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ENVIRONMENT AND PLANNING
STRATEGY | INFRASTRUCTURE | COMPLIANCE | PROCUREMENT

Waste Management Plan

Industrial Subdivision and General Industry Development

2 – 10 Bowman Road, Moss Vale

SAAS Aus Pty Ltd

Jackson Environment and Planning Pty Ltd
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This report has been prepared by the following staff of Jackson Environment and Planning Pty Ltd, Suite 102, Level 1, 25-29 Berry St, North Sydney NSW 2060.

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We declare that:
The report contains all available information that is relevant to the assessment of the Site and proposed development, activity or infrastructure to which the report relates, and the information contained in the report is neither false nor misleading.

Report version	Authors	Date	Reviewer	Approved for issue	Date
Draft	C Rich	03/05/2023	Dr M Jackson	04/05/2023	04/05/2023
Final	C Rich	16/06/2023	Dr M Jackson	16/06/2023	16/06/2023

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1. Introduction

This Waste Management Plan (WMP) has been developed to demonstrate how waste will be avoided or minimised, reused, recycled and disposed lawfully during the construction and operation of SAAS Aus Pty Ltd.'s (SAAS) industrial subdivision and general industry development proposed for 2 – 10 Bowman Road, Moss Vale (the proposed development). The proposed development seeks to subdivide the properties at 2 and 10 Bowman Road, creating four new lots. Large-scale industrial buildings with ancillary office space are to be constructed on three of the created lots.

This plan has been prepared to address section 3.17 Waste management of the *Moss Vale Enterprise Corridor Development Control Plan 2008* (MVEC DCP).

The *Waste Avoidance and Resource Recovery Act* 2001 (WARR Act) and the *Protection of the Environment Operations Act* 1997 (POEO Act) govern the issues of waste generation, reuse, recycling, transport and disposal and prioritise waste solutions according to how successfully they conserve natural resources. Priority is given to reducing the overall amount of waste, followed by the reuse and then recycling of any wastes that are unavoidably created, with disposal as a last resort. The aim is to extract the maximum practical benefits from the products and to manage waste in the best possible way. This WMP has been developed to ensure waste management actions are in accordance with the objectives of the WARR Act and the POEO Act.

1.1. The Site

The property is located at 2 Bowman Road, Moss Vale, and includes a small portion of the adjacent property located at 10 Bowman Road (the subject site) (Figure 1.1). The property at 2 Bowman Road is a split zoned site comprising of two lots—Lot 1, DP103123 and Lot 2, DP1070888. Lot 1 consists of areas of E4 General Industrial and RU2 Rural Landscape land use zones. Lot 2 is zoned C3 Environmental Management. The property at 10 Bowman Road (Lot 51, DP130176) covers approximately 48ha with all but a 12,500m^2 section in the north-east zoned E4. The majority of works associated with the general industry development will be located within the E4 zone. A stormwater outlet headwall to service the general industry development will be constructed within a small section of the RU2 zone and an easement will be created to facilitate construction of an industrial cul-de-sac. No other works will occur within the RU2 or C3 zoned areas.

The Site consists of predominantly cleared rural land previously used for cattle grazing. A 350m long unsealed road connects the existing dwelling within the RU1 zone to the cul-de-sac on Bowman Road. The road also provides access to two large rural storage sheds within the E4 zone. A small row of mature trees is located adjacent to the storage sheds and a number of mature trees have been retained around the existing dwelling. The remainder of the property is covered by pasture grasses.

1.2. Background

SAAS propose to subdivide the land at 2 and 10 Bowman Road to align with the land use zone boundaries (Figure 1.2). The proposed subdivision will create four new lots from the existing Lot 1, DP103123 and Lot 51, DP130176. The C3 zoned Lot 2 will be excluded from the proposed development and will remain in its current arrangement. The proposed subdivision will maximise the potential for use of the industrial lands whilst improving the management outcomes of the rural land by separating it from the industrial land.

SAAS is proposing to construct three large-scale industrial buildings on the three lots to be created within the industrial land use zone. The buildings will be used for the storage of scaffolding and associated equipment to support the growth of SAAS's three scaffolding businesses: Synergy Access & Scaffolds, Bayside Scaffolding, and ScreenIt. The general industry development will include the following elements:

- Building 1 (Figure 1.3)– an irregularly shaped building to be located in Created Lot 1 of the proposed subdivision. The north-east corner of the building will accommodate 956m^2 office and staff amenities area split over the ground floor, first and second floor, outdoor visitor parking along the eastern side of the building, and a basement carpark under the south-east corner of the building. The outdoor hardstand will provide truck parking along the southern lot boundary, an enclosed loading/unloading area along the entire southern side of the building, and a smaller, covered loading/unloading area on the northern side. A fire sprinkler system will be installed within the building;
- Building 2 (Figure 1.4) – an irregularly shaped building to be located on Created Lot 2 of the subdivision. The building will include 1,932m^2 of office space and amenities over a ground and first floor. The building will include a covered outdoor loading area at the north-western end of the building;
- Building 3 (Figure 1.5) – this building will be constructed as a split-level building with the upper and lower levels divided and provided with separate amenities and access. It will be located in the southern portion of Created Lot 3, away from the gas pipeline easement. Building 3A (North and South) will include offices and staff amenities over a ground and first floor within the north-west corner of the building. Parking and access will be provided at the northern end for Building 3A. Building 3B (North and South) will include offices and staff amenities within the south-west corner of the building over a ground and first floor. Parking and access will be provided at the southern end for Building 3A;
- Extension of Bowman Road and formation of the paper Hutchinson Rd to provide access to all created lots and buildings (Figure 1.6 and Figure 1.7);
- Internal haul roads to accommodate up to 26m B-Doubles (Building 1 and 2); heavy vehicles to use Building 3 will be limited to 19m semi-trailers;
- Outdoor hardstand areas adjacent to each building;
- Stormwater capture system: each building development will include an underground rainwater tank to capture water from the building roof and an underground detention basin (OSD) to capture all other stormwater runoff from hardstand areas. A HumeCeptor® Gross Pollutant Trap (GPT) and HumeFilter® Universal Pollutant Trap (UPT) will be installed prior to each OSD to reduce sediment, nutrients, hydrocarbons, and other pollutants in stormwater runoff;
- Solar collection arrays on all building roofs;
- Landscaping along site boundaries and within parking areas; and
- 1.8m high open black palisade fencing for security.

The three buildings will provide a range of bulky equipment and vehicle storage spaces, as well as offices and staff amenities. The layout of the Site will allow for the safe movement of trucks (up to 26m B-Doubles), passenger vehicles and pedestrians, and ensure emergency service vehicles can access all areas of the property. All three buildings will be provided with fire sprinklers.

Access to the property is from the cul-de-sac on Bowman Road. The southern end of Bowman Road, south of the cul-de-sac, is currently unformed. Construction of this part of the road will be required to support the development. Bowman Road joins Berrima Road approximately 200m north of the property. Berrima Road is classified as a regional road and provides a major link between Berrima and the Hume Motorway to the north-west, and Moss Vale and the Illawarra Highway to the south-east of the property.

1.3. Objectives

This WMP has been prepared to address the objectives in section 3.17 Waste management of the MVEC DCP, namely:

- To minimise the volume of waste generated during demolition and construction phases of development;
- To promote demolition and construction techniques which maximise recycling and reuse opportunities of waste materials;

- To minimise the volume and type of waste going to landfill;
- To avoid illegal dumping of waste across Wingecarribee Shire; and
- Waste minimisation and management practices are implemented in new developments.

1.4. Scope

This WMP assesses how the waste generated during demolition, construction and operation will be dealt with in the most environmentally sustainable way and contains the following information:

- Relevant legislation and guidelines for waste management for the proposed development;
- The systems, procedures and initiatives proposed to address the management of waste materials generated during the demolition, construction, and operation phases of the proposed development;
- Safeguards, mitigation measures and monitoring to manage waste impacts during demolition, construction, and operation;
- Roles and responsibilities of those involved in the design and implementation of waste management controls; and
- An effective monitoring, auditing, and reporting framework to assess the effectiveness of the controls implemented.

Figure 1.1. General location of the property at 2 Bowman Road (Lot 2, DP1070888) and 10 Bowman Road, Moss Vale (Lot 51, DP130176).

Date	Revision	Drawn By	Site description
02/08/2022	Revision A	C. Rich	2 and 10 Bowman Road, Moss Vale NSW (Lot 1, DP103123, Lot 2, DP1070888, Lot 51, DP130176)

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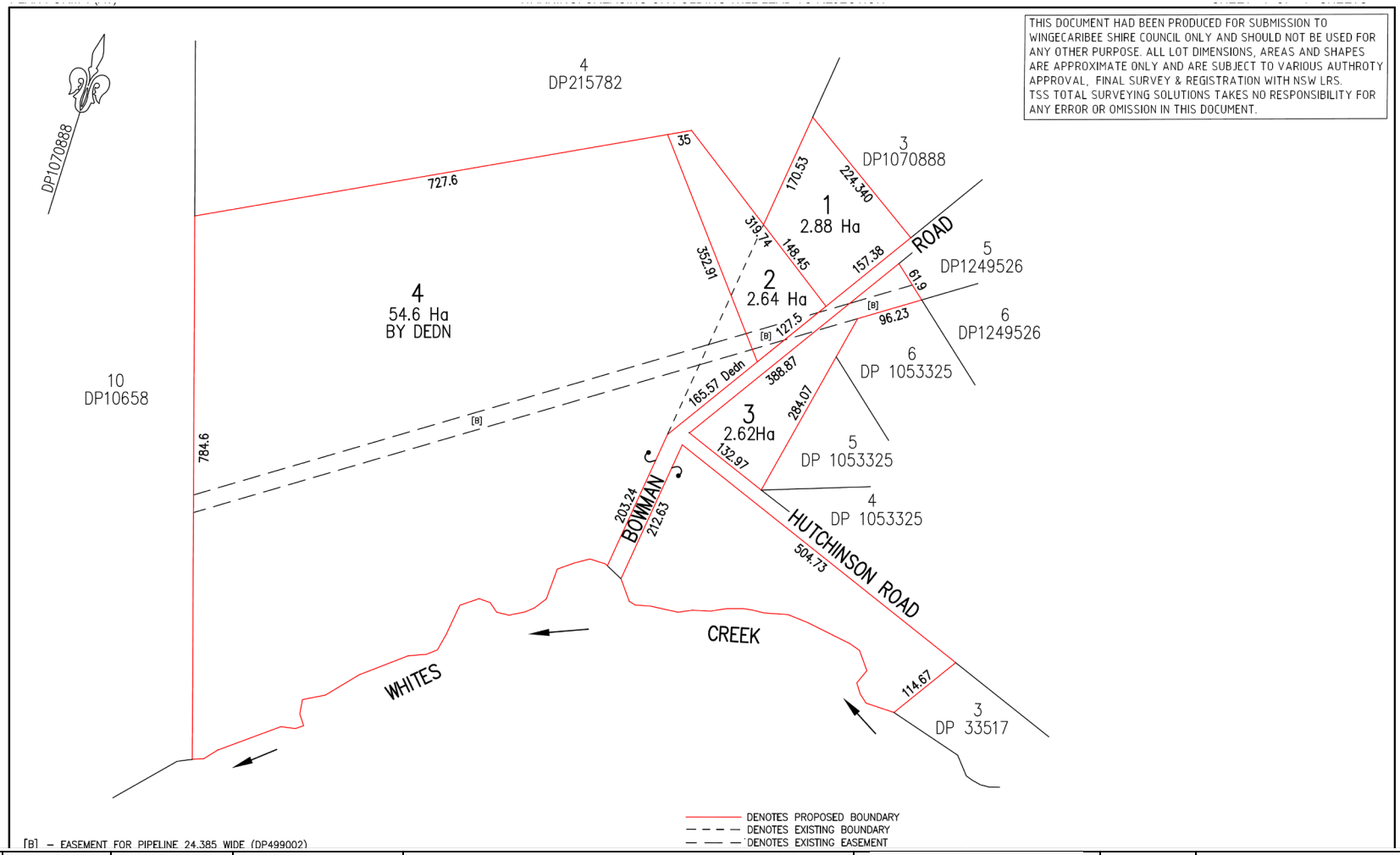
Client	SAAS Aus Pty Ltd
Project	Waste Management Plan for Industrial Subdivision and General Industry Development
Title	Site Location
Scale	Not to scale
Source	Nearmap

Figure 1.2. Proposed subdivision of 2 and 10 Bowman Road, Moss Vale.



Date	Revision	Drawn By	Site description
03/05/2023	Revision A	C. Rich	2 and 10 Bowman Road, Moss Vale NSW (Lot 1, DP103123, Lot 2, DP1070888, Lot 51, DP130176)

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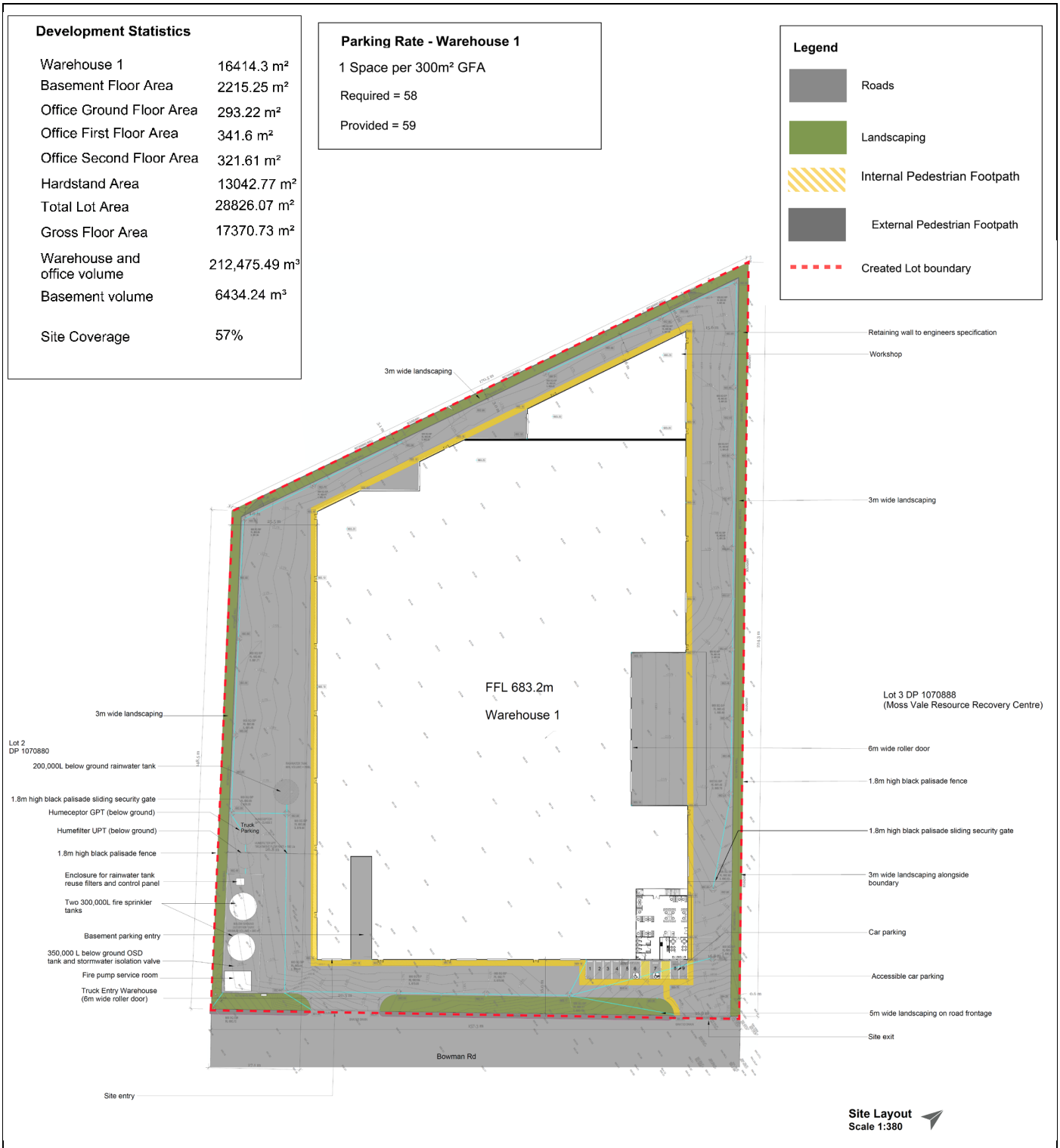
Client	SAAS Aus Pty Ltd
Project	Waste Management Plan for Industrial Subdivision and General Industry Development
Title	Proposed Subdivision
Scale	Not to scale
Source	Total Surveying Solutions 05/04/2023

Figure 1.3. Proposed site layout of Building 1.



Date	Revision	Drawn By	Site description	Client	SAAS Aus Pty Ltd
12/06/2023	Revision A	C. Rich	2 and 10 Bowman Road, Moss Vale NSW (Lot 1, DP103123, Lot 2, DP1070888, Lot 51, DP130176)	**Project**	Industrial Subdivision and General Industry Development
				Title	Proposed Site Layout – Building 1
				Source	Jackson Environment and Planning Pty Ltd

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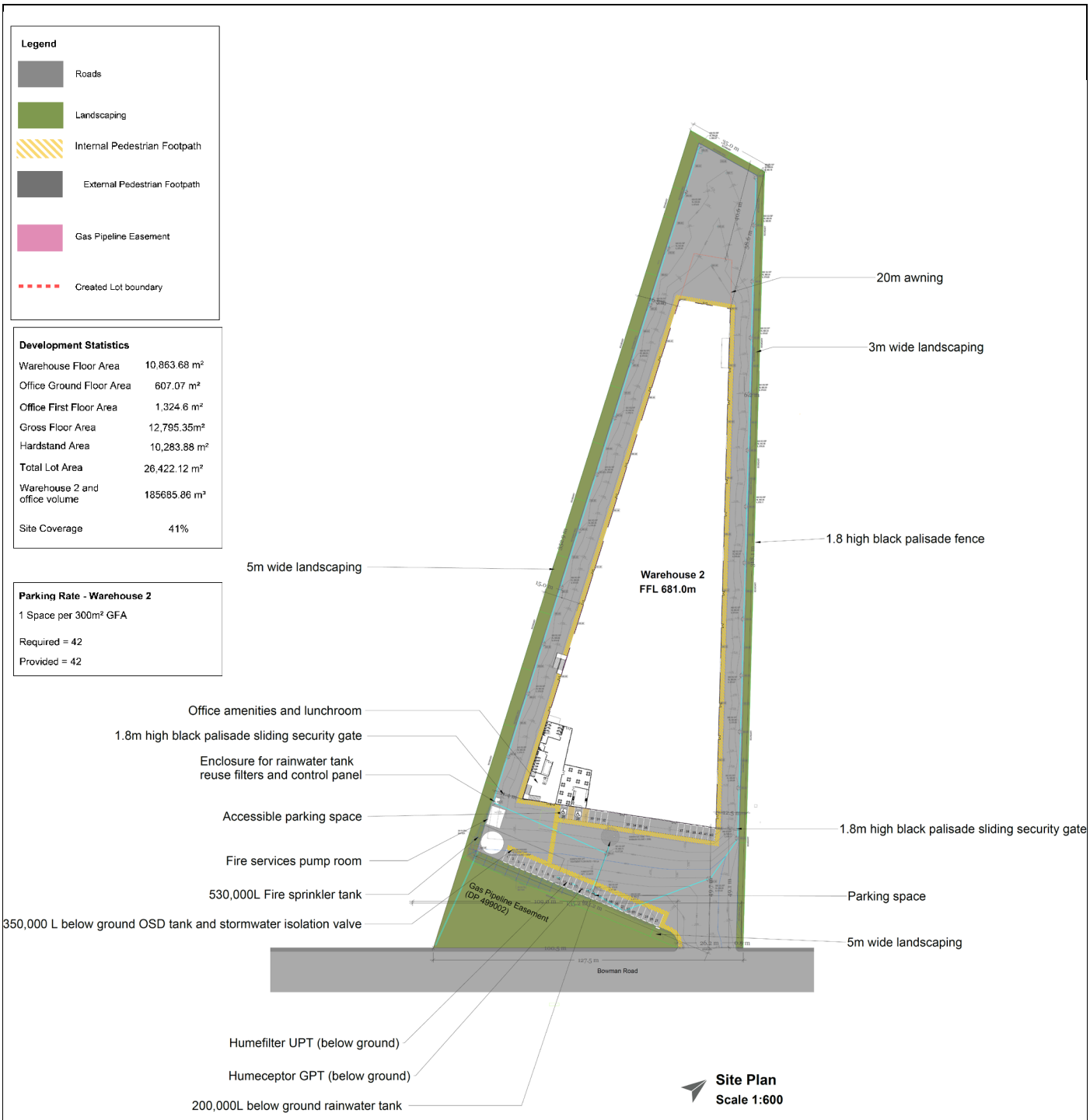
Figure 1.4. Proposed site layout of Building 2.



Date	Revision	Drawn By	Site description	Client	SAAS Aus Pty Ltd
12/06/2023	Revision A	C. Rich	2 and 10 Bowman Road, Moss Vale NSW (Lot 1, DP103123, Lot 2, DP1070888, Lot 51, DP130176)	Project	Industrial Subdivision and General Industry Development
				Title	Proposed Site Layout – Building 2
				Source	Jackson Environment and Planning Pty Ltd

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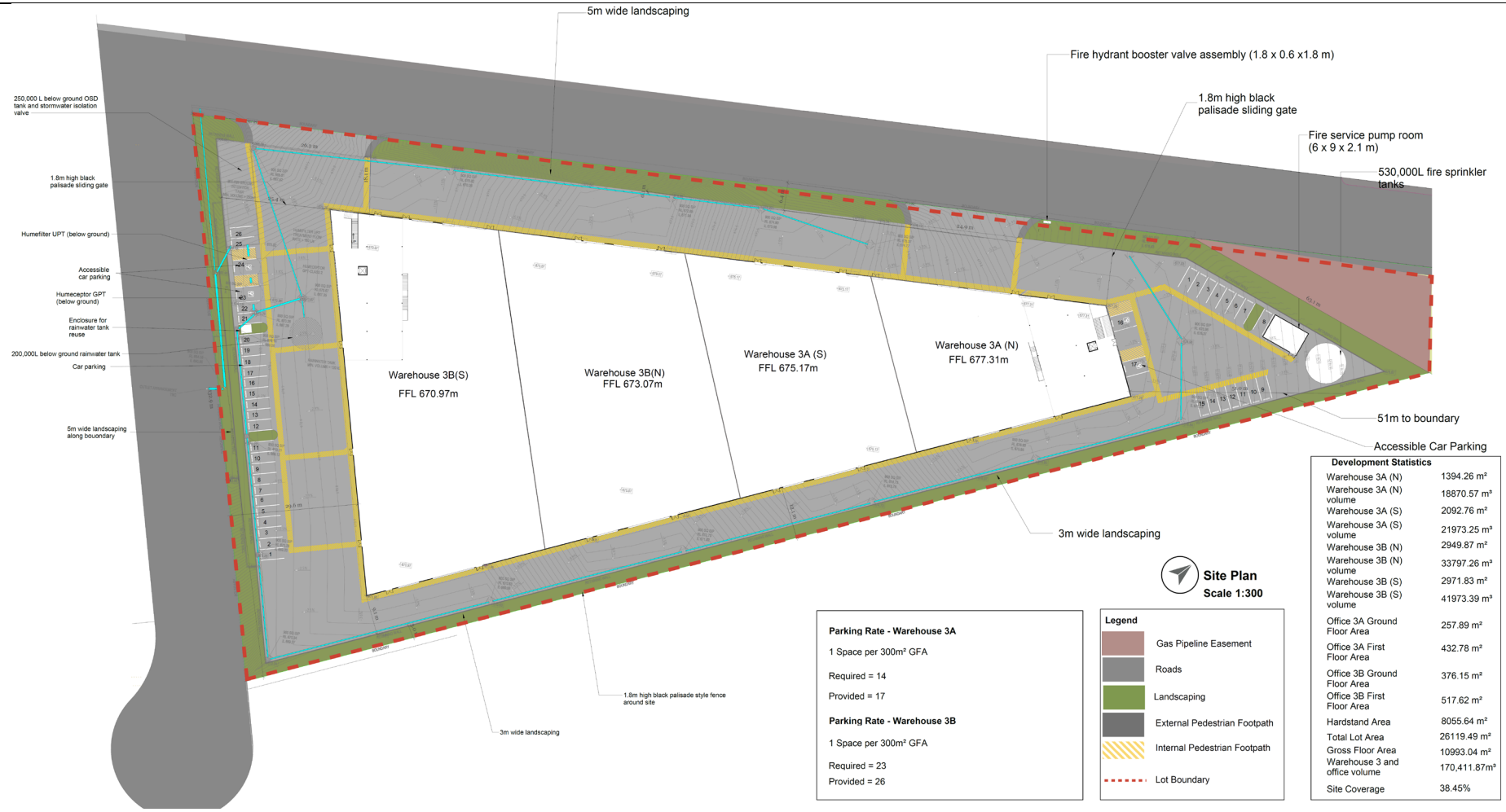
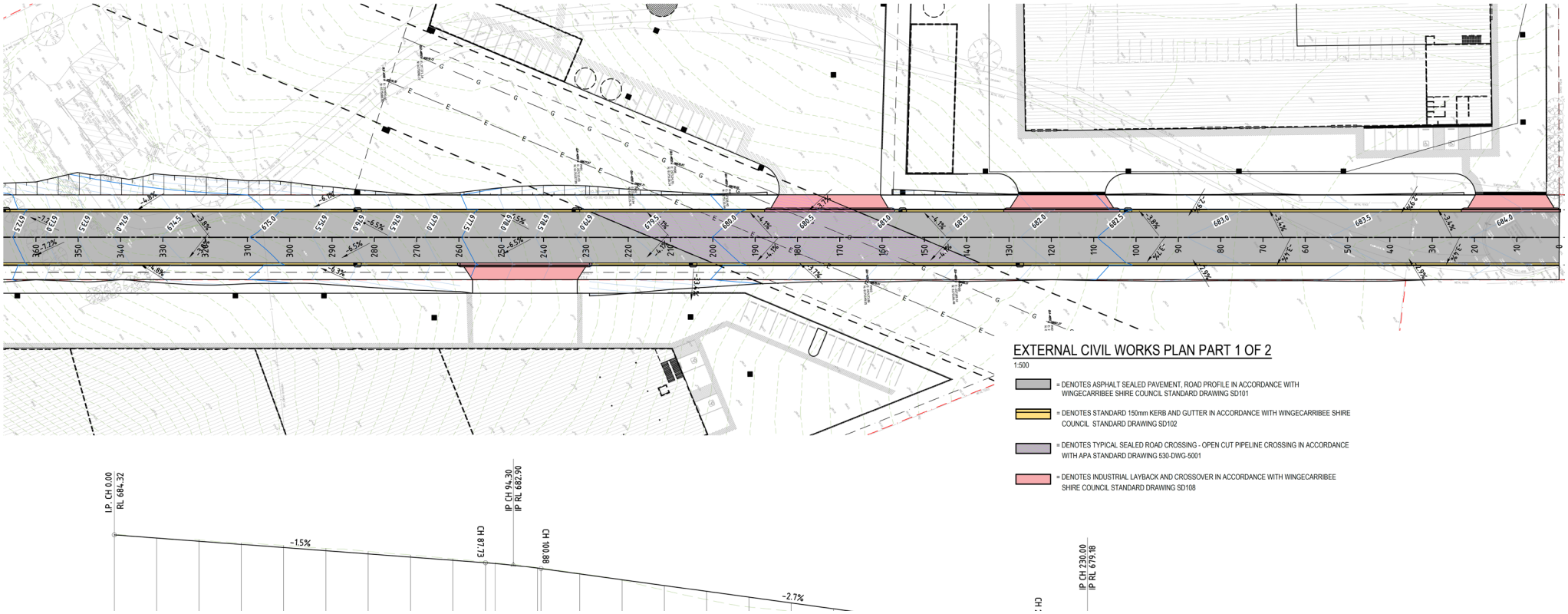
Figure 1.5. Proposed site layout of Building 3.



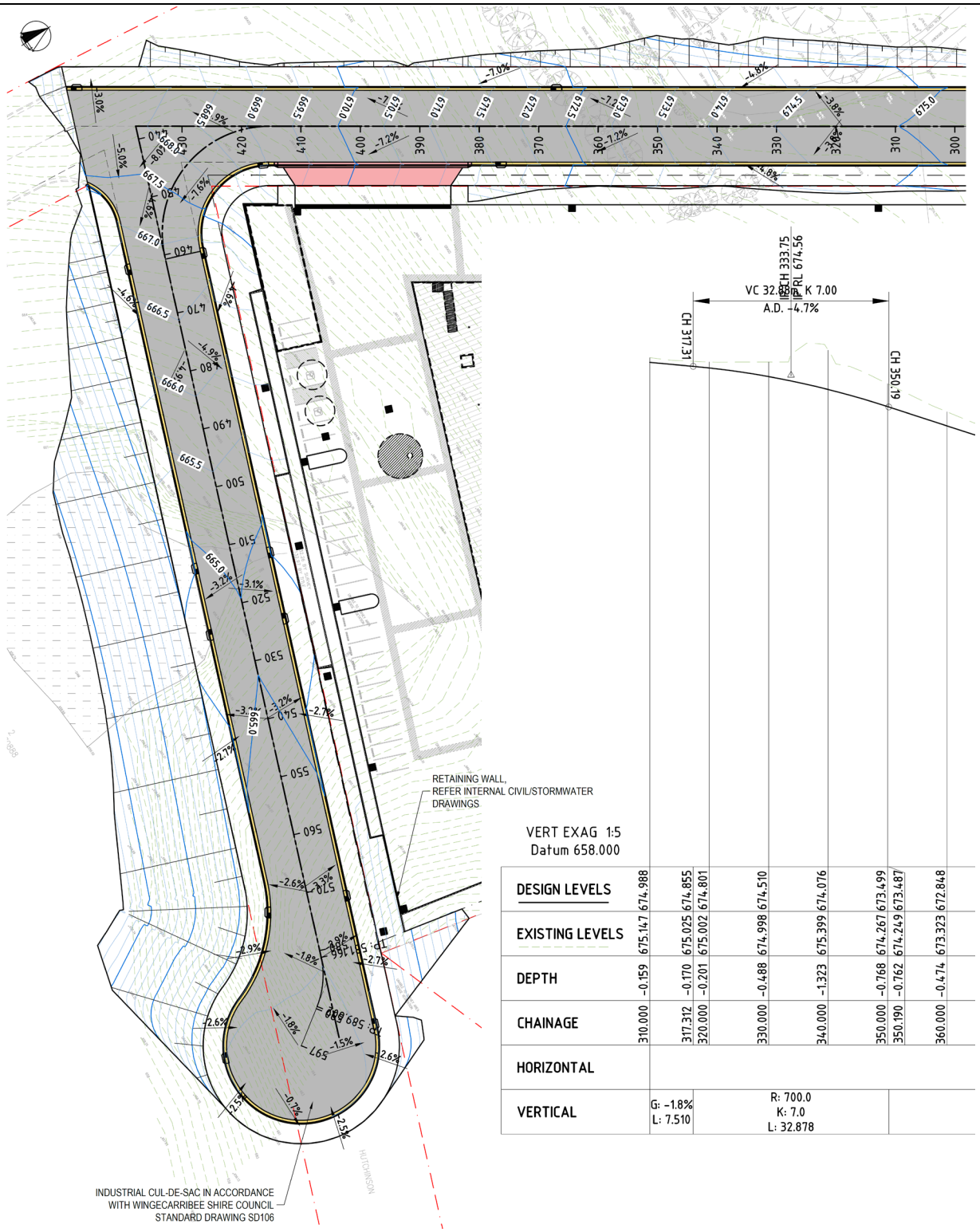
Date	Revision	Drawn By	Site description	Jackson Environment and Planning Pty Ltd		Client	SAAS Aus Pty Ltd
12/06/2023	Revision A	C. Rich	2 and 10 Bowman Road, Moss Vale NSW (Lot 1, DP103123, Lot 2, DP1070888, Lot 51, DP130176)	Strategy | Infrastructure | Compliance | Procurement A: Suite 102, Level 1, 25-29 Berry St, North Sydney NSW 2060 E: admin@jacksonenvironment.com.au T: 02 8056 1849 W: http://www.jacksonenvironment.com.au		Project	Industrial Subdivision and General Industry Development
						Title	Proposed Site Layout for Building 3
						Scale	Not to scale
						Source	Jackson Environment and Planning Pty Ltd

Figure 1.6. Proposed extension of Bowman Road and formation of Hutchinson Road – northern section.



Date	Revision	Drawn By	Site description	Jackson Environment and Planning Pty Ltd		Client	SAAS Aus Pty Ltd
08/06/2023	Revision A	C. Rich	2 and 10 Bowman Road, Moss Vale NSW (Lot 1, DP103123, Lot 2, DP1070888, Lot 51, DP130176)	Strategy | Infrastructure | Compliance | Procurement A: Suite 102, Level 1, 25-29 Berry St, North Sydney NSW 2060 E: admin@jacksonenvironment.com.au T: 02 8056 1849 W: http://www.jacksonenvironment.com.au		Project	Industrial Subdivision and General Industry Development
						Title	Proposed Development of Bowman Road and Hutchinson Road
						Scale	Not to scale
						Source	ECLIPSE Consulting Engineers

Figure 1.7. Proposed development of Bowman Road and Hutchinson Road – southern section.



DESIGN LEVELS		674.988	674.855	674.801	674.510	674.076	673.499	673.487	672.848
EXISTING LEVELS	675.147	675.025	675.002	674.998	675.399	674.267	674.249	673.323	
DEPTH	-0.159	-0.170	-0.201	-0.488	-1.323	-0.768	-0.762	-0.474	
CHAINAGE	310.000	317.312	320.000	330.000	340.000	350.000	350.190	360.000	
HORIZONTAL									
VERTICAL		G: -1.8% L: 7.510		R: 700.0 K: 7.0 L: 32.878					

Date	Revision	Drawn By	Site description	Client	SAAS Aus Pty Ltd
08/06/2023	Revision A	C. Rich	2 and 10 Bowman Road, Moss Vale NSW (Lot 1, DP103123, Lot 2, DP1070888, Lot 51, DP130176)	Project	Industrial Subdivision and General Industry Development
				Title	Proposed Development of Bowman Road and Hutchinson Road
				Source	ECLIPSE Consulting Engineers

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2. Legislative and Regulatory Compliance

The key sources of waste management regulation in New South Wales include:

- The *Protection of the Environment Operations Act* 1997, which provides enforcement provisions, a licensing framework and other tools to protect human health and environment from the inappropriate use of waste;
- The *Protection of the Environment Operations (Waste) Regulation* 2014, which outlines the regulation of waste in NSW and the waste levy system;
- The *Protection of the Environment Operations (Clean Air) Regulation* 2022, which provides regulatory measures to control emissions from various sources including industry;
- The *Waste Avoidance and Resource Recovery Act* 2001, which sets the waste hierarchy and the *NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027*.

The requirements for classifying, handling, and disposing of particular types of wastes are defined in the EPA *Waste Classification Guidelines*.

2.1. *NSW Waste and Sustainable Materials Strategy 2041*

The *NSW Waste and Sustainable Materials Strategy 2041: Stage 1 – 2021-2027* is the approved waste strategy for NSW. It sets out the long-term vision for managing waste, planning for infrastructure, reducing carbon emissions, creating jobs, and refocusing the way NSW produces, consumes and recycles products and materials. The strategy will be used to track, review and measure NSW's progress toward meeting the targets set out in the National Waste Policy Action Plan. The targets are to:

- Reduce total waste generated by 10% per person by 2030;
- Have an 80% average recovery rate from all waste streams by 2030;
- Significantly increase the use of recycled content by governments and industry;
- Phase out problematic and unnecessary plastics by 2025;
- Halve the amount of organic waste sent to landfill by 2030.

In addition to the above targets, NSW has committed to:

- Introduce a new overall litter reduction target of 60% by 2030 and a plastic litter reduction target of 30% by 2025, as set out in the NSW Plastics Action Plan;
- Set a goal to triple the plastics recycling rate by 2030, as set out in the *NSW Plastics Action Plan*;
- Reaffirm our commitment to the goal of net zero emissions from organic waste by 2030, as laid out in the *NSW Net Zero Plan Stage 1: 2020–2030*;
- Establish new indicators to help us track our progress on infrastructure investment and the cost of waste services; and
- Develop a new measure of the emissions performance of our waste and materials management. This will help us to track our performance across the lifecycle of materials.

A major focus area of the strategy is to increase waste infrastructure and services to meet our future needs. The highest priority is to extend the life of existing landfills by reducing the volumes of waste being sent to landfill. Whilst the main focus is on waste avoidance, improving recycling capacity is an important aspect of waste management. This WMP will assist in ensuring that waste generated during demolition, construction and operation of the proposed development is minimised and directed to the appropriate facilities for reuse, recycling or disposal.

2.2. *Moss Vale Enterprise Corridor Development Control Plan 2008*

Table 2.1 identifies the relevant waste management controls specified in section 3.17 of the MVEC DCP and describes how the proposed development will comply.

Table 2.1. Compliance with the waste management requirements specified by the *Moss Vale Enterprise Corridor Development Control Plan* 2008.

Control	Compliance
Prior to construction	
A Waste Management Plan is required for all demolition works and /or construction works (with a value greater than $50,000).	This Waste Management Plan has been prepared as the value of demolition and construction works is more than $50,000 (refer to Appendix P to the Statement of Environmental Effects)
Consideration must be given to re-using existing materials, or parts thereof, on the subject site for the proposed use.	Where excavated soil is suitable for use as a fill material, it will be reused within the proposed development. No other material is expected to be removed from the subject site that could be reused in the proposed development (Section 3.2).
Applicants must demonstrate a commitment to waste minimisation by completing a Waste Management Plan that will minimise material going to landfill.	This document
The Waste Management Plan must address the following requirements (as a minimum): • Volume and type of waste, landfill, and recyclables to be generated. • Storage and treatment of waste and recyclables onsite. • Facilities proposed to receive residual waste and recyclables.	Refer to Section 3 of this WMP
Where the building contains asbestos, Council will ask for verification of the disposal technique used, the amount removed and the disposal location for the asbestos materials. This documentation will need to be submitted within 7 days of off -site disposal.	Asbestos is not expected within the existing structures to be demolished. If asbestos is detected in the structures or in any fill materials, a Licensed Asbestos Assessor will be engaged to prepare an Asbestos Management Plan. Details will be provided to Council in this event.
Receipts from the disposal of residual waste and recyclables are required to be retained by the applicant in order to confirm the lawful disposal of these materials.	Receipts will be kept in SAAS's electronic filing system.
During construction	
Construction activities are to be managed so that waste is sorted, reused or recycled, where possible. Potentially windblown rubbish such as foam, cardboard or plastic must be stored on the Site within a receptacle with a tight fitting, secure lid.	Designated waste storage areas will be established within the construction site (Figure 3.1). A commercial waste removal contract will be established prior to the commencement of construction. The waste contractor will provide appropriate bins for each of the anticipated waste streams to ensure materials are separated for recycling and stored in a manner to prevent windblown litter generation. Refer to Section 3.1
Any fill removed from the Site shall only be placed on an approved waste disposal facility and as detailed in the Waste Management Plan.	Where excavated soil is suitable for use as a fill material, it will be reused within the proposed development(Section 3.2).
It is not acceptable to dispose of all waste material generated from construction to landfill. Instead, applicants must demonstrate a commitment to waste minimisation. The	Designated waste storage areas will be established within the construction site (Figure 3.1). A commercial waste removal contract will be established prior to the commencement of construction. The waste contractor will provide appropriate

Control	Compliance
Waste Management Plan must demonstrate implementation of the following during construction (as a minimum): • Installation of waste storage receptacles, and • Sorting of waste into material types.	bins for each of the anticipated waste streams to ensure materials are separated for recycling. Refer to Section 3.2.
Receipts from the disposal of residual waste and recyclables are required to be retained by the applicant in order to confirm the lawful disposal of these materials.	Receipts will be kept in SAAS's electronic filing system.

2.3. Waste hierarchy

The way waste is to be managed in NSW is driven by the Ecologically Sustainable Development principles. Guidance in managing waste has been provided by the hierarchical chart below (Figure 2.1).

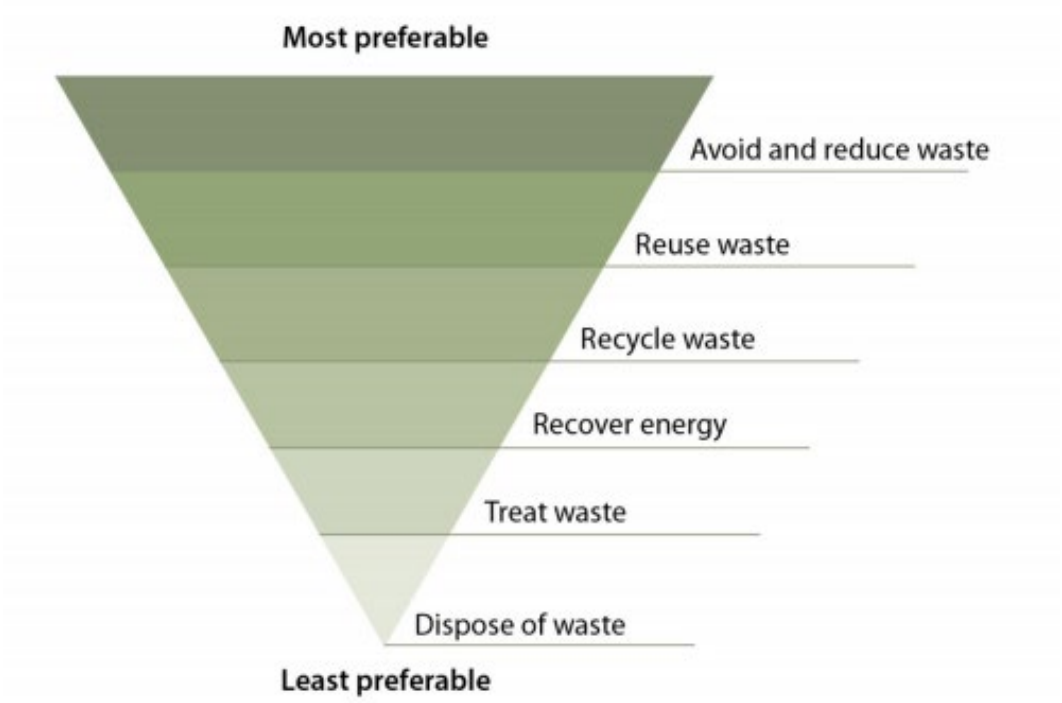

Figure 2.1. The waste hierarchy as published in the *NSW Waste Avoidance and Resource Recovery Strategy 2014-2021*.

Waste avoidance means reducing the quantity of waste being generated. This is the simplest and most cost-effective way to minimise waste. It is the most preferred option in the Waste Management Hierarchy and is therefore ranked first.

Reusing occurs when a product is used again for the same or similar use with no reprocessing. Reusing a product more than once in its original form reduces the waste generated and the energy consumed, which would have been required to recycle.

Recycling involves the processing of waste into a similar non-waste product consuming less energy than production from raw materials. Recycling spares the environment from further degradation, saves landfill space, and saves resources.

Disposing involves removing waste from worksites, compounds and offices and disposal in a licensed landfill site, or other appropriately licensed facility.

2.4. Classification of waste streams

Classifying waste into groups that pose similar risks to the environment and human health facilitates their management and appropriate disposal.

The following classes of waste are defined in clause 49 of Schedule 1 of *the Protection of the Environment Operations Act 1997* (POEO Act) and the NSW EPA's *Waste Classification Guidelines* (2014):

- Special waste;
- Liquid waste;
- Hazardous waste;
- Restricted solid waste;
- General solid waste (putrescible); and
- General solid waste (non-putrescible)

Where waste cannot be avoided, reused, or recycled it will be classified and appropriately disposed of. The classification of waste is based on the Waste Classification Guidelines. The guideline outlines how to assess waste, waste classification and sets out management options for the disposal of classified waste.

Waste classification will involve one or more of the following steps:

1. Establish if the waste should be classified as special waste;
2. If not special waste, establish whether the waste should be classified as liquid waste;
3. If not special waste or liquid waste, establish whether the waste is of a type that has already been pre-classified;
4. If the waste is not special waste, liquid waste or pre-classified, establish if it has certain hazardous characteristics and can therefore be classified as hazardous waste;
5. If the waste does not possess hazardous characteristics, it needs to be chemically assessed to determine what class of waste it is. If the waste is not chemically assessed, you must manage the waste as if it were hazardous waste; and
6. If the waste is chemically assessed as general solid waste, a further test is available to determine whether the waste is putrescible or non-putrescible. This test determines whether the waste is capable of significant biological transformation. If you do not wish to undertake this test, you must manage the waste as if it were general solid waste (putrescible).

The EPA's Waste Classification Guidelines provide a clear framework for accepting, testing and determining the management options for waste received to ensure human health and the environment are protected. These guidelines have been considered in developing this plan.

3. Waste Management

Waste management practices outlined below address the economic, environmental and safety imperatives during the demolition and construction phases, and into the operational phase. These enhanced management practices also produce triple bottom line benefits including financial efficiencies, sustainable construction methods and a safe work site for the duration of the construction process.

These positive outcomes will be achieved through thorough planning and procurement of exacting measurements reducing upfront costs of construction and preventing the generation of waste. The benefits of the management practices outlined in the plans will be realised from the outset by both the business and the broader community in the form of reduced costs of disposal, reduced costs of legal liability and common good through:

- Minimising waste by manufacturing building components off site to design specifications;
- Maximising recovery of valuable resources;
- Exercising due diligence for safe disposal of waste; and
- Providing a safe worksite.

3.1. Demolition and site preparation phase

The waste streams and estimated volumes likely to be produced during the demolition and site preparation phase, as well as the reuse or disposal options for each stream, are summarised in Table 3.1. A demolition plan and details for the temporary storage of waste materials and temporary truck access during demolition and site preparation works will be included in the Construction Environmental Management Plan.

The demolition and site preparation phase will include the following activities:

- Construction of temporary heavy vehicle access including the crossing over the gas pipeline;
- Installation of temporary fencing as required, including delineation of the gas pipeline easement as a No Go Zone for vehicles and machinery (except where approved by APA Group);
- Potholing within the gas pipeline easement to confirm pipeline depth and location;
- Upgrades to the existing driveway/access road to permit truck access, including establishment of a temporary heavy vehicle crossing over the gas pipeline easement to APA Group standards;
- Installation of erosion and sediment controls;
- Designation of a temporary waste storage area/s;
- Clearing of trees identified for removal. Tree stumps are to be grubbed out and root systems cleared; and
- Use of an excavator to remove the farm sheds and associated fencing.

Waste generated during demolition is expected to consist of concrete, steel (including star pickets and wire) and timber from the farm sheds and fencing, garden organics from vegetation removal, and general rubbish contained across the subject site. Garden organics will likely be mixed with some soil. Small quantities of domestic waste (including putrescible, non-putrescible and recyclable) will also be generated by staff working on-site (e.g., meals). The farm sheds are open-sided structures with metal roofs. The smaller shed is constructed from a steel frame, whilst the larger shed is a concrete block construction. Two tanks of unknown construction and condition are located adjacent to the larger shed. Aerial imagery indicates the tanks are likely constructed from metal. These tanks have most likely been used for water or food storage and are unlikely to be suitable for reuse in the proposed development. The tanks will be removed for off-site reuse or recycling.

Table 3.1. Waste types and amounts generated during demolition and site preparation works and the proposed method of reuse, recycling or disposal.

Waste Classification	Description	Segregation Area / Containers	Reuse/Recycling/Disposal	Suggested Receiving Facility	Weight (tonnes)	Recycling Rate %
General solid waste (non-putrescible)	Concrete blocks from the large farm shed	Stockpiled in designated temporary waste storage area	Off-site recycling	Wingecarribee Resource Recovery Facility – Moss Vale	150	100
	Steel frame and roof from farm sheds, metal posts and wire from fencing	Skip bin in designated temporary waste storage area	Off-site recycling	Wingecarribee Resource Recovery Facility – Moss Vale	8	100
	Garden waste from tree / vegetation removal and associated soil	Stockpiled in designated temporary waste storage area	Reused on-site as an erosion control mulch or fill material as appropriate. Remainder transferred to composting facility	Wingecarribee Resource Recovery Facility – Moss Vale	500	100
	Site office waste – paper, cardboard, co-mingled recycling	1m^3 industrial bin	Off-site recycling	Wingecarribee Resource Recovery Facility – Moss Vale	1	100
	Non-recyclable rubbish from across the site	1m^3 industrial bin	Off-site disposal	Wingecarribee Resource Recovery Facility – Moss Vale	10	0
General solid waste (putrescible)	Personal waste, e.g. from staff meals	1m^3 industrial bin	Off-site disposal	Wingecarribee Resource Recovery Facility – Moss Vale	0.1	0
				TOTAL amount of waste generated (tonnes)		669.1
				TOTAL amount of waste recycled (tonnes)		659
				Overall recycling rate		98.4%

3.2. Construction phase

The waste streams and estimated volumes likely to be produced during the earthworks and construction phase, as well as the reuse or disposal options for each stream, are summarised in Table 3.2

The earthworks and construction phase will include the following activities:

- Cutting and filling across the Site;
- Installation of water and electrical services including irrigation, stormwater and on-site detention systems;
- Construction of retaining walls;
- Construction of concrete foundations, hardstand areas;
- Construction of buildings and offices;
- Installation of rainwater and firewater tanks;
- Construction of Bowman Road and Hutchinson Road;
- Installation of landscaping across the Site.

The earthworks and construction phase of the project will generate a number of different types of waste products. Waste materials generated which will be fully reused or recycled include soil, timber, plasterboard, tile, PVC pipe, concrete, asphalt, timber pallets, timber packing materials, and steel. Plastic film that cannot currently be recycled will likely be generated from packaging. Some consumer packaging and residual waste will be generated by contractors on-site. Construction and fit out of the office areas may also result in the generation of liquid wastes (e.g., paints, lacquers), carpet, and glass.

An overall recycling rate of 92% is expected during construction works.

Table 3.2. Waste types and amounts generated during construction, and the proposed method of reuse, recycling, or disposal.

Waste Classification	Description	Segregation Area / Containers	Reuse/Recycling/Disposal	Suggested Receiving Facility	Weight (tonnes)	Recycling Rate %
General solid waste (non-putrescible)	Earthworks spoil	Temporary stockpiles	Reused on-site as fill material as appropriate. Remainder transferred to resource recovery facility.	Wingecarribee Resource Recovery Facility – Moss Vale	0*	100
	"Heavy" material – asphalt, concrete, brick,	Temporary stockpiles or hook-lift skip bins	Off-site recycling	Wingecarribee Resource Recovery Facility – Moss Vale	200	95
	Metals – ferrous metal off-cuts	Hook lift skip bins	Off-site recycling	Anderson Waste Services – Moss Vale	10	100
	"Light" material – timber, packaging, glass, plastic, plasterboard, ceramics	Segregated skip bins	Off-site recycling	Wingecarribee Resource Recovery Facility – Moss Vale	30	100
	Site office waste – paper, cardboard, co-mingled recycling	Segregated 1m^3 industrial bins	Off-site recycling	Wingecarribee Resource Recovery Facility – Moss Vale	10	100
	Grit, sediment, litter and gross pollutants captured in stormwater management devices	Removed from device by vacuum truck	Off-site disposal	Wingecarribee Resource Recovery Facility – Moss Vale	10	0
Hazardous	Waste oils, fuels, lubricants, chemicals, paints, solvents, etc.	Covered bunded pallet	Off-site recycling or disposal	Cleanaway Waynote Place - Unanderra	0.5	0
General solid waste (putrescible)	Personal waste, e.g. from staff meals	1m^3 industrial bin	Off-site disposal	Wingecarribee Resource Recovery Facility – Moss Vale	1	0
				TOTAL amount of waste generated (tonnes)		261.5
				TOTAL amount of waste recycled (tonnes)		240
				Overall recycling rate		92%

**All excavated soil will be reused on-site as fill material. It is anticipated that an additional 63,535m^3 of fill will be required to be imported to the subject site.*

3.3. Operational phase

The proposed development is expected to generate approximately 54m^3 of recyclables and 54m^3 of general rubbish per week across all buildings and office spaces (Table 3.3). The expected waste generation rates were determined using the *Multi-unit and Commercial Development Waste and Recycling Generation Rates Calculator*[1] provided by Sustainability Victoria. The calculator has been provided to assist with estimating the number of garbage and recycling bins, and storage areas required for new developments.

Waste generation during operation is expected to be low as the predominant use of the buildings will be for scaffolding storage. Waste will likely include broken scaffolding components, timber pallets, plastic film packaging, paper and cardboard, co-mingled recycling, general waste, and food organics. The estimated waste generation rates have been used to determine appropriately sized bins for each building (Table 3.4).

Given the size and layouts of the buildings, each building will include at least two waste management areas (WMAs) to encourage staff to use the bins correctly. All buildings will include a WMA close to the office space that provides bins for general waste, food waste, co-mingled recyclables, and plastic film. All office spaces will contain smaller bins within the offices, bathrooms, and kitchen areas that will be emptied into the bins in the WMA for collection. A second WMA will be located away from the offices providing bins for general waste, food waste, co-mingled recyclables, and plastic film as well as a large skip bin for metals and space for stacking timber pallets. The waste management areas are shown on the building floor plans (Figure 1.3, Figure 1.4, and Figure 1.5).

All waste management areas are located in close proximity to a roller door to ensure commercial collection trucks can easily access bins for collection. As the buildings and all associated haul routes have been designed to accommodate vehicles up to 26m B-Doubles (B1 and B2) and 19m semi-trailers (B3), access by commercial waste collection vehicles can be easily accommodated.

At the time of writing, no food organics composting was available in the region. Should a service become available, all food waste will be diverted to the composting service rather than landfill.

Table 3.3. Predicted waste generation rates for each building and office space based on the floor area of each space.

Building/Office Space	Floor Area m^2	Expected Recyclables m^3 / Week	Expected General Rubbish m^3 / Week
B1 Building	16,414.3	11.49	11.49
B1 Office	956.43	0.7	0.7
B2 Building	10,863.68	7.6	7.6
B2 Office	1,931.67	1.35	1.35
B3A Building	3,487.02	2.44	2.44
B3A Office*	432.78	0.3	0.3
B3B Building	5921.7	2.1	2.1
B3B Office*	517.62	0.36	0.36
Total		54.05	54.05

* Only the first floor office spaces were used for the waste generation calculations for B3A and B3B as the ground floor areas are foyer spaces only.

[1] https://calculators.sustainability.vic.gov.au/mud-waste-management/

Table 3.4. Segregation areas and containers for expected waste streams, and the proposed method of reuse, recycling, or disposal.

Waste Classification	Description	Segregation Area / Containers	Collection Frequency	Reuse / Recycling / Disposal	Suggested Receiving Facility	Recycling Rate %
General solid waste (non-putrescible)	Timber (pallets, packaging materials)	B1 – stacked in 9m^2 WMA away from offices.	As needed	Off-site recycling	Wingecarribee Resource Recovery Centre – Moss Vale	100
		B2 – stacked in 9m^2 WMA away from offices				
		B3A – stacked in 2.25m^2 WMA in northern section away from offices and 2.25m^2 WMA in southern section				
		B3B – stacked in 2.25m^2 WMA in southern section away from offices and 2.25m^2 WMA in northern section				
	Metal (e.g., damaged scaffolding)	B1 – 30m^3 skip bin in WMA away from offices	As needed	Off-site recycling	Anderson Waste Services – Moss Vale	100
		B2 – 30m^3 skip bin in WMA away from offices				
		B3A – 12m^3 skip bin in northern section away from offices and 12m^3 skip bin in southern section				
		B3B – 12m^3 skip bin in southern section away from offices and 12m^3 skip bin in northern section				
	Co-mingled recycling: paper / cardboard / plastic / glass containers / metal cans	B1 and B2 – one 1.5m^3 bulk bin in each WMA	Weekly	Off-site recycling	Wingecarribee Resource Recovery Centre – Moss Vale	85*
		B3A and B3B – one 1100L wheelie bin in each building section				
	Plastic film (packaging)	120L wheelie bin in each WMA	As needed	Off-site recycling	Cleanaway commercial collection	100
	General waste (non-recyclable residual waste)	B1 and B2 – one 4.5m^3 bulk bin in each WMA. Bins within office and kitchen spaces emptied into bulk bins.	Weekly	Off-site disposal	Wingecarribee Resource Recovery Centre – Moss Vale	0

Waste Classification	Description	Segregation Area / Containers	Collection Frequency	Reuse / Recycling / Disposal	Suggested Receiving Facility	Recycling Rate %
		B3A and B3B – one 1100L wheelie bin in each WMA				
	Garden organics (i.e., from landscaping)	B1, B2 and B3 – one 3m^3 skip bin per building	As needed	Off-site composting	Wingecarribee Resource Recovery Centre – Moss Vale	100
General solid waste (putrescible)	Food waste	B1 and B2 – one 660L bulk bin in each WMA. Bins within kitchen spaces emptied into bulk bins.	Twice weekly to reduce odour	Off-site disposal	Wingecarribee Resource Recovery Centre – Moss Vale	0
		B3A and B3B – one 240L wheelie bin in each WMA. Bins within kitchen spaces emptied into bulk bins.				
Average Recycling Rate %						69.3

** National Waste Report 2018*. Department of the Environment and Energy; Blue Environment Pty Ltd.

3.4. Demolition and construction waste reduction

The following waste reduction measures will be employed during demolition and construction:

- All excavated material suitable for use as fill will be reused on-site;
- Where additional fill material is required, suitable engineered fill that meets the requirements of a NSW EPA resource recovery order and exemption will be used to maximise the use of recycled material and reduce the use of virgin fill materials;
- Provision of appropriate segregated waste storage areas and bins to ensure efficient recycling of waste materials;
- Selecting construction materials with consideration given to their lifespan and potential for reuse;
- Ordering materials to size, including the use of pre-cut and prefabricated materials where appropriate;
- Reuse of formwork where possible;
- Planned work staging to maximise opportunities for reuse of waste materials;
- Selecting suppliers that use returnable or recyclable packaging where possible; and
- Informing all staff and contractors of waste management procedures.

3.5. Operational waste reduction

The following waste reduction measures will be implemented across SAAS's three businesses to reduce operational waste generation:

- Review packaging design to eliminate non-reusable or recyclable material where possible;
- Select suppliers that use returnable or recyclable packaging where possible;
- Develop a purchasing policy that favours recycled and recyclable products;
- Provide suitable recycling collection bins within all offices and staff amenities; and
- Move towards establishing "paperless" work processes as appropriate.

4. Environmental Risk Assessment

A risk assessment has been undertaken to identify the level of risk that demolition, construction, and operational activities may present to waste management.

The following points summarise the key activities identified in the risk assessment relevant to waste management for site preparation, demolition, construction works and operation.

- Litter (e.g. food waste, packaging, lightweight building material off-cuts) reaching local waterways;
- Leakage of effluent from site amenities;
- Excessive use of water resources;
- Excess packaging material in deliveries increasing waste generated;
- Inappropriate reuse or disposal of waste items which may be hazardous;
- Fuel and oil spills during plant and equipment refuelling/maintenance; and
- The location and storage of waste on site prior to reuse or disposal.

4.1. Incident management - spills

Spills with the potential to occur on-site during the demolition, construction and operational phases are oil, fuel, paints or solvents, waste from portable toilets and firewater. To better manage a spill incident Spill Response Kits will be kept on-site at various clearly identified locations in easily accessible areas. Relevant Safety Data Sheets (SDS) will be placed within sight and near spill kits. The SDS has clear instructions on spill response management, clean up, and disposal. Appropriate bunded waste storage areas for empty drums (e.g., from oils, paints, etc.) will be provided within designated waste storage areas.

The proposed buildings will be constructed with bunding around the internal perimeter for the purpose of firewater containment. Isolation valves will also be installed within the stormwater detention systems. These safeguards will ensure firewater will not be released from the buildings.

A Construction Environmental Management Plan (CEMP) will be prepared prior to commencement of any site preparation works. The CEMP will detail the location of spill kits and the procedures to be followed in the event of an incident.

4.2. Environmental control measures

Table 4.1 provides the environmental control measures and safeguards that will be implemented to minimise waste generated during the demolition, construction, and operational phases.

Table 4.1. Environmental control measures.

Control Measures and Safeguards	Timing	Responsibility
Waste management and minimisation will form part of the induction program (which includes environmental due diligence training). All Project and site personnel will be trained in the requirements of this document including minimising wastes, recognising which types of materials are recyclable and their obligations to use recycling facilities provided on site.	Prior to starting on site / Ongoing	Operations Manager
Clearly assign and communicate responsibilities to ensure that those involved in the demolition and construction are aware of their responsibilities in relation to the waste management plan.	Prior to starting on site / Ongoing	Operations Manager
Engage and educate personnel on how the various elements of the waste management plan will be implemented.	Prior to starting on site / Ongoing	Operations Manager
Specific locations for waste management (e.g., recycling bin locations, material stockpile locations) will be established on site and signposted appropriately.	Ongoing	Operations Manager
Waste management areas will be adequately managed to prevent sediment runoff and dust generation.	Ongoing	Operations Manager
Construction Method Statements (CMS) will include practices to minimise waste generation and to maximise recycling and reuse of materials including oils, greases, lubricants, timber, glass, and metal.	Prior to start of construction and ongoing	Operations Manager
Packaging minimisation and reuse initiatives will be implemented as part of the procurement.	Ongoing	Operations Manager
Segregated waste storage containers for the collection and recycling/disposal of all waste streams generated during the site preparation, construction and operation phases will be provided on site. Waste storage containers will have clear signage and instructions for use to avoid cross-contamination. No rubbish shall be disposed of on site.	Ongoing	Operations Manager
Waste will be disposed to an appropriate licensed facility. A Waste Management Register of all waste collected for disposal and / recycling, including amounts, date and time, and details and location of disposal will be maintained at all times.	Ongoing	Operations Manager
All waste being transported off site must be covered. The transportation must be appropriately licensed to carry that material.	Ongoing	Operations Manager
Storage of any hazardous substances and dangerous goods will be in accordance with SDS requirements in a bunded area	Ongoing	Operations Manager

Control Measures and Safeguards	Timing	Responsibility
If hazardous materials are encountered during demolition (e.g. asbestos), an appropriately licensed contractor will be engaged to manage and transport materials for disposal to a licensed facility.	Ongoing	Operations Manager
Any material contaminated by spills e.g., fuel, oil, lubricants etc., including empty fuel, oil and chemical containers, will be stored in a sealed secure container within a bunded area and will be transported to a waste disposal site approved by the NSW EPA to accept such material.	Ongoing	Operations Manager
Incompatible wastes will not be mixed.	Ongoing	Operations Manager
Storage areas will be located away from waterways and the stormwater system.	Ongoing	Operations Manager
Biodegradable products will be used wherever practicable.	Ongoing	Operations Manager
Regular collection of wastes will ensure air emissions are at a satisfactory level. Inappropriate waste and wastewater management systems will be regularly inspected and audited.	Ongoing	Operations Manager
Conduct regular litter patrols to ensure litter is effectively controlled on site.	Ongoing	Operations Manager

5. Training

All employees and contractors working on site will undergo site induction training (which includes environmental due diligence training) and environmental training in relation to waste management issues. The induction will address:

- This management plan;
- Relevant legislation;
- Waste minimisation strategies;
- Waste recognition and recycling;
- Available recycling facilities; and
- Energy and water minimisation measures.

Records will be kept of all personnel undertaking the site induction and training, including the contents of the training, date and name of trainer/s.

Key staff will undertake more comprehensive training relevant to their position and/or responsibility. This training may be provided as “toolbox” training or specific training tailored by the Operations Manager.

6. Monitoring and Review

6.1. Inspections and monitoring

Regular monitoring will be undertaken to track waste management on site (refer to Table 6.1). This will be through a series of formal and informal inspections at regular intervals.

Table 6.1. Waste monitoring and review schedule.

Activity	Resources	Responsibility	Frequency
Daily Site inspections (work area)	Site Diary	Operations Manager	Daily Issues recorded in Site Diary (by exception)
Weekly Environmental Inspection	Environmental Site Inspection Checklist	Operations Manager	Weekly
Waste removal activities off site	Monthly Register for Waste Materials	Operations Manager	Monthly

6.2. Auditing

Audits will be undertaken to assess the effectiveness of environmental controls and compliance with this plan and other relevant guidelines.

A schedule for internal audits providing frequencies and responsibilities is to be determine by the Operations Manager and should include an initial audit within two months of the commencement of demolition and construction works.

6.3. Environmental management review

The effectiveness and proper implementation of the WMP will be reviewed every twelve months, or sooner as necessary. Review will be undertaken by the management team. The review will comprise:

- Reviewing the results of audits;
- Evaluation of the system, which improvements and corrective actions will be sought; and
- Evaluation of the operation of the WMP.

6.4. Continual improvement

Continual improvement of this WMP will be achieved by the continual evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement. The continual improvement process will:

- At least monthly (or as incidents / non-conformances occur):
- Determine the root cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.

Outcomes of these reviews shall be documented and retained for the duration of the project.