Fire & Incident Management Report

68-70 Victoria Street Smithfield NSW

Prepared for:	**Tyrex Australia Pty Ltd**
Report No.	**23291_FSA_01**
Issue No.	**6**
Issue Date:	**6 September 2024**

INNOVA SERVICES AUSTRALIA

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Report Register

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23291_FSA_01	2	Revised Issue. Document refinement. Inclusion of assessment against FRNSW Waste Guidelines.	22/10/2023	TDD	TDD
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23291_FSA_01	4	Modified to reflect Consent Authority comments.	06/06/2024	TDD	TDD
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Authorisation

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1.0 EXECUTIVE SUMMARY

1.1 BACKGROUND

Tyrex Australia ('the proponent') is seeking approval to operate a tyre recycling facility in an existing industrial building in Smithfield, NSW ('the proposal').

The proposal involves alterations and additions to the building on the site and operation of a tyre recycling facility with capacity to receive up to 30,000 tonnes per year of tyres. The proposal also includes ancillary infrastructure to support the proposal.

The proposal would process the tyres and convert the various products into rubber crumb for reuse. The combined outputs of both stages of the proposal would help fill the gap in local processing capacity for crumbed rubber.

The proposal is it is Designated Development pursuant to Schedule 3 (Clause 45) of the Environmental Planning & Assessment Regulation 2021 (EP&A Regulation 2021), as the site is located within 100 metres of a natural waterbody (Prospect Creek), and as the site is located within 500 m of the nearest residential receivers.

1.2 REPORT PURPOSE

This report has been prepared on behalf of Tyrex Australia for the proposal to support the environmental impact assessment (EIS) and respond to the Secretary's Environmental Assessment Requirements (SEARs) for a fire and incident management report.

The SEARs relevant to this report are summarised in Table 1.

Table 1: SEARs included within this report.

SEAR Requirement	Assessment Contained within the report
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 (including location of fire hydrants and water flow rates at the hydrant) management and containment measures	Hydrants are addressed in Section 4.2.2. Reference is made to the required onsite fire water containment Section 4.2.6 and Section 4.3.4.4. Technical requirements relating to air, noise, spill containment are addressed separately by others.
Details of the size and volume of stockpiles, including storage of tyres and recovered material, and their arrangements to minimise fire spread and facilitate emergency vehicle access	Stockpile information is contained in Section 4.2.8.3, Section 4.3.3 and Section 4.3.4).
The measures proposed to be implemented to ensure that the proposed development is consistent with the aims, objectives and guidelines in the NSW Fire and Rescue guideline Fire Safety in Waste Facilities dated 27 February 2020 and the NSW Fire and Rescue Guidelines for Bulk Storage of Rubber Tyres 2014.	Fire Safety Measures are detailed in Section 1.3.

It includes a description of the proposal, the proposed waste stockpiles handled on site, and an assessment of the proposal against the Fire and Rescue NSW Guidelines:

1. Fire Safety Guideline V02.02 27 February 2020 – Fire Fire safety in waste facilities (the 'Waste Guideline')

   Note: The proposal is assessed against the Fire Safety Guideline V02.02 27 February 2020 – Fire Safety in Waste Facilities (the 'Waste Guidelines') as requested in the SEARs despite that document not applying to "special waste treatment (e.g. waste tyres)" (refer to Section 3(d) of the Waste Guidelines).

2. Fire Safety Guideline V03 5 December 2014 – Guideline for bulk storage of rubber tyres (the 'Tyre Guideline')

1.3 FINDINGS AND CONCLUSION

The assessment involved conducting a desktop review of the proposal and comparing it against the FRNSW guidelines and then making an informed judgment on whether the design meets the required criteria.

There are departures evident from the guidelines, mostly because there is conflict between the waste guideline and the tyre guideline, but also due to the nature of the commodity stored.

Generally, in situations where there is a conflict between the Waste Guideline and the Tyre Guideline, we have prioritized the Tyre Guideline, as it is directly pertains to the commodity in question – in this case, the storage of tyres and subsidiary products.

Despite this there are also inconsistencies or deviations from the Tyre Guideline within the proposed development neamely due to the inclusion of tyre crumb, a material that is not accounted for in the guideline.

These items will require consultation with stakeholders to determine suitability of the design in achieving the regulatory objectives.

1.4 PRELIMINARY FIRE SAFETY REQUIREMENTS

In accordance with Section 7.2.6 of the FRNSW Guidleine for Waste Facilities the storage of rubber is deemed to be a high risk.

Preliminary fire safety requirements are identified in response to the FRNSW Guideline assessment findings.

The fire requirements are detailed below.

1.4.1 GENERAL

If not specifically mentioned herein, the fire safety measures as required by the Deemed-to-Satisfy provisions of the NCC would be installed within the building.

The detailed design and development of a NCC report will confirm these requirements.

1.4.2 FIRE SAFETY SYSTEMS

1. A sprinkler system in accordance with the AS 2118.1:2017 be provided throughout the building.
2. A hydrant system shall be provided in accordance with E1D2 and AS 2419.1:2021.
3. External fire hydrants shall be provided. Hydrants should not be located within 10 m of any stockpiled storage. Where positioning of hydrants results in placement within 10 m storage stockpiles, additional hydrant valves should be installed.
4. The fire hydrant system would be designed for at least two (2) fire hydrants simultaneously flowing (20 L/s).
5. Manual call points shall be located adjacent to exits from the building in accordnace with AS1670.1:2018.
6. Fire hose reels shall be provided in accordance with E1D3 and AS 2441:2005. Fire hose reels shall also be provided externally to cover open yard storage areas to enable effective first attack of fires by appropriately trained staff.
7. Portable fire extinguishers shall be provided in accordance with E1D14 and AS 2444:2001.
8. Emergency lighting and exit signage shall be provided in accordance with E4D5, E4D6 and E4D8 and AS 2293.1:2018.
9. Automatic closure of the stormwater system shall be provided by an isolation valve. This would be connected to the Fire Detection Control and Indicating Equipment (FDCIE), such that in the event of sprinkler activation, or MCP activation, the isolation valve would close.

1.4.3 MANAGEMENT IN USE AND STORAGE REQUIREMENTS

1. An automatic fire water run-off containment system would be provided and designed to contain the total combined hydraulic demand of the fire hydrant and fire sprinkler system for a period of 90 minutes (estimated to be 736,020 L)
2. Prior to operations of the facility:
    a. An emergency plan complying with AS 3745:2010 Planning for emergencies in facilities shall be developed.
    b. An operations plan shall be documented and implemented for stockpile management and a copy is to be included within the Emergency Services Information Package (ESIP). The plan shall include procedures for stockpile rotation and monitoring of temperature.
    c. An Incident Response Management Plan shall be provided for staff and other persons at the facility in the event of fire.
    d. Pollution control equipment such as stormwater isolation valves, water diversion booms, drain mats, shall be provided within the facility's emergency response procedures, and be kept readily accessible for the event of fire.
    e. An Emergency Services Information Package (ESIP) shall be provided for firefighters in accordance with FRNSW guideline Emergency services information package and tactical fire plans.
3. Tyres shall be stored as follows:
    a. Bundled tyres — a number of tyres strapped together in bundles and stacked either within a system or on their sides.
    b. Pallet systems — a system containing a number of tyres which includes stringers for material handling equipment.
    c. Horizontal systems — a system (e.g. pallets, shelving, racks) where tyres are stacked upright along a horizontal length exceeding 1.5m
    d. Portable systems — small portable systems that can be readily moved by fork lift.
4. External tyre stacks:
    a. External storage is limited to recovered steel wire only i.e. there is no external tyre storage proposed. Only loading and unloading occurs externally.
5. Internal tyre stacks:
    a. Individual tyre stacks within the building shall not exceed 12.5 tonnes, 3.7m in height and 30 m^2 in area.
    b. A maximum of four (4) individual tyre stacks can be grouped into a stack pile. A minimum clear separation of 2 m must be provided between each stack.
    c. A minimum clearance of 1.5 m should be provided between tyre stacks and any building structural member (excludes crumb rubber storage).
    d. Must remain at least 1 m clear in all directions from the underside of the building's roof or ceiling, roof structural members, lights (includes light fixtures) and sprinkler heads.
    e. A minimum clearance of 1 m must be maintained along paths of travel to required exits and firefighting equipment (e.g. hose reels, extinguishers, hydrants). The paths of travel must be kept clear and unobstructed at all times.

2.0 INTRODUCTION

2.1 OVERVIEW

It is the intention of this report to assist in the application for the development of a tyre recycling facility and ancillary office space, car parking, hardstand area and landscaping.

The site is operated by Tyrex Australia. The street address is 68-70 Victoria Street Smithfield NSW.

The legal description of the land is Lots 9-10 DP 239868.

2.1.1 LOCATION

The site is located on the northern side of Victoria Street within an existing industrial area within the Sydney suburb of Smithfield. Smithfield is located in the Fairfield City Council Local Government Area, approximately 31 km west of the Sydney CBD (refer to Figure 1).

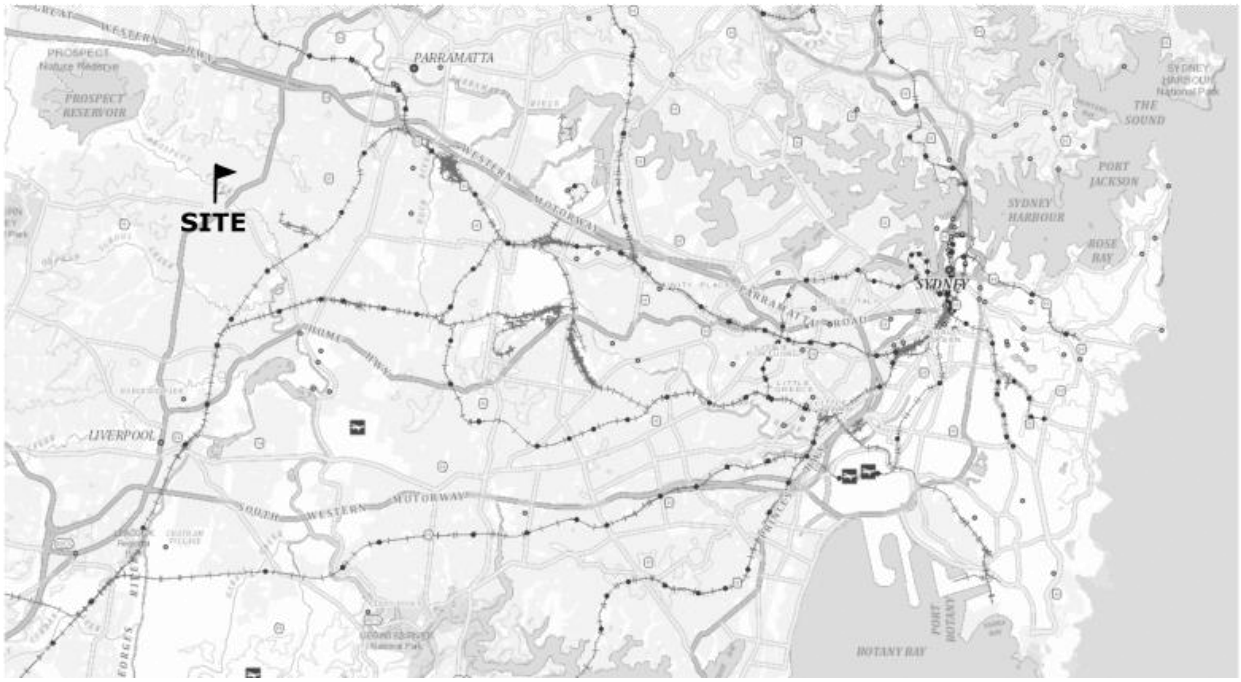


Figure 1: Regional Location

The site is located within a brownfield industrial area and is surrounded by mixed industrial and commercial use to the south, east and west. Prospect Creek is located to the north of the site. Connection to Victoria Street is provided to the south whilst the Smithfield Road is approximately 500 m to the east of the site (see Figure 2).

It is a regular shaped allotment with approximately 41 m frontage to Victoria Street.

Figure 2: Aerial View

2.1.2 IMPROVEMENTS

An existing three-storey office and associated warehouse space stands on No. 68 Victoria Street. No. 70 Victoria Street is currently vacant. The existing site plan can be seen in Figure 3.

When combined the site has an area of 4,070 m^2 comprising of

1. Three storey office and associated undercover parking (No. 68 Victoria Street)
2. Attached single storey warehouse with a footprint of ~1,437 m2 (No. 68 Victoria Street)
3. ~2,000 m^2 hardstand (No. 70 Victoria Street).

Figure 3: Existing Site Plan

Construction materials observed included:

1. Blockwork and masonry
2. Fibre reinforced cement sheeting
3. Aluminium glazed windows
4. Concrete slab and sheet metal roofing.

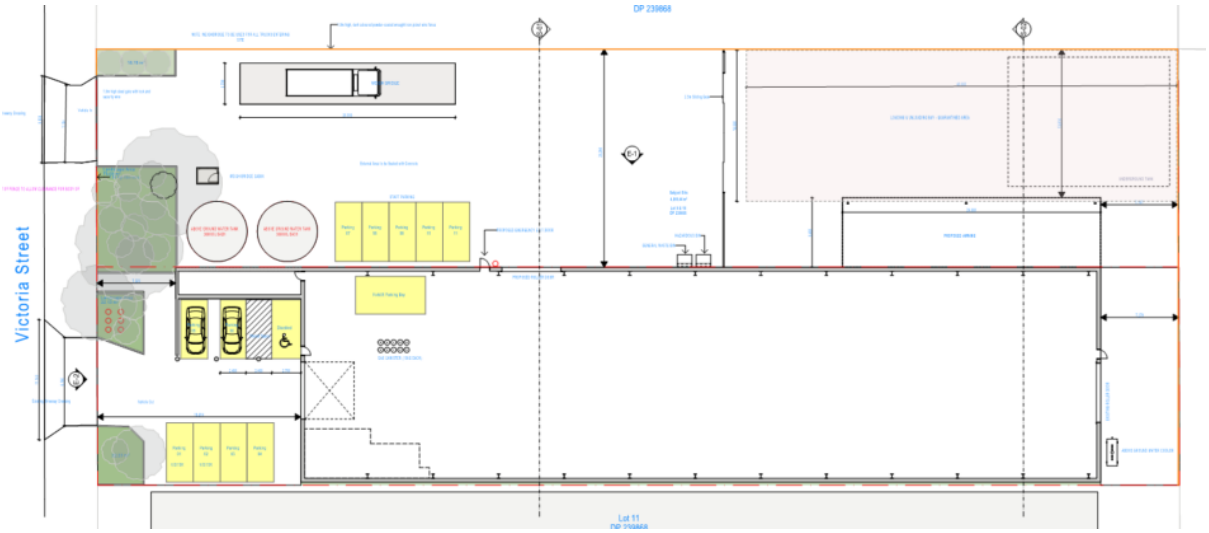


Figure 4: Proposed Site Plan

Primary fire and life safety systems proposed in the facility include:

1. Fire hydrant system
2. Fire hose reel system
3. An automatic suppression system (including onsite storage)
4. Smoke detection and occupant warning system
5. Portable fire extinguishers

2.1.3 KEY FEATURES OF THE PROPOSAL

The application specifically seeks consent for:

1. tyre shredding and crumbing operations at 68 Victoria Street, including the installation of new shredding equipment.
2. weighbridge operations at 70 Victoria Street.
3. receiving, consolidating and onforwarding of approximately 30,000 tonnes of waste tyres (rubber) per annum. As part of the 30,000 tonnes, approximately 5-10 tonnes per week of thin wire (being pure steel) which will be collected via magnets during processing and taken to steel mills for further processing.
4. 166 tonnes of processed and unprocessed rubber/ tyres plus 20 tonnes of recovered tyre wire.
5. hours of operation 24 hours a day, seven days a week.
6. A total of eight (8) employees on site at any one time; and
7. Receipt of product by utes and trucks at the facility. Regular delivery activities will be via 12.5m long Heavy Rigid Vehicles (HRVs). The largest vehicle to access the site will be a 13.9m semi-trailer.

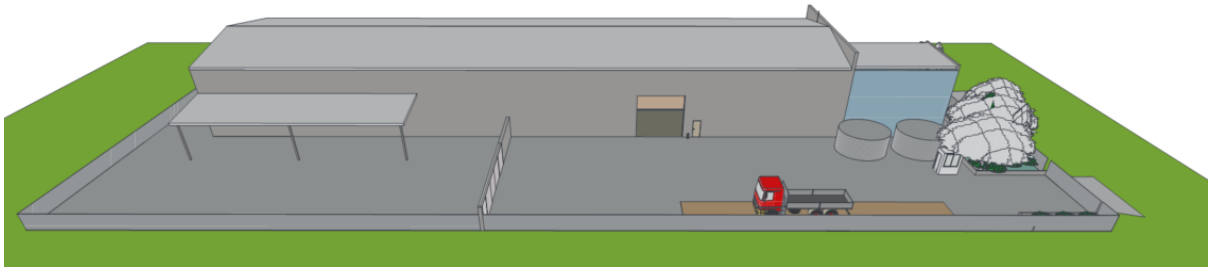


Figure 5: Perspective view

The process can be generally described as follows:

1. Whole car and truck tyres are delivered by flatbed truck.
2. Trucks enter the facility and are weighed on the weighbridge.
3. The truck parks in the loading bay and tyres are unloaded and are stored in the warehouse and stacked according to FRNSW Guidelines. At this stage, sorting according to tyre type will be conducted and any contamination removed for lawful recycling and/or disposal.
4. Tyres are transported via mechanical trolley and then loaded manually into a 'debeader' which removes the steel reinforcing from the tyre.
5. The rubber tyre casing is then shredded via rotary shear and screened.
6. Shredded rubber passes over a magnetic separator for removing remaining steel.
7. The Granulator size reduces the rubber into a rubber crumb material for recycling.
8. A Cotton and Fibre Separator removes the cotton from remaining material for recycling.
9. Dust collector and cooling system captures dust and removes heat released during the shredding process.
10. Finished crumb rubber and cotton is bagged, steel is baled and transported for storage. Crumb bags in bulk are 1m x 1m x 1.8 m with a weight of ~1 tonne.
11. Product is loaded onto trucks for transport via the weighbridge.

A site plan showing key operational areas including stockpile locations can be seen in Figure 6 and are attached as an appendix to the report.

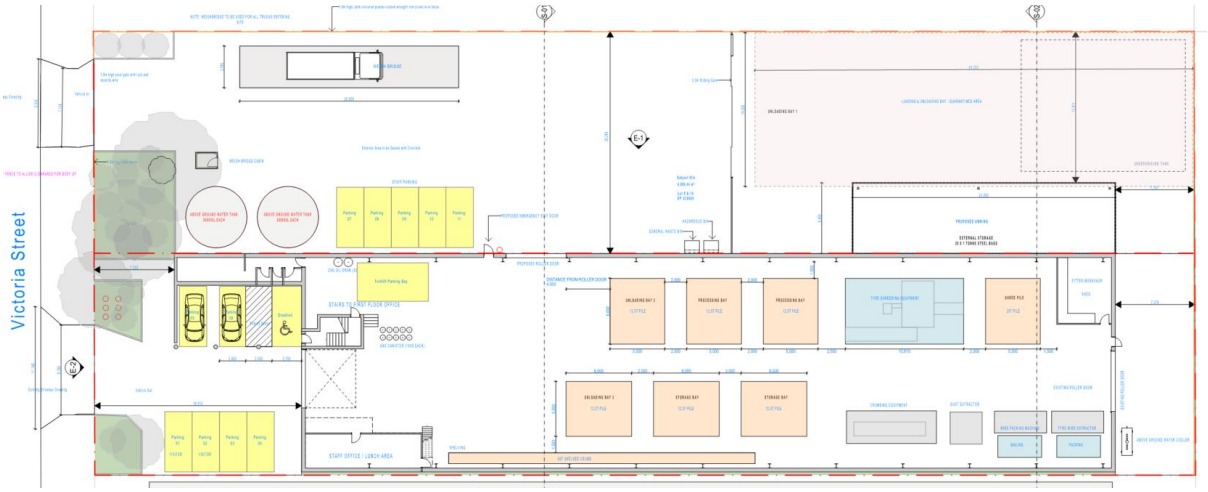


Figure 6: Operational Layout.

2.1.4 NCC CLASSIFYING DATA

The building classification and main characteristics with respect to the NCC are summarised in Table 2.

Table 2: NCC Classifying Data

NCC DtS Clause	Assessment Finding
Classification (A6)	Class 5, Class 7b and Class 8
United Building (A7G1)	The facility is assessed as a united building, This is to be confirmed.
Rise in Storeys (C2D3)	Three (3)
No. of Levels Contained	Three (3)
Minimum Type of Construction Required (C2D2, Table C2D2)	Type B. Note: Type of construction to be confirmed by the Certifying Authority.
Effective Height	< 12m [note 1]
Maximum Fire Compartment Size (C3D3)	The maximum fire compartment size must not exceed 3,500 m^2 for Type B Construction. The building is a single fire compartment. The compartment is <1,600 m^2 and has a volume of ~16,000 m^3.
Minium FRL	240 minutes for structural adequacy, integrity and insulation as the case requires (refer to Specification 5).

[1] Effective height is estimated only to demonstrate that critical height limits which are triggered by the NCC requirements are not exceeded.

3.0 REPORT PURPOSE

3.1 GENERAL

The purpose of this report is to complete an assessment of the tyre stockpiles associated with the proposal that may impact the life safety of occupants and fire brigade intervention. The report:

1. Details the proposed stockpile sizes as part of the proposal;
2. Review for consistency with between the proposal with the Fire and Rescue NSW Fire Safety Guideline;
3. Describes the preliminary fire safety requirements and services pertinent to the proposal.

The report is specifically in relation to the combustible tyre stockpiles and its assessment against the FRNSW guidelines only.

3.2 DOCUMENTATION RELIED UPON

Documentation reviewed and relied during the assessment included:

1. Architectural drawings provided by the client as prepared by Planzone Rev#04.
2. National Construction Code (NCC), Building Code of Australia (BCA) Volume 1, Amendment 1 2022
3. Guide to Volume 1 of National Construction Code (NCC), Building Code of Australia (BCA) Amendment 1 2019
4. Site inspection Friday 31 August 2023
5. Fire Safety Guideline V02.02 27 February 2020 – Fire Fire safety in waste facilities (the 'Waste Guideline')
6. Fire Safety Guideline V03 5 December 2014 – Guideline for bulk storage of rubber tyres (the 'Tyre Guideline') as applies to "any new facility which is intended to store new or used rubber tyres and related subsidiary products, or of any existing facility that is being modified to store rubber tyres in bulk quantities.

   Note: Related subsidiary products include the by-products of used tyre waste processing such as shredded or granulated tyre scrap".
7. Tyre Stewardship Australia 2022, Best Practice Guidelines For Tyre Storage And Fire And Emergency Preparedness

3.3 ASSUMPTIONS AND LIMITATIONS

The information contained within this report is based upon, and limited to, the information depicted in the documentation provided for assessment, and our inspection. This report should not be construed to infer that an assessment for compliance with the following has been undertaken:–

1. Assessment of compliance of individual elements that have specific technical requirements outside the expected knowledge of the auditor, for example whether the application of a specific fire sealant is appropriate for its application.
2. Building Services (i.e. sprinkler, smoke detection and alarm, passenger lifts, hydraulic and electrical);
3. The level of compliance of the existing building with the Building Code of Australia outside of the parameters contained within the assessed documentation;
4. The individual requirements of service authorities (i.e. WorkCover, Sydney Water, Telecommunications and Energy Service Providers).

 This report is based solely on client instructions, and therefore should not be used by any third party without prior knowledge of those instructions.

Any projection of the evaluation at the time of the assessment is subject to the risk that the systems may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

4.0 GUIDELINE ASSESSMENT

4.1 ASSESSMENT METHOD

The assessment method involved conducting a desktop review of the proposal and comparing it against the FRNSW guidelines and then making an informed judgment on whether the design meets the required criteria.

This process typically includes thoroughly examining the proposal, ensuring it aligns with predetermined guidelines or standards, and using engineering judgment to determine whether the design satisfactorily meets the necessary criteria. It is a systematic evaluation process that does not require physical site visits but relies on documentation and experience to make a determination.

In situations where there is a conflict between the Waste Guideline and the Tyre Guideline, we have prioritized the Tyre Guideline, as it is directly pertains to the commodity in question – in this case, the storage of tyres and subsidiary products. The Tyre Guideline offers specific and relevant insights that align with the nature of the stored commodity, ensuring that our practices are in accordance with industry-specific recommendations.

During the assessment it was acknowleged that the Tyre Guideline itself may present inconsistencies or deviations from the proposed development. In such instances, consultation and consideration may be necessary to establish an acceptable approach, while also ensuring that the broader fire fighting aspects outlined in the Waste Guideline are addressed. This approach aims to strike a balance between specificity and comprehensiveness, ultimately promoting safe practices in tyre storage and management.

The requirements of the Guideline are assessed below.

4.2 FRNSW WASTE FACILITY GUIDELINES

4.2.1 SECTION 7.4 - FIRE FIGHTING INTERVENTION

Enhanced fire brigade vehicle access should be provided for firefighting intervention, including a perimeter ring road around any large non-sprinklered building and access roads between external stockpiles. Since the building has sprinklers, and it stores no tyres outside (only shredded steel wire in bags) and it is not a large isolated building, a perimeter ring road is not applicable.

Access for emergency vehicles is provided from the public roadway and the western portion of the allotment. Pedestrian access is also available on the northern side of the building. This is shown in Figure 7.

Aerial fire brigade vehicles have particular load requirements as they have stabilisers and high pressure points. Due to the area required for access aerial appliances would be required to set up on Victoria Street (~22m wide four (4) lane dual carriageway).

The design currently provides for perimeter doors to the north, south and west so that access and egress options are available. This helps to facilitate firefighter access from the available vantage points.

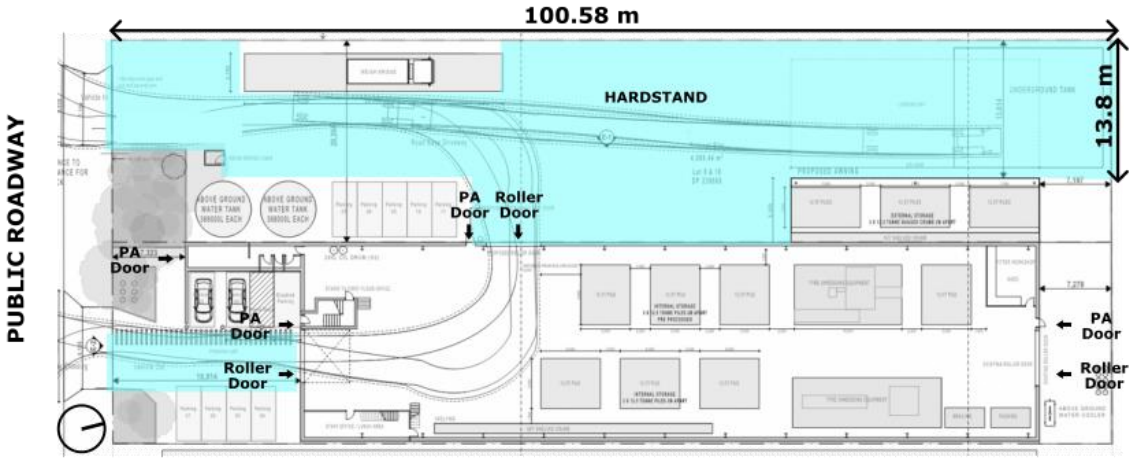


Figure 7: Fire Fighting Access Points

4.2.2 SECTION 7.5 - FIRE HYDRANT SYSTEM

A fire hydrant system is installed to Australian Standard AS 2419.1:2021 and providing coverage from external hydrant valves is proposed.

The hydrant network serving the building would be designed with perimeter door use in mind, with external hydrants being preferable. Figure 9 provides a concept design whereby the internal parts of the building can be protected by 2 hose lengths of coverage from external hydrants. Note that this is indicative layout and proof of concept only, it demonstrates the requirements are capable of being met. The hydrant locations are expected to be modified during design development and consultation.

The system design is also proposed to account for two valves operating simulatenously i.e. a capacity of two (2) hydrants operating simultaneously at 10 L/sec each (a total of 20 L/sec) from the street main. We therefore consider that the water supply satisfies the 4-hour duration requirement.

Pressure & Flow Application Number: 1699894
Your Pressure Inquiry Dated: 2023-09-12
Property Address: 68 Victoria Street, Smithfield 2164

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name: Victoria Street	Side of Street: North
Distance & Direction from Nearest Cross Street	90 metres West from Justin Street
Approximate Ground Level (AHD):	22 metres
Nominal Size of Water Main (DN):	300 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	40 metre head
Minimum Pressure	32 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	32
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	10 15 20 25 30 40 50	34 33 33 33 33 32 32
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	10 15 20 25 30 40 50	32 32 31 31 31 30 30
Maximum Permissible Flow	60	29

Figure 8: Pressure & Flow Application Results (dated 12/09/2023)

The fire brigade booster would be located adjacent to the designated site entry point as shown in Figure 9. This location would be evident as fire brigade approach the site.

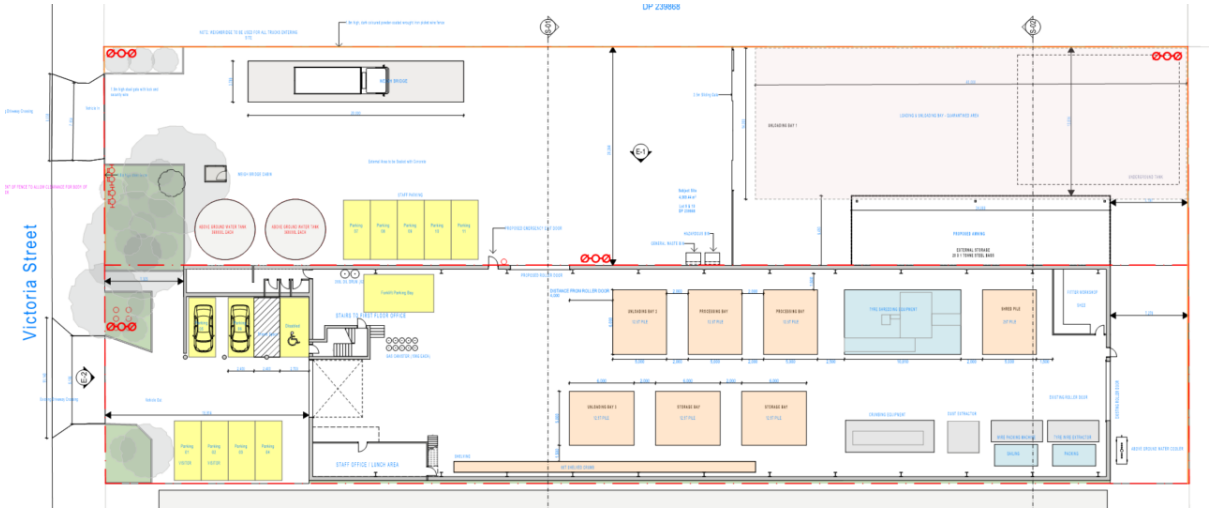


Figure 9: Indicative Booster Assembly Location including proof of hydrant coverage concept.

The fire hydrant system design shall also incorporate fire hose reels installed in accordance with Clause E1.4 of the NCC and externally to cover open yard storage areas to enable effective first attack of fires by appropriately trained staff.

4.2.3 Section 7.6 - Automatic Fire Sprinkler System Design

The FRNSW Guidelines requires any building exceeding 1,000 m^2 and containing combustible waste material to be provided with a sprinkler system. Therefore a high hazard sprinkler system is proposed in accordance with AS 2118.1:2017.

The fire sprinkler system would be fed from the sprinkler pump house, connected to fire tanks. Three (3) ~198.24 KL tanks are provided to account for the two hour duration, in accordance with the FRNSW Guidelines. The fire sprinkler system delivers not less than the total hydraulic demand for a minimum of two hours duration. The tanks would be refilled through infill connection from the town main. The fire brigade booster connection would incorporate the automatic fire sprinkler system and be co-located adjacent to the hydrant system booster which resides within sight of the site entry point. The hardstand would be located on Victoria Street (~22m wide four (4) lane dual carriageway).

4.2.4 Section 7.7 - Fire Detection And Alarm System Design

FRNSW recommend that a dection system be installed. Due to the nature of the facility it is expected that any detection system would require thermal detection to avoid spurious alarms, as permitted by AS1670.1:2018.

The warehouse space has a simple layout, with direct pathways to an exit. As a result the guidance of the FRNSW Tyre Guideline is prefered and detection is not proposed.

Manual call points will however be located adjacent to exits from the building.

4.2.5 SECTION 7.8 - SMOKE HAZARD MANAGEMENT SYSTEM DESIGN

FRNSW recommend that an automatic smoke hazard management system be installed.

The NCC requires one of the following be provided within a Class 7 or 8 large-isolated building that exceeds 18,000m^2 in floor area or 108,000m^3 in volume with a compartment ceiling height of not more than 12m:

- An automatic smoke exhaust system in accordance with BCA Specification E2.2b; or
- Automatic smoke-and-heat vents in accordance with BCA Specification E2.2c.

Due to the small footprint of the building the guidance of the Tyre Guideline is prefered i.e. smoke hazard management is not required for buildings having an area of less than 1,000m^2 and an active smoke hazard management system is not proposed. The building is provided with three (3) 5 m high roller shutters to assist with venting de-stratified smoke.

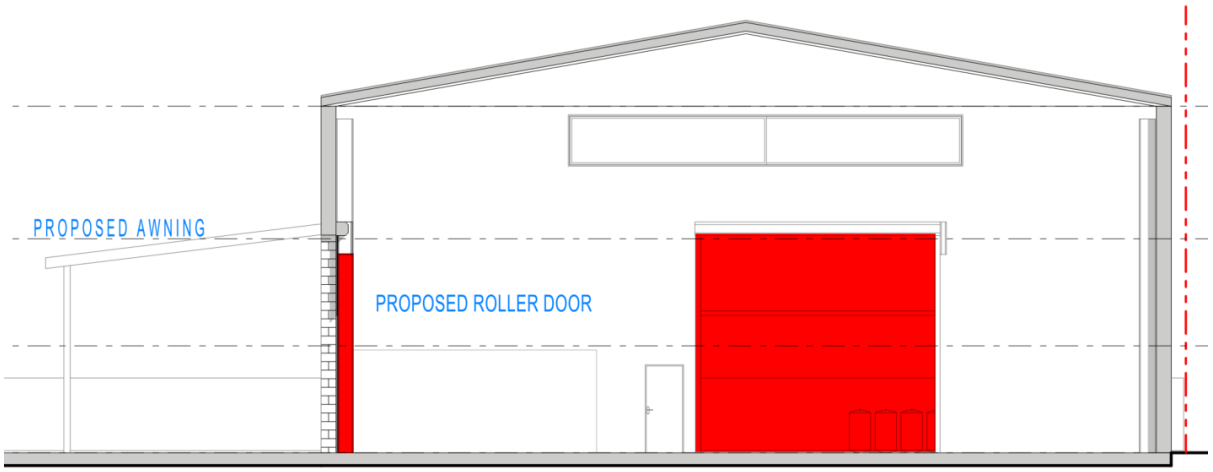


Figure 10: Typical Section showing the roller doors.

4.2.6 SECTION 7.9 - FIRE WATER RUN OFF CONTAINMENT SYSTEM

An automatic fire water run-off containment system is provided and designed to contain the hydraulic demand of the fire hydrant and fire sprinkler systems. Onsite containment of fire water is proposed through a surface water management system. bunding system around the property to avoid off-site water quality impacts. A primary gross pollutant trap will treat runoff from the hardstand area.

Details are to be documented in the stormwater design and plan. Automatic closure of the stormwater system shall be provided by an isolation valve. This would be connected to the Fire Detection Control and Indicating Equipment (FDCIE), such that in the event of sprinkler activation, or MCP activation, the isolation valve would close.

We note that the final system design flow rates have not been finalised at this stage. However, the design shall account for:

1. A capacity of two (2) hydrants operating simultaneously at 10 L/sec each (a total of 20 L/sec) plus the calculated maximum sprinkler design output, operating for a period of 90 minutes.
2. The preliminary sprinkler design is based on 34 high hazard special sprinkler heads discharging 24 mm/min (6,978 L/min).
3. This equates to a storage capacity of 736,020 L of onsite containment i.e., 108,000 L (hydrant) plus sprinkler flow of 628,020 L over 90 mins.

Pollution control equipment such as stormwater isolation valves, water diversion booms, drain mats, shall be documented within the facility's emergency response procedures, and be kept readily accessible for the event of fire.

4.2.7 SECTION 7.10 - BUSHFIRE PROTECTION

The site is not identified as being located on bushfire prone land.

4.2.8 SECTION 8 - FACILITY OPERATION AND MANAGEMENT

Storage stockpiles are to be provided in accordance with the FRNSW Tyre Guidelines (see Section 4.3.3 and 4.3.4) and as proposed herein.

4.2.8.1. SECTION 8.3 - STOCKPILE MOVEMENT

Management of operations is subject to the Operators management plans.

From a fire safety perspective, rubber crumb and tyre shred has shown susceptibility to produce heat through degradation. A dust collecting and cooling system is proposed to captures dust and help remove heat released during the shredding process.

Crumb storage is contained to bulk storage bags of not more than 1 tonne and not more than 1.8 m deep. Crumb bags are stored on shelving in the warehouse (66 tonnes) prior to transport. This reduces the hazard as experience suggests auto-ignition normally occurs in stockpiles more than 3m deep[2].

Regular internal stockpile temperature monitoring and control to assist with incident control is also undertaken. Procedures for stockpile rotation and monitoring of temperature are to be included in an operations plan.

4.2.8.2. SECTION 8.4 - EXTERNAL STOCKPILE

No external storage is prposed apart from 20 tonnes of wiring beneath a sprinkler protected awning on the western side of the building. Whilst external to the building envelope the awning is sprinkler protected.

[2] DFES (July 2023) NOTE: GN02 Bulk Storage of Rubber Tyres Including Shredded and Crumbed Tyres

4.2.8.3. SECTION 8.5 - INTERNAL STOCKPILE SIZE LIMITATIONS

As discussed in Section 4.1 and detailed Section 4.3.4, internal stockpile sizes are proposed to comply with the tyre guideline stockpile size limitations (see Figure 11).

Within the warehouse there are proposed to be four separate piles, rack storage of the rubber crumb plus an unloading zone.

These areas are separated into:

1. Unloading zone adjacent to the pre-prosessing storage stockpile. To ensure the zone is not used for prolonged storage, the operations plan must prohibit long term storage and ensure that timing of deliveries coicide with availability of storage capacity.
2. Pre-processing zone - Each pile is made up of not more than 12.5 tonnes and seperated by 2 m.
3. Sixty-six (66) shelved crumb storage on the eastern side of the building.

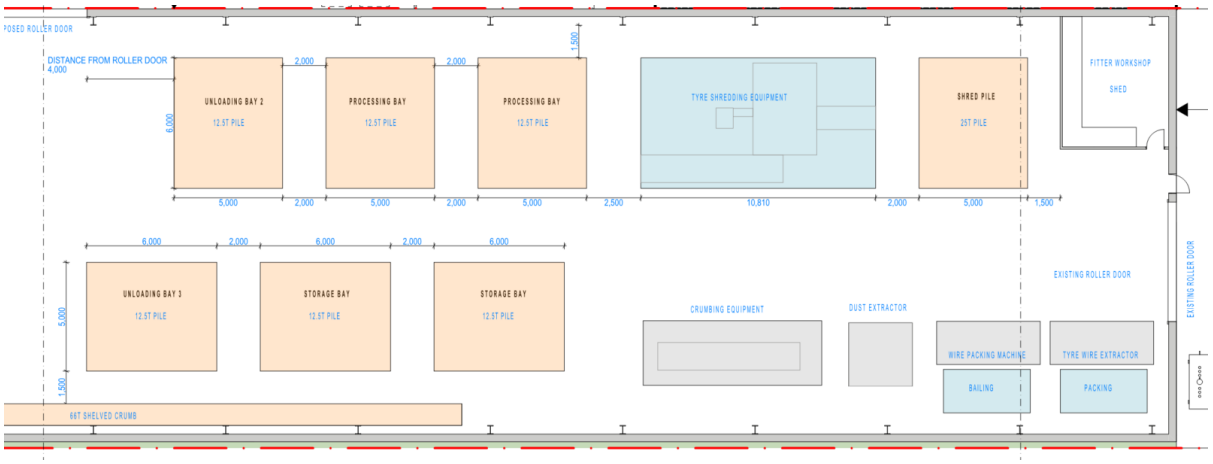


Figure 11: Part Ground Floor Plan - Stockpile Locations and Quantities

4.2.9 SECTION 9.0 - OPERATIONAL AND MANAGEMENT PLANS

Operational, management and emergency planning requirements are recommended to be applied prior to operation of the facility. This includes:

1. Emergency Services Information Package (ESIP).
2. Emergency Management Plan in accordance with AS 3745:2010.
3. Operational management plans including stock movement, monitoring, loading and unloading and the like.
4. Maintenance of plant and equipment, including fire safety systems.

4.3 FRNSW TYRE STORAGE GUIDELINES

This section serves as an assessment with the Tyre Storage Guidelines outlined by FRNSW.

This evaluation is designed to assess adherence to the guidelines and to document whether the proposed operations, practices, and procedures are compliant with the recommendations and if not highlighted those differences.

4.3.1 SECTION 4 – ACCEPTABLE RUBBER TYRE STORAGE

It is proposed to store more than 50 tonnes of tyres oniste and accordingly the facility is defined as 'large' by the Guidleine.

Tyres prior to processing are to be stored as follows:

1. Bundled tyres — a number of tyres strapped together in bundles and stacked either within a system or on their sides.
2. Pallet systems — a system containing a number of tyres which includes stringers for material handling equipment.
3. Horizontal systems — a system (e.g. pallets, shelving, racks) where tyres are stacked upright along a horizontal length exceeding 1.5m
4. Portable systems — small portable systems that can be readily moved by forklift.

Crumbed rubber will be stored in one tonne bags 100 cm x 100 cm x 180 cm (high).

4.3.2 SECTION 5 - UNACCEPTABLE RUBBER TYRE STORAGE

Tyres shall not be stacked on their treads - known as 'tread up' storage - or laced — tyres which are stacked overlapping to create a woven or laced arrangement.

4.3.3 SECTION 6 - EXTERNAL TYRE STORAGE

External storage is limited to 20 tonnes of steel (wire recovery) in bags beneath the western awning.

No external tyre stacks or piles are proposed.

Any tyres/rubbers in this area are subject to loading and unloading and are not stored permananetly in this area (refer to Operator's operational management plan)

4.3.3.1. SECTION 6.1 - GENERAL REQUIREMENTS

The hardstand is paved and bound by a 1.8 m high non-combustible security fence.

A hydrant system is proposed in accordance with AS 2419.1:2021. Internal areas of the building and the hardstand are required to be provided with complying hydrant coverage as per AS2419.1 and the NCC.

Based upon the reviewed layout, it is anticipated that the hydrant system would utilise external hydrants placed around the building to provide coverage based upon a complying two-hose length design.

The requirement for an enhanced standard of performance of hydrants is required for buildings not protected by a sprinkler system. The building is to be sprinkler protected in accordance with AS 2118.1:2017 Automatic Fire Systems (Standards Australia, 2017), and therefore, compliance with the FRNSW Guidelines would be achieved by the hydrant system by complying with AS2419.1:2021.

4.3.3.2. SECTION 6.2 - SIZE OF TYRE STACKS AND PILES

No external tyre stacks or piles are proposed.

4.3.3.3. SECTION 6.3 - MINIMUM BOUNDARY CLEARANCES

No external tyre stacks or piles are proposed.

4.3.3.4. SECTION 6.4 - SITE ACCESS FOR FRNSW APPLIANCES

Two vehicular entry points are provided to the site.

The site access points, including gates and road surfaces are considered to be large enough to allow access for emergency vehicles and crews should access be deemed safe (see Figure 12).

Access is, however, complicated by the existing building abutting the eastern boundary. In this respect access is not provided along this frontage. Controil of spread is limited by the fire reistant wall on the boundary. Specialist appliances would be required to set up on Victoria Street (~22m wide four (4) lane dual carriageway) whilst general appliances could access the hardstand and navigate 'Y' turns.

Despite this there is provision of space for a safe entry point and way in for emergency vehicles and staff and access deficiencies are considered to be offset by the provision of the sprinkler system.

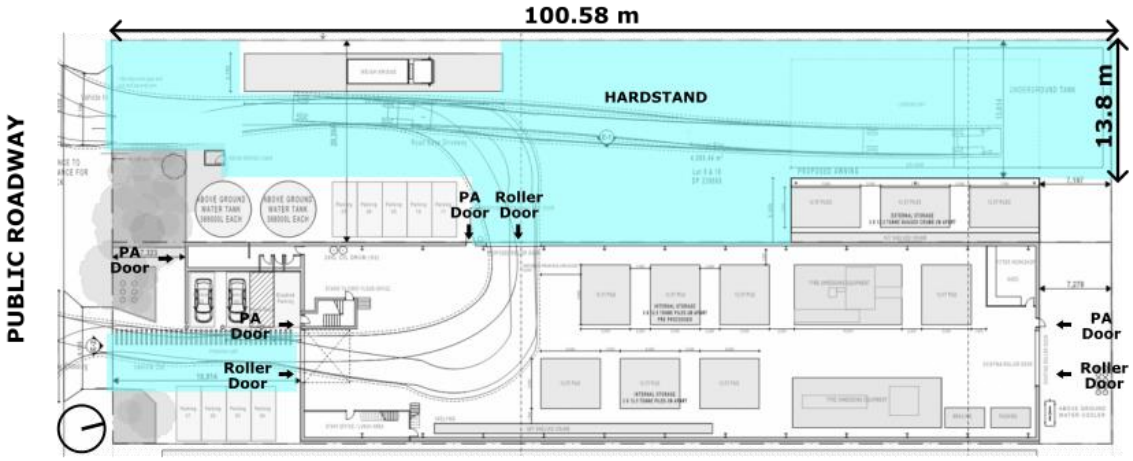


Figure 12: Fire Brigade Access

4.3.4 SECTION 7 INTERNAL TYRE STORAGE

4.3.4.1. SECTION 7.1 - GENERAL REQUIREMENTS

The requirements for smoke hazard management (sprinklers and smoke and heat vents apply to buildings having a floor area of more than 2,000 m^2. The warehouse has a floor area of ~1,437 m^2.

The guideline therefore does not require sprinklers or smoke and heat vents.

Notwithstanding this, given the tonnage to be stored in the building it is proposed to be fitted with a sprinkler system in accordance with AS 2118.1:2017.

Internal tyre stacks are proposed to be 2 m high and not hold more than 50 tonnes per pile (see Figure 11).

4.3.4.2. SECTION 7.2 - UNSPRINKLERED BUILDINGS

Not applicable.

4.3.4.3. SECTION 7.3 SPRINKLERED BUILDINGS

Internal storage arrangement can be seen in Figure 11.

Tyre stacks in the building are separated by at least 2 m as required by the guideline.

Storage is ~2.5 m from the inside face of the external wall for tyre stock, but within 1.5 m for the rubber crumb. Granulated and crumb rubber is stored in storage receptacles on shelving that shelving is located within 1.5 m of the building structure. Given the reduced hazard associated with extinguishment of crumb or shred this arrangement will require consultation with the local fire brigade.

A minimum clearance of 1 m is proposed to be maintained along paths of travel to exits or firefighting equipment access and stored tyres and subsidiary products are to be at least 1 m clear of roof or any structures attached to the roof.

4.3.4.4. SECTION 8 - SITE CONTAINMENT OF FIRE WATER

Onsite containment of fire water is proposed through a bunding system around the property to avoid off-site water quality impacts. A primary gross pollutant trap will treat runoff from the hardstand area.

Details are to be documented in the stormwater design and plan.

Additional details can be observed in Section 4.2.6.

5.0 CONCLUSIONS AND RECOMMENDATIONS

5.1 GENERAL

The purpose of this report is to review the proposal against the FRNSW Waste Facility and Tyre Storage Guidelines and provide an appropriate fire safety strategy to address any identified fire safety issues.

Recommendations are provided through which it is considered that the impact of the hazards associated with the proposal may be suitably mitigated.

The recommendations of this report may not result in full conformance with the guidelines. However, it is considered that the implementation of these recommendations will afford a satisfactory level of access and fire safety and that those matters can be dealt with through consultation with stakeholders in accordance with the statutory requirements for building approval.

There are departures evident from the guidelines, mostly because there is conflict between the waste guideline and the tyre guideline, but also due to the nature of the commodity stored. Generally, in situations where there is a conflict between the Waste Guideline and the Tyre Guideline, we have prioritized the Tyre Guideline, as it is directly pertains to the commodity in question – in this case, the storage of tyres and subsidiary products.

Despite this there are also inconsistencies or deviations from the Tyre Guideline within the proposed development neamely due to the inclusion of tyre crumb, a material that is not accounted for in the guideline. The findings from the assessment are designed to help demonstrate that the proposal is capable of satisfying the requirements identified under the FRNSW Guidelines.

5.2 FINDINGS AND RECOMMENDATIONS

Preliminary fire safety requirements are identified in response to the FRNSW Guideline assessment findings. The fire requirements are detailed below.

5.2.1 GENERAL

If not specifically mentioned herein, the fire safety measures as required by the governing Deemed-to-Satisfy provisions of the NCC would be installed within the building. The detailed design and development of a NCC report will confirm these requirements.

5.2.2 FIRE SAFETY SYSTEMS

In accordance with Section 7.2.6 of the FRNSW Guidleine for Waste Facilities the storage of rubber is deemed to be a high risk.

Preliminary fire safety requirements are identified in response to the FRNSW Guideline assessment findings.

The fire requirements are detailed below.

5.2.3 GENERAL

If not specifically mentioned herein, the fire safety measures as required by the governing Deemed-to-Satisfy provisions of the NCC would be installed within the building. The detailed design and development of a NCC report will confirm these requirements.

5.2.4 FIRE SAFETY SYSTEMS

1. A sprinkler system in accordance with the AS 2118.1:2017 be provided throughout the building.
2. A hydrant system shall be provided in accordance with E1D2 and AS 2419.1:2021.
3. External fire hydrants shall be provided. Hydrants should not be located within 10 m of any stockpiled storage. Where positioning of hydrants results in placement within 10 m storage stockpiles, additional hydrant valves should be installed.
4. The fire hydrant system would be designed for at least two (2) fire hydrants simultaneously flowing (20 L/s).
5. Manual call points shall be located adjacent to exits from the building in accordnace with AS1670.1:2018.
6. Fire hose reels shall be provided in accordance with E1D3 and AS 2441:2005. Fire hose reels shall also be provided externally to enable effective first attack of fires by appropriately trained staff.
7. Portable fire extinguishers shall be provided in accordance with E1D14 and AS 2444:2001.
8. Emergency lighting and exit signage shall be provided in accordance with E4D5, E4D6 and E4D8 and AS 2293.1:2018.
9. Automatic closure of the stormwater system shall be provided by an isolation valve. This would be connected to the Fire Detection Control and Indicating Equipment (FDCIE), such that in the event of sprinkler activation, or MCP activation, the isolation valve would close.

5.2.5 MANAGEMENT IN USE AND STORAGE REQUIREMENTS

1. An automatic fire water run-off containment system would be provided and designed to contain the total combined hydraulic demand of the fire hydrant and fire sprinkler system for a period of 90 minutes (estimated to be 736,020 L)
2. Prior to operations of the facility:
    a. An emergency plan complying with AS 3745:2010 Planning for emergencies in facilities shall be developed.
    b. An operations plan shall be documented and implemented for stockpile management and a copy is to be included within the Emergency Services Information Package (ESIP). The plan shall include procedures for stockpile rotation and monitoring of temperatures, including stock movement, loading and unloading requirements and the like.
    c. An Incident Response Management Plan shall be provided for staff and other persons at the facility in the event of fire.
    d. Pollution control equipment such as stormwater isolation valves, water diversion booms, drain mats, shall be provided within the facility's emergency response procedures, and be kept readily accessible for the event of fire.
    e. An Emergency Services Information Package (ESIP) shall be provided for firefighters in accordance with FRNSW guideline Emergency services information package and tactical fire plans.

3. Tyres shall be stored as follows:
    a. Bundled tyres — a number of tyres strapped together in bundles and stacked either within a system or on their sides.
    b. Pallet systems — a system containing a number of tyres which includes stringers for material handling equipment.
    c. Horizontal systems — a system (e.g. pallets, shelving, racks) where tyres are stacked upright along a horizontal length exceeding 1.5m
    d. Portable systems — small portable systems that can be readily moved by fork lift.
4. External tyre stacks:
    a. No rubber storage (tyre, shred or crumb) is proposed externally.
5. Internal tyre stacks:
    a. Individual tyre stacks within the building shall not exceed 12.5 tonnes, 3.7m in height and 30 m^2 in area.
    b. A maximum of four (4) individual tyre stacks can be grouped into a stack pile. A minimum clear separation of 2 m must be provided between each stack.
    c. A minimum clearance of 1.5 m should be provided between tyre stacks and any building structural member (excludes crumbed rubber storage).
    d. Must remain at least 1 m clear in all directions from the underside of the building's roof or ceiling, roof structural members, lights (includes light fixtures) and sprinkler heads.
    e. A minimum clearance of 1 m must be maintained along paths of travel to required exits and firefighting equipment (e.g. hose reels, extinguishers, hydrants). The paths of travel must be kept clear and unobstructed at all times.

APPENDIX 1 - ARCHITECTURAL PLANS

DA Application for :

Change of Use to Tyre Recycling Facility at:

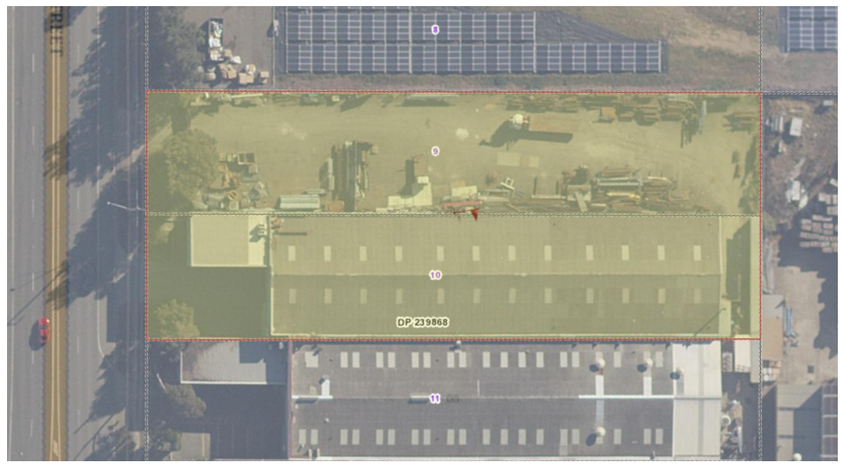
68 Victoria Street Smithfield

SITE AREA : 4007.85 sqm

Client: Zafar Mahmood

Layout ID	Drawing Title	Current Revision ID	Transmitted Date
A.1	Coverpage	15	3/09/2024 12:21 PM
A.2	Survey	15	3/09/2024 12:21 PM
A.3	Existing Site Plan	15	3/09/2024 12:21 PM
A.4	Existing Ground Floor Plan	15	3/09/2024 12:21 PM
A.5	Existing Mezzanine Plan	15	3/09/2024 12:21 PM
A.6	Demolition plan	15	3/09/2024 12:21 PM
A.7	Proposed Site Plan	15	3/09/2024 12:21 PM
A.8	Proposed Site plan over Survey	15	3/09/2024 12:21 PM
A.9	Proposed Roof Plan	15	3/09/2024 12:21 PM
A.10	Tyre Storage Plan	15	3/09/2024 12:21 PM
A.11	Concept Fire Services Plan	15	3/09/2024 12:21 PM
A.12	Side Elevation	15	3/09/2024 12:21 PM
A.13	Front Elevation	15	3/09/2024 12:21 PM
A.14	Section	15	3/09/2024 12:21 PM
A.15	Perspective	15	3/09/2024 12:21 PM
A.16	Material Schedule	15	3/09/2024 12:21 PM

Context Map



Basemap
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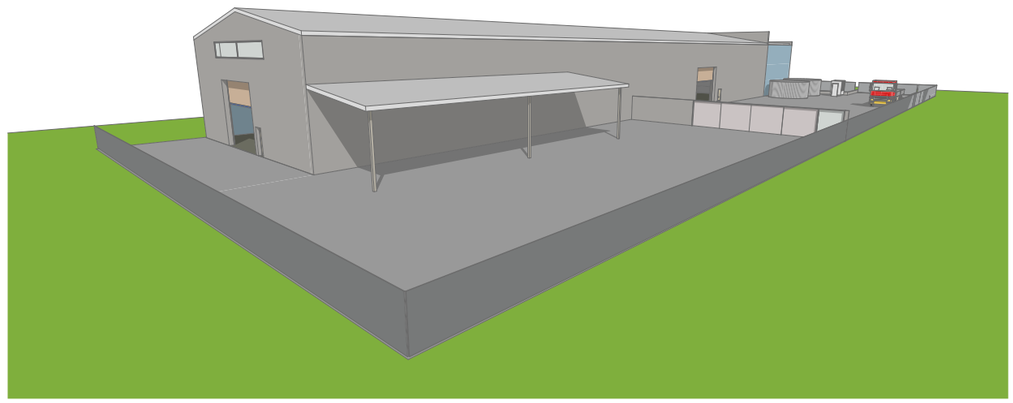

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PROPOSAL
Change of Use to Tyre Recycling Facility

ADDRESS
68 Victoria Street Smithfield

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Fairfield City Council

CLIENT
Zafar Mahmood

PROJECT NO.
230729

DRAWING TITLE
Coverpage

DRAWN BY
KK (BDAA No. 6433) (BDAA No. 6433)

REVISION NO.
15

SCALE
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A.1

Rev #	Revision Name	Date
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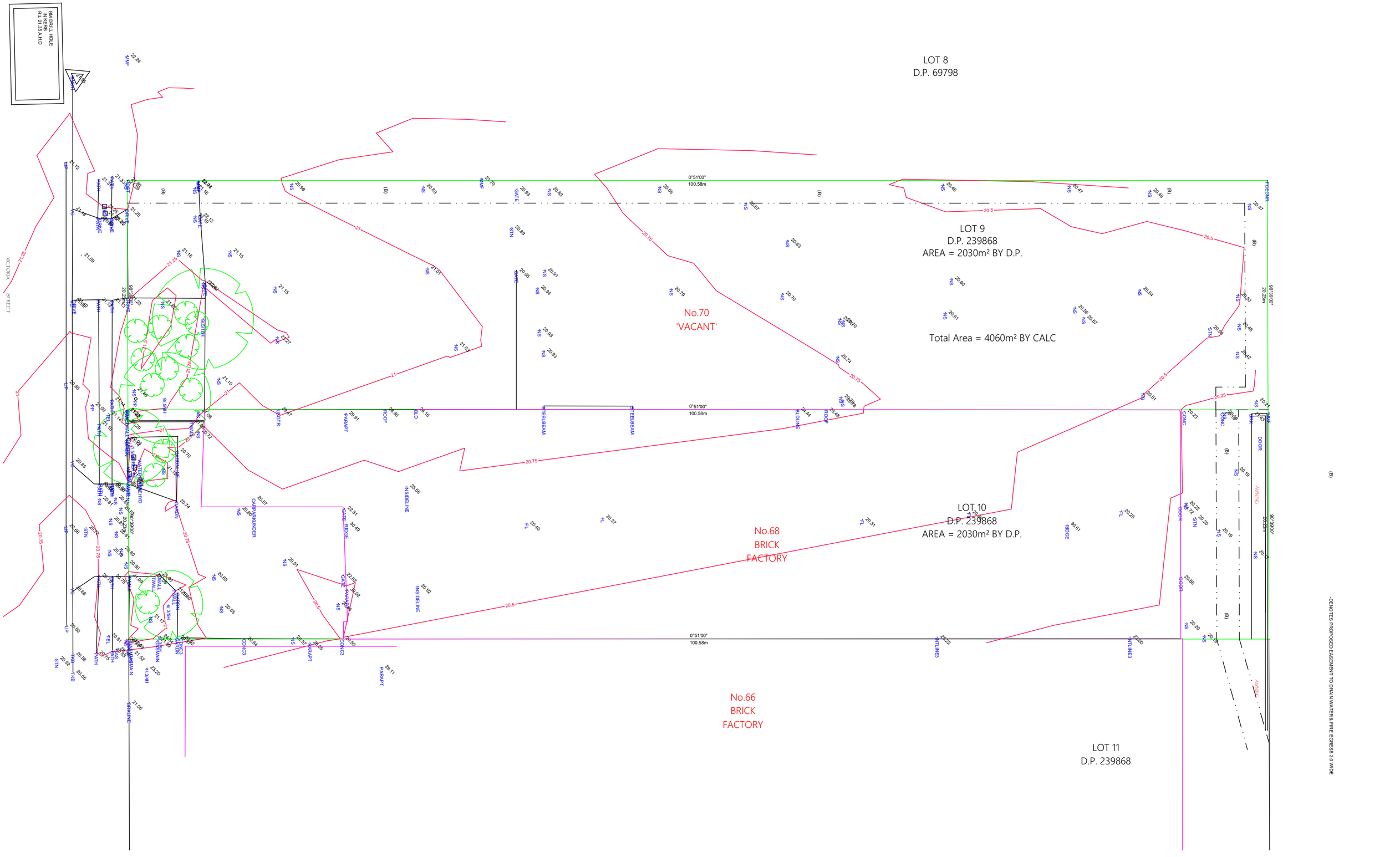
11	CLIENT REVIEW - UPDATE	25/08/2023
12	TRAFFIC SWEPT PATH	4/10/2023
13	Floor Plan Update	3/11/2023
14	RFI Updates	6/06/2024
15	Design Updates	3/09/2024



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A.2

Rev #	Revision Name	Date
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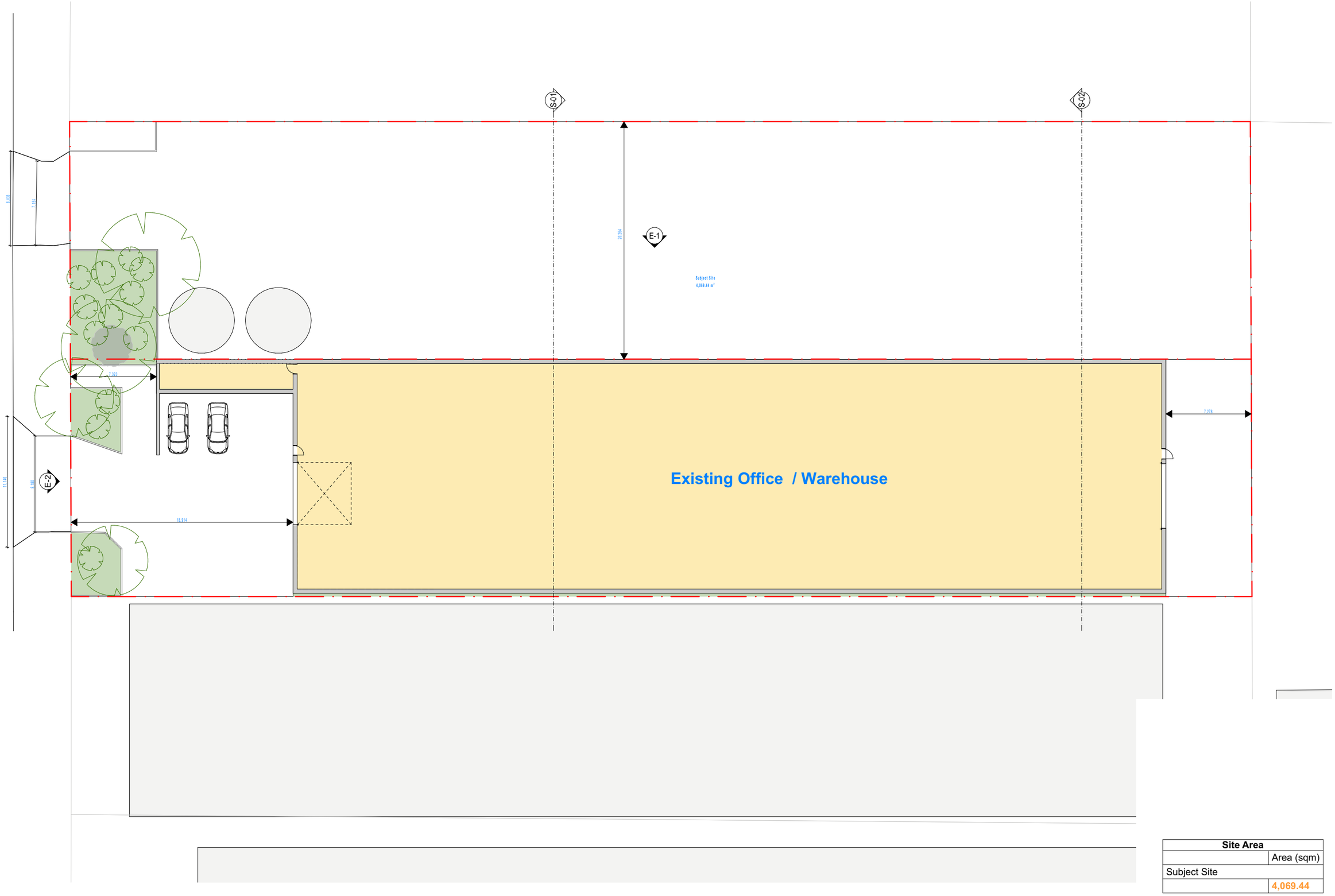
14	RFI Updates	6/06/2024
15	Design Updates	3/09/2024



Site Area	
	Area (sqm)
Subject Site	
	4,069.44

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DRAWING TITLE
Existing Site Plan

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15

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1:300

DRAWING NO.
A.3

Rev #	Revision Name	Date
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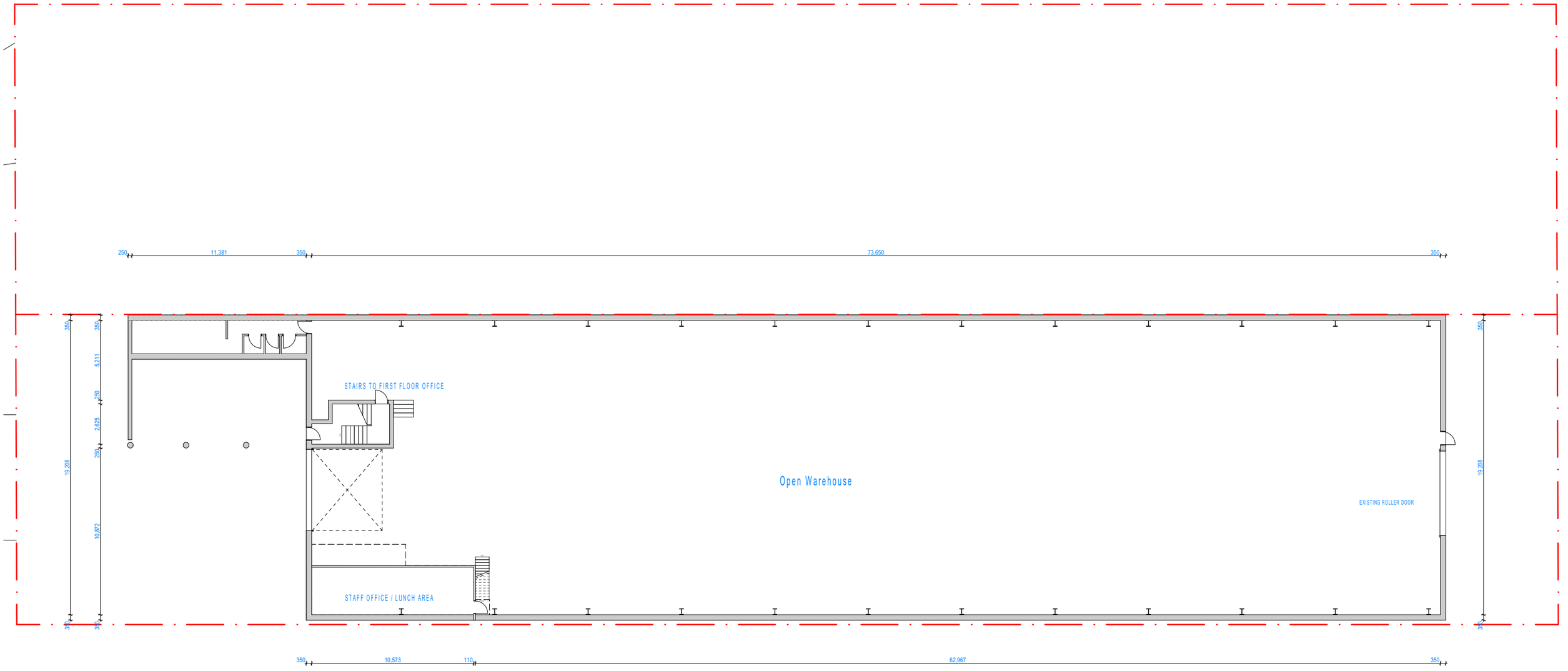
15	Design Updates	3/09/2024



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DRAWING TITLE
Existing Ground Floor Plan

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15

SCALE
1:250

DRAWING NO.
A.4

Rev #	Revision Name	Date
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11	CLIENT REVIEW - UPDATE	25/08/2023
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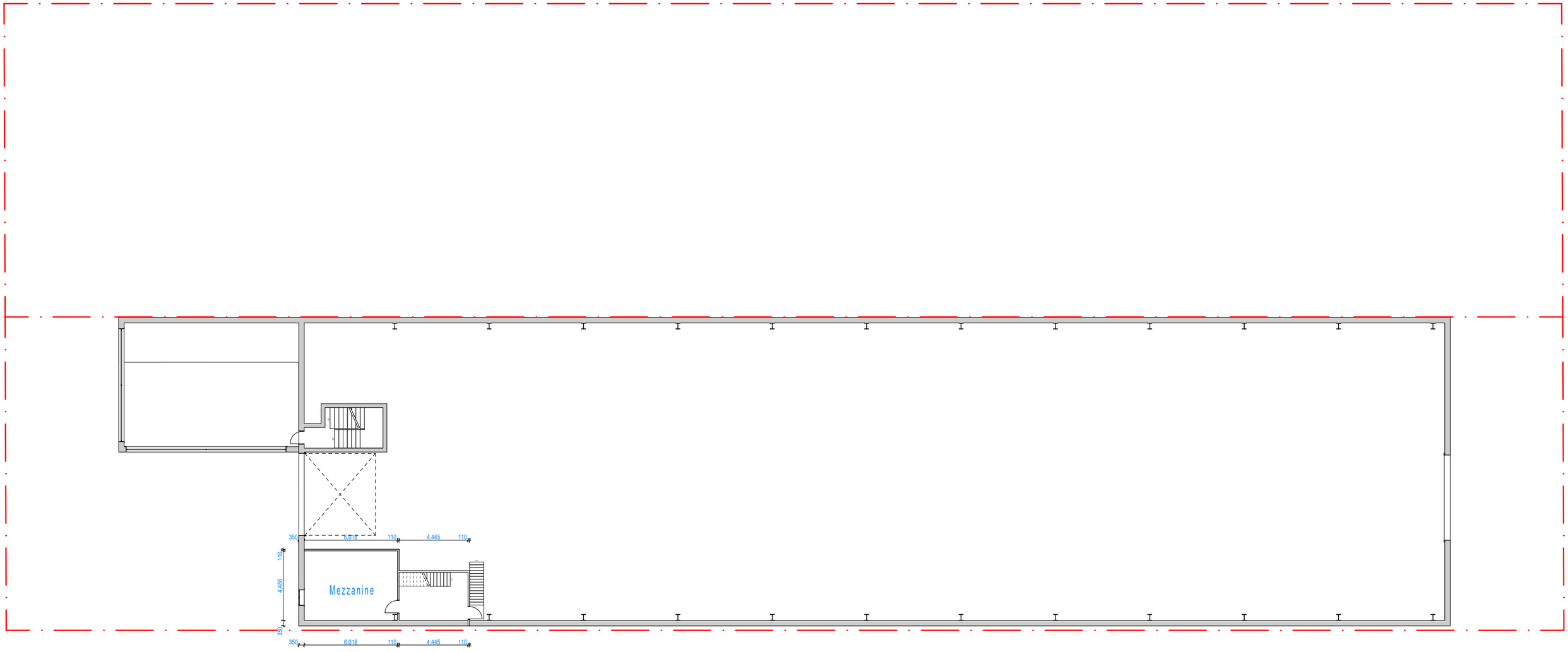

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DRAWING TITLE
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Rev #	Revision Name	Date
15	Design Updates	3/09/2024

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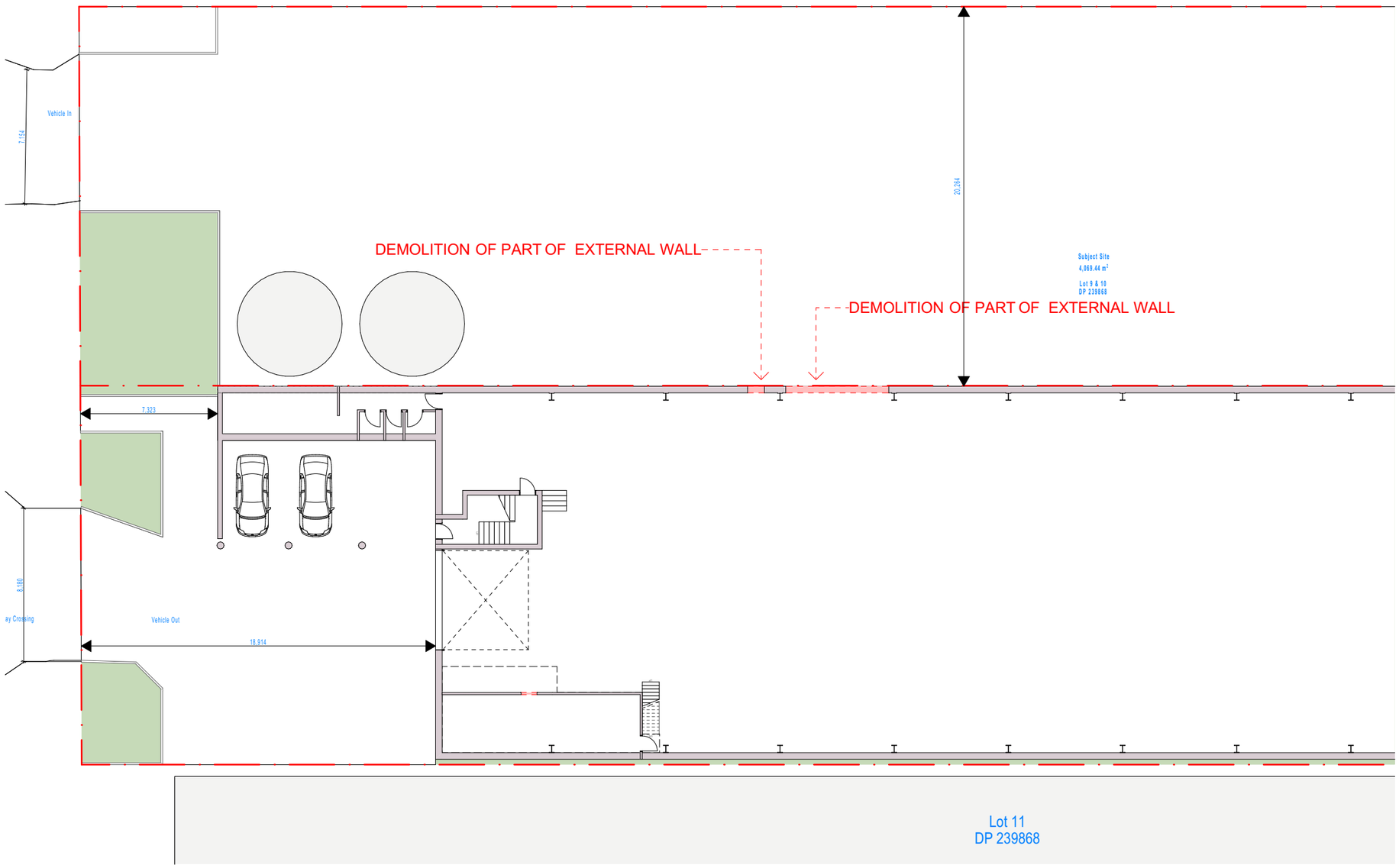
NOTES:

All existing structures to be demolished in accordance with AS 2601- 2001 the demolition of structures.
All works involving the demolition, removal, transport and disposal of asbestos cement is to be carried out in accordance with the 'Worksafe Code of Practice for Removal of Asbestos' and the requirements of the WorkCover Authority of NSW and the NSW Office of Environment and Heritage.

Demolish Tree

Demolish Structure

Demolish Item



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DRAWING TITLE
Demolition plan

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A.6

Rev #	Revision Name	Date
10	CLIENT REVIEW - AWNING	23/08/2023
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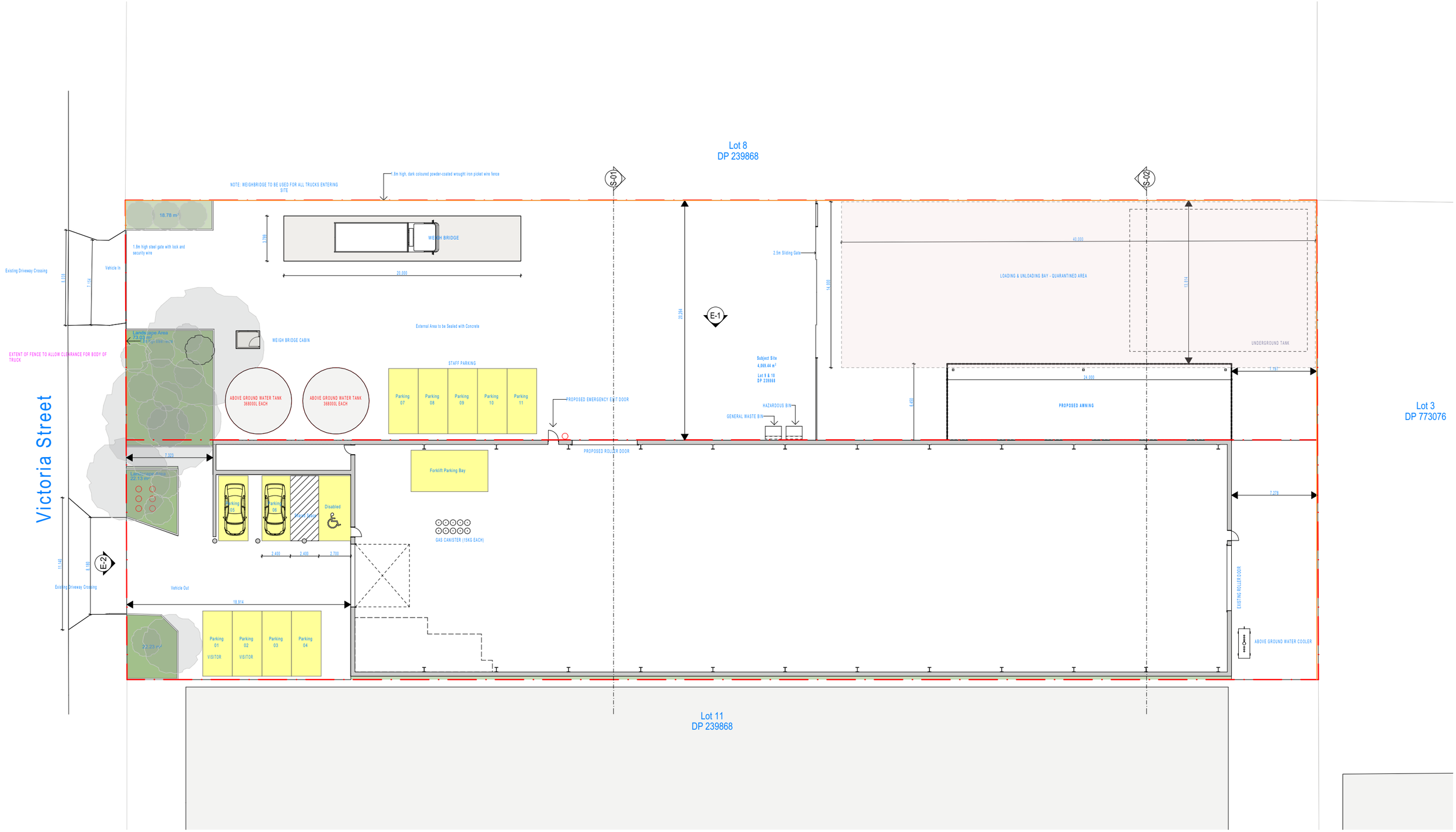

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DRAWING TITLE
Proposed Site Plan

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A.7

Rev #	Revision Name	Date
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11	CLIENT REVIEW - UPDATE	25/08/2023
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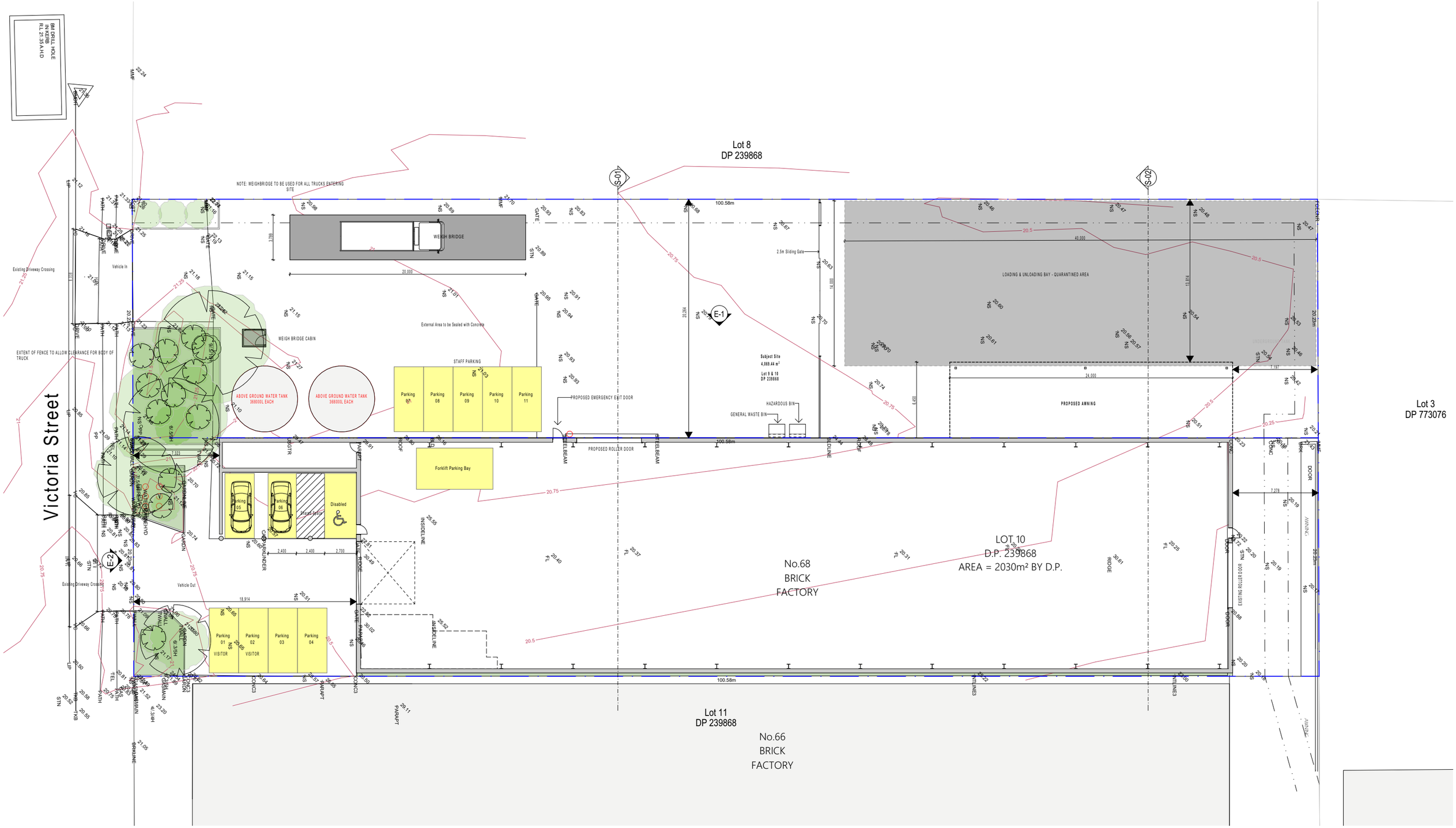

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PROJECT NO.
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DRAWING TITLE
Proposed Site plan over Survey

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REVISION NO.
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A.8

Rev #	Revision Name	Date
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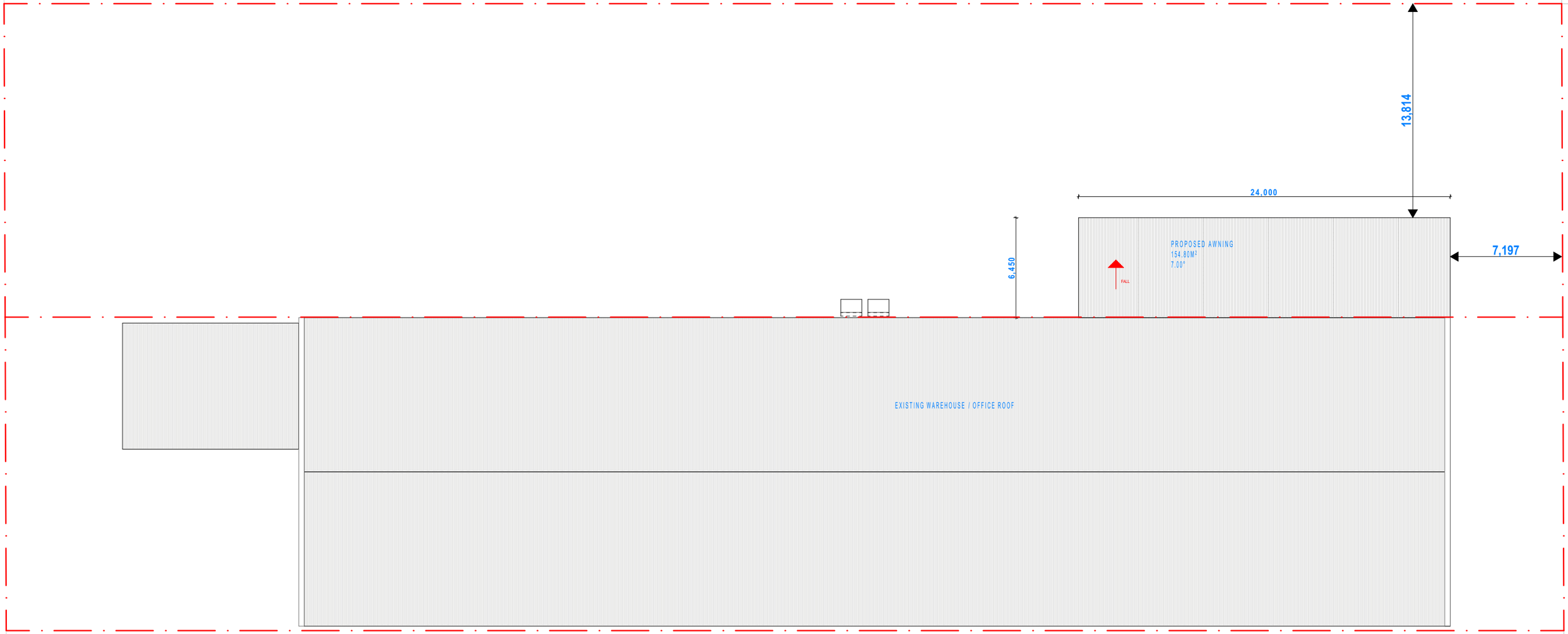

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Proposed Roof Plan

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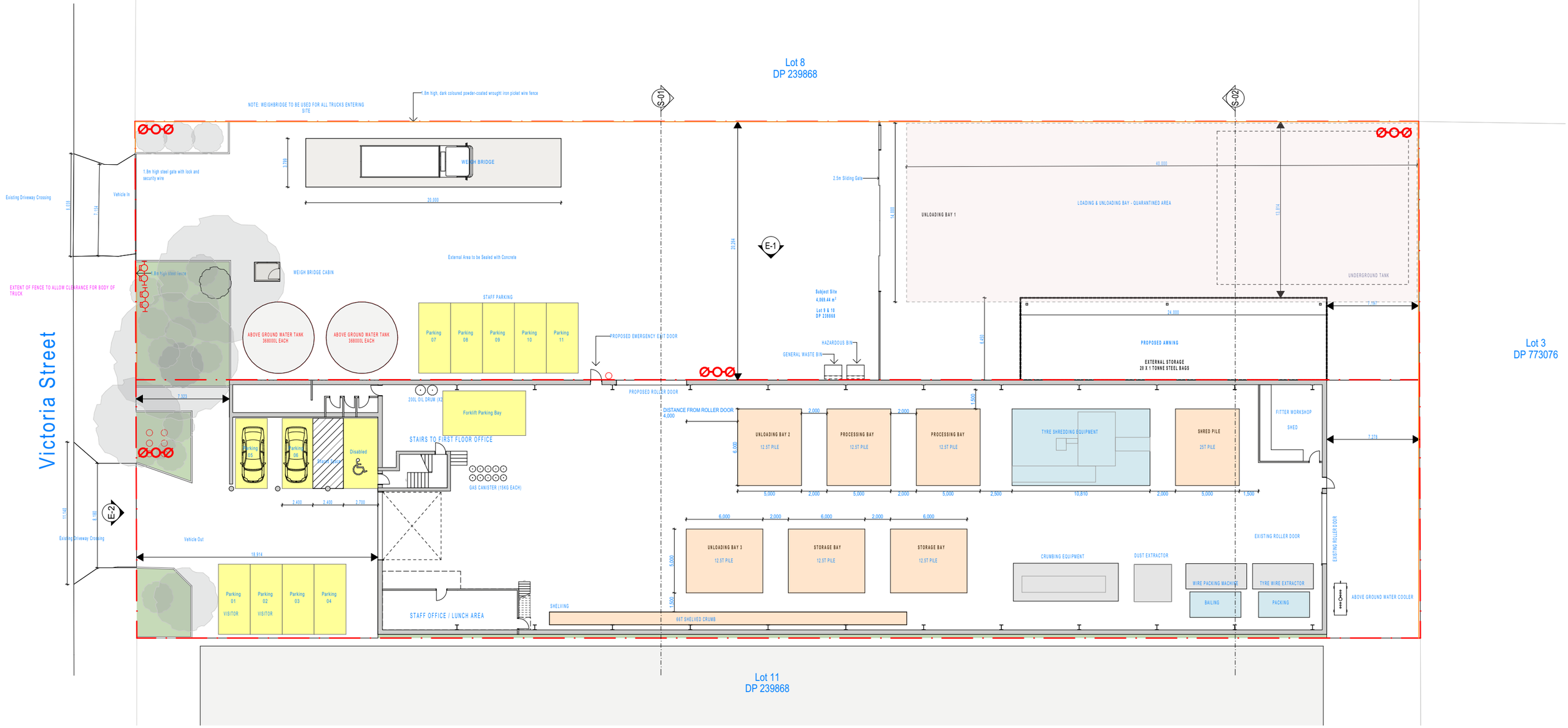
14	RFI Updates	6/06/2024
15	Design Updates	3/09/2024



PLANZONE DESIGNS

1300 823 059 | planzone.design | info@planzone.design

BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

PROPOSAL
Change of Use to Tyre Recycling Facility

ADDRESS
68 Victoria Street Smithfield

LGA
Fairfield City Council

CLIENT
Zafar Mahmood

PROJECT NO.
230729

DRAWING TITLE
Tyre Storage Plan

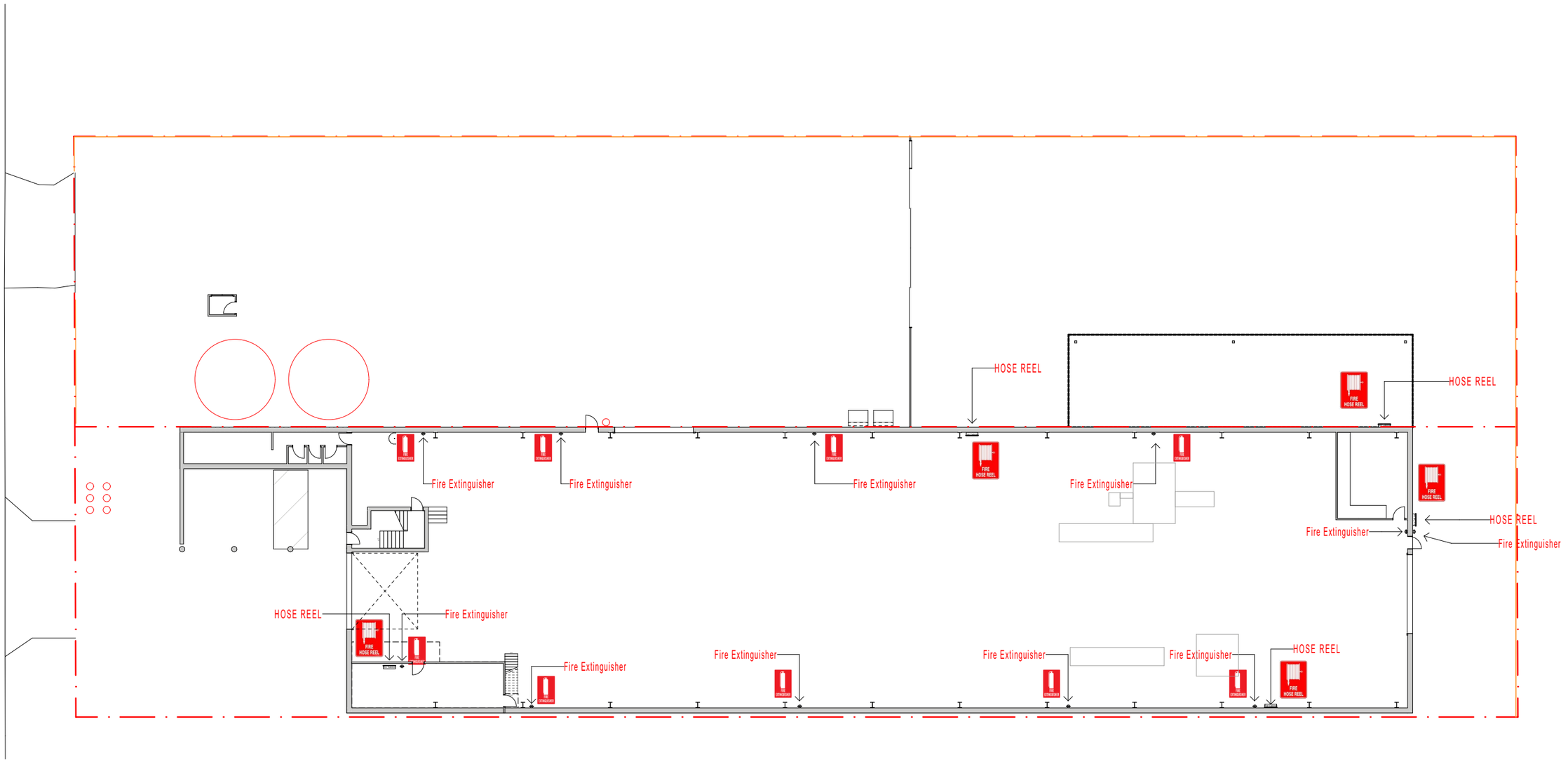
DRAWN BY
KK (BDAA No. 6433) (BDAA No. 6433)

REVISION NO.
15

SCALE
1:300

DRAWING NO.
A.10

Rev #	Revision Name	Date
10	CLIENT REVIEW - AWNING	23/08/2023
11	CLIENT REVIEW - UPDATE	25/08/2023
12	TRAFFIC SWEPT PATH	4/10/2023
13	Floor Plan Update	3/11/2023
14	RFI Updates	6/06/2024
15	Design Updates	3/09/2024



Legend

FIRE EXTINGUISHER

Fire Extinguisher

FIRE HOSE REEL

Fire Hose Reel

PLANZONE DESIGNS

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PROPOSAL
Change of Use to Tyre Recycling Facility

ADDRESS
68 Victoria Street Smithfield

LGA
Fairfield City Council

CLIENT
Zafar Mahmood

PROJECT NO.
230729

DRAWING TITLE
Concept Fire Services Plan

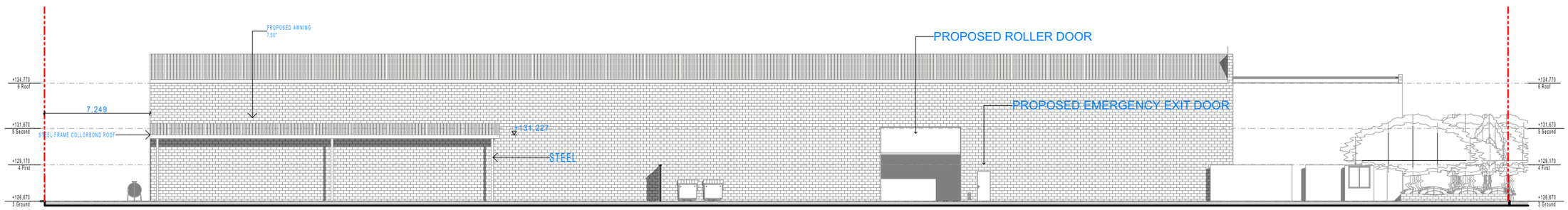
DRAWN BY
KK (BDAA No. 6433) (BDAA No. 6433)

REVISION NO.
15

SCALE
1:300

DRAWING NO.
A.11

Rev #	Revision Name	Date
10	CLIENT REVIEW - AWNING	23/08/2023
11	CLIENT REVIEW - UPDATE	25/08/2023
12	TRAFFIC SWEPT PATH	4/10/2023
13	Floor Plan Update	3/11/2023
14	RFI Updates	6/06/2024
15	Design Updates	3/09/2024



E-1 | Side Elevation
1:300

PLANZONE DESIGNS
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BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

PROPOSAL
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Fairfield City Council

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Zafar Mahmood

PROJECT NO.
230729

DRAWING TITLE
Side Elevation

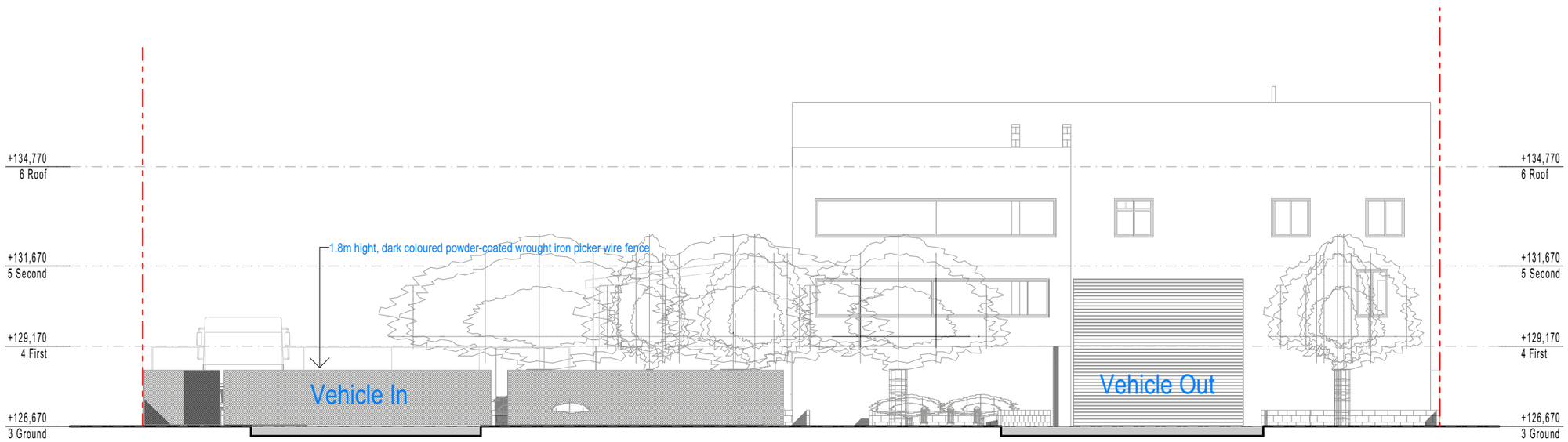
DRAWN BY
KK (BDAA No. 6433) (BDAA No. 6433)

REVISION NO.
15

SCALE

DRAWING NO.
A.12

Rev #	Revision Name	Date
10	CLIENT REVIEW - AWNING	23/08/2023
11	CLIENT REVIEW - UPDATE	25/08/2023
12	TRAFFIC SWEPT PATH	4/10/2023
13	Floor Plan Update	3/11/2023
14	RFI Updates	6/06/2024
15	Design Updates	3/09/2024



E-2 Front Elevation
1:150

PLANZONE DESIGNS
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BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

PROPOSAL
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ADDRESS
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LGA
Fairfield City Council

CLIENT
Zafar Mahmood

PROJECT NO.
230729

DRAWING TITLE
Front Elevation

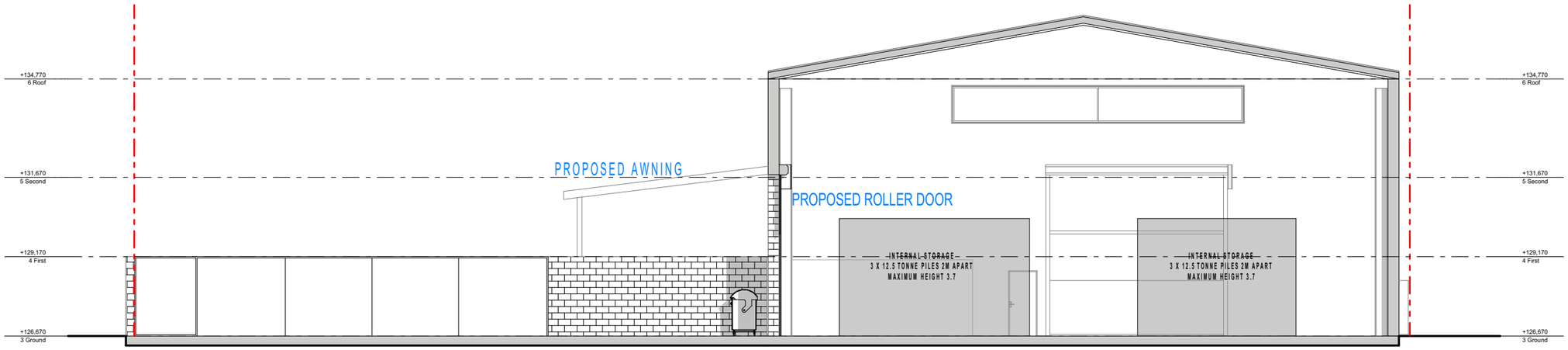
DRAWN BY
KK (BDAA No. 6433) (BDAA No. 6433)

REVISION NO.
15

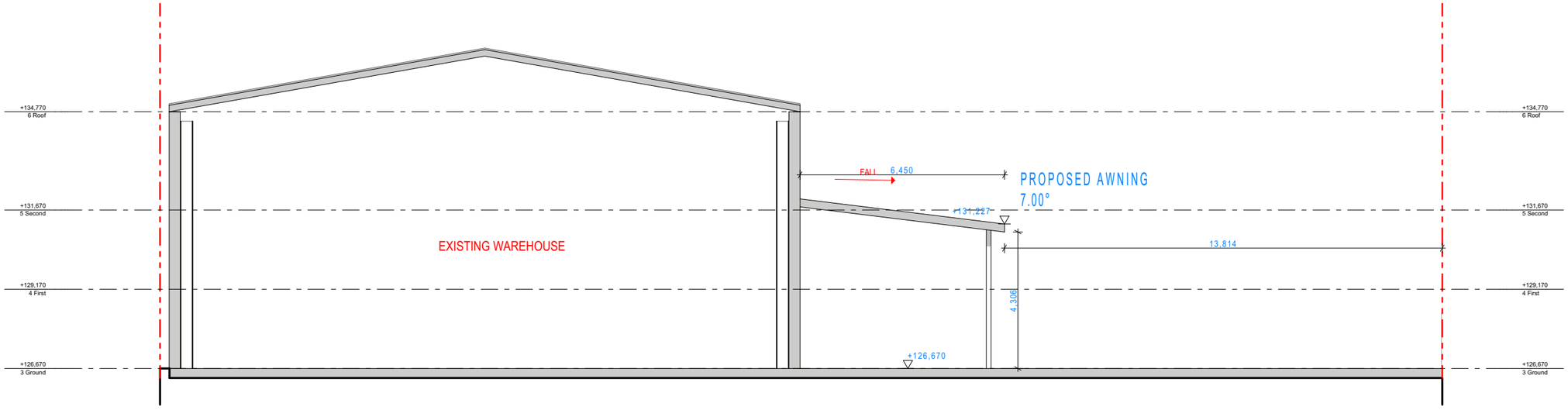
SCALE
1:150

DRAWING NO.
A.13

Rev #	Revision Name	Date
10	CLIENT REVIEW - AWNING	23/08/2023
11	CLIENT REVIEW - UPDATE	25/08/2023
12	TRAFFIC SWEPT PATH	4/10/2023
13	Floor Plan Update	3/11/2023
14	RFI Updates	6/06/2024
15	Design Updates	3/09/2024



S-01 | Section
1:150



S-02 | Section
1:150

PLANZONE DESIGNS
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BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

PROPOSAL
Change of Use to Tyre Recycling Facility

ADDRESS
68 Victoria Street Smithfield

LGA
Fairfield City Council

CLIENT
Zafar Mahmood

PROJECT NO.
230729

DRAWING TITLE
Section

DRAWN BY
KK (BDAA No. 6433) (BDAA No. 6433)

REVISION NO.
15

SCALE
1:150

DRAWING NO.
A.14

Rev #	Revision Name	Date
10	CLIENT REVIEW - AWNING	23/08/2023
11	CLIENT REVIEW - UPDATE	25/08/2023
12	TRAFFIC SWEPT PATH	4/10/2023
13	Floor Plan Update	3/11/2023
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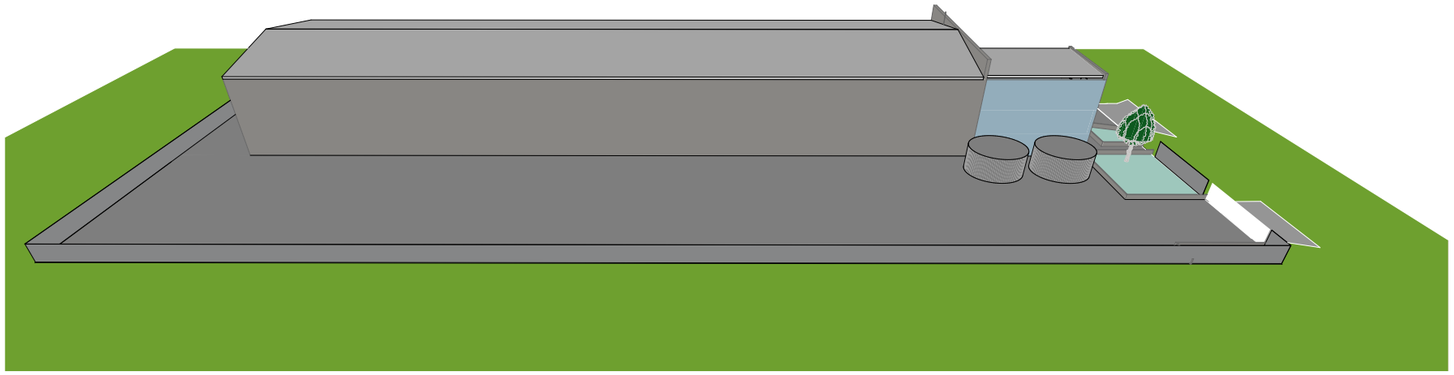
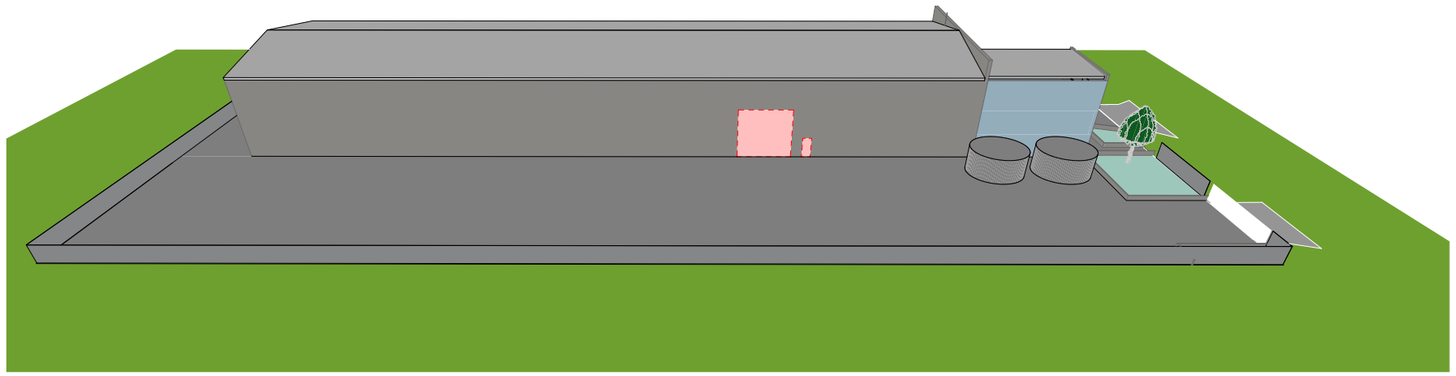
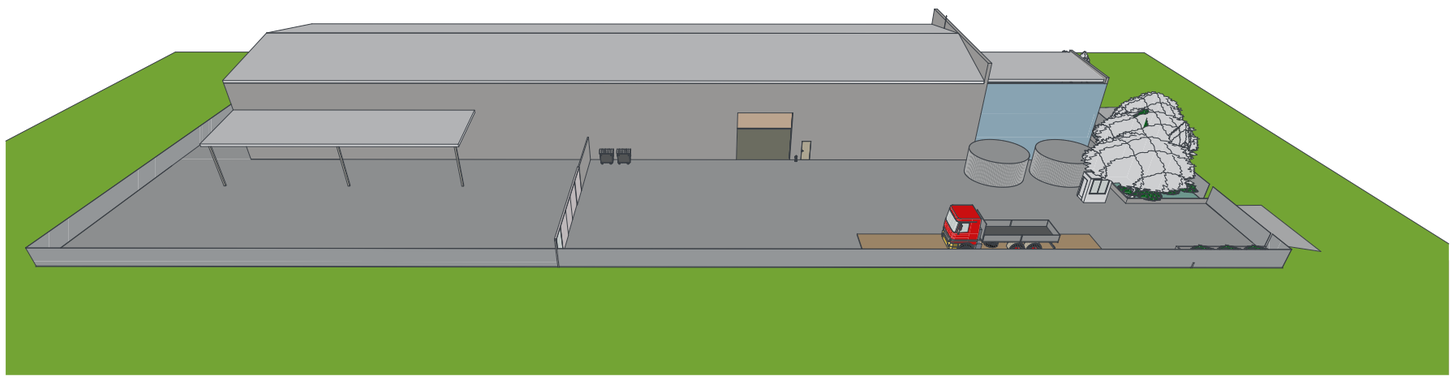


3D - Existing



3D - Demolition



3D - Proposed

PLANZONE DESIGNS

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bdaa BUILDING DESIGNERS ASSOCIATION OF AUSTRALIA

PROPOSAL
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Fairfield City Council

CLIENT
Zafar Mahmood

PROJECT NO.
230729

DRAWING TITLE
Perspective

DRAWN BY
KK (BDAA No. 6433) (BDAA No. 6433)

REVISION NO.
15

SCALE

DRAWING NO.
A.15

Rev #	Revision Name	Date
10	CLIENT REVIEW - AWNING	23/08/2023
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