(f) Ensure all roof water runoff from onsite buildings is captured and stored in the onsite 20kL rainwater harvesting tanks.

B44. Prior to the issue of a Construction Certificate, a certificate must be submitted to the PCA certifying that:
(a) satisfactory arrangements have been made for the disposal of stormwater;
(b) the proposed development and alterations to the natural surface contours will not impede or divert natural surface water runoff so as to cause a nuisance to adjoining properties; and
(c) the piped drainage system has been designed to Council's Stormwater Drainage Policy.

B45. Prior to the issue of the Final Occupation Certificate, Works-As-Executed drawings signed by a registered surveyor demonstrating that the stormwater drainage and finished ground levels have been constructed as approved must be submitted to the PCA.

B46. The stormwater drainage generated from the development must be directed to the onsite sediment basin and bioretention basin prior to being released to Council's street kerb and gutter stormwater system.

B47. Within 6 months of the operation of the landscaping materials supplies facility, the Applicant must demonstrate to the Secretary that the following stormwater reduction targets for the site are being met:

Table 1: Stormwater Reduction Targets

Stormwater Pollutant	Industrial Developments
Gross pollutants	90%
Total suspended solids (TSS)	80%
Total phosphorus (TP)	55%
Total nitrogen (TN)	40%

B48. If the Targets in **Table 1** are not met, the Applicant must install additional mitigation measures to meet the targets in **Table 1**.

Water Management Plan

B49. Prior to the commencement of operation, the Applicant must prepare a Water Management Plan to the satisfaction of the Secretary. The Water Management Plan must form part of the OEMP required by Condition C4 and be prepared in accordance with Condition C7. The Water Management Plan must:
- (a) be prepared by a suitably qualified and experienced person(s);
- (b) detail water use, disposal and management on-site;
- (c) detail the water licence requirements for the development i.e trade waste;
- (d) detail how leachate, stormwater and wastewater would be managed;
- (e) detail any trigger levels to ensure overflow of wastewater and leachate at the site does not occur;
- (f) contain a Surface Water Management Plan, including;
  - (i) a program to monitor:
    - a. surface water flows and quality;
    - b. surface water storage and use; and
  - (ii) sediment and erosion controls;
  - (iii) surface water impact assessment criteria, including trigger levels for investigating and potential adverse surface water impacts; and
  - (iv) a protocol for the investigation and mitigation of identified exceedances of the surface water impact assessment criteria.
- (g) contain a Groundwater Management Plan, including:
  - (i) baseline data on groundwater levels and quality;
  - (ii) a program to monitor groundwater levels and quality;
  - (iii) groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts; and
  - (iv) a protocol for the investigation and mitigation of identified exceedances of the groundwater impact assessment criteria.

B50. The Applicant must:
- (a) not commence operation until the Water Management Plan required by Condition B49 is approved by the Secretary; and
- (b) implement the most recent version of the Water Management Plan approved by the Secretary for the duration of the Development.

Chemical Spills and Fire Water Containment

B51. To ensure that chemical spills and fire-water are contained on-site, prior to the commencement of operations, the Applicant must:
- (a) prepare an Emergency Response Plan as part of the OEMP as required by Condition C4 which details the responsibilities and procedures should a chemical spill or fire occur on the site;
- (b) ensure the stormwater isolation valve functionality has a fail-safe function on power failure which automatically closes the valve. The stormwater isolation valve must remain in the closed position until a manual over-ride function is initiated upon confirmation that stormwater isolation is no longer required or once any contaminated water is disposed via trade waste or at a site that can lawfully receive the waste; and
- (c) ensure the location of the stormwater isolation valve and any associated controls are clearly identified on the site's fire hydrant block plan, fire sprinkler block plan and the site plan located within the site's Emergency Response Plan.

Erosion and Sediment Control

B52. Prior to the commencement of construction, the Applicant must install and maintain suitable erosion and sediment control measures on-site, in accordance with the relevant requirements in the latest version of the *Managing Urban Stormwater: Soils and Construction Guideline* and the Erosion and Sediment Control Plan included in the CEMP required by Condition C1.

TRAFFIC AND ACCESS

Parking

B53. Prior to the commencement of any operations, the Applicant must provide a total of 36 car parking spaces (including two disabled car spaces), all car parking must be constructed in accordance with the latest version of AS 2890.

Operating Conditions

B54. The Applicant must ensure:
- (a) internal roads, driveways and parking (including grades, turn paths, sight distance requirements, aisle widths, aisle lengths and parking bay dimensions) associated with the Development are constructed and maintained in accordance with the latest version of AS 2890.1 and AS 2890.2;
- (b) the western entry/exit must be widened to meet RMS heavy vehicle access requirements and be submitted to Council for approval;
- (c) the swept path of the longest vehicle entering and exiting the site, as well as manoeuvrability through the site, is in accordance with the relevant AUSTROADS guidelines;
- (d) the Development does not result in any vehicles queuing on the public road network in particular Davis Road;
- (e) heavy vehicles and bins associated with the Development are not parked on local roads or footpaths in the vicinity of the site;
- (f) all vehicles are wholly contained on site before being required to stop;
- (g) all trucks entering or leaving the site with loads have their loads covered and do not track dirt onto the public road network;
- (h) the proposed turning areas in the car park are kept clear of any obstacles, including parked cars, at all times;
- ~~(i) heavy vehicles only enter and exit via the western driveway;~~
- ~~(j) light vehicles only enter and exit via the eastern driveway;~~
- (i) the various operating areas must be clearly marked and signage erected to direct heavy vehicles to the relevant operating areas; and
- (j) pedestrian paths on-site must be clearly marked at all times.

Operational Traffic Management Plan

B55. Prior to the commencement of operations, the Applicant must prepare an Operational Traffic Management Plan (OTMP) for the Development to the satisfaction of the Secretary. The plan must form part of the OEMP required by Condition C7. The OTMP must:
- (a) be prepared by a suitably qualified and experienced person(s);
- (b) be prepared in consultation with Council;
- (c) detail the measures that are to be implemented to ensure road safety and network efficiency is maintained including restricting queuing or parking of vehicles on Davis Road and re-directing heavy vehicles during peak times so that queuing is appropriately managed;
- (d) detail heavy vehicle routes, driveway widening, access and parking arrangements;
- (e) include a Driver Code of Conduct to:
  - (i) minimise the impacts on the local and regional road network;
  - (ii) minimise conflicts with other road users;
  - (iii) minimise road traffic noise;
  - (iv) ensure truck drivers use specified routes; and
  - (v) include a program to monitor the effectiveness of these measures.
- (f) include a Traffic Control Plan (TCP) detailing:
  - (i) the location of signage to direct heavy vehicles to the relevant operating areas;
  - (ii) the on-site measures to be implemented to control the movement of trucks in, out and onsite, such as 'left turn only' signs and a traffic controller; and
  - (iii) provisions for requiring a dedicated traffic controller to stop exiting trucks to allow an entering truck to manoeuvre into the site unhindered.

B56. The Applicant must:
- (a) not commence operation until the OTMP required by Condition B55 is approved by the Secretary; and
- (b) ensure the OTMP (as required and approved by the Secretary from time to time) is implemented for the operational life of the Development.

NOISE

Hours of Work

B57. The Applicant must comply with the hours detailed in **Table 2** and **Table 3**:

Table 2: Hours of Demolition and Construction

Activity	Day	Time
Demolition and construction	Monday to Friday Saturday Sunday	7 am to 6 pm 8 am to 1 pm No works permitted

Table 3: Hours of Operation

Operation	Receival	Dispatch	Processing
Hydro-Excavation, Drill Mud and Fluids Processing Facility, FGO Facility, FLD Facility, Landscaping Material Supplies Facility	24 hours	24 hours	24 hours

B58. Works outside of the hours identified in Condition B57 may be undertaken in the following circumstances:
(a) works that are inaudible at the nearest sensitive receivers;
(b) works agreed to in writing by the Secretary;
(c) for the delivery of materials required outside these hours by the NSW Police Force or other authorities for safety reasons; or
(d) where it is required in an emergency to avoid the loss of lives, property and /or prevent environmental harm.

Construction Noise Limits

B59. The Development must be constructed to achieve the construction noise management levels detailed in the *Interim Construction Noise Guideline* (Department of Environment and Climate Change, 2009). All noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures in the EIS.

Operational Noise Limits

B60. The Applicant must ensure that noise generated by operation of the Development does not exceed the noise limits in **Table 4.**

Table 4: Noise Limits dB(A)

Location	Day $L_{Aeq(15\ minute)}$	Evening $L_{Aeq(15\ minute)}$	Night $L_{Aeq(15\ minute)}$	Night $L_{A1(1\ minute)}$
All residential receivers	35	35	35	45

Note: *Noise generated by the Development is to be measured in accordance with the relevant procedures and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy.*

Noise Mitigation

B61. The Applicant must:
(a) implement best practice, including all noise management and mitigation measures to prevent and minimise operational, low frequency and traffic noise generated by the development;
(b) minimise the noise impacts of the development during adverse meteorological conditions;
(c) maintain the effectiveness of any noise suppression equipment on plant at all times and ensure defective plant and equipment is not being used operationally until fully repaired; and
(d) regularly assess noise emissions and relocate, modify and/or stop operations to ensure compliance with the relevant conditions of this consent.

Construction and Operational Noise Management

B62. The Applicant must ensure that all its vehicles are fitted with broadband reversing alarms only.

VIBRATION

Vibration Criteria

B63. Vibration caused by construction at any residence or structure outside the site must be limited to:
(a) for structural damage, German Standard DIN 4150 Part 3 Structural Vibration in Buildings Effects on Structures; and
(b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006).

Vibration Validation

B64. During the commissioning of the hydro-excavation, drill mud and fluids processing equipment the Applicant must conduct vibration testing on vibration generating equipment. The vibration testing must be conducted by a suitably qualified and experienced person(s). Should exceedances occur, the Applicant must implement the following mitigation measures:
(a) equipment causing the vibration should be isolated on resilient mounts from any connective structures;
(b) inertia blocks should be considered to add system mass to reduce vibration; and
(c) balance weights to correct rotation of poorly balanced parts.

B65. Evidence of the vibration testing and outcomes must be submitted to the Secretary and the EPA within two months of conducting the testing.

HAZARDS AND RISK

B66. The Applicant must store all chemicals, fuels and oils used on-site in accordance with:
(a) the requirements of all relevant Australian Standards; and
(b) the NSW EPA's *'Storing and Handling of Liquids: Environmental Protection – Participants Handbook'* if the chemicals are liquids.

In the event of an inconsistency between the requirements listed from (a) to (b) above, the most stringent requirement must prevail to the extent of the inconsistency.

Dangerous Goods

B67. The quantities of dangerous goods stored and handled at the site must be below the threshold quantities listed in the Department of Planning's *Hazardous and Offensive Development Application Guidelines – Applying SEPP 33* at all times.

B68. Dangerous goods, as defined by the *Australian Dangerous Goods Code*, must be stored and handled strictly in accordance with:
(a) all relevant Australian Standards;
(b) for liquids, a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and
(c) the *Environment Protection Manual for Authorised Officers: Bunding and Spill Management, technical bulletin* (EPA,1997).

In the event of an inconsistency between the requirements listed from a) to c) above, the most stringent requirement must prevail to the extent of the inconsistency.

LITTER AND PEST CONTROL

Pests, Vermin and Noxious Weed Management

B69. The Applicant must:
(a) ensure all waste loads are covered unless fully contained with building(s); and
(b) maintain the site in a clean and tidy state at all times.

B70. The Applicant must:
(a) implement suitable measures to manage pests, vermin and declared noxious weeds on the site; and

(b) inspect the site on a regular basis to ensure that these measures are working effectively, and that pests, vermin or noxious weeds are not present on site in sufficient numbers to pose an environmental hazard, or cause the loss of amenity in the surrounding area.

Note: *For the purposes of this condition, noxious weeds are those species subject to an order declared under the Noxious Weed Act 1993.*

CONTAMINATION

B71. Prior to the commencement of construction, the Applicant must prepare an unexpected finds protocol to ensure that potentially contaminated material is appropriately managed. The protocol must form part of the CEMP required by Condition C1 and must ensure any material identified as contaminated must be disposed off-site, with the disposal location and results of testing submitted to the Secretary, prior to its removal from the site.

VISUAL AMENITY

Building Materials and Landscaping

B72. Prior to the commencement of construction, the Applicant must prepare a Building Material Schedule and Landscape Plan for the Development to the satisfaction of the Secretary. The Schedule and Plan must:
(a) be prepared in consultation with Council;
(b) be consistent with the Fairfield City Council Development Control Plan 2013;
(c) include a schedule of the building materials and colours to be used on the facades; and
(d) include details on landscaping including species and number of plants to be planted and the watering regime.

Only native species are to be used for landscaping purposes~~, and species must be selected which benefit the Cumberland Plain Woodland species present on the site~~.

B73. The Applicant must:
(a) not commence construction until the Building Material Schedule and Landscape Plan required by Condition B72 is approved by the Secretary; and
(b) ensure the Building Material Schedule and Landscape Plan (as required and approved by the Secretary from time to time) is implemented for the operational life of the Development.

External Walls and Cladding Flammability

B74. The external walls of the building including attachments must comply with the relevant requirements of the National Construction Code (NCC). Prior to the issue of a Construction Certificate and Occupation Certificate the Certifying Authority must:
(a) be satisfied that suitable evidence is provided to demonstrate that the products and systems proposed for use or used in the construction of external walls including finishes and claddings such as synthetic or aluminium composite panels comply with the relevant requirements of the NCC; and
(b) ensure that the documentation relied upon in the approval processes include an appropriate level of detail to demonstrate compliance with the NCC as proposed and as built.

B75. A copy of the documentation required under Condition B74(b) must be provided to the Secretary within 7 days of being accepted by the Certifying

Lighting

B76. The Applicant must ensure the lighting associated with the Development:
(a) complies with the latest version of AS 4282 (INT) - Control of Obtrusive Effects of Outdoor Lighting; and
(b) is mounted, screened and directed in such a manner that it does not create a nuisance to surrounding properties or the public road network.

Signage

B77. All signage and fencing must be erected in accordance with the Development plans included in the EIS/RTS.

Note: *This condition does not apply to temporary construction and safety related signage and fencing.*

HERITAGE

B78. The Applicant must cease all works on site in the event that any Aboriginal cultural object(s) or human remains are uncovered. If human remains are uncovered, you must immediately stop work, not further disturb the

remains and notify NSW Police. OEH and the Aboriginal community must be contacted if the remains are suspected to be of Aboriginal origin. If other Aboriginal objects are discovered, you must immediately stop work, not further disturb the objects and notify OEH by calling Environment Line on 131 555. Works must not resume in the designated area until the relevant written consent is received from NSW Police and/or OEH. Any Aboriginal objects discovered must be registered on the Aboriginal Heritage Management Information System (AHIMS), in accordance with section 89A of the *National Parks and Wildlife Act 1974*.

SECURITY

B79. The Applicant shall:
(a) maintain the perimeter fence and security gates on the site; and
(b) ensure that the security gates on site are locked whenever the site is unattended.

DECOMISSIONING

B80. Prior to the commencement of operations, the Applicant must prepare a Conceptual Decommissioning Management Plan (DMP) for the Development to the satisfaction of the Secretary. The plan must form part of the OEMP required by Condition C7. The DMP must:
(a) include a schedule for the decommissioning of the Development;
(b) detail how the following would be achieved:
  (i) ensure the site is left in a safe, stable and non-polluting manner;
  (ii) removal of all waste from the site;
  (iii) restoration of the site to the existing landuse in accordance with *State Environmental Planning Policy No 55 – Remediation of Land*; and
  (iv) ensure public safety is maintained.
(c) include procedures for notification of the surrounding landowners;
(d) include procedures for safe removal of any machinery and structures;
(e) include measures to mitigate any environmental impacts associated with the removal of the development;
(f) include details of monitoring that would be undertaken during the decommissioning of the development; and
(g) be reviewed 12 months prior to the closure of the site to the satisfaction of the Secretary.

PART C: ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

C1. The Applicant must prepare a Construction Environmental Management Plan (CEMP) to the satisfaction of the Secretary. The CEMP must:
(a) be approved by the Secretary prior to the commencement of construction;
(b) outline all environmental management practices and procedures to be followed during construction works associated with the Development;
(c) explain the controls that would be implemented to minimise dust emissions during construction of the Development;
(d) describe all activities to be undertaken on the site during construction of the Development, including a clear indication of construction stages;
(e) detail how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;
(f) describe the roles and responsibilities for all relevant employees involved in construction works associated with the Development; and
(g) include the management plans required under Condition C2 of this consent.

C2. As part of the CEMP required under Condition C1 of this consent, the Applicant must include the following:
(a) Construction and Demolition Waste Management Plan (Condition B14);
(b) Flood Emergency Response Plan (see Condition B40);
(c) Erosion and Sediment Control Plan (see Condition B52);
(d) Unexpected Finds Protocol (see Condition B71); and
(e) Building Material Schedule and Landscape Plan (see Condition B72).

C3. The Applicant must carry out the construction of the Development in accordance with the CEMP approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

OPERATIONAL ENVIRONMENTAL MANAGEMENT PLAN

C4. The Applicant must prepare an Operational Environmental Management Plan (OEMP) to the satisfaction of the Secretary. The OEMP must:
(a) be approved by the Secretary prior to the commencement of operations;
(b) be prepared by a suitably qualified and experienced expert;
(c) provide the strategic framework for environmental management of the Development;
(d) identify the statutory approvals that apply to the Development;
(e) provide a legible site plan which shows all the various operations on the site;
(f) detail the FGO and FLD cleaning and maintenance regime;
(g) include the details of the groundwater monitoring as required by Condition B36;
(h) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the Development;
(i) describe the procedures that would be implemented to:
    (i) keep the local community and relevant agencies informed about the operation and environmental performance of the Development;
    (ii) receive, handle, respond to, and record complaints;
    (iii) resolve any disputes that may arise;
    (iv) respond to any non-compliance; and
    (v) respond to emergencies.
(j) include the following environmental management plans:
    (i) Waste Management Plan (Condition B12);
    (ii) Odour Management Plan (see Condition B24);
    (iii) Water Management Plan (see Condition B49);
    (iv) Emergency Response Plan that addresses flooding, chemical spills and fire water containment (see Condition B51 and B40);
    (v) Operational Traffic Management Plan (see Condition B55); and
    (vi) Conceptual Decommissioning Management Plan (see Condition B80).

C5. The Applicant must operate the Development in accordance with the OEMP approved by the Secretary (and as revised and approved by the Secretary from time to time), unless otherwise agreed by the Secretary.

Conditions Compliance Report

C6. The Applicant must submit a Conditions Compliance Report to the Secretary with any Environmental Management Plans, to track compliance with the conditions of this approval during the construction and

operation of the Development. The Conditions Compliance Report must include procedures for rectifying any non-compliance identified.

MANAGEMENT PLAN REQUIREMENTS

C7. The Applicant must ensure that the environmental management plans required under Condition C1 and Condition C4 of this consent are prepared by a suitably qualified person or persons in accordance with best practice and include:
(a) detailed baseline data
(b) a description of:
  (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);
  (ii) any relevant limits or performance measures/criteria; and
  (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the Development or any management measures.
(c) a description of the management measures that would be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria;
(d) a program to monitor and report on the:
  (i) impacts and environmental performance of the Development; and
  (ii) effectiveness of any management measures (see (c) above).
(e) a contingency plan to manage any unpredicted impacts and their consequences;
(f) a program to investigate and implement ways to improve the environmental performance of the Development over time;
(g) a protocol for managing and reporting any:
  (i) incidents;
  (ii) complaints;
  (iii) non-compliances with statutory requirements; and
  (iv) exceedances of the impact assessment criteria and/or performance criteria.
(h) a protocol for periodic review of the plan.

Revision of Strategies, Plans and Programs

C8. Within three months of:
(a) approval of a modification;
(b) approval of an annual review under Condition C9;
(c) submission of an incident report under Condition C10; and
(d) completion of an audit under Condition C14.

the Applicant must review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary.

Note: *This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Development.*

ANNUAL REVIEW

C9. Each year, the Applicant must review the environmental performance of the Development to the satisfaction of the Secretary. This review must:
(a) describe the development that was carried out in the previous calendar year, and the Development that is proposed to be carried out over the next year;
(b) include a comprehensive review of the monitoring results and complaints records of the Development over the previous calendar year, which includes a comparison of these results against the:
  (i) the relevant statutory requirements, limits or performance measures/criteria;
  (ii) requirements of any plan or program required under this consent;
  (iii) the monitoring results of previous years; and
  (iv) the relevant predictions in the EIS.
(c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
(d) identify any trends in the monitoring data over the life of the Development;
(e) identify any discrepancies between the predicted and actual impacts of the Development, and analyse the potential cause of any significant discrepancies; and
(f) describe what measures will be implemented over the next year to improve the environmental performance of the Development.

REPORTING

Incident Reporting

C10. Within 24 hours of any incident or potential incident with actual or potential significant off-site impacts on people or the biophysical environment, a report shall be supplied to the Department outlining the basic facts. A further detailed report shall be prepared and submitted following investigations of the causes and identification of necessary additional preventive measures. That report must be submitted to the Secretary no later than 14 days after the incident or potential incident.

C11. The Applicant shall maintain a register of accidents, incidents and potential incidents. The register shall be made available for inspection at any time by the independent Hazard Auditor and the Department.

Regular Reporting

C12. The Applicant must provide regular reporting on the environmental performance of the Development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.

AUDITING

Independent Environmental Audit

C13. Within one year of the commencement of operation, and every three years thereafter, unless the Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit (audit) of the Development. Division 2B of Part 6 of the EP&A Act applies to these audits, which are for the purposes of ascertaining information in relation to the environmental performance of the Development and the adequacy of strategies, plans and programs. Audits must:

(a) be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
(b) include consultation with the relevant agencies;
(c) assess the environmental performance of the Development and assess whether it is complying with the requirements in this consent, and any other relevant approvals, relevant EPL(s) (including any assessment, plan or program required under these approvals);
(d) review the adequacy of any approved strategy, plan or program required under the abovementioned consents; and
(e) recommend measures or actions to improve the environmental performance of the Development, and/or any strategy, plan or program required under these consents.

Note: *This audit team must be led by a suitably qualified auditor, and include relevant experts in any other fields specified by the Secretary.*

C14. Within three months of commissioning this audit, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the audit report to the Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The Applicant must implement these recommendations to the satisfaction of the Secretary.

ACCESS TO INFORMATION

C15. The Applicant must:

(a) make copies of the following publicly available on its website:
    (i) the documents referred to in Condition A2;
    (ii) all current statutory approvals for the Development;
    (iii) all approved strategies, plans and programs required under the conditions of this consent;
    (iv) a comprehensive summary of the monitoring results of the Development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;
    (v) a complaint register updated on a monthly basis;
    (vi) the annual reviews of the Development;
    (vii) any independent environmental audit of the Development and the Applicant's response to the recommendations in any audit;
    (viii) any other matter required by the Secretary; and
    (ix) keep this information up to date, to the satisfaction of the Secretary.

APPENDIX A
DEVELOPMENT LAYOUT PLANS

APPENDIX B
APPLICANT'S MANAGEMENT AND MITIGATION MEASURES