7 December 2018

Recycling & Recovery

Susan Fox
Senior Planning Officer
Department of Planning & Environment
320 Pitt Street
Sydney NSW 2001

Dear Susan

RE: SSD7267 Mod 2 - Response to Submissions

We refer to the email dated 21 November 2018 from the Department of Planning and Environment (DPE) requesting response to the submissions received from various government agencies.

SUEZ provides the following responses to the submissions received.

1 Environment Protection Authority

The EPA provided comments on 13 November 2018 in relation to the two proposed consent condition changes A8 and B9(a). While the EPA supports the proposed change to Condition A8, it does not support completely removing Condition B9(a). In consultation with SUEZ, the EPA agreed to removing GTA Condition O7.3 which states "*The licensee must conduct weekly cleaning of the surge pit where contaminated with putrescible waste*". This agreement amounts to removing the requirement to conduct weekly wash-down of the surge pit only.

Because the consent combines two separate GTA conditions into one, the EPA's preference is to amend Condition B9(a) to the following: "*During operations, the Applicant must conduct a weekly wash-down of any tipping area contaminated with putrescible waste*".

SUEZ accepts the EPA's recommendation and agrees to maintain weekly wash-down of any tipping area contaminated with putrescible waste.

On 13 November 2018 the EPA provided additional comment to DPE seeking additional information regarding the existing cardboard and packaging baler. We refer to the response provided from SUEZ to DPE on 3 October 2018 (refer attachment A) for a similar request.

2 Fairfield City Council

Fairfield City Council provided comments on 16 November 2018 following review of the modification application. SUEZ provides the following additional information in response to Council's comments.

Council comments	SUEZ responses
Catchment Branch	
1. The amendment has not significantly changed the ground surface levels, from the original proposal. Therefore no significant impact on flood levels is expected.	Noted
2. Stormwater drainage system must be included in Stage 1 works.	Noted and agreed. A confirmation letter from the design engineers Sparks and Partners is provided in Attachment B to confirm a final certificate will be issued post construction regarding the additional pavement, hardstand areas and stormwater drainage as required by Condition A27, and that Condition B23 will be addressed in the drainage design.
Traffic Assessment Branch	
1. The removal of heavy vehicle parking at the site is a concern. Heavy vehicles shall park in a way that they do not obstruct the flow of traffic within the development.	SUEZ is required to modify the facility design from what was initially approved as part of SSD7267 due to Fire Rescue NSW requirements. Attachment C provides further support from the Accredited Certifier / PCA engaged for the works on why a perimeter access road is required. Due to the need to install fire service infrastructure including pump room and storage tank, provide parking space for fire service vehicle, and installing a perimeter road with adequate space for service vehicle turning, there is a need to remove some heavy parking as well as the proposed workshop. SUEZ initially proposed removal of most heavy parking but after consultation with DPE was able to retain eight truck / trailer parking. Based on discussion with operational staff this would be sufficient to manage heavy vehicles on site safety without obstructing flow of traffic. SUEZ has a track record of not parking trailers / trucks out on the public road by utilising its existing waste infrastructure network i.e. parking trucks at SUEZ's other waste facilities. SUEZ maintains that there will be no trailer / truck parking on the public road (Davis Road). SUEZ will also update its Operational Environmental Management Plan (OEMP) to ensure heavy vehicles do not park on public road and that they park in a way that do not obstruct the flow of traffic within the development.
2. Swept path analysis undertaken by Council officers in accordance with Design Vehicle and Turning Path Template Guide – Austroads has revealed that the proposed temporary access road is considered adequate to accommodate the movements of 19m long articulated vehicles. However, the levels and grade of the temporary access road is not known. Further, there will be potential	The purpose of the temporary access road is to meet the requirements of providing a temporary access road for Large Isolated Building, which requires perimeter vehicular access for firefighting operations and this was discussed and supported by Fire & Rescue NSW during their site inspection. The temporary access road on the premise will be designed to FB Policy No 4 and reviewed by the brigades through the fire safety engineering referral report. The southern exit remains generally the same as what was already accessed as part of SSD7267 and approved by Council and DPE.

Council comments	SUEZ responses
conflicts between vehicles exiting the existing ramp and vehicles exiting the temporary access road near the southern boundary of the site. (Please refer to Attachment 3)	
3. Davis Road is a 25m/26m B-Double route. The applicant shall confirm on the largest vehicle that will be used to service the development.	The site will comply to local road limits and will not receive vehicles larger than B-Doubles.
4. As advised by the applicant, it is proposed to increase the processing capacity of an existing waste transfer station to 230,000 tonnes per annum (tpa). Further information shall be provided to Council about how the increased truck movements to the site or the increase in parking demand at the site will be managed	This modification application is for staged increase of the development (stage one increase to 160,000 tonnes per annum). The full capacity of 230,000 tonnes per annum and its impacts has already been accessed by DPE and Council as part of SSD7267.
Development Engineer Branch	
Engineering assessment has no objection subject to Planning and Environment Assessment and the following: 1. The condition with regards to eight (8) heavy vehicle spaces needs to be amended to be consistent with what is submitted on the plans. Please refer to Attachment 2.	The plan shows more than eight (8) heavy vehicle spaces hence does not need to be amended.
2. The submitted plans show that the temporary road is designed in accordance with the NSW FB Policy No 4. The temporary road needs to ensure that the temporary road can accommodate the largest servicing vehicle fully loaded, which may require greater size than the NSW FB Policy No 4. Please refer to Attachment 1.	The temporary road for Stage 1 is proposed as a large isolated building requires a perimeter access road. At Stage 1, this road would only be used by fire service vehicles or other vehicles that would be able to manoeuvre, considering swept path analyses prepared by engineering designers. The road would be expanded as part of Stage 2 works once the neighbour landslip issue is resolved.
3. Stormwater drainage system must be in place. No plans were submitted as part of the Stage 1 proposal.	Noted and agreed A confirmation letter from the design engineers Sparks and Partners is provided as Attachment B.
4. The proposed temporary road must be fully sealed.	Noted and agree. The proposed temporary road will be full sealed and constructed in accordance with FB Policy No 4.

Council comments	SUEZ responses
Environmental Management Branch:	
1. The Modification Application includes the removal of the heavy vehicle workshop. In this regard a condition should be included stating that 'no vehicle maintenance is permitted onsite'.	The site currently undertakes maintenance activities without the heavy vehicle workshop. The purpose of the heavy vehicle workshop is to improve ease of maintenance. However, this could no longer proceed due to fire services requirements and the need of the space for the perimeter road. Currently, maintenance activities are undertaken by mobile mechanics who visit site and undertake minor repairs at the bypass lane. We do not agree with the proposed condition of 'no vehicle maintenance is permitted on site' and proposes to continue our current maintenance activities. We stress if this condition is imposed, it will significantly impact the safety of our drivers and workers.
2. Secondly, the Modification Application proposes to remove the condition requiring weekly wash down of tipping area and surge pit; A survey of surrounding businesses identified odour as the main concern regarding this premises. Any proposal to reduce activities on the site which may lead to an increase in odours leaving the premises is not supported. EMS recommends that condition B9(a) be retained.	Please refer to response to EPA (Section 1). There have been significant discussions with EPA on why it is impractical for weekly clearing and cleaning of the surge pit. SUEZ agrees to maintain weekly wash down of tipping areas.

3 Transgrid

In its response provided on 22 November 2018 (TransGrid reference number: 2018-544), TransGrid has determined the proposed works acceptable subject to the Access and Maintenance Conditions being met.

SUEZ notes and thanks Transgrid for its response.

4 Roads and Maritime Services

In its response provided on 23 November 2018 (reference number: SYD15/01165/04), Roads and Maritime Services has reviewed the submitted application and raises no objections to the proposal.

SUEZ notes and thanks Transgrid for its response.

5 Fire & Rescue NSW

In its response provided on 27 November 2018 (file reference number: BFS18/3165), Fire & Rescue NSW notes that recommendations regarding the design of the fire safety systems and layout will be provided following a review of the Fire Engineering Brief Questionnaire (FEBQ), which has been submitted by the fire

engineer engaged by the proponent.

On 28 November 2018, SUEZ through its engaged contractor received FRNSW comments on the FEBQ. In summary, there is in principle support, subject to FRNSW comments detailed within the FEBQ being adequately addressed. SUEZ and its contractors will continue to work through the consultation process with FRNSW throughout the facility development. A copy of the FEBQ (Version 02) is provided for DPE's reference in Attachment D, however we note this subject to ongoing consultation with FRNSW.

6 Department of Planning and Environment

DPE provided further comments on 21 November 2018. SUEZ provides the following additional information in response to Council's comments.

DPE comments	SUEZ responses
Traffic	
The Applicant proposes to increase the amount of waste received at the site for Stage 1 Operations. The Applicant has not provided any information on the additional heavy vehicles that will be transporting waste to and from the WTS. Based on the TIA for SSD 7267, can the Applicant provide an analysis on the increase in heavy vehicles movements to and from the site?	The Traffic Impact Assessment prepared by PeopleTrans in 2016 provided an assessment of the traffic during operation of the expanded facility – at a maximum of 230,000 tpa. This represents the worst-case scenario. The purpose of this modification is to enable staged construction and to modify design slightly due to need to provide space for fire infrastructure. It will temporarily reduce the maximum capacity until the landslide issue is resolved. The analysis of the increase in heavy vehicles done as part of the 2016 TIA therefore remains relevant. The only change is the reduced truck / trailer parking and SUEZ will utilise its network i.e. parking trucks at its other approved sites, to ensure there is no parking on public road (Davis Road). SUEZ will also update its Operational Environmental Management Plan (OEMP) considering adequate traffic controls to ensure heavy vehicles does not park on public road and that it parks in a way that do not obstruct the flow of traffic within the development.
In relation to the removal of 4 heavy vehicle parking places? How will the Applicant manage and prevent heavy vehicles parking on Davies Road or local roads with the removal of four heavy vehicle spaces at the site?	SUEZ has a track record of not parking trailers / trucks out on the public road by utilising its existing waste infrastructure network i.e. parking trucks at SUEZ's other waste facilities. SUEZ maintains that there will be no trailer / truck parking on the public road (Davis Road).
Attachment G advised the stop sign location has been moved 7 metres. Condition B29(h) requires the stop sign be moved 3 m to the west to prevent queuing on Davis Road. The Applicant has not requested that Condition B29(h) be amended. Can the Applicant provide additional information as to	The traffic impact assessment by PeopleTrans (2016) provided as part of the original Environmental Impact Statement made the following recommendation which subsequently was adapted as condition of consent:

DPE comments	SUEZ responses
why the stop sign has been moved 7 m? What will the impacts be of moving the stop sign?	"To reduce the potential impact on Davis Road, it is recommended that the distance from the stop line / speed hump to Davis Road be increased by 1.5m. This would result in an increased queuing distance of 24.5m Alternatively, two queuing lanes could be provided for vehicles to store for before entry to the weighbridge. This will be considered as part of the detailed design of the site." (page 13 of Appendix K – Traffic and Transport Assessment) Upon receiving the approval, SUEZ relocated the stop sign significantly further from Davis Road (more than 1.5m) to provide a queuing distance of over 30 metres, at least 7 metres improvement from the original 23 metres. This is an outcome better than the minimum requirement in the original traffic impact assessment. The recommendation from PeopleTrans would likely be from modelling outcomes, calculating the minimum distance required. If the stop sign is only moved by 3 metres – it will impede vehicle movement as it will located on the actual driveway (refer attachment E for photos).
Removal of workshop	
Will the Applicant be maintaining any vehicles on site?	Yes. Currently, maintenance activities are undertaken by mobile mechanics who visit site and undertake minor repairs at the bypass lane.

7 Summary

SUEZ hopes the above response to submissions is sufficient for the DPE to approve this modification to SSD 15_7267. If you have any questions on the above matter, please do not hesitate to contact me or Carol Ng, Project Manager at (02) 8754 0514.

Yours sincerely

Robert Coulthard
Transfer Stations Business Manager
0428 424 002

Attachment A – Correspondence with DPE (October 2018)

Ng, Carol

From: Coulthard, Robert
Sent: Wednesday, 3 October 2018 9:32 AM
To: Susan Fox; Kelly McNicol
Cc: Ng, Carol; Simmons, Jacquie
Subject: RE: SSD 7267 (Mod 2) Wetherill Park Transfer Station - Additional Questions
Attachments: 20180928 Architect_DWG RE NSW P&E Query_REV1.pdf; 20180928 17265_Letter RE NSW P&E Query_REV1.pdf

Dear Susan

Please refer below in blue for response to your questions

Condition A27(a) and A27(b) requires a compliance certificate for the additional pavement and hardstand area and the stormwater system. Please advise:

- Will the stormwater system as described in the EIS and stormwater requirements in Condition B23 be addressed? If there is a variation to the stormwater upgrade please provide additional information?
  Please refer to the undersigned letter prepared by the project design team
- if the proposed hardstand varies to the site plan approved in development consent SSD 7267? Can you please show the proposed changes to the hardstand area on a site plan?
  Please refer to the architectural drawings prepared by the project architect

The staging plan (Attachment A Sheet No. CC01) provided in the proposed modification application identifies new plant equipment (5). Please advise

- if the new plant equipment was described and addressed in the EIS? If not, provide additional information on the new plant equipment
  The initial EIS as submitted in April 2016 initially considered a small vehicle drop off area to replace the recycling area located underneath the awning area west of the transfer station building. This proposed small vehicle drop-off area was subsequently removed from the plans after consultation with Transgrid due to its proximity to the Transgrid transmission line structure. This amendment is reflected in SUEZ's Development Application Amendment submitted to DPE on 14 July 2017 and subsequently approved.

  Section 3 of the SUEZ's Development Application Amendment submitted to DPE on 14 July 2017 describes at a high level the function of the recycling area and includes an impact assessment of the amendment. It states the "*Recycling on site would continue to be achieved via removing recyclables from the waste unloaded from the transfer station floor as per current operations. Without the proposed small vehicle dropoff area, the existing equipment such as the cardboard compactor (refer diagram below) would be maintained and* ***used to compact and bale recovered materials to be further recycled offsite***." The indicative location of the equipment was provided in the document.

  The plant and equipment shown on the Attachment A Sheet No. CC01 was prepared in consultation with the Accredited Certifier / PCA to inform the fire engineering design, which required definition of the equipment location. This level of detail was previously not available and was only prepared as a requirement from the fire engineers and building consultant to enable assessment of the exit pathways to ensure compliance with contemporary BCA codes. The equipment remains a cardboard compactor and baler and performs the same function as described in SUEZ's Development Application Amendment submitted to DPE on 14 July 2017, and is an upgraded model from the original equipment used on site.

  A link to SUEZ's Development Application Amendment on the DPE website is provided below:
  https://majorprojects.accelo.com/public/4425e8f3252ce9bce437a1481c2d604d/SSD%207267%20Wetherill%20Park%20Transfer%20Station_%20Development%20application%20admendment.pdf

- has the noise impacts of the new plant and equipment been addressed?

This was not considered as there is no additional equipment to what was described in SUEZ's Development Application Amendment submitted to DPE on 14 July 2017. The equipment serves the same function and its location remains in the approved "existing recycling area" per the development layout plans in Appendix A of consent SSD7267. The exact location of the equipment has shifted less than 30 metres and in fact was upgraded from the previous model and would generate less noise than the previous model.

Can you please advise if there are any proposed changes in Attachment A (staging plans) that have not been described in the letter from SUEZ dated 30 August 2018?

The letter describes the key changes proposed associated with facility capacity and fire engineering works – any minor deviations identified on the staging plans from the originally approved set is a result of refinement by the engineer/architect since approval of the concept architectural plans. The purpose is to optimise construction e.g. after doing services location works on site, there are minor changes to the hardstand alignment to avoid constructing over underground services. The submitted plans are the plans proposed to be constructed and submitted to PCA for assessment.

If you have any further questions please let us know.

Regards
Robert Coulthard
Operations Manager Sydney Transfer Stations
SUEZ Recycling and Recovery Australia
Mobile: 0428 424002
Email: Robert.Coulthard@suez.com

From: Susan Fox [mailto:Susan.Fox@planning.nsw.gov.au]
Sent: Thursday, 20 September 2018 10:32 AM
To: Coulthard, Robert <robert.coulthard@suez.com>; Kelly McNicol <Kelly.McNicol@planning.nsw.gov.au>
Cc: Ng, Carol <carol.ng@suez.com>
Subject: SSD 7267 (Mod 2) Wetherill Park Transfer Station - Additional Questions
Importance: High

Hi Robert,

Based on your response, can you please provide additional response to the following:

Condition A27(a) and A27(b) requires a compliance certificate for the additional pavement and hardstand area and the stormwater system. Please advise:

- Will the stormwater system as described in the EIS and stormwater requirements in Condition B23 be addressed? If there is a variation to the stormwater upgrade please provide additional information?
- if the proposed hardstand varies to the site plan approved in development consent SSD 7267? Can you please show the proposed changes to the hardstand area on a site plan?

The staging plan (Attachment A Sheet No. CC01) provided in the proposed modification application identifies new plant equipment (5). Please advise

- if the new plant equipment was described and addressed in the EIS? If not, provide additional information on the new plant equipment
- has the noise impacts of the new plant and equipment been addressed?

Can you please advise if there are any proposed changes in Attachment A (staging plans) that have not been described in the letter from SUEZ dated 30 August 2018?

Regards

Susan Fox

Susan Fox
Senior Planning Officer I Industry Assessments
Groundfloor Reception: 320 Pitt Street | GPO Box 39 | Sydney NSW 2001
T: 02 9274 6466 E: susan.fox@planning.nsw.gov.au


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From: Coulthard, Robert <robert.coulthard@suez.com>
Sent: Tuesday, 18 September 2018 7:49 PM
To: Susan Fox <Susan.Fox@planning.nsw.gov.au>; Kelly McNicol <Kelly.McNicol@planning.nsw.gov.au>
Cc: Ng, Carol <carol.ng@suez.com>
Subject: RE: Wetherill Park MOD

Hi Susan/ Kelly

Carol is on leave so thought I had better respond.

In relation to your email below our intention is as follows:

- Complete stage 1
- Lift annual volume to 160k
- Complete stage 2
- Lift annual volume to 240k

If you have any further questions please don't hesitate to contact me while Carol is on leave.

Susan I did try to return your call but we kept missing each other.

Regards
Robert Coulthard
Operations Manager Sydney Transfer Stations
SUEZ Recycling and Recovery Australia
Mobile: 0428 424002
Email: Robert.Coulthard@suez.com

From: Susan Fox [mailto:Susan.Fox@planning.nsw.gov.au]
Sent: Monday, 17 September 2018 10:17 AM
To: Coulthard, Robert <robert.coulthard@suez.com>

Cc: Ng, Carol <carol.ng@suez.com>
Subject: FW: Wetherill Park MOD

Hi Robert,

In Carols absence can you please provide a response to the questions below.

Regards

Susan Fox

Susan Fox
Senior Planning Officer I Industry Assessments
Groundfloor Reception: 320 Pitt Street | GPO Box 39 | Sydney NSW 2001
T: 02 9274 6466 E: susan.fox@planning.nsw.gov.au


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From: Kelly McNicol
Sent: Monday, 17 September 2018 9:46 AM
To: Ng, Carol <carol.ng@suez.com>
Cc: Susan Fox <Susan.Fox@planning.nsw.gov.au>
Subject: Wetherill Park MOD

Hi Carol,

Susan has briefed me on her review of the MOD documentation. Prior to us providing further comments can you clarify how SUEZ plans to stage the construction works along with the processing increases. Is SUEZ proposing the following:

1. Increase to 160,000 tpa immediately
2. Construction of Stage 1 works
3. Construction of Stage 2 Works
4. Increase to 240,000 tpa

If this is the case you would really need to argue that none of the physical components of Stage 1 are necessary to increase capacity to 160,000 without an impact including truck parking and fire safety. As FRNSW have concerns with the existing fire safety measures, it would be difficult to allow an increase in capacity or additional recycling plant without these measures in place. Can you please call me to discuss this further.

Thanks

Kelly

Regards,

Kelly McNicol
Team Leader
Industry Assessments

Department of Planning & Environment
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RED HIDDEN LINE DENOTES
PREVIOUS (DA APPROVED) EXTENT
OF CONCRETE PAVEMENT/DRIVEWAY

STAGE 1

STAGE 2

Two Storey
Brick & Concrete
Office Area

Concrete Panel
& Metal Building
Waste Transfer Station

RECYCLING
AREA

RED HIDDEN LINE
DENOTES PREVIOUS
(DA APPROVED)
EXTENT OF
CONCRETE
PAVEMENT/DRIVEWAY

STAGING PLAN

SCALE 1:600 [A3]

STAGING LEGEND/PLAN

AREA DENOTES EXTENT OF STAGE 1 WORKS

AREA DENOTES EXTENT OF STAGE 2 WORKS

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FULL MEMBER
BUILDING DESIGNERS
ASSOCIATION OF AUSTRALIA

AMENDMENTS:

A	PRELIMINARY ISSUE	02.08.18
B	PRELIMNARY ISSUE	04.08.18
C	ISSUED FOR SUBMISSION	22.08.18
D	REISSUED FOR SUBMISSION	28.08.18

SHEET NO.:
CC 01

PROJECT NO.:
#64

CORNERSTONE CIVIL

PROPOSED ALTERATIONS TO WASTE TREATMENT FACILITY

0 2m 4m

LOT 402 DP603454,
DAVIS ROAD, WETHERILL PARK

SPARKS +PARTNERS CONSULTING ENGINEERS

PO Box 979
Level 1, 91 George Street
PARRAMATTA NSW 2150

Office 02 9891 5033
Fax 02 9891 3898
admin@sparksandpartners.com.au

sparksandpartners.com.au

ABN 95 161 152 969

28 September 2018
Job No: 17265

SUEZ Australia
C/o Elias F Maamari

Cornerstone Civil
PO BOX 213
Seven Hills NSW 2147

Re: SSD 7267 Wetherill Park Transfer Station, – Civil Engineering Design

Attention Elias,

In regards to the comments from NSW P&E:

- A final certificate will be issued post construction regarding the additional pavement, hardstand areas and stormwater drainage as required by Condition A27
- Condition B23 will be addressed in the drainage design.

Regards,

Benjamin Barrett
Senior Civil Engineer
Sparks & Partners Consulting Engineers
BE Civil MIEAust CPEng NER RPEQ
benjamin@sparksandpartners.com.au

Attachment B - Civil engineering design clarifications

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28 September 2018
Job No: 17265

SUEZ Australia
C/o Elias F Maamari

Cornerstone Civil
PO BOX 213
Seven Hills NSW 2147

Re: SSD 7267 Wetherill Park Transfer Station, – Civil Engineering Design

Attention Elias,

In regards to the comments from NSW P&E:

- A final certificate will be issued post construction regarding the additional pavement, hardstand areas and stormwater drainage as required by Condition A27
- Condition B23 will be addressed in the drainage design.

Regards,

Benjamin Barrett
Senior Civil Engineer
Sparks & Partners Consulting Engineers
BE Civil MIEAust CPEng NER RPEQ
benjamin@sparksandpartners.com.au

Attachment C – PCA clarifications

Ng, Carol

From: Ng, Carol
Sent: Friday, 7 December 2018 2:09 PM
To: Ng, Carol
Subject: RE: SUEZ - Davis Road, Wetherill Park

From: Steven Rodriguez [mailto:Steven@concisecert.com.au]
Sent: Wednesday, 15 August 2018 6:11 PM
To: Ng, Carol <carol.ng@suez.com>
Cc: elias@cornerstonecivil.com.au; Coulthard, Robert <robert.coulthard@suez.com>
Subject: RE: SUEZ - Davis Road, Wetherill Park

Hi Carol and Elias,

Thank you for the emails below and our discussions on the phone this afternoon.

My understanding is that you wish to approach the Department of Planning to have DA Conditions No. A27 (excerpt below) modified to permit the development to be staged.

REQUIREMENTS PRIOR TO COMMENCMENT OF EXPANDED OPERATIONS

A27. Prior to the commencement of expanded operations, the Applicant must ensure a Final Occupation Certificate or a Compliance Certificate has been issued for the following:
(a) additional pavement and hardstand areas;
(b) stormwater system;
(c) the construction of an additional exit from the main transfer building to improve internal traffic flow
(d) roller shutter within existing waste transfer building; and
(e) workshop.

We understand the reasoning for this staging request is predominantly due to the situation surrounding the landslip at the rear of the premises and the negotiations currently being held between parties, meaning that a permanent ring road structure cannot be constructed at this present time.

In this regard, in the capacity of the PCA, we would have no objection in assessing staged applications which include Construction and Occupation Certificate approvals, on the premise that compliance with the BCA and DA consent is achieved and the building is fit for occupation at the Interim OC stages. With regard to the ring road, the reasoning why a perimeter access road is required (albeit being a temporary road under stage 1) is that the building has oversized fire compartments and it is required to be assessed as a large Isolated building pursuant to BCA Clause C2.3(a)(ii) & C2.4 (b) – excerpts below)

C2.3 Large isolated buildings

The size of a *fire compartment* in a building may exceed that specified in **Table C2.2** where—

(a) the building does not exceed 18 000 m^2 in *floor area* nor exceed 108 000 m^3 in volume, if—

(i) the building is Class 7 or 8 and—

(A) contains not more than 2 *storeys*; and

(B) is provided with open space complying with **C2.4(a)** not less than 18 m wide around the building; or

(ii) the building is Class 5, 6, 7, 8 or 9 and is—

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

(B) provided with a perimeter vehicular access complying with **C2.4(b)**; or

C2.4 Requirements for open spaces and vehicular access

(a) An open space *required* by **C2.3** must—

(i) be wholly within the allotment except that any road, river, or public place adjoining the allotment, but not the farthest 6 m of it may be included; and

(ii) include vehicular access in accordance with **(b)**; and

(iii) not be used for the storage or processing of materials; and

(iv) not be built upon, except for guard houses and service structures (such as electricity substations and pump houses) which may encroach upon the width of the space if they do not unduly impede fire-fighting at any part of the perimeter of the allotment or unduly add to the risk of spread of fire to any building on an adjoining allotment.

(b) Vehicular access *required* by this Part—

(i) must be capable of providing continuous access for emergency vehicles to enable travel in a forward direction from a public road around the entire building; and

(ii) must have a minimum unobstructed width of 6 m with no part of its furthest boundary more than 18 m from the building and in no part of the 6 m width be built upon or used for any purpose other than vehicular or pedestrian movement; and

(iii) must provide reasonable pedestrian access from the vehicular access to the building; and

(iv) must have a load bearing capacity and unobstructed height to permit the operation and passage of *fire brigade* vehicles; and

(v) must be wholly within the allotment except that a public road complying with **(i)**, **(ii)**, **(iii)** and **(iv)** may serve as the vehicular access or part thereof.

A **Large Isolated Building** requires perimeter vehicular access for firefighting operations and this was discussed and supported by Fire & Rescue NSW during their site inspection. The brigades were privy to this initial proposal and they were very supportive however, I don't think we will have too much success if we approached them without this perimeter road. We have no objections in supporting a temporary access road on the premise it is suitably designed with their policy and the brigades will be supportive of this. We just need to write this into the fire safety engineering referral report.

We also understand there are other minor works proposed such as new equipment layouts, curtains etc and we recommend these also make their way into this modified consent.

Hope this helps, and please feel free to call to discuss if you require further clarification or assistance in this regard.

Kind regards,

Steven Rodriguez - Director
A1 - Accredited Certifier / PCA
Building Regulations Consultant

CONCISE CERTIFICATION

M 0423 424 161
E steven@concisecert.com.au
A PO Box 2035, Taren Point NSW 2229

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Attachment D – FEBQ (V02)

Fire & Rescue NSW

File Ref. No: BFS18/3145 (5312)
TRIM Doc. No: D18/79420
Contact: Duke Ismael

28 November 2018

Attention: Elias Maamari

Cornerstone Civil Pty Ltd
PO Box 213
SEVEN HILLS NSW 1730
Email: accounts@cornerstonecivil.com.au

Dear Mr Maamari,

RE: FIRE ENGINEERING BRIEF QUESTIONNAIRE – SUEZ WETHERILL PARK RESOURCE RECOVERY FACILITY – 20 DAVIS ROAD WETHERILL PARK

Please find attached the Fire Engineering Brief Questionnaire (FEBQ) regarding the above premises. This document is Version 02 of the FEBQ.

You may return this version to the Fire Safety Advisory Unit with any further comments/information you may like to add for the information of the assessing Officers. If you elect to do so, please title this version as Version 03 in the Version Control section in the FEBQ.

If necessary, we may respond as a Version 04, however this would constitute the final communication on this submission.

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

Yours sincerely

Station Officer Darren Bofinger
Fire Safety Assessor
Fire Safety Advisory Unit

Enc: Fire Engineering Brief Questionnaire (FEBQ) Version 2
cc: geoffrey@innovaservices.com.au jason@innovaservices.com.au steven@concisecert.com.au

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Fire & Rescue NSW

Fire Engineering Brief Questionnaire (FEBQ)

1 Document control

Applicant reference number 18293 **FRNSW reference number** FRN16/943 (V2: BFS18/3145)

Ver.	Author	Organisation	Status	Date
V01a	Geoffrey Tai	Innova Services Pty Ltd	Draft Issue	12/10/2018
V01b	Geoffrey Tai	Innova Services Pty Ltd	Issue to FRNSW	19/10/2018
V02	Duke Ismael	FRNSW (#5312)	Response to FEBQ Ver. V01b	28/11/2018

2 Applicant

2.1 Role of applicant

☐ Local government authority ☐ Certifying authority ☐ Fire safety engineer
☐ Development owner ☑ Other Builder

Note: The applicant is expected to have the consent of the development owner to act on their behalf.

2.2 Agreement

As the applicant, I confirm the following:

- I agree to pay Fire & 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 alternative 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 applicant	Elias Maamari
Applicant phone number	0407 847 882
Applicant email address	accounts@cornerstonecivil.com.au

2.3 Remittance advice information

Invoices will be issued based on the information provided below:

Company / vendor name	Cornerstone Civil Pty Ltd		
Australian business number	26 603 903 493	Trading name	
Remittance contact name	Elias Maamari		
Remittance street address	Seven Hills Post Shop PO Box 213 Seven Hills, NSW 1730		
Remittance postal address	As above		
Remittance email address	accounts@cornerstonecivil.com.au		

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Remittance phone number	0407 847 882	Remittance fax number	-

3 Consultation

3.1 Stakeholders

Role	Name and BPB number	Organisation and phone	Email address
Fire safety engineer	Geoffrey Tai Jason Powell (BPB 0801)	Innova Services Pty Ltd 0409 887 929	geoffrey@innovaservices.com.au jason@innovaservices.com.au
BCA consultant	Steven Rodriguez BPB 0823	Concise Certification Pty Ltd 0423 424 161	steven@concisecert.com.au
Certifying authority	Steven Rodriguez BPB 0823	Concise Certification Pty Ltd 0423 424 161	steven@concisecert.com.au
FRNSW reviewers	SO Darren Bofinger Duke Ismael	Fire & 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 hold a meeting with the applicant to discuss aspects of the proposed alternative solution. The meeting will be at the discretion of FRNSW.

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

4 Project details

4.1 Premises

Premises name	SUEZ Wetherill Park Resource Recovery Facility
Primary street address	20 Davis Road
Secondary street address	Secondary street address (if applicable)
Premises suburb	Wetherill Park NSW
Lot and DP numbers	Lot 402 Plan DP603454

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 2016

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

How many alternative solution issues are proposed in this FEBQ? 2

Note: The number of alternative 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 certifying authority determining the application for construction certificate, may affect FRNSW advice in respect to this alternative solution.

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Identify if any previous alternative 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 issue of any DA conditions of consent or Section 96 amendments. 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.

Subject DA/CC process

Where FRNSW comments contradict or are not consistent with any condition of development consent, further consultation with FRNSW is required to refine the proposed fire safety strategy.

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	8	Other occupancy classes	Class 5 (office)
Type of construction	C	Largest fire compartment (m^2)	~ 4,800 m^2
Effective height (m)	< 12 m	Ground floor area (m^2)	~ 4,800 m^2
Rise in storeys	2	Total floor area (m^2)	~ 4,800 m^2
Levels contained	2	Total volume (m^3)	~ 43,000 m^3

Note: The definition of effective height has changed in *NCC 2016*. For any other applicable *NCC*, consideration must be given to the NSW Supreme Court case [2012] NSWSC 1244.

Outline any additional building characteristics:

Introduction

The subject development involves the proposed Alterations and Additions to the existing SUEZ Wetherill Park Resource Recovery Facility located at 20 Davis Road, Wetherill Park NSW. The building will strictly be used to process and transform materials for reuse. The site is bounded by Davis Road to the north east, and the adjoining allotments to the north, south, east and west comprise existing buildings.

The subject development comprises a single storey waste transfer station and plant conveyor. The building also comprises a 2-storey office part.

The facility is defined as a Large Isolated Building, as the fire compartment size exceeds the limitations for Type C construction as tabulated under Clause C2.2 of the BCA. Further the provision of perimeter vehicle access around the facility does not strictly comply with the requirements of BCA Clause C2.4 and is subject to a Performance Solution as documented herein.

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Figure 1: Site Plan

Egress Provisions

Egress from the subject development is available via multiple exits as shown in Figure 2 and Figure 3 below providing egress to an open space.

The travel distance within the facility to the nearest exit complies with the provisions of BCA Clause D1.4. However, the distance to a point of choice from which travel in different directions to 2 exits is available exceeds 20m and is subject to a Performance Solution as documented herein. Further, the travel distance between alternative exits exceeds 60m which is also subject to a Performance Solution.

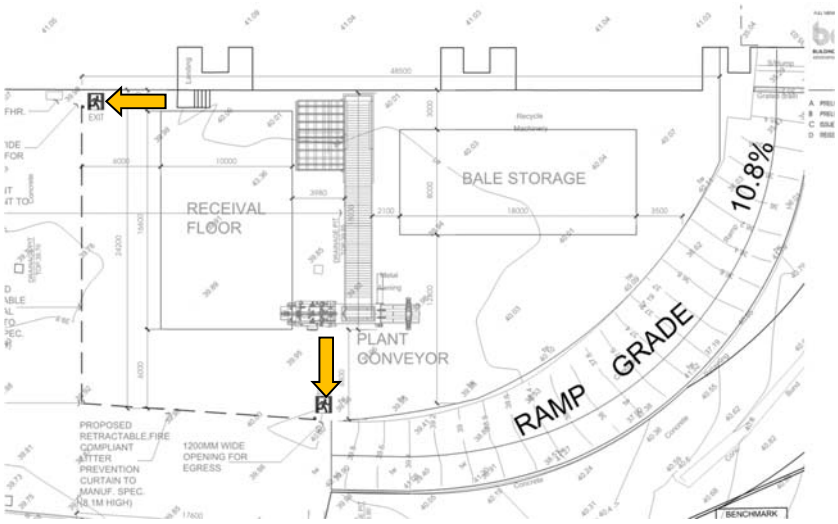

Figure 2: Part Site Plan (Recycling Area)

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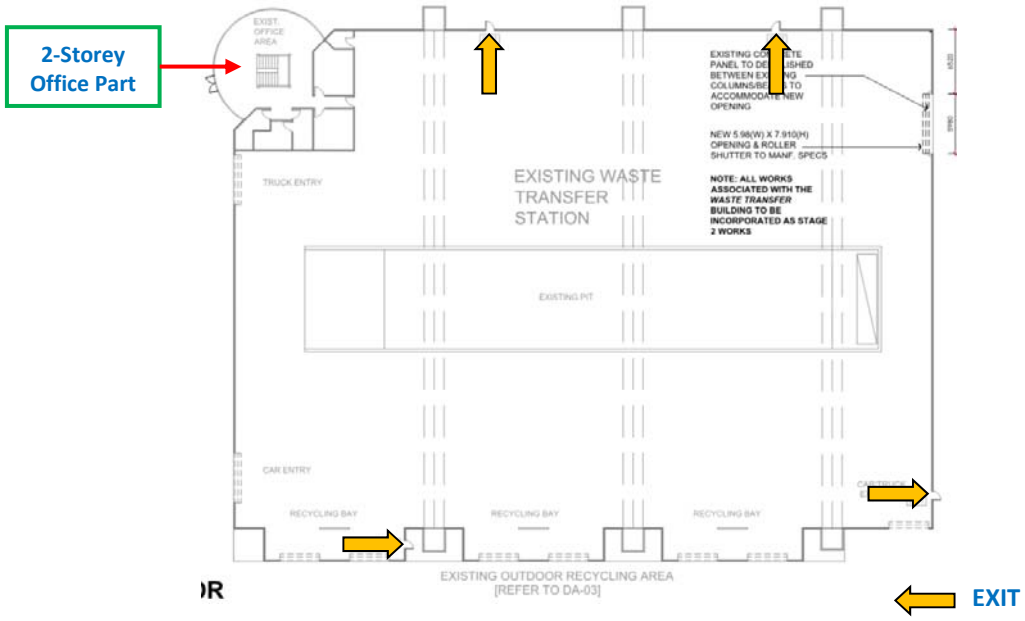

Figure 3: Floor Plan

Proximity to Other Hazards

- The surrounding sites are typically industrial and / or warehouse type developments.
- The subject facility is located adjacent to a factory development that is used to manufacture potassium chlorate and white phosphorous for the match industry.

Figure 4: Aerial View (Google Earth)

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Other Relevant Site and Building Attributes

- The subject development is a re-cycling facility that will be used to process and transform materials for reuse.
- The subject development does not contain any atriums. There are no hidden voids within the subject development.

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Provisions for Fire Brigade Intervention

Fire Station Locations

The nearest fire stations to the subject development are:

- Smithfield Fire Station (Permanent Staff) - approximately 3.7 km (by road)
- Huntingwood Fire Station (Permanent Staff) - approximately 9.6 km (by road)

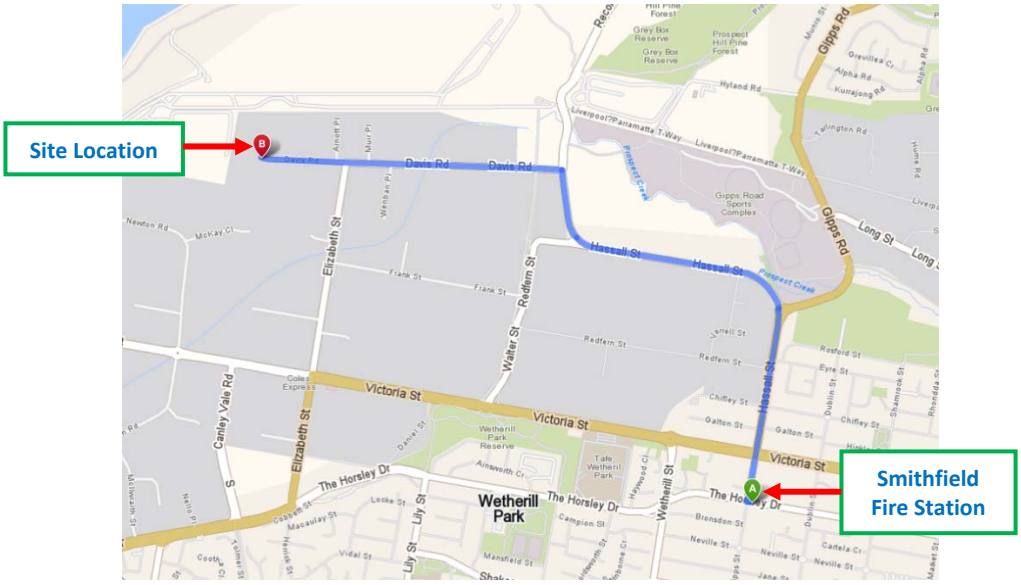

Figure 5: Fire Station Location (Smithfield Fire Station)

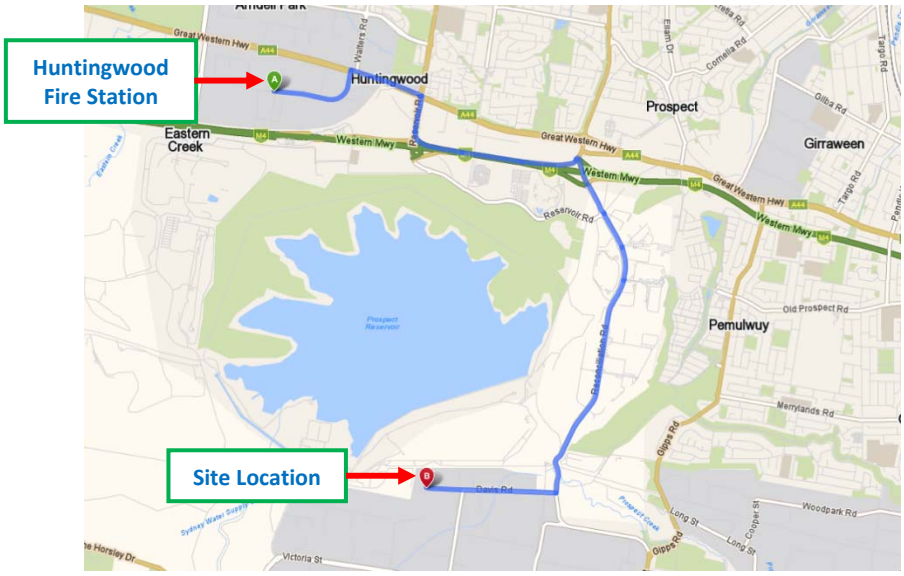

Figure 6: Fire Station Location (Huntingwood Fire Station)

Emergency Services Access

The site is bounded by Davis Road to the north east, and the adjoining ~~property~~ allotments to the north, south, east and west comprise existing buildings.

The facility is defined as a Large Isolated Building, as the fire compartment size exceeds the limitations for Type C construction as tabulated under Clause C2.2 of the BCA. Further the provision of perimeter vehicle access around the facility does not strictly comply with the requirements of BCA Clause C2.4 and is subject to a Performance Solution as documented herein.

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Fire Sprinklers

An automatic fire sprinkler system will be installed throughout the subject facility in accordance with BCA Specification E1.5 and the relevant provisions of AS 2118.1-1999. The sprinkler system will be designed to meet the requirements for a high hazard system to the recycling facility, and a light hazard system to the office areas.

The sprinkler system will comprise fast response 141°C high hazard sprinklers to the facility, with light hazard 68°C sprinklers to the office part and associated ceiling voids.

The water supply will comprise a dedicated water tank with an effective capacity of 350,000 L (refer Figure 7 and to the fire sprinkler design drawings that accompany the FEBQ submission).

Note to FRNSW: We request FRNSW to advise / confirm that the proposed location of the hardstand for the fire brigade pumping appliances will meet the operational requirements of FRNSW. In principle support is provided

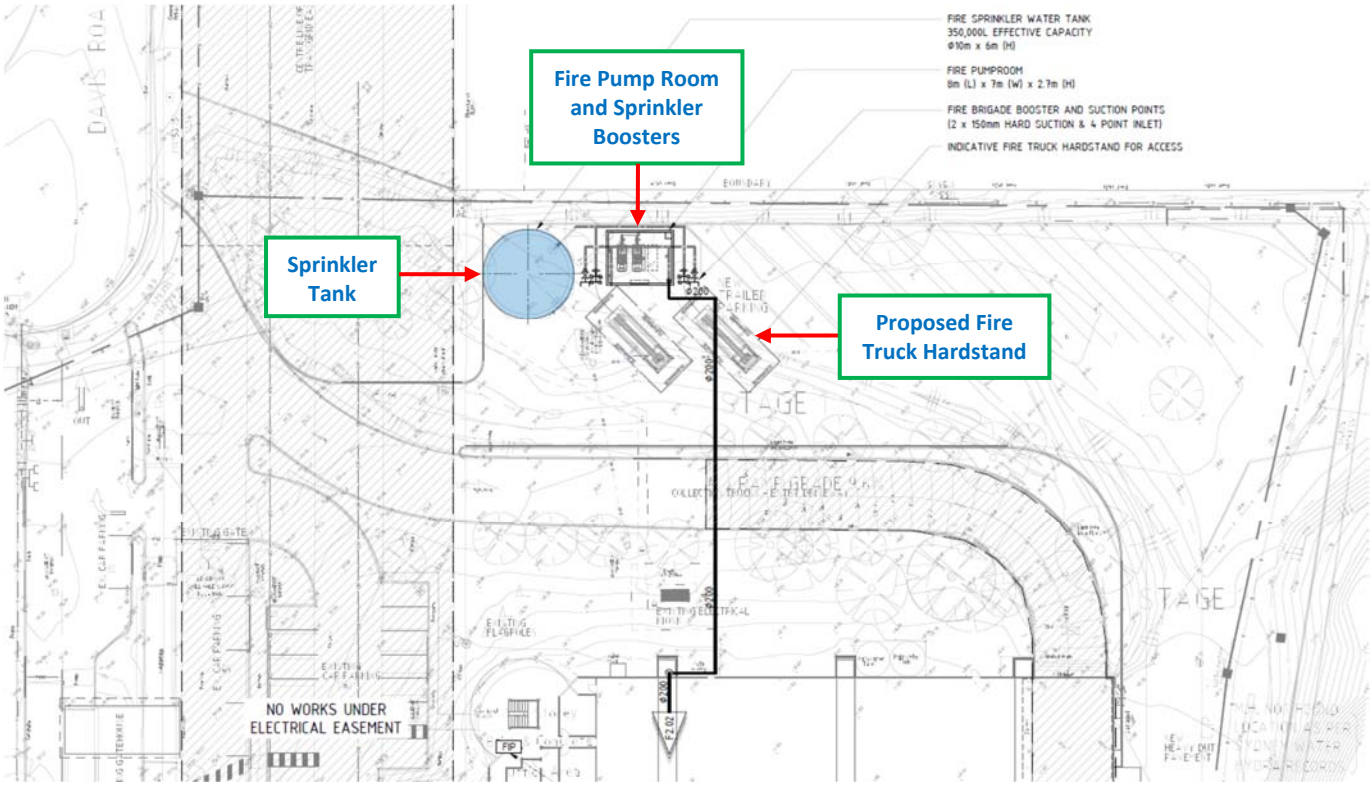

Figure 7: Part Site Plan – Fire Sprinkler System

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Fire Hydrants

A fire hydrant system will be installed throughout the subject development in accordance with BCA Clause E1.3 and the relevant provisions of AS 2419.1-2005. The system will comprise of both external and internal fire hydrants to ensure coverage throughout the development is achieved in accordance with the requirements of AS 2419.1.

The hydrant system will comprise a new connection from the existing water main in Davis Road. The fire hydrant pump will be located within the dedicated pump room shown in Figure 7 above.

Note to FRNSW: We request FRNSW to advise / confirm whether the location and / or orientation of the fire hydrant booster assembly as shown in Figure 8 will meet the operational requirements of FRNSW. The booster assembly will be orientated to be perpendicular to the Davis Road frontage, but parallel to the perimeter access road around the building.

We advise that an on-site meeting was held with FRNSW officer Mark Castelli. During the meeting, Mark Castelli informally advised that the booster assembly adjacent to the driveway (perpendicular to the street) could be supported. A copy of the minutes of meeting with FRNSW are attached to the FEBQ submission. FRNSW: Minutes not attached

In principle support is provided

Fire Indicator Panel

The Fire Indicator Panel (FIP) will be located within the main entrance to the office part of the facility (refer Figure 8**).** FRNSW recommends copies of the fire services block plans be provided at the FIP.

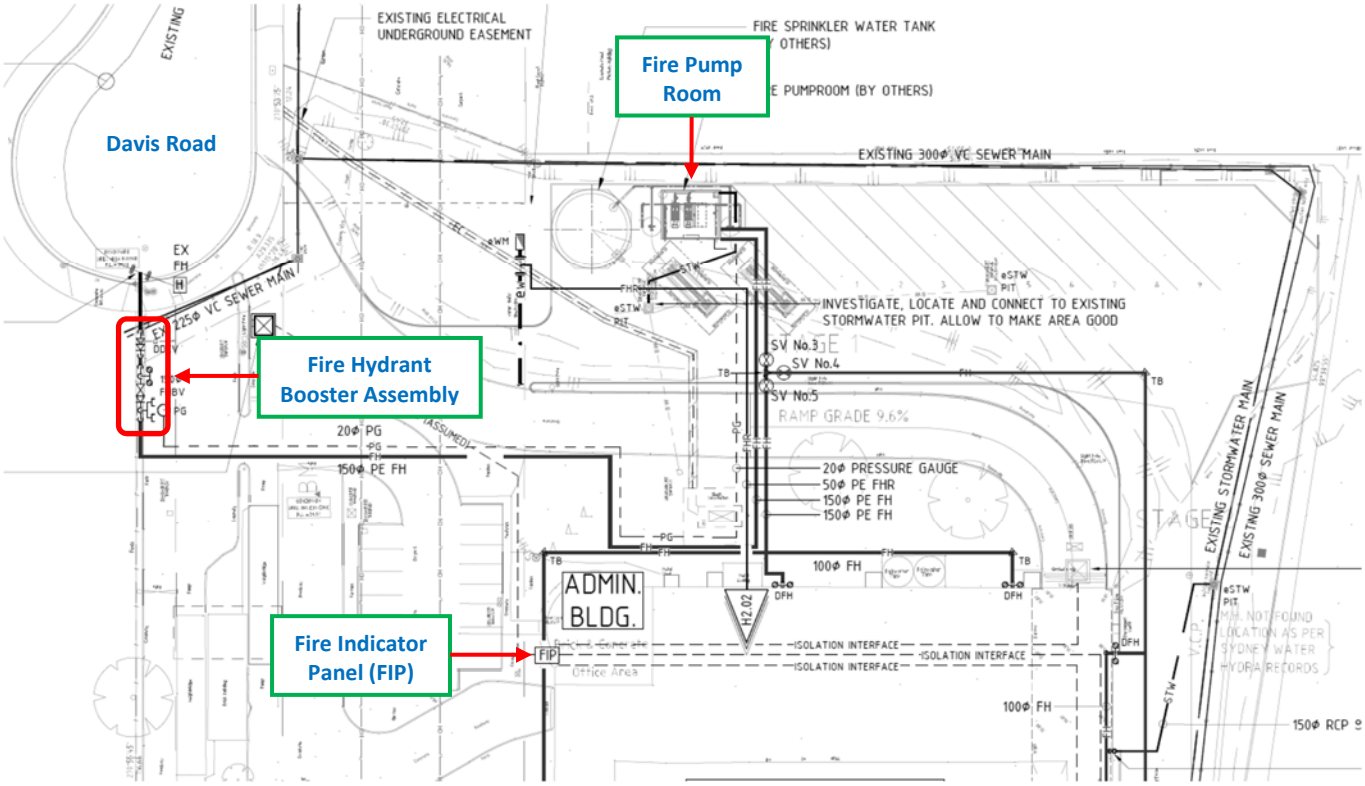

Figure 8: Part Site Plan – Fire Hydrant System

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List key occupant characteristics for the building:

Population and Distribution

The building occupants will comprise of staff / workers within the office, warehouse, industry / manufacturing areas. Visitors to the warehouse building may also be present from time to time.

Office Areas

The population level associated with the office area is assumed to be based on the population densities given in Table D1.13 of the BCA (i.e. 10 m^2 per person).

Warehouse / Industry / Manufacturing Areas

The population level associated with the Warehouse / Industry / Manufacturing areas is assumed to be based on the population densities given in Table D1.13 of the BCA (i.e. 30 m^2 per person for storage space and 50 m^2 per person for factory use for fabrication and processing).

State, Physical and Mental Attributes

The building occupants are considered to be generally awake, conscious, ambulatory and sober. The occupants are considered to have an average level of mobility, speed of travel, hearing and visual abilities, understanding, emergency response, ability to interpret cues, ability to make and implement decisions, and independency.

Staff members are considered to be awake and familiar with the building layout, and are considered to have particular group roles with other staff members.

Visitors to the building are considered to be awake and conscious but not necessarily familiar with their surroundings. Visitors are also considered to have no particular group roles.

Familiarity with the Building

Staff is expected to be familiar with the primary access and egress routes associated with the warehouse buildings and associated areas. Visitors are not considered to be familiar with the overall building layout.

Level of Assistance and Emergency Training

Staff members are considered to have some level of emergency evacuation training and ability to provide assistance to visitors during evacuation. Some of the staff members are also considered to be trained in the use of fire hose reels and portable fire extinguishers, when appropriate and safe to do so.

Visitors to the building are considered to have no emergency response training. However, visitors are not considered to require any special physical assistance to evacuate, except general directions and guidance from trained staff.

Disable Occupants

People with disabilities are considered to be assisted by able-bodied carers or family / friends.

Managing the evacuation of people with disabilities relies on the individual building management systems, procedures and training, which are outside the scope of the BCA, but can substantially contribute to the overall evacuation efficiency of the subject building. Therefore, disabled access and egress should be addressed in an emergency evacuation plan and management procedures developed for people with disabilities.

FRNSW notes that a draft fire safety guideline titled 'Fire safety in waste facilities' is currently available on the FRNSW website https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

The purpose of this document is to provide guidance on fire safety in waste facilities, including fire safety systems and processes which facilitate firefighting intervention, protecting life safety and the environment from the risks of fire.

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5 Hazards

Outline any hazards unique to the building:

- ☐ Insulated sandwich panels
- ☑ Electrical hazards (substations/switchboards etc.)
- ☐ Other:
- ☐ Dangerous / hazardous goods storage
- ☐ Alternative electrical generation (e.g. solar, tri-gen)

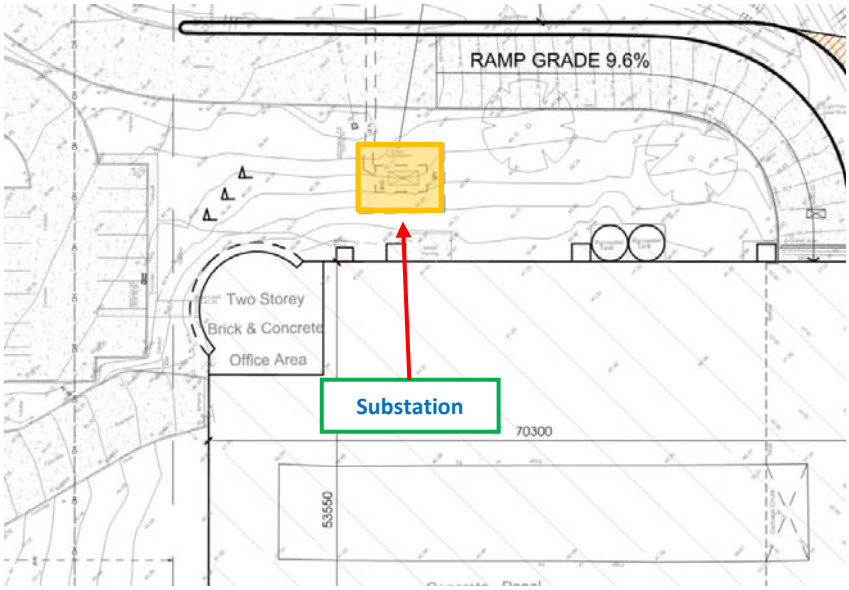

Figure 9: Part Site Plan

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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 alternative solution.

Occupant warning system

- ☑ Building occupant warning
- ☐ EWIS
- ☐ SSISEP
- ☐ Break glass unit
- ☐ Visual / tactile alarm devices

Signage

- ☑ Emergency lighting
- ☑ Exit and direction signs
- ☑ Warning and operational signs

Facilities for emergency services

- ☐ Emergency lifts
- ☐ Fire control centre
- ☐ Fire control room
- ☑ Perimeter vehicular access
- ☐ Standby power supply system

Smoke hazard management

- ☐ Zone smoke control
- ☐ Purge system (existing building)
- ☐ Smoke and heat vents
- ☐ Smoke exhaust
- ☐ Smoke baffles
- ☐ Ridge vents
- ☐ Stair pressurisation
- ☐ Impulse / jet fans (in carpark)
- ☐ Other: (provide details)

Hydrant system

- ☑ AS 2419.1-2005
- ☐ AS 2419.1-1994 (existing building)
- ☐ Ordinance 70 (existing building)
- ☑ External hydrants
- ☑ Internal hydrants
- ☐ Street hydrant coverage only
- ☑ Hydrant booster assembly
- ☑ Pumpset
- ☐ Other: (provide details)

Firefighting equipment

- ☑ Portable fire extinguishers
- ☑ Fire hose reels

Water supply

- ☐ Grade 1
- ☐ Grade 2
- ☐ Grade 3
- ☑ Onsite storage tank
- ☐ Dual supply

Detection system

- ☐ AS 3786-1993 / AS 3786:2014
- ☐ AS 1670.1:2015
- ☐ AS/NZS 1668.1:2015
- ☐ AS 1670.3-2004 (monitored)
- ☐ Smoke alarms
- ☐ Heat alarms
- ☐ Smoke detectors
- ☐ Heat detectors
- ☐ Flame detectors
- ☐ CO detectors
- ☐ Multi-criteria fire detectors
- ☐ Aspirated smoke detection
- ☐ Beam detection
- ☐ Other: (provide details)

Suppression system

- ☐ CA16 (existing building)
- ☑ AS 2118.1-1999
- ☐ AS 2118.1-2006
- ☐ AS 2118.2-2010 (wall-wetting)
- ☐ AS 2118.3-2010 (deluge)
- ☐ AS 2118.4-2012 (residential)
- ☐ AS 2118.5-2006 (domestic)
- ☐ AS 2118.6-2012 (combined)
- ☑ Fast response heads
- ☐ ESFR
- ☐ Storage mode sprinklers
- ☐ Gaseous suppression system
- ☐ Water mist system
- ☐ Other: (provide details)

Protection of openings

- ☐ Fire doors
- ☐ Smoke doors
- ☐ Solid core doors
- ☐ Fire windows
- ☐ Fire shutters
- ☐ Wall-wetting sprinklers
- ☐ Fire curtain
- ☐ Smoke curtain
- ☐ Safety curtain for openings
- ☐ Fire dampers
- ☐ Smoke dampers
- ☐ Fire seals (intumescent)
- ☐ Hot smoke seals (>200ºC)
- ☐ Medium temp. smoke seals

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Additional information:

Specific Fire Safety Requirements

1. All building works associated with the proposed Alterations and Additions to the existing SUEZ Wetherill Park Resource Recovery Facility shall comply with the relevant DTS provisions of Sections C, D and E of the BCA, except where detailed as a Performance Solution within the future Fire Engineering Report.

Required Fire Safety Systems

General

2. The following fire safety systems shall be installed throughout the subject development in accordance with the relevant DTS provisions of the BCA and relevant Australian Standards, and as detailed in the future Fire Engineering Report:
    - Fire Hydrants – BCA Clause E1.3, AS 2419.1-2005
    - Fire Hose Reels – BCA Clause E1.4, AS 2441-2005
    - Sprinklers – BCA Specification E1.5, AS 2118.1-1999, Fire Engineering Report
    - Portable Fire Extinguishers – BCA Clause E1.6, AS 2444-2001
    - Building Occupant Warning System – BCA Specification E1.5, AS 1670.1-2015, Fire Engineering Report
    - Emergency Lighting – BCA Clauses E4.2 and E4.4, AS 2293.1-2005
    - Exit Signs – BCA Clauses E4.5, E4.6 and E4.8, AS 2293.1-2005

    NOTE: *Reference shall be made to the Fire Safety Schedule for the subject development for the list of required fire safety systems and measures, and the relevant Standards of Performance.*

Fire Hydrants

3. All fire hydrant valves shall be fitted with Storz aluminium alloy delivery couplings manufactured and installed in accordance with Clauses 7.1 and 8.5.11.1 of AS 2419.1-2005. All hydrant valves shall posses a forging symbol and manufacturers mark, and shall comply with Fire & Rescue NSW Guide Sheet No. 4.

Fire Sprinklers

4. The sprinkler system will be designed to meet the requirements for a high hazard system.
5. The sprinkler system will comprise fast response 141^{o}C high hazard sprinklers to the facility, with light hazard 68^{o}C sprinklers to the office part and associated ceiling voids.
6. All sprinkler heads shall be of the fast response type throughout the subject development, with a Response Time Index (RTI) of 50 $(m.s)^{1/2}$ or less and in accordance with Clause 5 of BCA Specification E1.5.
7. The fire sprinklers system shall be connected to a fire station dispatch centre in accordance with AS 1670.3-2004.

Building Occupant Warning System

8. A building occupant warning system shall be installed throughout the subject development in accordance with BCA Specification E2.2a (Clause 6), and the relevant provisions of AS 1670.1-2015.
9. The building occupant warning system shall be enhanced to incorporate a verbal directive, which instructs occupants to evacuate in the event of fire. The verbal directive shall be in clear and concise English that announces the following in the event of a fire alarm:

    “ Emergency ” and **“ Evacuate Now “**

10. The building occupant warning system shall automatically activate upon operation of the fire sprinkler system.

    NOTE: *The performance of the verbal messaging shall comply with Clause 4.3.7 AS 1670.4-2015.*

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Management in Use Requirements

General

11. The Managing Entity of the subject development shall implement a Management in Use type system that incorporates the following measures as a minimum:
    - The development and implementation of an Emergency Evacuation Plan.
    - A no smoking policy within internal areas.
    - Routine maintenance of all plant and equipment.
    - Routine maintenance of all fire safety systems and measures.
    - Regular emptying of rubbish bins.
    - Ensuring paths of travel to exits are kept free of anything that may obstruct or impede the free passage of persons.
    - Ensuring all exit doors are functional and all statutory signage is in place.
    - Ensuring any stolen / missing / discharged portable fire extinguishers are promptly replaced with new, certified, and ready to use extinguishers.

Emergency Evacuation Plan

12. An Emergency Evacuation Plan shall be developed and implemented for the subject development in accordance with the relevant provisions of AS 3745-2010. The emergency evacuation plan shall include and address the following specific requirements:
    - Training in the actions to be undertaken in the event of an emergency, including the safe and orderly evacuation of occupants.
    - The location and characteristics of the available exits from the building. That is, all staff shall be trained in the operation, function and characteristics of the nominated exits when undertaking emergency evacuation induction and training.

Maintenance and Servicing

13. All fire safety measures installed throughout the subject development shall be maintained and serviced in accordance with relevant Australian Standards and manufacturers guidelines and shall be certified annually as part of an Annual Fire Safety Statement (AFSS).

Certification of Fire Engineering Design

14. The future Fire Engineering Report for the subject development shall form part of the Fire Safety Schedule for the development and shall be certified annually as part of the AFSS.

Building Changes and Modifications

15. Should the subject development undergo a change in use or classification, or be modified in any way, the Fire Engineering Designs for the development shall be re-evaluated by an appropriately qualified Fire Safety Engineer.

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7 Departures from the Deemed-to-Satisfy provisions

Issue number: 1 **Title:** Requirements for Open Space and Vehicular Access

Details of departures from DtS provisions:

It is proposed to have a variation to the provision of perimeter vehicular access around the subject building, in lieu of strict compliance with BCA Clause C2.4. That is, a continuous clearance of 6 m wide vehicular access is not provided at various "pinch points". Further, parts of the vehicular access road around the building is located greater than 18 m from an external wall of the building.

Note to FRNSW: The development works will be completed in 2 Stages. At the completion of Stage 1, part of the perimeter vehicle access road around the site will not comprise a 'sealed' road. However, the perimeter access road will be trafficable and will be designed to ensure it is capable of supporting the static and dynamic loads of fire brigade appliances as detailed within the NSW Fire Brigades Policy No. 4.

The Stage 2 works will include upgrading of this part of the perimeter access road so that it is sealed throughout. The extent of the Stage 2 works is illustrated in Figure 11.

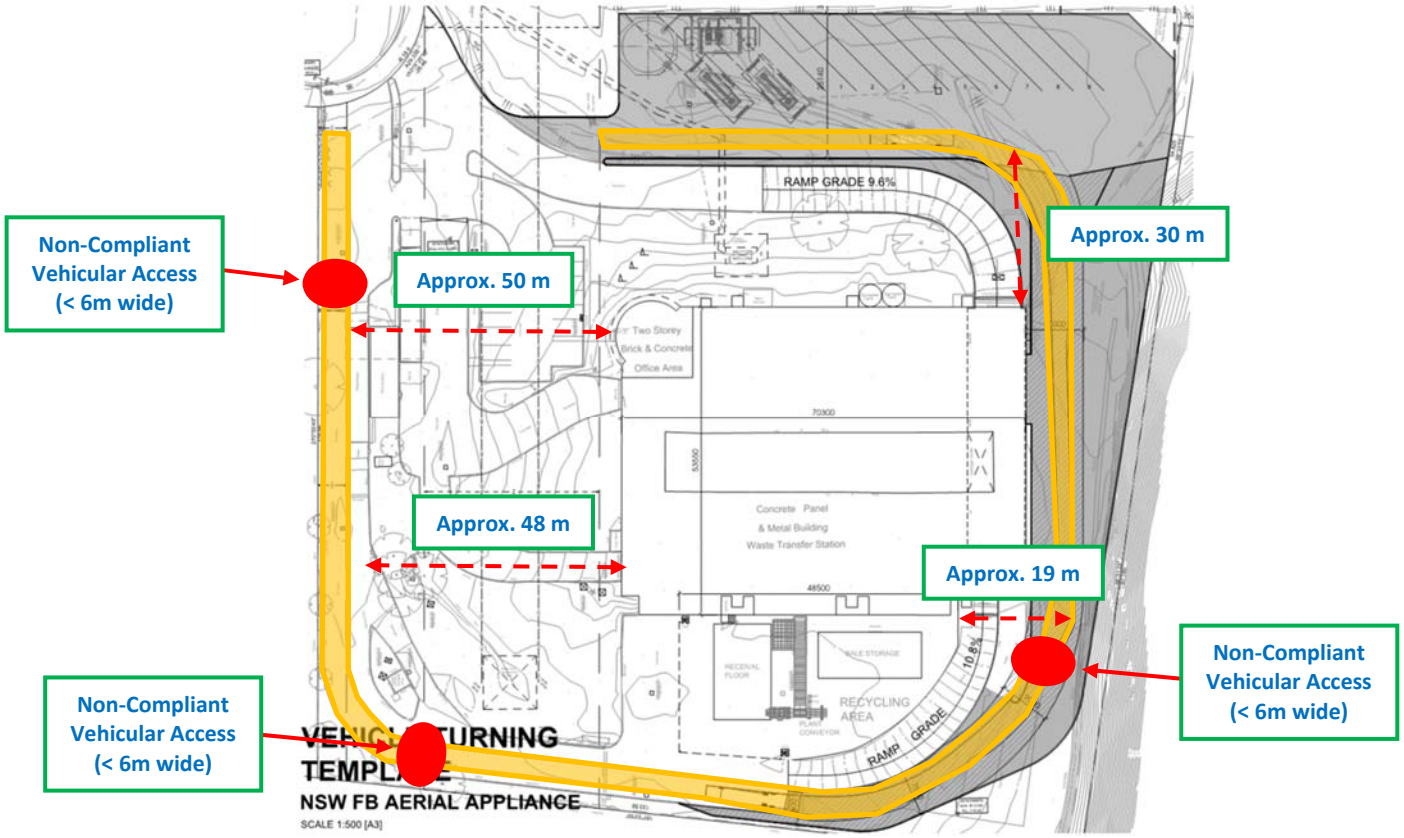

Figure 10: Vehicle Turning Template Plan

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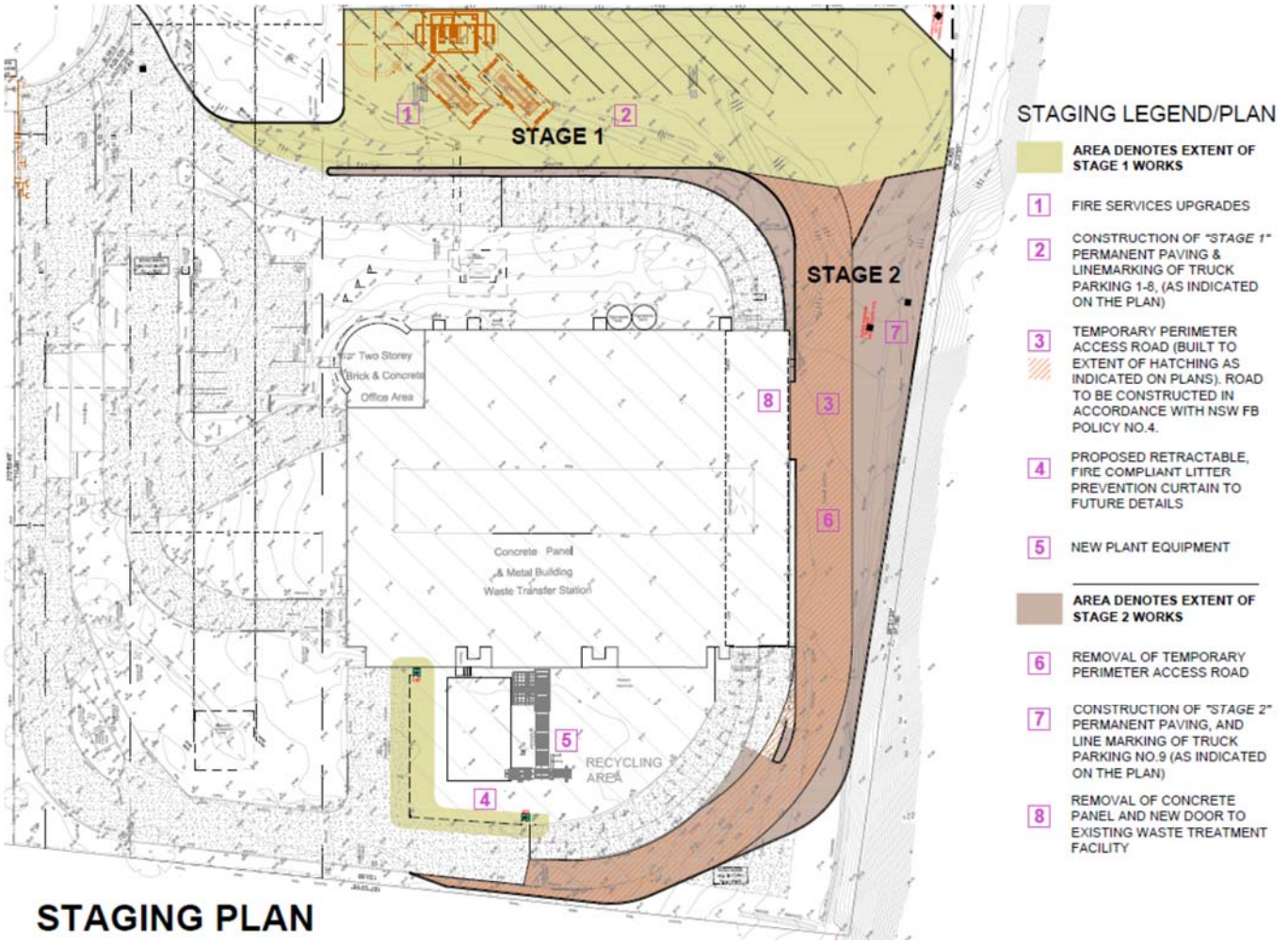

Figure 11: Proposed Staging Plan

Applicable DtS provisions:	Clause C2.4	Performance requirements:	CP9

List key fire safety measures:

- Automatic fire sprinkler system (with fast response sprinkler heads) within the warehouse designed to the requirements of a high hazard system to AS 2118.1.
- Vehicular access being provided to three sides of the large isolated building. The fire brigade will further be able to access and use the on-grade car park and ramps to fight the fire.
- Warehouse comprises of a single storey, in which the deployment of the aerial apparatus for rescue operations is unlikely to occur.
- Designated compliant vehicle access area (> 6 m) to allow aerial appliances to fully extend their stabilisers.

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Proposed alternative solution:

The proposed fire safety strategy is based on the following:

- The provision of fire srinklers throughout the subject building, which is expected to mitigate the development and spread of fire.

  All sprinkler heads will be of the fast response type, with a Response Time Index (RTI) of 50 $(m.s)^{1/2}$ or less and in accordance with Clause 5 of BCA Specification E1.5.

  The provision of fast response sprinklers will result in a smaller fire size and less smoke production when compared to the DtS provisions of the BCA.

- In the event of fire in an area located adjacent to the non-compliant perimeter access, attending firefighting crews can still apply water to the affected area through the use of the on-grade car parking areas which are located less than 18 m from the external wall of the building (refer Figure 12).

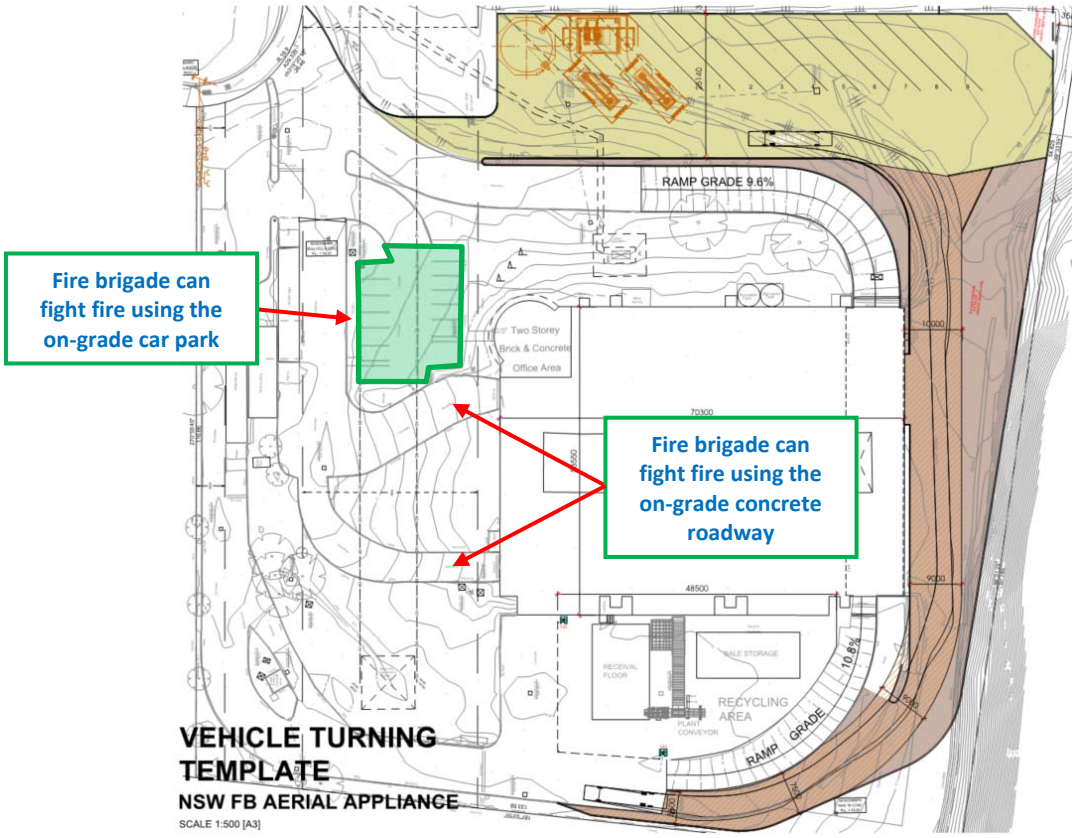

Figure 12: Vehicle Turning Template Plan

- The non-compliance is to the perimeter vehicular access to the building, which is marginally short of 6 m in width (min. 4.5 m) at various pinch points. That is, a continuous clearance of 6 m wide vehicular access is not provided however, there are designated areas to allow aerial appliances to fully extend their stabilisers.

  With reference to FRNSW's Guidelines for Emergency Vehicle Access (Policy No. 4), the vehicular access will be wide enough to allow access for general and aerial appliances (i.e. at least 4 m wide). However, there are designated areas if an aerial appliance requires the 6 m width to fully extend their stabilisers as shown in Figure 13 below.

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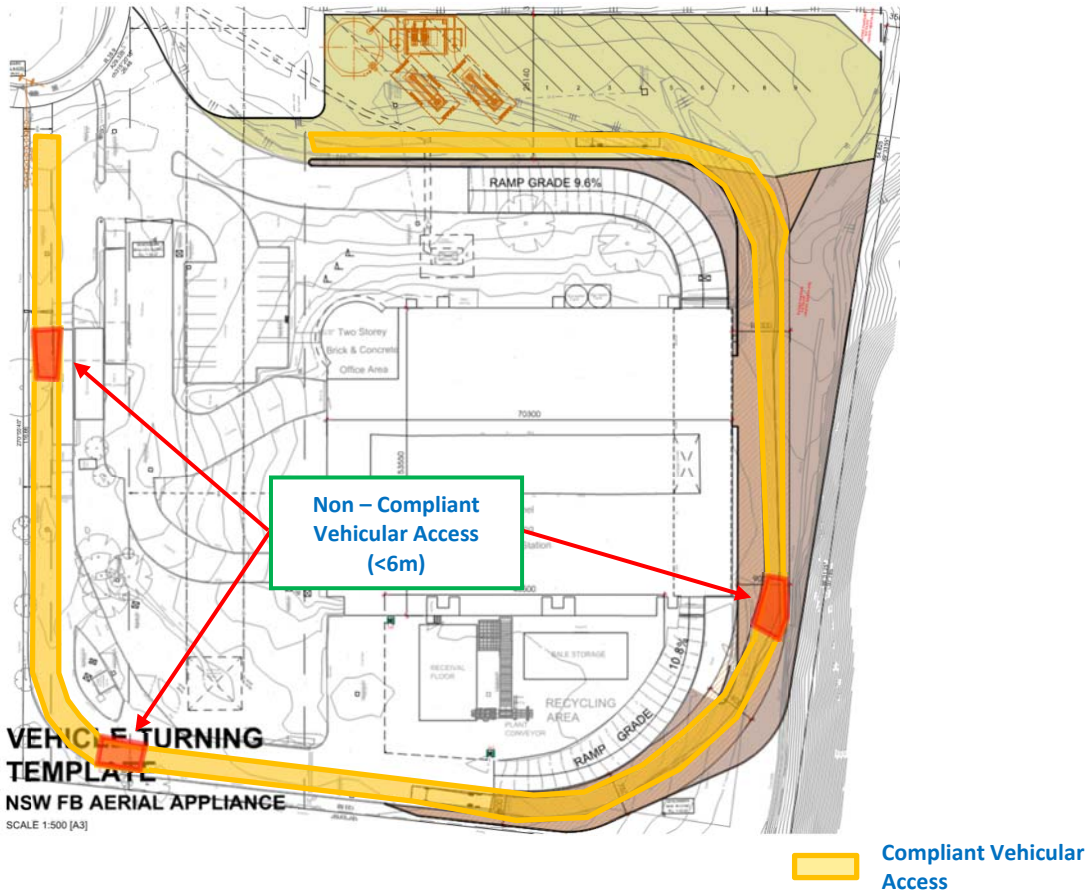

Figure 13: Vehicle Turning Template Plan

Performance solution:

- ☐ A0.3(a)(i) - Comply with the performance requirements
- ☑ A0.3(a)(ii) - Be at least equivalent to the DtS provisions

Assessment methods:

- ☐ A0.5(a) - Evidence of suitability
- ☐ A0.5(b)(i) - Verification methods in the NCC
- ☐ A0.5(b)(ii) - Other verification methods
- ☐ A0.5(c) - Expert judgement
- ☑ A0.5(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 Performance Solution is to demonstrate compliance with BCA Performance Requirement CP9, in terms of:

- Ensuring the provision of perimeter vehicular access around the building is capable of facilitating fire brigade intervention at least comparable to the DtS provisions of the BCA.

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Fire scenarios and design fire parameters:

As the subject development will be fully sprinkler protected, the most likely and credible fire scenario is expected to involve sprinkler activation. This is supported by the high reliability associated with properly installed and maintained fire sprinkler systems. A study by Marryat[1] covering the past century of sprinkler protected buildings indicated that sprinkler systems which are soundly managed may have a reliability of up to 99.5%. Further, the National Fire Protection Association (NFPA[2]) provides statistics for buildings in the United States, from between 2003 to 2007, where an automatic fire sprinkler system has been installed. The report found that when sprinklers operate, they are effective 97% of the time.

Therefore, a sprinkler-controlled fire within the development will be considered.

Describe how fire brigade intervention will be addressed or considered:

As discussed above, there are designated areas along the vehicular access if an aerial appliance requires the 6 m width to fully extend their stabilisers and the fire brigade will use the on-grade car park and ramps to fight the fire.

A compliant hydrant coverage will be provided throughout the subject development in accordance with the relevant DtS provisions of the BCA and to the relevant requirements of AS 2419.1-2005.

Verification/validation analyses:

☐ Sensitivity studies ☐ Redundancy studies ☐ Uncertainty studies ☑ None

N/A for Comparative Assessment

Provide details on proposed modelling/assessment tools:

N/A

In principle support is provided subject to the analysis in the FER demonstrating compliance with the performance requirements of the NCC.

[1] Marryat, H.W., "Fire: A Century of Automatic Sprinkler Protection in Australia and New Zealand 1886-1986", Australia Fire Protection Association, Melbourne, Australia.
[2] Hall, J 2010, "U.S Experience with Sprinkler and other Automatic Fire Extinguishing Equipment", National Fire Protection Association, Quincy.

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Issue number: 2 **Title: Exit Travel Distances & Distance between Alternative Exits**

Details of departures from DtS provisions:

It is proposed to have an exit travel distance to a point of choice from which travel in different directions to 2 exits is available of up to 30 m, in lieu of 20 m.

It is proposed to have a travel distance between alternative exits, when measured back through the point of choice, of up to 75 m, in lieu of 60 m.

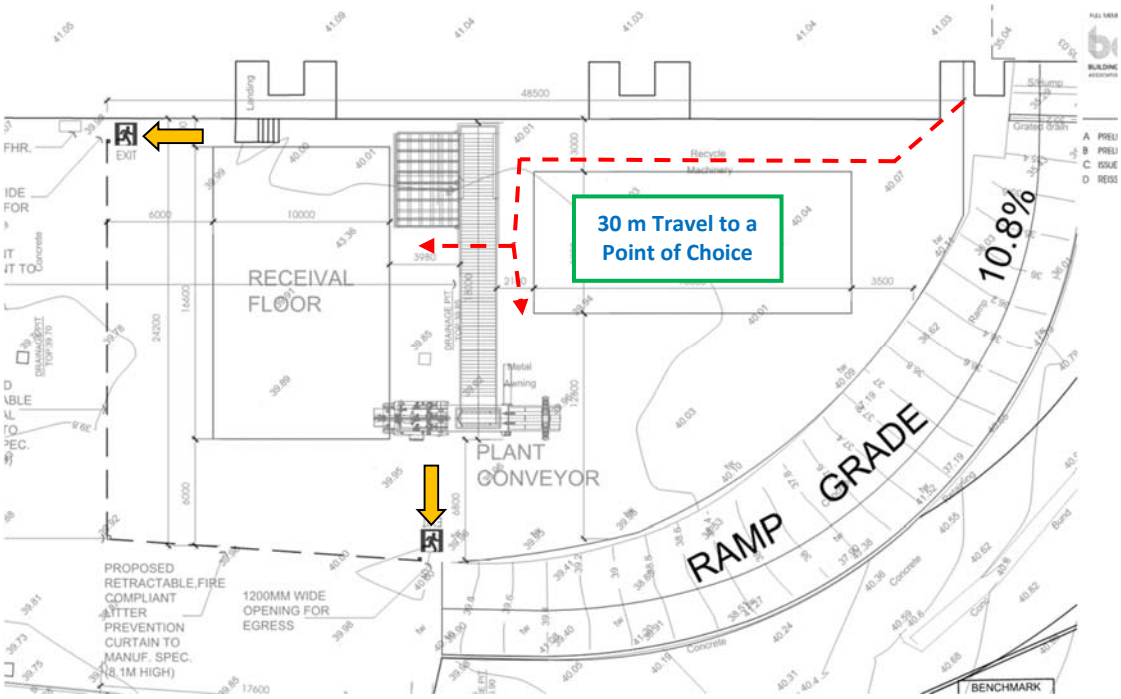

Figure 14: Part Site Plan (Recycling Area)

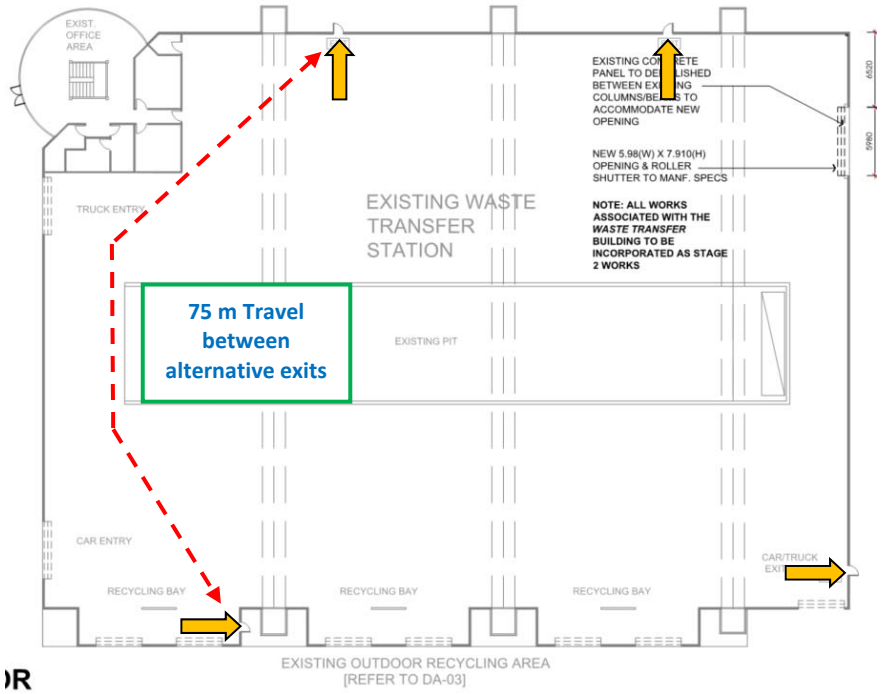

Figure 15: Floor Plan

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Applicable DtS provisions:	Clauses D1.4, 1.5	Performance requirements:	DP4, EP2.2

List key fire safety measures:

- Automatic fire sprinkler system (with fast response sprinkler heads)
- Enhanced building occupant warning system (with verbal messaging)
- Management procedures

Proposed alternative solution:

The proposed fire strategy is based on the following:

- The provision of fire srinklers throughout the subject building, which is expected to mitigate the development and spread of fire

  All sprinkler heads will be of the fast response type throughout the subject development, with a Response Time Index (RTI) of 50 $(m.s)^{1/2}$ or less and in accordance with Clause 5 of BCA Specification E1.5.

  The provision of fast response sprinklers will also result in a smaller fire size and less smoke production when compared to the DtS provisions of the BCA where standard response sprinklers can be used in warehouse areas.

  Therefore, it is proposed to demonstrate that the Required Safe Evacuation Time (RSET) within the building for the Performance Solution is at least equal to that of a DtS Compliant Design. That is, $\mathbf{RSET_{Alt\ Sol} \leq RSET_{DTS}}$.

- The building occupant warning system will be enhanced to incorporate a verbal directive, which instructs occupants to evacuate in the event of fire. The verbal directive will be in clear and concise English that announces the following in the event of a fire alarm:

  " Emergency " and **" Evacuate Now "**

  NOTE: *The performance of the verbal messaging shall comply with Clause 4.3.7 AS 1670.4-2015.*

  The provision of an enhanced building occupant warning system is expected to improve the occupant pre-movement time, when compared to a DtS Compliant Design that doesn't comprise a verbal messaging system.

- The provision of alternative paths of travel in which to reach an alternative exit, without having to travel back through the initial point of choice. The travel distance to the alternative exits, via the alternative paths of travel, is less than 60m.

- Management procedures will be implemented to ensure that paths of travel to exits are kept free of anything that may obstruct or impede the free passage of persons.

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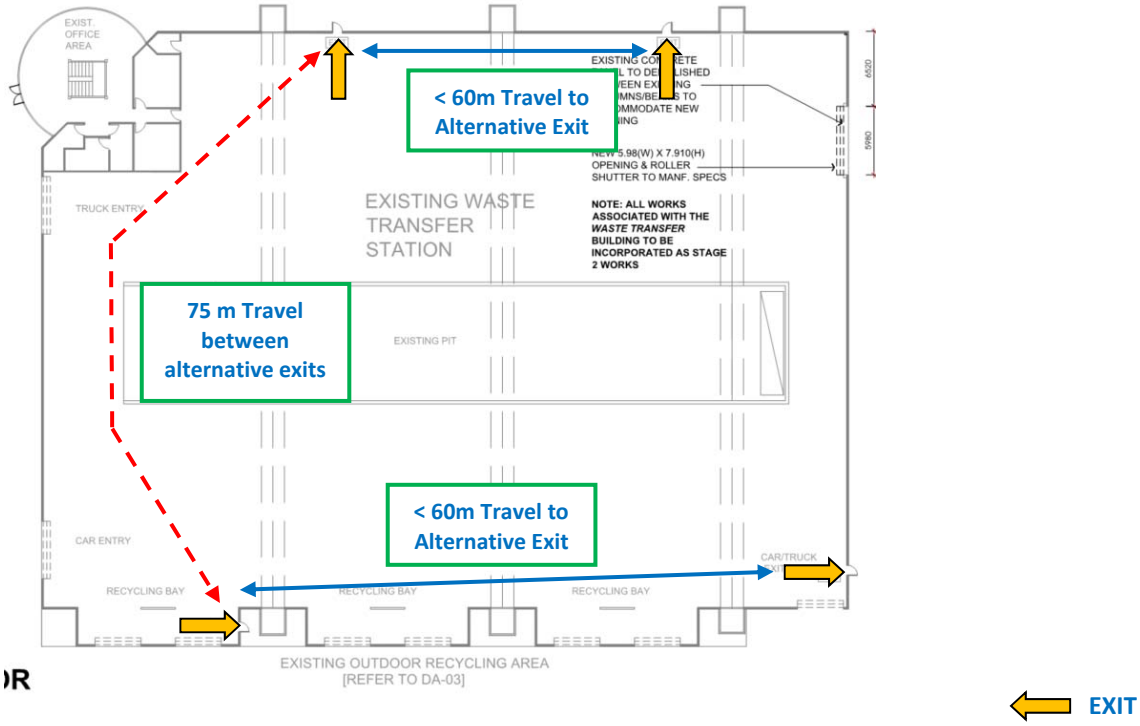

Figure 16: Floor Plan

Performance solution:

- ☐ A0.3(a)(i) - Comply with the performance requirements
- ☑ A0.3(a)(ii) - Be at least equivalent to the DtS provisions

Assessment methods:

- ☐ A0.5(a) - Evidence of suitability
- ☐ A0.5(b)(i) - Verification methods in the NCC
- ☐ A0.5(b)(ii) - Other verification methods
- ☐ A0.5(c) - Expert judgement
- ☑ A0.5(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 is to demonstrate compliance with BCA Performance Requirements DP4 and EP2.2 in terms of:

- Ensuring occupants can evacuate from the warehouse areas safely and in conditions at least equivalent to a design that complies with the DtS provisions of the BCA.

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Fire scenarios and design fire parameters:

As the subject development will be fully sprinkler protected, the most likely and credible fire scenario is expected to involve sprinkler activation. This is supported by the high reliability associated with properly installed and maintained fire sprinkler systems. A study by Marryat[3] covering the past century of sprinkler protected buildings indicated that sprinkler systems which are soundly managed may have a reliability of up to 99.5%. Further, the National Fire Protection Association (NFPA[4]) provides statistics for buildings in the United States, from between 2003 to 2007, where an automatic fire sprinkler system has been installed. The report found that when sprinklers operate, they are effective 97% of the time. Therefore, a sprinkler-controlled fire within the building will be considered.

An ultra-fast T^2 fire will be considered for the Fire Engineering Analysis. A fast T^2 fire will also be considered.

Describe how fire brigade intervention will be addressed or considered:

A compliant hydrant coverage will be provided throughout the subject development in accordance with the relevant DtS provisions of the BCA and to the relevant requirements of AS 2419.1-2005.

Verification/validation analyses:

☑ Sensitivity studies ☐ Redundancy studies ☐ Uncertainty studies ☐ None

Both an ultra-fast T^2 and a fast T^2 fire will be considered for the assessment.

Provide details on proposed modelling/assessment tools:

An evacuation analysis will be carried out to directly compare the Required Safe Evacuation Time (RSET) for the Performance Solution against a design that complies with the minimum DtS provisions of the BCA. The additional travel distance will be justified by earlier detection time (i.e. fast response sprinkler heads).

That is, $\mathbf{RSET}_{\text{Alt Sol}} \leq \mathbf{RSET}_{\text{DTS}}$

This is a comparative assessment (not an ASET / REST Assessment).

BCA DtS Compliant Design

- Travel distance to a point of choice of up to 20 m
- Travel distance between alternative exits of up to 60 m
- Standard response sprinkler head with an RTI of 135 $(m.s)^{1/2}$, reference to Fire Engineering Design Guide[5]
- Sprinkler spacing of high Hazard is 3 m to the 1st row sprinkler head (same in both scenarios)
- Population number determined from BCA D1.13 (same in both scenarios)
- Minimum ceiling height from drawings (same in both scenarios) **FRNSW:** FRNSW recommend the exact value of the ceiling height be provided in the FER (and in the FEBQ if applicable)
- The fire source location is assumed to be above floor level (i.e. a fire within car engine being 1.2 m high off the ground and same in both scenarios)
- Assessed for Ultra-Fast T^2 fire (Fast T^2 fire considered for a sensitivity analysis)

Performance Solution

- Travel distance to a point of choice of up to 30 m
- Travel distance between alternative exits of up to 75 m
- Fast response sprinkler head with an RTI of 50 $(m.s)^{1/2}$, reference to Fire Engineering Design Guide[6].
- Sprinkler spacing of High Hazard is 3 m to the 1st row sprinkler head (same in both scenarios)
- Population number, determined from BCA D1.13 (same in both scenarios)
- Minimum ceiling height from drawings (same in both scenarios) **FRNSW:** FRNSW recommend the exact value of the ceiling height be provided in the FER (and in the FEBQ if applicable)

[3] Marryat, H.W., "Fire: A Century of Automatic Sprinkler Protection in Australia and New Zealand 1886-1986", Australia Fire Protection Association, Melbourne, Australia.
[4] Hall, J 2010, "U.S Experience with Sprinkler and other Automatic Fire Extinguishing Equipment", National Fire Protection Association, Quincy.
[5] Fire Engineering Design Guide 3rd Edition Ch 8 Part 2 pg 147-8
[6] Fire Engineering Design Guide 3rd Edition Ch 8 Part 2 pg 147-8

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- The fire source location is assumed to be above floor level (i.e. a fire within car engine being 1.2 m high off the ground and same in both scenarios)
- Assessed for Ultra- Fast T^2 fire (Fast T^2 fire considered for a sensitivity analysis).

FRNSW: In principle support is provided subject to the following:

- FRNSW comments above being adequately and appropriately addressed;
- All inputs and assumptions detailed in the FER and being agreed to by all relevant stakeholders; and
- The analysis detailed in the FER demonstrating compliance with the relevant Performance Requirements of the NCC.

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8 Construction, commissioning, management, use and maintenance

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

The Performance Solutions are considered to be applicable during the occupation of the building following the issue of an Occupation Certificate.

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

The required fire safety systems and equipment associated with the subject development shall be designed and installed in accordance with relevant Australian Standards and as varied within the future Fire Engineering Report, and are to be fully commissioned prior to the EP & A Regulation Clause 152 submission.

How will the alternative 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)?

The Managing Entity of the subject development shall implement a Management in Use type system that incorporates the following measures as a minimum:

- The development and implementation of an Emergency Evacuation Plan
- A no smoking policy within common areas.
- Routine maintenance of all plant and equipment.
- Routine maintenance of all fire safety systems and measures.
- Regular emptying of rubbish bins.
- Ensuring paths of travel to exits are kept free of anything that may obstruct or impede the free passage of persons.
- Ensuring all exit doors are functional and all statutory signage is in place.
- Ensuring any stolen / missing / discharged portable fire extinguishers are promptly replaced with new certified, ready to use extinguishers.

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

As above

How will the alternative 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)?

Maintenance and Servicing

All fire safety measures installed throughout the subject development shall be maintained and serviced in accordance with the relevant Australian Standards and manufacturers guidelines, and shall be certified annually as part of an Annual Fire Safety Statement (AFSS).

Certification of Fire Engineering Design

The Fire Engineering Report for the subject development shall form part of the Fire Safety Schedule for the development, and shall be certified annually as part of the AFSS.

Building Changes and Modifications

Should the subject development undergo a change in use or classification, or be modified in any way, the Fire Engineering Designs for the development shall be re-evaluated by an appropriately qualified Fire Safety Engineer.

9 Additional comments

Provide any additional comment relevant to the FEBQ

Note: Any in principle support extended for alternative 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.

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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 Contact us

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

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Attachment E - Stop location - photos

"To reduce the potential impact on Davis Road, it is recommended that the distance from the stop line / speed hump to Davis Road be increased by 1.5m. This would result in an increased queuing distance of 24.5m Alternatively, two queuing lanes could be provided for vehicles to store for before entry to the weighbridge. This will be considered as part of the detailed design of the site." From page 13 of Appendix K – Traffic and Transport Assessment, PeopleTrans (2016)