



MATTRESS PROCESSING FACILITY FEASIBILITY STUDY

SWAN HILL RURAL CITY COUNCIL

FEASIBILITY STUDY

SALT³

MATTRESS PROCESSING FACILITY FEASIBILITY STUDY, SWAN HILL RURAL CITY COUNCIL

Client: Swan Hill Rural City Council

Report Reference: 21411W

File Path: Y:\2021\21411W – Swan Hill Mattress Processing and Recycling Facility\08

Reports\21411WREP01F02.docx

Thursday, February 03, 2022

Document Control

Version:	Prepared By:	Position:	Date:	Reviewed By:	Position:	Date:
D01	Jasreena Kaur	Project Environmental Scientist	8 November 2021	Tom Bloomfield	Waste & Environment Leader	8 November 2021
F01	Jasreena Kaur & Tom Bloomfield	Project Environmental Scientist Waste & Environment Leader	10 January 2022	Tom Bloomfield	Waste & Environment Leader	10 January 2022
F02	Jasreena Kaur	Project Environmental Scientist	3 February 2022	Tom Bloomfield	Waste & Environment Leader	3 February 2022

© Sustainable Transport Surveys Pty Ltd All Rights Reserved. Copyright in the whole and every part of this document belongs to Sustainable Transport Surveys Pty Ltd and may not be used, sold, transferred, copied or reproduced in whole or in part in any manner or form or in or on any media to any person without the prior written consent of Sustainable Transport Surveys Pty Ltd.

This document is produced by Sustainable Transport Surveys for the benefits and use by the client in accordance with the terms of engagement. Sustainable Transport Surveys does not and shall not assume any responsibility or liability whatsoever to any third party arising out of any use or reliance by any third party on the content of this document

MELBOURNE Level 3, 51 Queen Street Melbourne VIC 3000
+61 3 9020 4225

SYDNEY Suite 303/61 Marlborough Street Surry Hills NSW 2010
+61 2 9068 7995

HOBART Level 4, 116 Bathurst Street Hobart TAS 7000
+61 400 535 634

CANBERRA 45 West Row Canberra ACT 2601
+61 2 8415 9781

www.salt3.com.au



EXECUTIVE SUMMARY

SALT has been engaged by Swan Hill Rural City Council to prepare a feasibility study for a mattress processing facility to be located at the Swan Hill landfill.

This report provides an assessment of the feasibility of establishing a mattress processing facility that is capable of processing mattresses generated within the Swan Hill municipality as well as consideration of a consolidated facility servicing the wider region.

The feasibility assessment covers the following:

- Summary of the current status of mattress processing at SHRCC, neighbouring councils and across Victoria;
- Review of available mattress processing technologies, their benefits and limitations
- Assessment of potential markets for recovered materials
- Assessment of three potential processing facility options including analysis of establishment and operating costs
- Net present value assessment of financial feasibility of each option and estimate of gate fees required under different funding and product stewardship scenarios
- Review of the product stewardship schemes, rebates and capital funding opportunities available
- Social and circular economy impacts
- Summary of the regulatory requirements to establish a mattress processing facility.

Key findings:

All processing facility options are assessed to be financially viable with required gate fees ranging between \$0 and \$22.70 per mattress, which is less than the current gate fee of \$25 charged by SHRCC.

A small-scale facility (Option 1) capable of processing up to 1,000 mattresses per annum would enable SHRCC to process all mattresses within the municipality. Gate fees required to cover operational and capital expenditure over a 15-year period range from \$22.70 per mattress down to as little as \$1.70 if potential mattress rebates are considered.

A larger-scale facility (Option 2) capable of processing up to 5,000 mattress per annum would provide sufficient scale for SHRCC and neighbouring councils to collaboratively establish a consolidated facility. Gate fees required to cover operational and capital expenditure over a 15-year period range would be \$20.20 to \$21.30 per mattress, depending on the level of external funding received. If potential mattress rebates are considered then the operation could be fully funded by the rebate with zero cost to the customer.

For the larger scale facility, both manual (Option 2) and automated (Option 3) processing options were considered, with the manual system presenting as the more beneficial option for SHRCC due to the high value placed on creating additional employment opportunities. Whilst financially the automated system would require a lower operational cost and lower gate fees, the capital investment required (\$608,000) may not be feasible for SHRCC, either with or without external funding.

The report also discusses the economic and environmental benefits of landfill diversion hence automated processing methods such as the shredding method discussed in this report would not be recommended or encouraged as it generates large volumes of waste that cannot be recovered. It also creates a smaller social impact given that it generates a lower demand of manual labour.

Given the direction of the industry, landfilling should be avoided as much as possible and alternate waste management strategies such as waste to energy should be considered where it is financially viable and suitably located.

In conclusion, it is found that the development of a consolidated facility with a manual processing system to process mattresses generated within SHRCC and neighboring Councils would be the most financially

viable and sustainable option. As discussed above, this option would also provide greater social and circular economy opportunities. Therefore, SALT recommends that this option is considered by SHRCC to ensure greater economic return and environmental benefits for the region. Furthermore, given that the viability of Option 2 relies on the participation of several other Councils and is also dependent on the outcome of the mattress stewardship program, SHRCC may wish to consider a facility that manages its own mattresses (Option 1) in the first instance, before proceeding with Option 2 when agreements with neighbouring councils have been established and more is known regarding the mattress stewardship program eligibility and rebate structure.

Recommendations:

- It is recommended that the collection strategy is continued whereby mattresses are collected at a consolidated collection point as this would minimise mattress contamination and deterioration due to weathering and environmental exposure.
- Proceed with establishing a facility capable of processing up to 1,000 mattresses per year utilizing the existing shed at the Swan Hill landfill site (Option 1).
- Commence engagement with neighbouring councils and Loddon Mallee WRRG to gauge interest in a consolidated facility servicing the region (or part thereof).
- Monitor progress made by the Australian Bedding Stewardship Council (ABSC) to initiate the mattress recycling program and register for rebates when available.
- The consolidated facility with manual mattress processing methods (option 2), can be considered upon consultation with neighboring Councils and upon learning more about ABSC's mattress recycling program
- Seek State Government funding support through grants such as Sustainability Victoria's Recycling Victoria Councils Fund Round 2 – Stream 2: Implementation.

CONTENTS

TABLE OF CONTENTS

1	INTRODUCTION.....	1
1.1	MATTRESS PROCESSING IN VICTORIA.....	1
1.1.1	LODDON MALLEE REGION.....	1
1.2	BACKGROUND AND CURRENT METHODOLOGY.....	1
1.3	SCOPE AND OBJECTIVES.....	3
2	MATTRESS COLLECTION SERVICES.....	3
3	MATTRESS PROCESSING TECHNOLOGIES.....	5
3.1	COMPARISON OF TECHNOLOGIES.....	5
3.2	ADVANTAGES AND DISADVANTAGES.....	6
4	WASTE STREAM ANALYSIS AND END USER MARKET OPTIONS.....	9
4.1	MATERIAL RECYCLING OPTIONS.....	9
4.2	WASTE TO ENERGY.....	12
5	OPTIONS ASSESSMENT AND FINANCIAL ANALYSIS.....	14
5.1	RATIONALE FOR SELECTED OPTIONS.....	14
5.2	FACILITY SIZING AND COST ESTIMATE.....	14
5.3	PURCHASING AND OPERATING COST ESTIMATE.....	15
5.3.1	WASTE DISPOSAL COSTS & RECYCLING REVENUES.....	15
5.3.2	UTILITIES AND TRANSPORTATION.....	15
5.3.3	EMPLOYEE COSTS.....	16
5.4	PRODUCT STEWARDSHIP SCHEME REBATES.....	18
5.5	NET PRESENT VALUE ASSESSMENT.....	19
	OPTION 1: MANUAL PROCESSING (SWAN HILL RURAL CITY COUNCIL ONLY).....	19
	OPTION 2: MANUAL PROCESSING (CONSOLIDATED FACILITY WITH NEIGHBORING COUNCILS).....	22
	OPTION 3: AUTOMATED PROCESSING (CONSOLIDATED FACILITY WITH NEIGHBORING COUNCILS).....	24
6	RISK ASSESSMENT.....	27
6.1	RISKS TO FEASIBILITY.....	28
7	REGULATORY AND PLANNING REQUIREMENTS.....	29
8	SOCIAL AND CIRCULAR ECONOMY IMPACTS.....	30
9	GRANT OPPORTUNITIES.....	30
10	CONCLUSION.....	32
11	REFERENCES.....	34
APPENDIX 1	MATTRESS SHREDDER SPECIFICATIONS.....	35
APPENDIX 2	EXCAVATOR SPECIFICATIONS.....	37
APPENDIX 3	BALER SPECIFICATIONS.....	38
APPENDIX 4	DUST EXTRACTION SYSTEM SPECIFICATIONS.....	39

LIST OF FIGURES

FIGURE 1	MATTRESS PROCESSING EQUIPMENT AT SWAN HILL LANDFILL.....	2
FIGURE 2	WASTE HIERARCHY.....	12

LIST OF TABLES

TABLE 1	INDICATIVE MATTRESS COLLECTION AND OFFSITE PROCESSING COSTS.....	4
TABLE 2	MATTRESS PROCESSORS, RECYCLERS AND STEWARDSHIP SCHEME.....	4

TABLE 3	MATTRESS DISMANTLING PROCESSES.....	6
TABLE 4	MATTRESS PROCESSING OPTIONS COMPARISON.....	6
TABLE 5	MATERIAL RECYCLING OPTIONS.....	9
TABLE 6	OPERATIONAL COST BREAKDOWN (ESTIMATED).....	17
TABLE 7	PURCHASING COST BREAKDOWN.....	17
TABLE 8	POTENTIAL REBATES.....	18
TABLE 9	NPV ASSESSMENT FOR OPTION 1 (\$/YEAR).....	21
TABLE 10	GATE FEE REQUIRED TO BALANCE COSTS UNDER VARIOUS REBATE AND CAPITAL FUNDING SCENARIOS.....	21
TABLE 11	NPV ASSESSMENT FOR OPTION 2 (\$/YEAR).....	23
TABLE 12	GATE FEE REQUIRED TO BALANCE COSTS UNDER VARIOUS REBATE AND CAPITAL FUNDING SCENARIOS.....	23
TABLE 13	NPV ASSESSMENT FOR OPTION 3 (\$/YEAR).....	25
TABLE 14	GATE FEE REQUIRED TO BALANCE COSTS UNDER VARIOUS REBATE AND CAPITAL FUNDING SCENARIOS.....	25
TABLE 15	RISK ASSESSMENT.....	27

1 INTRODUCTION

SALT has been requested by Swan Hill Rural City Council (SHRCC) to prepare a feasibility study for a proposed mattress processing and recycling facility, to be located at the Swan Hill landfill site.

Mattresses are known to cause significant issues when landfilled, from occupying valuable space to creating fires. Additionally, landfilling would waste the non-renewable resources contained within mattresses and contribute towards the gradual depletion of our natural resources. Given these concerns and significant volumes of mattresses generated nationwide, local government and the private sector are increasingly exploring and implementing methods to recycle mattresses.

This feasibility study report examines the current status of mattress recycling in Australia, presents a range of technology options available to SHRCC and provides an assessment of the feasibility of developing a mattress processing facility in the region. This report also includes an assessment of cost, social and environmental benefits as well as circular economy opportunities.

1.1 MATTRESS PROCESSING IN VICTORIA

There are currently more than 300,000 mattresses disposed of annually in Victoria. In Melbourne and greater Geelong, it is estimated that approximately 92.7% of the mattresses collected were recycled while the remaining 7.3% were landfilled in 2014 (MWRRG, 2015). Mattress processing occurs in a number of ways ranging from low-technology, manual stripping processes to more automated processes involving shredding and sorting equipment.

The overall cost to process and transport mattresses varies, with drop-off fees ranging from \$13 to \$40 per mattress within the northern and northwest region of Victoria. This cost can be prohibitive to effective recovery, with mattresses often left discarded on the roadside.

1.1.1 LODDON MALLEE REGION

Within the surrounding region, neighbouring councils such as Gannawarra Shire Council currently utilise a third-party mattress processor which charges \$25 per mattress including transportation costs. This processor shreds the mattresses and separates the steel component for recycling.

Buloke Shire Council is currently dismantling their mattresses in-house however are seeking for an external processor and recycler to process their mattresses on an annual basis given their low volumes.

Other councils such as Mildura, Mount Alexander Shire and Bendigo are currently receiving mattresses at their landfills and/or transfer stations. They are then dismantled by a third-party processor and/or recycler.

It is noted that currently, all existing mattress processing facilities are located within the Melbourne and Geelong metropolitan areas and there are no facilities located in regional areas (other than small scale manual processing operations) including the Swan Hill municipality. Additionally, transporting the mattresses to the metro region for processing is unlikely to be economically viable and environmentally sustainable due to the distance (approximately 340km).

1.2 BACKGROUND AND CURRENT METHODOLOGY

SHRCC is located approximately 4 hours north-west of Melbourne. According to 2016 census data, the region is home to 20,584 residents and occupies an area of 6,166 km². Based on the Department of Environment, Land, Water and Planning's *Victoria in Future 2019 Population Projections 2016 to 2056* report, SHRCC is projected to experience a slight decline of 0.1% in its population between 2018 to 2036. Therefore, future waste mattress generation rates are anticipated to remain constant.

End-of-life mattresses in the Swan Hill area are currently deposited directly at Swan Hill Landfill, Robinvale Landfill as well as Managatang, Ultima and Piangil Rural Transfer Stations. The disposal cost is currently \$25 per mattress. Council do not accept mattresses via their hard waste collection service. Nevertheless, there were only two reported incidents of mattress dumping throughout the financial year of 2020/2021.

In the financial year of 2020/2021, there were 680 mattresses deposited at the Swan Hill Rural City Council. From this total, 604 were deposited at Swan Hill Landfill while the remaining 76 mattresses were deposited across Robinvale Landfill and the transfer stations referred to above.

The mattress deconstruction process is currently being conducted by Council's landfill management contractor as part of their contracted services. As the mattresses are dismantled at the landfill site there are no transportation costs currently incurred for mattress processing.

Figure 1 below shows the mattress processing area at the Swan Hill landfill, including a bench-mounted jig to assist with mattress stripping. The manual deconstruction process separates the innerspring steel which is transported to a local scrap metal processor known as Wright's Metal Recyclers. The remaining material streams including foam, textile and timber are currently being landfilled due to several factors such as the material's condition in the amalgamated output form as well as the lack of existing recycling facilities and recovery options within the region. The recycling facilities for these material types are typically located within the Greater Melbourne region which is a significant distance away from Swan Hill Council and hence acts as a hindrance to recover the materials due to the high transportation costs involved.

Figure 1 Mattress Processing Equipment at Swan Hill Landfill



1.3 SCOPE AND OBJECTIVES

SHRCC is seeking to determine the feasibility of developing a mattress processing facility which would provide improvements to the current processing practices and improve the recovery rates of the materials generated from the end-of-life mattresses. The mattress processing facility is proposed to be located at the Swan Hill landfill, owned and operated by SHRCC.

This report contains the following information:

- Mattress collection service providers
- Mattress processing technology options
- Resource recovery options for the material components in mattresses
- Options and cost assessment of establishing and operating a mattress processing facility
- Regulatory requirements for mattress processing/resource recovery facilities
- Social and circular economy impacts of a mattress processing facility including employment opportunities

2 MATTRESS COLLECTION SERVICES

As part of SALT's stakeholder engagement process to attain information regarding mattress processing systems, several existing mattress collection and recycling service providers were consulted. The following information regarding existing recyclers may be beneficial towards SHRCC's feasibility assessment and hence have been included below for reference.

WM Waste Management Services currently collects mattresses from waste facilities in municipalities such as Albury, Alpine Shire, Ballarat, Bass Coast, Benalla, Bendigo, Campaspe, Hepburn, Indigo, Latrobe, Macedon Ranges, Mansfield, Melton, Mitchell, Moira, Moorabool, Mount Alexander, Murrindindi, Shepparton, South Gippsland, Strathbogie, Towong, Wangaratta, Wodonga as well as several municipalities within the Melbourne metropolitan area.

In addition to mattresses, WM Waste collects bed bases and soft furniture in the same load using a rear loader compactor truck. For reference, this vehicle can collect over 200 mattresses in one load which minimises the transportation costs. WM Waste currently collects and delivers the mattresses and soft furniture to Knox Transfer Station in Melbourne for recycling.

Table 1 provides WM Waste Management Services' indicative collection fees to service Swan Hill Rural City Council. The fees provided are based on a minimum of 200 mattresses, bed bases or soft furnishing per collection. The soft furniture service would be optional.

Table 1 Indicative mattress collection and offsite processing costs

Description of Service	Price (\$ excluding GST)
Collection and recycling per mattress or bed base (single, double, queen or king)	\$25.80 each
Collection and recycling per soft furniture item	\$28.90 each

In addition to the above, other potential mattress processing contractors, recyclers or partners that could be considered are listed in Table 2 below.

Table 2 Mattress Processors, Recyclers and Stewardship Scheme

Company	Facility Location/Service Areas	Website
Soft Landing	Melbourne, Sydney, Hume (ACT), Perth, Newcastle and the Illawarra.	https://softlanding.com.au/recycling/
The Mattress Recycler	Moolap, Geelong	info@themattressrecycler.com.au
GDP Industries	Geelong	https://gdp-industries.org.au/
Mattrec Automated Mattress Recycling*	Services several areas in NSW including Illawarra, Sydney, Macarthur, Southern Highlands etc.,	https://mattrec.com/about-us/
Mattress Recycle Australia	Services all Australian states	https://www.mattressrecycle.com.au/copy-of-p-r-o-c-e-s-s
Molycop 360 (Integrated Logistics and Waste Management Company)	Cootamundra NSW	https://molycop.com/why-we-do-it/molycop360/
Australian Bedding Stewardship Council	All Australian states. The scheme is expected to launch in December 2022.	https://www.beddingstewardship.org.au/
*Mattrec utilises their own equipment which was developed along with their engineering partners Leussink Engineering. More information regarding this patented equipment can be found here: http://www.businessinnovationgroup.com.au/portfolio/innoveq/ and https://mattrec.com/about-us/.		

3 MATTRESS PROCESSING TECHNOLOGIES

According to the Metropolitan Waste and Resource Recovery Group's *Mattress Recycling in Melbourne and Greater Geelong* 2015 report, Australia currently manually dismantles most of its mattresses to recover the material components. It is noted however that automated processing systems could offer more benefits with fewer risks and limitations.

A list of various deconstruction methods along with their respective methodology are provided below:

(a) Manual dismantling

Materials are separated manually into individual material types (i.e. steel, textile, foam) with the assistance of sharp instruments

(b) Dismantling and shredding

Mattresses are manually dismantled for recovery of non-steel components and mechanically shredded to recover steel springs. This process minimises contamination and allows the steel to be baled and recovered or recycled by metal recyclers.

(c) Mixed shredding and magnetic recovery

Mattresses are mechanically shredded with other hard waste items. The shredded steel is then magnetically recovered. This process reduces manual handling, minimising the risk of injury.

(d) Loader ripping

The mattresses are torn apart using on-site loader grabs to separate and recover the steel. The steel is delivered in an uncompressed form to metal recyclers.

(e) Automated dismantling

Mattresses are transported through conveyor belts, cutters, dissectors, peel rollers and slow speed shredders to separate the materials into their individual components.

The materials would then pass through a magnet which would separate the shredded springs.

Foam and quilting would be baled separately.

Steel and the remaining flock would be passed through a shredder with the use of air and vacuum system.

A dust extraction system may be used to assist with minimising floating rubbish and fibre particles in the air which would create a better and safer working environment for the employees.

3.1 COMPARISON OF TECHNOLOGIES

Through engagement with existing mattress processing facility operators, information regarding the mattress processing systems, average processing rates, average employee numbers and collection services has been obtained and summarized in Table 3. It should be noted that the information presented in Table 3 was attained from a number of various sites and hence provides an overview of all the information received.

Table 3 Mattress Dismantling Processes

Mattress Processing Type	Estimated number of mattresses processed per day	Estimated number of employees per site	Collection Service	Notes
Manual dismantling Balers for foam, latex, metal, waste products Different style pressing machine for steel springs which generate bales of approximately 1200mm x 1200mm in size	50 to 350 per site per day	Average of 3 to 27 employees per site* 6.25 to 16 mattresses per employee per day**	Combination of in-house and third-party collection services (i.e. waste management companies, Council staff for Council bulky waste runs)	Separate pocket spring removal can cost approximately \$35 per mattress
Automated Mattress Recycling	600 per machine per day	1 operator per machine	In-house collection service	

*Note: The number of employees assumed to be present on each working day.

**Based on individual site employee numbers.

3.2 ADVANTAGES AND DISADVANTAGES

This section provides an assessment of the benefits and limitations of each processing option.

The advantages and disadvantages of various types of automated and manual processing methods are provided in Table 4 below.

Table 4 Mattress Processing Options Comparison

Mattress Processing Type	Advantages	Disadvantages
(a) Manual dismantling (method currently used by Swan Hill) Materials would be separated into individual material types (i.e. steel, textile, foam) with the assistance of sharp instruments	- Would suit small scale processing facility - Creates local unskilled employment opportunities - Lower upfront capital costs and maintenance costs - Greater resource recovery in comparison to some automated processes (i.e. mixed shredding) - A manual system may be more suitable for SHRCC given the reasonably low volumes of	- May not suit large scale/consolidated processing facility - Time intensive - More labor-intensive process to recover steel particularly where pocket springs are used

Mattress Processing Type	Advantages	Disadvantages
	mattresses generated on a daily and annual basis	
(b) Dismantling and shredding Mattresses would be manually dismantled for recovery of non-steel components and mechanically shredded to recover steel springs. This process minimises contamination and allows the steel to be baled and recovered or recycled by metal recyclers.	Same advantages as noted for method (a) ▪ Safer process to recover steel given that it would be mechanically shredded	▪ Time intensive ▪ Less recovery of materials other than steel due to amalgamated form of materials
(c) Mixed shredding and magnetic recovery Mattresses would be mechanically shredded with other hard waste items. The shredded steel would then be magnetically recovered. This process reduces manual handling to minimise the risk of injury.	▪ Less reliance on staff means able to continue functioning throughout future virus outbreaks ▪ Efficiently dismantles larger volumes of mattresses ▪ Reduced health and safety risks associated with manual handling due to use of automated systems	▪ Limits local employment opportunities ▪ Low recovery of waste streams. Would generate a mixed output where only steel can be easily separated from the shredded output for recovery. The spring wires may not be recoverable as it can become entangled with other shredded materials ▪ Higher capital/purchasing cost
(d) Automated dismantling Mattresses would be transported through conveyor belts, cutters, dissectors, peel rollers and slow speed shredders to separate the materials into its individual components. The materials would then pass through a magnet which would separate the shredded springs.	Same advantages as noted for method (c)	▪ Limits local employment opportunities ▪ Higher capital/purchasing cost ▪ Lower recovery in comparison to the manual dismantling process
(d) Loader ripping The mattresses would be torn apart using on-site loader grabs to separate and recover the steel. The steel is delivered	▪ Less manual labour required ▪ A license would be required to operate the loader which requires training and hence does not favour unskilled employees	▪ Lower recovery of individual material components ▪ Impractical and inefficient material separation method

Mattress Processing Type	Advantages	Disadvantages
in an uncompressed form to metal recyclers.		High transportation costs to deliver steel to recyclers in complete form

As shown in Table 4 above, the automated stripping machine is capable of dismantling the mattresses more efficiently and on a larger scale, however SHRCC is unlikely to generate the number of mattresses required to justify an investment of this scale, even in collaboration with surrounding municipalities.

Given the significantly smaller volume of mattresses generated, an automated mattress processing system is not likely to be required to manage the mattresses generated by SHRCC. The manual deconstruction method would therefore be more suitable for SHRCC given that it would also increase local employment opportunities, particularly for unskilled and under skilled workers. It is noted that employment generation is a key objective of this project for SHRCC.

Further to the above, the Australian Bedding Stewardship Council have further validated that the manual deconstruction process provides the highest recycling rates and social impact in comparison to the other mattress processing methods. Their figures show that manual dismantling would provide a material recovery rate of 60-75% compared to 44-60% for mixed-shredding processes.

4 WASTE STREAM ANALYSIS AND END USER MARKET OPTIONS

It is estimated that 55% of the materials from mattresses generated in Melbourne and Geelong are typically recovered while the remaining is landfilled (MWRRG, 2015). Steel typically accounts for 50 to 60% of the weight of a mattress and is also the material component with the highest commodity value hence is generally the priority material to be recycled.

Through consultation it was found that most metal recyclers within the region would not accept spring steel from mattresses due to its high tensile strength which creates a difficulty in its recovery or recycling process. This therefore increases the management and processing costs of the material which could potentially outweigh its recycling value. One of the recyclers within the region which would accept the material is Wright's Metal Recyclers which is the existing metal recycler for SHRCC.

Given the potential limitations with the spring steel recycling potential, it is recommended that the steel from mattresses is first verified as acceptable by the recycler prior to arranging a collection service.

The material streams and weightages generated from an average queen-sized mattress would typically comprise of the following (Waste Management Review, 2016):

- 12.5 to 15 kilograms of steel
- 3 kilograms of foam
- Approximately 6 to 7 kilograms of outer textile

Some small amount of timber is also found in some mattress types and in the bed bases.

The higher averages were used in our assessment to ensure a conservative estimate.

4.1 MATERIAL RECYCLING OPTIONS

Table 5 below provides details of a range of recyclers for each waste material stream generated from mattress dismantling. Note that the distance of the facility from Swan Hill may preclude some of these options due to transportation costs.

Table 5 Material Recycling Options

Material Type	Receiving companies	Collection/Delivery and Cost arrangements	Approximate distance from Swan Hill RCC	Material form/condition	End Use
Steel	Wright's Metal Recyclers	Wright's would pay approximately \$120/tonne including transportation to Swan Hill Alternatively, deliver the material to Irymple.	220km	Exclude contaminants any	Roof sheeting and other metal products
	Pacific Metal Group Pty Ltd	Deliver to Laverton North Pacific Metal would provide approximately \$200/tonne excluding transportation fee	340km	Steel springs would need to be in individual spring form, completely separated from mattresses/mattress form	

Material Type	Receiving companies	Collection/Delivery and Cost arrangements	Approximate distance from Swan Hill RCC	Material form/condition	End Use
Foam & Latex		\$120/tonne including collection fee from Melbourne Metro Collection service not available from Swan Hill.		Excluding textile and other contaminants	
	Dunlop	Deliver to Dunlop's Truganina warehouse No charges incurred and no payment provided in return for materials. Collection service not available.	340km	Foam and latex must be baled separately Exclude staple, timber, springs, plastics, textile fibre and other contaminants	Carpet underlay
	Upparel	Deliver to Bayside Victoria Cost: Processing/recycling cost: \$2/kg (excluding GST) Freight cost: \$200/box (estimate) Upparel should be contacted directly for a more cost-effective arrangement. Collection service not available.	360km	Accepts textile with any composition of fabric including polyester, wool, cotton	Process the textile into shoddy that may be used for insulation, acoustic paneling, geotextile etc.
Textile	Circular Centre	Circular Centre would be interested in assessing their capabilities in accepting the material via a pilot assessment which would require 120kg of material for processing	350-400km		

Material Type	Receiving companies	Collection/Delivery and Cost arrangements	Approximate distance from Swan Hill RCC	Material form/condition	End Use
Timber (from mattress bases)	Textile Recyclers Australia (TRA)		345km	Only accept textile without contamination, dampness and/or mold.	New fabrics, non-ceramic tiles
	Donate to charity	Local charity stores	N/A	If the textile is not soiled and can be cleaned, there is an opportunity to donate the material The material should be presented in its original form to allow for viewing (i.e. not baled/compacted). Unlikely to be feasible for used mattress fabric.	
	Nullarbor Sustainable Timber	A collection fee would be charged to collect from Swan Hill Council region Their facility is located in Moama, NSW	160km	Exclude residual textiles, nails, plastics, steel and other contaminants	Timber furniture
	GDP Industries	A collection fee would be charged to collect from Swan Hill Council region. An agreement would need to be developed with Council. Alternate option is to deliver the timber to Barwon	350km	Exclude contaminants such as glue and nails If glue is present, they would try to reuse/recycle for uses other than kindling	Kindling

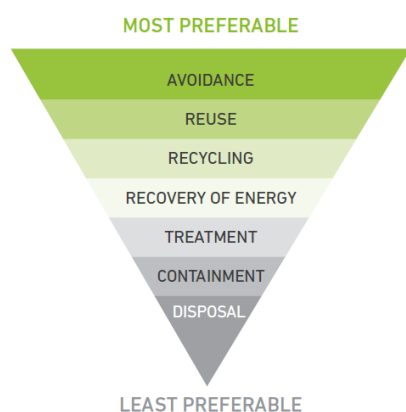
In addition to the above table, recycling technologies such as the PlasTech Recycling Limited Polywaste Technology (TM) would accept polymer-based textiles and foam as contaminant materials in their recycling process. Based on advice received from the PlasTech Recycling team, their machine should be available in the market by 2022. There may be potential to collaborate with external stakeholders which would be utilising this or a similar equipment.

Additionally, and as noted in the Australian Bedding Stewardship Council's presentation, if 50% of the material from mattresses is recovered after the removal of springs, it creates a space for 175kg of general waste in landfills.

If 80% of the material is recovered however, an additional space of 105kg would be available hence it creates a total space for 280kg of general waste in landfill. This further confirms the economic gains with a higher landfill diversion rate given that more landfill space can be created or more space for other uses.

Given the above and as based on Figure 2, landfilling should therefore be the last resort only if recycling and/or recovery in any form are not available options. If required, waste streams that cannot be recycled due to its form or lack of recycling options in the market, could be utilised as a refuse derived fuel or included as a material source for waste to energy plants. These are likely to be the only methods to recover the material generated from mixed shredding processes as well.

Figure 2 Waste Hierarchy



4.2 WASTE TO ENERGY

Due to the high calorific value of the majority of the mattress components, waste to energy is potentially an alternative disposal option for mattresses as a refuse-derived fuel (RDF) source.

Whilst waste to energy is currently in its early stages of development, there are several proposed waste to energy facilities to be established within Victoria which could be considered as potential material receivers including:

(a) Maryvale Energy from Waste Plant, Latrobe Valley

- Would comprise of a 225MW thermal EfW facility
- Would process up to 325,000 tonnes of non-recyclable waste per year, with potential to increase to 650,000 tonnes
- The facility would receive municipal solid waste as well as residual commercial and industrial waste
- Construction of the facility is expected to be completed in 2025

(b) Melbourne Waste and Resource Recovery Group's South-East Melbourne Advanced Waste Processing Facility, Melbourne

- Would process up to 500,000 tonnes of residual municipal solid waste per year, with potential to increase to 700,000 tonnes per year
- Construction of the facility is expected to commence in 2023

(c) Recovered Energy Australia Pty Ltd, Laverton North

- Proposed to deliver 15 MW of electricity to the grid
- Would process up to 200,000 tonnes (+/- 20%) of source separated municipal solid waste per year

- MSW would be sourced from Council kerbside collections in metropolitan Melbourne
- Proposed to be operational by 2023

It is noted that none the above facilities are local to the Swan Hill region and are unlikely to be a convenient disposal option. Nevertheless, the establishment of the above facilities has the potential to trigger further investment in these technologies and development of EfW facilities within the region could be a future possibility presenting additional disposal options for SHRCC.

5 OPTIONS ASSESSMENT AND FINANCIAL ANALYSIS

SALT has considered 3 facility options in the following assessment options assessment and financial analysis. Each option is described as follows:

Option 1: Manual processing (Swan Hill RRC only)

This option is proposed to demonstrate the viability of operating a small mattress processing facility which would have a similar scale in size and operations to the current facility (up to 1000 mattresses per annum).

Option 2: Manual processing (consolidated facility with neighboring Councils)

This option is proposed to demonstrate the viability of operating a consolidated mattress processing facility for Swan Hill RRC as well as neighboring Councils, with the use of a manual mattress processing method. The facility would be capable of processing up to 5,000 mattresses per annum.

Option 3: Automated processing (consolidated facility with neighboring Councils)

This option is proposed to demonstrate the viability of operating a consolidated mattress processing facility for Swan Hill RRC and neighboring Councils, with the use of an automated mattress processing system. The proposed equipment and provisions included in this option have been discussed further in the following assessment.

5.1 RATIONALE FOR SELECTED OPTIONS

The annual mattress generation volumes by SHRCC are not considered to be sufficient to justify the capital investment required for an automated processing system. Option 1 is therefore a manual processing option.

A consolidated facility option that services neighbouring councils in addition to SHRCC has been considered as it can potentially generate a more economically feasible model for the mattress processing facility and implementation of an automated mattress processing system. The options assessment considers two alternative options for a consolidated facility which includes a manual dismantling system (Option 2) and automated processing system (Option 3). It is assumed that the consolidated facility would service neighboring Councils such as Mildura Rural City Council, Buloke Shire Council, Gannawarra Shire Council and Loddon Shire Council.

It is noted that Mildura Council currently generates 1,944 mattresses annually. For the purposes of the assessment, it has been assumed that the consolidated facility would need to process up to 5,000 mattresses annually.

5.2 FACILITY SIZING AND COST ESTIMATE

The following provides an estimate of the special requirements and associated costs for each option.

Option 1

Swan Hill RRC's existing mattress processing facility is approximately 300m² in size. It is estimated that this area would be sufficient to accommodate the space and equipment required for this option, including:

- Mattress storage area: 8m² (Based on 200cm x 200cm per mattress and 2 piles of mattresses)
 - Manual dismantling area: 48m² enclosed space
 - Steel bins, baler and storage area for separated materials: 3m³ bins for textile, foam and timber. 4.5m³ bin for steel
- *The recommended model currently generates bale weights of up to 450kg in other mattress processing facilities. Heavy-duty strapping is recommended for bales.
- Waste disposal and collection area/loading zone to accommodate waste vehicles with the following specifications:
 - Length: Up to 11.0 metres
 - Width: 2.5 metres
 - Travel height: Up to 4.2 metres

- Operating height: Up to 8.5 metres

Option 2

Further to the spaces listed in option 1, this option considers additional steel bins and bales as well as an extension of the existing facility. A spare baler has also been included in the storage area estimate.

It is estimated that a facility size of at least 400m² would be required for storage of the additional equipment mentioned above and to accommodate additional manoeuvring space.

Based on example costings, it is estimated that the construction cost for a warehouse storage/workshop space would be \$200 per m² hence the construction cost for the 100m² extension of the existing 300m² facility would be at least \$20,000.

Option 3

This option accommodates additional processing and handling equipment including a shredder, conveyor belt and fork lift/grabber. Additionally, this option only considers one baler given that only steel can be recovered from the shredded materials. The remaining shredded material would not be baled.

An estimated facility size of at least 500m² would be required for storage of the additional equipment mentioned above and to accommodate additional manoeuvring space.

Based on the construction cost of \$200 per m², the extension of the existing 300m² facility would cost at least \$40,000.

5.3 PURCHASING AND OPERATING COST ESTIMATE

A breakdown of the estimated annual operating costs and purchasing costs based on the proposed options are provided in Table 6 and Table 7 below. This includes all capital and equipment purchasing costs, as well as operational costs and revenues such as waste disposal costs, utilities, transport of materials, employee costs and recycling revenues.

During the consultation process with existing mattress processors and recyclers, much of the costing information requested was considered to be commercially sensitive and hence they were not able to provide this information.

Given the difficulty in attaining the pricing information, the estimates specified below are provided to form the financial analysis.

5.3.1 WASTE DISPOSAL COSTS & RECYCLING REVENUES

Based on the provided data, it is estimated that a total of 19.62 tonnes of material would be landfilled for every 1000 mattresses generated annually. This excludes the steel springs which would be separated and delivered to scrap metal recyclers. This weightage has been adopted in the assessment in Table 6 to calculate the estimated landfill costs.

The proposed manual processing method however aims to recover more materials and hence it is assumed that 10% of the material currently landfilled would be residual waste which would need to be landfilled when using the manual processing options (Options 1 and 2).

SHRCC's landfill rate of \$52.95/tonne has been adopted for estimating the disposal costs which is the landfill levy rate for non-prescribed municipal waste for the financial year of 2021/2022.

Based on 1000 mattresses estimated to be collected annually, it is estimated that a total of 15,000kg of steel would be generated based on the generation estimate of 15kg of steel per mattress, as provided by Waste Management Review (2016). The same estimate has applied to the shared facility options. Based on the information received from the metal recyclers, SHRCC would receive \$120 per tonne of steel provided to metal recyclers. This revenue has been adopted as an estimate in the assessment below.

5.3.2 UTILITIES AND TRANSPORTATION

It is anticipated that the electricity and water consumption rates of the processing facility would be minimal and hence this has not been separately assessed in the analysis below.

The transportation costs for the individual material components to be transported from Swan Hill Council's mattress processing facility to the respective recycling facilities have been excluded from the assessment below due to the lack of available costing information. The transportation costs would however be similar for Options 1 and 2 where mattresses would be manually dismantled into the individual material components.

The transportation costs incurred for Option 3 would mainly be associated with the transport of steel to the recycler given that the remaining materials can be landfilled at Swan Hill landfill. There would therefore be no additional transportation costs if the steel is collected by the recycler.

5.3.3 EMPLOYEE COSTS

Based on the annual generation rate of 1,000 mattresses, SHRCC is estimated to process up to 5 mattresses daily with exclusion to weekends and public holidays. As discussed above, option 2 and 3 presume a generation rate of up to 5,000 mattresses annually throughout the Councils considered in the assessment. This would equate to a maximum of 23 mattresses being processed on a daily basis.

Employees would be entitled to a minimum wage of \$20.33 per hour (excluding tax) as per the Fair Work Ombudsman requirements. An estimated wage of \$25 per hour has been applied equating to an annual salary equivalent to \$52,000 per year. As per the rate calculated in Table 3, between 6 and 16 mattresses can be manually dismantled per employee per day. The following financial analysis adopts a conservative mattress processing rate of 2 mattresses per employee per hour.

Manual Dismantling

A minimum of two employees are being recommended for each option to ensure that mattresses can be safely transported with minimal occupational health and safety risks imposed.

Option 1

Based on the above, it is estimated that each of the two employees would be required on-site for 6 hours per week to process the 23 mattresses generated per week.

Option 2

It is estimated that two employees would be required on-site for 5 days per week (8 hours/day) to process the 115 mattresses generated per week. This conservative estimate has been applied to ensure that the cost assessment accommodates a worst-case scenario.

Automated Shredder

Option 3

Based on the shredder's processing capacity of 150 mattresses per hour, it is presumed that the two employees would only be required for approximately 3 hours per week at maximum, to process the 115 mattresses generated per week.

Table 6 Operational Cost Breakdown (Estimated)

Operating Cost	Option 1: Manual processing (per year, excluding GST) <i>1000 mattresses</i>	Option 2: Manual processing (per year, excluding GST) <i>5000 mattresses</i>	Option 3: Automated processing (per year, excluding GST) <i>5000 mattresses</i>
Employee Wages	- \$15,600	- \$104,000	- \$7,800
Revenue from metals	+ \$1,800	+ \$9,000	+ \$9,000
Landfill levy	- \$103.89 (Assumed 1.97 tonnes of residual waste)	- \$519.43 (Assumed 9.81 tonnes of residual waste)	- \$5,194.33 (All materials except steel being landfilled, as per current practice – 98 tonnes landfilled)
TOTAL	- \$13,903.97	- \$95,519.43	- \$3,994.33

Table 7 Purchasing Cost Breakdown

Purchasing Cost	Option 1: Manual processing (excluding GST)	Option 2: Manual processing (excluding GST)	Option 3: Automated processing (excluding GST)
Construction cost for extension of shed	N/A	-\$20,000	-\$40,000
Shredder equipment cost (including installation and transportation cost)	N/A	N/A	- \$420,000
Dust extraction system (including installation and transportation cost)	- \$69,410.00	- \$69,410.00	- \$69,410.00
Balers for foam, latex, steel (including transportation cost)	- \$24,800 (Assumed one baler to be used in rotation)	- \$24,800 (Assumed one baler to be used in rotation)	- \$24,800 (Assumed one baler for steel)
Fork Lift (including transportation cost)	N/A	N/A	- \$53,119.90
TOTAL	- \$94,210.00	- \$114,210.00	- \$607,329.90

Note: The above listed equipment costs do not include potential maintenance costs

5.4 PRODUCT STEWARDSHIP SCHEME REBATES

The Australian Bedding Stewardship Council (ABSC) are currently developing an expanded Recycle My Mattress Scheme, a mattress stewardship scheme which would provide rebates to accredited mattress recyclers and mattress collectors throughout Australia. ABSC aims to launch the scheme by March 2023. A range of mattresses would be accepted under the scheme including memory foam and polyurethane foam mattresses, pocket sprung mattresses, coil spring mattresses, latex mattresses, orthopedic mattresses and pillow top mattresses. The scheme would not accept bed bases, mattresses that are significantly contaminated and soiled with animal and human body fluids and mattresses that are not collected by an ABSC-accredited collector or recycled by an ABSC-accredited recycler.

The scheme would provide rebates to accredited collectors and accredited recyclers. The rebate quantity would depend on the level of material recovery and distance travelled by the mattresses which is discussed further below Table 8.

As the cost rebates are yet to be confirmed, the available estimates have been used in the financial analysis below for the purpose of estimating the potential operating costs. It should be noted that membership fees may be incurred as well however this has not been included in the analysis below as they are yet to be determined.

Table 8 provides an estimate of the rebates available for each option under the scheme.

The total value of rebates has the potential to offset the entire operational costs for all options assessed. This is examined further in the Net Present Value assessment in Section 5.5.

Table 8 Potential Rebates

Operating Cost	Option 1: Manual processing (per year, excluding GST) <i>1000 mattresses</i>	Option 2: Manual processing (per year, excluding GST) <i>5000 mattresses</i>	Option 3: Automated processing (per year, excluding GST) <i>5000 mattresses</i>
Collection Rebate from ABSC (\$5 or 10/mattress)*	\$5000 (\$5 x 1000 mattresses)	\$50,000 (\$10 x 5000 mattresses)	\$50,000 (\$10 x 5000 mattresses)
Recycling Rebate from ABSC (\$6 or \$16/mattress)**	\$16,000 (\$16 x 1000 mattresses)	\$80,000 (\$16 x 5000 mattresses)	\$30,000 (\$6 x 5000 mattresses)
TOTAL	\$21,000	\$ 130,000	\$80,000

*The collection rebate estimates are distance-based. The estimates are \$5/mattress for intra-regional collections (< 100kms) and \$10/mattress for inter-regional collections (>= 100kms) hence the differences in the rebates shown above.

**The recycling rebate estimates are based on the level of material recovery. The manual processing method would achieve a substantial material recovery rate of more than 60% and would receive a rebate of \$16/mattress. The automated processing or shredding method would achieve a partial material recovery rate of between 40-60% and hence would receive a lower rebate of \$6/mattress

5.5 NET PRESENT VALUE ASSESSMENT

As discussed above, SALT have considered 3 facility options in the following assessment:

- (a) Option 1: Manual processing (Swan Hill RRC only)
- (b) Option 2: Manual processing (consolidated facility with neighboring Councils)
- (c) Option 3: Automated processing (consolidated facility with neighboring Councils)

A net present value assessment as well as further information on the costings and gate charges required to meet the capital costs has been provided below for each option.

It should be noted that the capital and establishment costs presented in have been rounded up to the nearest \$1,000.

Where external funding is considered in the assessment it has been assumed to cover 50% of the site's capital and establishment costs. The external funding available would fall within the ranges noted below as stipulated by Sustainability Victoria (SV) for their current relevant resource recovery grants:

- Between \$80,000 and \$250,000 for an individual application (Option 1)
- Between \$80,000 and \$500,000 for a group application (Options 2 and 3)

Further information regarding SV grants can be found in Section 9:

Option 1: Manual processing (Swan Hill Rural City Council only)

This option is proposed to demonstrate the viability of operating a small mattress processing facility which would have a similar scale in size and operations to the current facility. The proposed equipment and provisions included in this option have been discussed further in the sections above.

This option can be considered by Council as a preliminary management method to recycle the mattresses while consultations with neighboring Councils are being conducted and as the Australian Bedding Stewardship Council mattress recycling scheme is being developed.

This option would be less financially viable in comparison to Options 2 and 3 as a higher gate fee would be required if rebates and state funding covering at least 50% of the capital costs, are not received.

Key assumptions for costing this option are:

- Up to 1,000 mattresses would be received each year.
- Employee hours and wages as discussed in section 5.3.3 and Table 6 above.
- The rebates and revenues received would be as noted in Table 6.
- The capital costs would be as noted in Table 7.
- A total funding of \$47,500.00 would be received from Sustainability Victoria or a similar party to cover 50% of the site's capital and establishment costs.

The Net Present Value (NPV) assessment for this option is summarised in Table 9 and Table 10 below.

The NPV suggests:

- Without both the rebate and external funding covering 50% of the capital costs, this option may still be considered as a gate fee of \$22.70 would need to be charged which is still lower than the current gate fee of \$25.
- With only external funding covering 50% of the capital costs, this option could be financially viable if a gate fee of \$18.30 is charged. This could be considered as a potential option.
- In the instance that both rebates and external funding are received, Council may consider incentivising residents by providing them with a monetary reward for depositing of their mattresses at the processing facility given that Council would be earning a significant profit from the revenue received. These profits

are larger than that received in the other circumstances where the profit received would not be sufficient to provide a return for the customers.

Table 9 NPV assessment for Option 1 (\$/year)

Year No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Capital & establishment costs	\$95,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salary	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600	\$15,600
Landfill levy	\$104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104	\$ 104
Total cost	\$110,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704	\$15,704
Gate fee revenue ¹	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Revenue from recovered materials	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800	\$1,800
Total revenues	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800	\$26,800
Annual Loss/Profit	-\$83,904	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096	\$11,096
NPV²	\$24,697														

¹ Assumes current gate fee of \$25 per mattress

² Discount rate = 5%

Table 10 Gate fee required to balance costs under various rebate and capital funding scenarios

Scenario	No mattress rebate and full capital costs	Mattress rebate (\$5 + \$16) and full capital costs	No rebate and 50% capital costs funded through grant	Mattress rebate (\$5 + \$16) and 50% capital costs funded through grant
Gate fee needed to cover costs	\$2270	\$170	\$18.30	\$0.00

Option 2: Manual processing (consolidated facility with neighboring Councils)

This option is proposed to demonstrate the viability of operating a consolidated mattress processing facility for Swan Hill RRC and neighboring Councils, with the use of a manual mattress processing method. The proposed equipment and provisions included in this option have been discussed further in the sections above.

This option would be more financially viable than Option 1 and less financially viable than Option 3. From a material recovery perspective however, option 2 would achieve a higher material recovery rate than option 3 and hence would be the recommended option to Council. This option can be considered by Council upon consultation with neighboring Councils within the region and upon gaining a further understanding of the Australian Bedding Stewardship Council's mattress recycling scheme.

Key assumptions for costing this option are:

- Up to 5,000 mattresses would be received each year
- Employee hours and wages as discussed in section 5.3.3 and Table 6 above.
- The rebates and revenues received would be as noted in Table 6.
- The capital costs would be as noted in Table 7.
- A total funding of \$47,500.00 would be received from Sustainability Victoria or a similar party to cover 50% of the site's capital and establishment costs.

The NPV assessment for this option is summarised in Table 11 and Table 12 below.

The NPV suggests:

- Without both the rebate and external funding covering 50% of the capital costs, this option may still be considered as a gate fee of \$21.30 would need to be charged which is still lower than the current gate fee of \$25.
- With only external funding covering 50% of the capital costs, this option could be financially viable if a gate fee of \$20.20 is charged.
- In the instances that only rebates are received and if both rebates and external funding are received Council may consider incentivising residents by providing them with a monetary reward for depositing of their mattresses at the processing facility given that Council would be earning a significant profit from the revenue received. These profits are larger than that received in the other circumstances where the profit received would not be sufficient to provide a return for the customers.

Table 11 NPV assessment for Option 2 (\$/year)

Year No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Capital & establishment costs	\$115,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salary	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000	\$104,000
Landfill levy	\$519.43	\$519	\$519	\$519	\$519	\$519	\$519	\$519	\$519	\$519	\$519	\$519	\$519	\$519	\$519
Total cost	\$219,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519	\$104,519
Gate fee revenue ¹	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000
Revenue from recovered materials	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000
Total revenues	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000
Annual Loss/Profit	- \$85,519	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481	\$29,481
NPV²	\$196,474														

¹ Assumes current gate fee of \$25 per mattress

² Discount rate = 5%

Table 12 Gate fee required to balance costs under various rebate and capital funding scenarios

Scenario	No mattress rebate and full capital costs	Mattress rebate (\$10 + \$16) and full capital costs	No rebate and 50% capital costs funded through grant	Mattress rebate (\$10 + \$16) and 50% capital costs funded through grant
Gate fee needed to cover costs	\$2130	\$0.00	\$2020	\$0.00

Option 3: Automated processing (consolidated facility with neighboring Councils)

This option is proposed to demonstrate the viability of operating a consolidated mattress processing facility for Swan Hill RRC and neighboring Councils, with the use of an automated mattress processing system. The proposed equipment and provisions included in this option have been discussed further in the sections above.

This option would be the most financially viable option however would not be the ideal and recommended option from a recovery perspective as it provides the lowest material recovery rate.

Key assumptions for costing this option are:

- Up to 5,000 mattresses would be received each year.
- Employee hours and wages as discussed in section 5.3.3 and Table 6 above.
- The rebates and revenues received would be as noted in Table 6.
- The capital costs would be as noted in Table 7.
- A total funding of \$284,000.00 would be received from Sustainability Victoria or a similar party to cover 50% of the site's capital and establishment costs.

The NPV assessment for this option is summarised in Table 13 and Table 14 below.

The NPV suggests:

- Without both the rebate and external funding covering 50% of the capital costs, a gate fee of \$12.00 would need to be charged which is lower than the current gate fee of \$25.
- With only external funding covering 50% of the capital costs, this option would be financially viable if a gate fee of \$6.40 is charged.
- In the instances that only rebates are received and if both rebates and external funding are received, Council may consider incentivising residents by providing them with a monetary reward for depositing of their mattresses at the processing facility given that Council would be earning a significant profit from the revenue received. These profits are larger than that received in the other circumstances where the profit received would not be sufficient to provide a return for the customers.

Table 13 NPV assessment for Option 3 (\$/year)

Year No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Year	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Capital & establishment costs	\$608,000	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salary	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800	\$7,800
Landfill levy	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194	\$5,194
Total cost	\$620,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994	\$12,994
Gate fee revenue ¹	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000	\$125,000
Revenue from recovered materials	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000	\$9,000
Total revenues	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000	\$134,000
Annual Loss/Profit	-\$486,994	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006	\$121,006
NPV ²	\$676,950														

¹ Assumes current gate fee of \$25 per mattress

² Discount rate = 5%

Table 14 Gate fee required to balance costs under various rebate and capital funding scenarios

Scenario	No mattress rebate and full capital costs	Mattress rebate (\$10 + \$6) and full capital costs	No rebate and 50% capital costs funded through grant	Mattress rebate (\$10 + \$6) and 50% capital costs funded through grant
Gate fee needed to cover costs	\$12.00	\$0.00	\$6.40	\$0.00

In reference to the above gate fees, current mattress collection costs in neighbouring Councils and by private corporations can range between \$13 to \$40 per mattress hence the gate fees required to meet the capital and establishment costs, as noted above are within an acceptable range.

It should be noted that the number of mattresses received at the proposed processing facility could increase beyond the estimated numbers if the new Recycle My Mattress Scheme is implemented by the Australian Bedding Stewardship Council (ABSC). This would likely be so as customers and residents would not need to pay a gate fee if the rebates are received from ABSC and on the basis that the costs and rebates received are as shown in the tables above.

6 RISK ASSESSMENT

Table 15 shows the potential risks, severity and suggested control methods that could be considered to avoid the risks from occurring in the waste handling and collection processes. Consideration of feasibility risks has also been provided.

Note that this is a preliminary risk assessment and does not replace the need for the contractors and equipment providers to complete or provide their respective OHS assessment for waste collections and waste equipment handling.

The information provided below have been adopted from WorkSafe Victoria *Non-Hazardous Waste and Recyclable Materials* (2003). The severity of each risk has been determined based on the risk rating table enclosed in Department of the Environment *Environmental Management Plan Guidelines* 2014.

Table 15 Risk Assessment

Area	Risk	Severity	Suggested controls
Waste processing	Occupational health and safety risks such as slips, trips and injuries during manual transfer of mattresses	High	Two employees have been proposed per facility, in each of the recommended options. This would minimise the occurrence of OH&S risks on the employees as the mattress weight can be well distributed when being transported. Additionally, fork lifts have been proposed to transfer the mattresses safely into the shredder where required. All employees would attend the required training and study the user manuals as provided by the respective equipment providers to minimise occurrence of these risks.
Waste Handling/ Management	Fire incidents from mattress and material stockpiling	High	Stockpiling of mattresses and individual material components due to the inability to process mattresses or deliver the materials to the recyclers at the rate at which they are generated may lead to fires incidents occurring on-site. This may also occur due to staff shortages. The report proposes a larger number of employees than that required hence there is low likelihood of stockpiling occurring. Additionally, it is recommended that the individual materials are collected regularly to prevent additional risks. As discussed in section 0, waste will be stored and managed in a manner which minimises the risks of fires. Swan Hill Council would perform regular routine assessments of the site to ensure that there is minimal or no stockpiling of mattresses and materials.
Waste Handling	Type of wastes handled – risk associated in contact with unknown hazardous substances or sharp objects	Medium	The site's employees should be educated on safe management and disposal of hazardous substances and sharp objects. Waste vehicle operators should be trained and informed on safe handling of unknown substances. Operators could be provided with PPE to avoid infections and to assist in handling of waste bins.
	Incidents during waste collection vehicle ingress or egress movements	Low	Vehicle operators would be trained in ensuring the following Tailgate is closed after clearing waste area Move vehicle slowly when tailgate or body is raised

Area	Risk	Severity	Suggested controls
Waste collection			Clear waste from tailgate seal and from rear of machine before departure from the subject site Ensure tailgate is locked after unloading operation Vehicle operators should not exit the vehicle body unless engine is switched off, ignition key is removed, safety prop is in position and the vehicle body is well ventilated. Regular safety checks and inspection of vehicles should be conducted.
	Incidents during manual handling of bins	High	Vehicle should meet relevant Australian Design Rules. Ensure that vehicles with low bowl height are used to avoid lifting of bins above shoulder height. Vehicle operator should be clear of the equipment before activation of packing or tipping controls.
	Slip and trip hazards in moving into and out of the vehicle	Medium	Maintain sufficient and frequent communication between driver and runner. The hose should not be used as handholds when mounting or dismounting.
	Slips and trips while transporting bins	Low	As the collection/loading zone would be at grade, there are no hazards presented from the presence of slopes or steps. The collection/loading zone and waste storage area would also be well lit at all times to ensure good visibility to staff/vehicle operators. However, to ensure that any other potential risks are mitigated, frequent communication should be maintained between the driver and runner and the runner should only transfer one bin at a time.
Surrounding traffic	Conflict with other vehicle operators and employees during collection	Medium	Ensure that collection is to occur only at off-peak hours. The collection area should also be well-lit to allow for better visibility of oncoming traffic and pedestrians.
Waste Bins	Overflowing bins affecting the transport of bins to the waste collection vehicle or presenting as a trip hazard.	Low	The recommended facility sizes enclosed in this report allows for storage of bins which would provide a larger capacity than the estimated generation volumes for all waste streams hence there would be a low likelihood of this occurring.

6.1 RISKS TO FEASIBILITY

In addition to the above, it should be noted that the Australian Bedding Stewardship Council Scheme would likely introduce other mattress processing facilities in the region which may reduce the number of mattresses delivered to Swan Hill's processing facility. This could reduce the recycling rebate received due to the reduced output volumes of recyclable materials and hence increase the operating cost. The manual processing system would therefore become a more attractive option if this occurs given the lower upfront purchasing and investment value for the facility.

The increasing landfill levies would also pose as a financial risk to the facility given that this may increase the landfilling cost for materials which cannot be recovered or recycled due to the form of the material when separated from other components.

7 REGULATORY AND PLANNING REQUIREMENTS

It is noted that there are no specific regulatory and planning requirements for mattress processing and recycling facilities. The most relevant requirements would be the general requirements that apply to recycling or recovery facilities, which have been presented below for reference.

The relevant Environment Protection Agency (EPA) Victoria permissions and requirements for the proposed waste and resource recovery facility options are listed as follows:

Facility category: Waste and Resource Recovery (small)

This category would likely apply to facility Options 1, 2 and 3, depending on the volume of mattresses received and processed. Requirements are as follows:

- An A13c registration is required for resource recovery or off-site transfer or disposal for sites that have between 5m³ and 5000m³ of stored waste on the site at any time;
- Keep and retain records of the following for five years:
 - a) Incoming and outgoing movements of waste;
 - b) Current location of waste at the activity site/facility;
 - c) Waste type of any waste located at the activity site;

There would need to be a process to effectively identify and classify all incoming waste streams

The above information should be made available to the Authority on request.

- It must be ensured that:
 - a) Only waste type shown in Appendix 1 of the registration is accepted at the activity site, except where waste is received in accordance with a permission determination or designation issued by the Authority under the Environment Protection Act 2017 or regulations made pursuant to that Act;
 - b) If any waste is received at the activity site that is not in accordance with the (a) (above), this waste is to be placed in a designated and clearly sign-posted temporary storage area and is transported to a site which is authorised to receive this waste within 21 days of the date it was received;
- Fire-fighting water and related hydrant coverage must be provided;
- All waste must be stored and managed in a manner which minimises the risks of fires. Please refer to the EPA guideline on *Management and storage of combustible recyclable and waste materials* (publication 1667.2) for further information;
- A copy of the registration must be kept at the activity site and be easily accessible to anyone engaged in any activity conducted at the activity site. Any information regarding the requirements of the registration and the Act duties must be included in the site induction and training information;
- All plant and equipment must be maintained and operated in proper working condition, in accordance with the manufacturer's specifications;
- The Authority must be immediately notified in the event of any environmental pollution incident or administrative changes. The Authority should also be notified if the waste stored at the activity site exceeds 4,500m³ at any time.

Please refer to further information regarding the EPA requirements for a "Waste and resource recovery (small)" facility here: <https://www.epa.vic.gov.au/for-business/permissions/registrations/types-of-registrations#Rich%20text%205>

For safety purposes and to minimise risk of fire incidents, it is critical that the facility consistently processes the mattresses received and removes the individual material streams stored on-site. The individual material streams should be continuously transported to the respective facilities, for recycling. It is therefore recommended that the mattress facility is designed to avoid the need to stockpile mattresses and/or the separated materials for prolonged periods of time to minimise risks.

8 SOCIAL AND CIRCULAR ECONOMY IMPACTS

As discussed previously, it is noted that the introduction of a mattress processing facility would create local work opportunities and hence would generate social benefits for the local community.

It is understood that several other neighbouring Councils are currently seeking for mattress recycling and processing opportunities. Therefore, there is an opportunity to develop a consolidated mattress processing facility which would have a greater environmental impact with the increased landfill diversion and material recovery rates as well as a greater social impact by introducing work opportunities into the local communities. This consolidated local solution would need to be facilitated by collaboration among the various Councils which is a critical aspect in developing a circular economy system.

If a consolidated facility is considered, it should be noted that manual processing would generate a greater workforce demand when compared with the automated processing systems.

The presence of a mattress processing facility and the consequent increase in volume of materials within the region would potentially encourage the introduction of material processing and recycling businesses within the region. As a result, this would generate more work opportunities for all community members including those who may be at a disadvantage to the open labour market.

Further to the above, diversion of materials that cannot be recycled to a waste to energy facility in lieu of the standard landfilling process encourages recovery through energy generation and thus supports a circular economy model.

Given the above, it is noted that Option 2 would generate the greatest social and circular economy impacts based on the mattress processing volumes and the manual processing method.

9 GRANT OPPORTUNITIES

SHRCC would be eligible to apply for the "Recycling Victoria Councils Fund Round 2 – Stream 2: Implementation" grant currently administered by Sustainability Victoria.

Swan Hill Rural City Council and Mildura Rural City Council are considered as "Large Councils" and hence would be eligible for the \$1: \$1 co-contribution model.

Councils such as Buloke Shire Council, Gannawarra Shire Council and Loddon Shire Council are considered as "Small Councils" and hence would be eligible for the \$2: \$1 co-contribution model, if part of a collaborative application.

If the consolidated facility is the preferred option and hence the partnership involves a mix of Small and Large Councils, the co-contribution requirements would vary for each council type, as listed above.

At least 80% of the co-contributions must be financial (cash) while 20% can be in-kind (materials, labour).

To ensure eligibility for the funding, the project must:

- be located in and service Victoria
- meet regulatory or planning requirements
- be completed by 31 December 2023.

Some of the costs that are eligible for this funding include:

- Capital purchases (i.e. infrastructure or equipment)
- Pre-construction (site preparation) such as site clearing, earthworks or site accessibility works
- Dedicated staff costs or project management costs for new roles or extension of hours for existing roles – 100% of the increased staff time must be used on the project
- Marketing, advertising and promotional costs
- Project permit, licensing and approval costs

- Purchase of vehicles, where equipment is integral for the project to occur
- Leasing of equipment

Some costs including operating costs (i.e. salaries and utility) and maintenance costs would not be funded under the grant.

The proposed timeline for the funding, including application and project completion deadlines are provided below for reference:

- Applications open: 14 February 2022
- Applications close: 14 April 2022
- Notification of outcome: June to July 2022
- Funding agreements established: June to July 2022
- Projects commenced by: 1 July 2022
- Project completed by: 31 December 2023

Further information regarding the funding can be found here: <https://www.sustainability.vic.gov.au/grants-funding-and-investment/grants-and-funding/recycling-victoria-councils-fund-round-2-stream-2-implementation>

10 CONCLUSION

This report was prepared for SHRCC to provide a feasibility assessment of establishing a mattress processing facility at the Swan Hill Landfill, capable of processing mattresses generated within the Swan Hill municipality as well as consideration of a consolidated facility servicing the wider region.

The feasibility assessment covered the following:

- Summary of the current status of mattress processing at SHRCC, neighbouring councils and across Victoria;
- Review of available mattress processing technologies, their benefits and limitations
- Assessment of potential markets for recovered materials
- Assessment of three potential processing facility options including analysis of establishment and operating costs
- Net present value assessment of financial feasibility of each option and estimate of gate fees required under different funding and product stewardship scenarios
- Review of the product stewardship schemes, rebates and capital funding opportunities available
- Social and circular economy impacts
- Summary of the regulatory requirements to establish a mattress processing facility.

Key findings:

All options were assessed to be financially viable with required gate fees ranging between \$0 and \$22.70 per mattress, which is less than the current gate fee of \$25 charged by SHRCC.

A small-scale facility (Option 1) capable of processing up to 1,000 mattresses per annum would enable SHRCC to process all mattresses within the municipality. Gate fees required to cover operational and capital expenditure over a 15-year period range from \$22.70 per mattress down to as little as \$1.70 if potential mattress rebates are considered.

A larger-scale facility (Option 2) capable of processing up to 5,000 mattress per annum would provide sufficient scale for SHRCC and neighbouring councils to collaboratively establish a consolidated facility. Gate fees required to cover operational and capital expenditure over a 15-year period range would be \$20.20 to \$21.30 per mattress, depending on the level of external funding received. If potential mattress rebates are considered then the operation could be fully funded by the rebate with zero cost to the customer.

For the larger scale facility, both manual (Option 2) and automated (Option 3) processing options were considered, with the manual system presenting as the more beneficial option for SHRCC due to the high value placed on creating additional employment opportunities. Whilst financially the automated system would require a lower operational cost and lower gate fees, the capital investment required (\$568,000) may not be feasible for SHRCC, either with or without external funding.

The report has also discussed the economic and environmental benefits of landfill diversion hence automated processing methods such as the shredding method discussed in this report would not be recommended or encouraged as it generates large volumes of waste that cannot be recovered. It also creates a smaller social impact given that it generates a lower demand of manual labour.

Given the direction of the industry, landfilling should be avoided as much as possible and alternate waste management strategies such as waste to energy should be considered where it is financially viable and suitably located.

In conclusion, it is found that the development of a consolidated facility with a manual processing system to process mattresses generated within SHRCC and neighboring Councils would be the most financially viable and sustainable option. As discussed above, this option would also provide greater social and circular economy opportunities. Therefore, SALT recommends that this option is considered by SHRCC to ensure greater economic return and environmental benefits for the region. Furthermore, given that the viability of Option 2 relies on the

participation of several other Councils and is also dependent on the outcome of the mattress stewardship program, it may be preferable for SHRCC to establish a facility that manages its own mattresses (Option 1) in the first instance, before proceeding with Option 2 when agreements with neighbouring councils have been confirmed and more is known regarding the mattress stewardship program eligibility and rebate structure.

Recommendations:

- It is recommended that the collection strategy is continued whereby mattresses are collected at a consolidated collection point as this would minimise mattress contamination and deterioration due to weathering and environmental exposure.
- Proceed with establishing a facility capable of processing up to 1,000 mattresses per year utilizing the existing shed at the Swan Hill landfill site (Option 1).
- Commence engagement with neighbouring councils and Loddon Mallee WRRG to gauge interest in a consolidated facility servicing the region (or part thereof).
- Monitor progress made by the Australian Bedding Stewardship Council (ABSC) to initiate the mattress recycling program and register for rebates when available.
- The consolidated facility with manual mattress processing methods implemented (option 2), can be considered upon consultation with neighboring Councils and upon learning more about ABSC's mattress recycling program.
- Seek State Government funding support through grants such as Sustainability Victoria's Recycling Victoria Councils Fund Round 2 – Stream 2: Implementation.

11 REFERENCES

1. Environment Protection Authority Victoria (2021). *Waste treatment, disposal, transport and recycling*. <https://www.epa.vic.gov.au/for-business/permissions/licences/types-of-operating-licences/waste-treatment-disposal-transport-and-recycling>
2. Waste Management Review (2016). *TIC Group Mattress Recycling Plant, Tottenham, VIC*. <https://wastemanagementreview.com.au/site-in-focus-tic-mattress-recycling-plant-tottenham-vic/>
3. Metropolitan Waste and Resource Recovery Group (MWRRG) *Mattress recycling in Melbourne and greater Geelong*, 2015
4. Department of Environment, Land, Water and Planning (2019). *Victoria in Future 2019 Population Projections 2016 to 2056*. https://www.planning.vic.gov.au/_data/assets/pdf_file/0032/332996/Victoria_in_Future_2019.pdf
5. Engage Victoria (n.d.). *Recovered Energy Australia*. <https://engage.vic.gov.au/epa-works-approvals/recovered-energy-australia>
6. Actionsheds (2019) *Industrial Shed Prices – What Does it Cost?*. <https://www.actionsheds.com.au/industrial-shed-prices/>
7. Australia New Zealand Infrastructure Pipeline Australia (n.d.). *Paper Energy from Waste Facility* <https://infrastructurepipeline.org/project/australian-paper-energy-from-waste-facility#:~:text=The%20Maryvale%20Energy%20from%20Waste.SUEZ%20Australia%20and%20New%20Zealand>.
8. Australia New Zealand Infrastructure Pipeline Australia (n.d.). *South-East Melbourne Advanced Waste Processing Facility*. <https://infrastructurepipeline.org/project/south-east-melbourne-advanced-waste-processing-facility>
9. Environment Protection Authority Victoria (2021). *Waste levy*. <https://www.epa.vic.gov.au/for-business/find-a-topic/landfill-guidance/waste-levy#waste-levy-rates-and-fee-units-1-july-2022-to-30-june-2023-and-from-1-july-2023>

APPENDIX 1 MATTRESS SHREDDER SPECIFICATIONS



ADuro U Shredder

U-1400



example picture

MACHINE DATA

Drive power	55 kW, 50 Hz, 400 V
Rotor length	1.400 mm
Rotor diameter	350 mm
Rotor speed	83 rpm
No. of knives rotor	64 pcs.
No. of knives stator	3 pcs.
Inlet opening	1.420 x 1.200 mm
Weight	4,2 t

STANDARD EQUIPMENT

Pusher	pendulum, hydraulic
Cutting Unit	rotor including knives
Service Door	for maintenance
Screens	segmented screens, 3 pcs.
Hydraulic aggregate	optional heating and cooling
Painting/Colour	ANDRITZ standard
Operating instructions	German or English

OPTIONAL EQUIPMENT

Drive options	55 kW	
Control Cabinet with FC	45 kW	
Control Cabinet with Soft Starter	45 kW	
Control Cabinet with FC	55 kW	
Control Cabinet with Soft Starter	55 kW	included
Local PLC panel		
Cabling	max. 5 m	included
Input hopper for loader feeding		included

ADDITIONAL EQUIPMENT

Lubrication system	central, automatic
Substructure	steelframe under shredder
Discharge screw	directly screwed on shredder
Input Hopper for infeed conveyor	
Input Hopper for front loader (bigger and with rubber curtains)	
BUS-Interface to PLC/DCS	
Local Control Panel	
Hydraulic Lifting Table	
Rotor hard-facing	for wear intense applications
Friction Coupling for 44/55kW Version	
Fluid Coupling for 45/55kW Version	
Instruction handbook	other than German or English

Prices for additional equipment available upon request

ANDRITZ AG

Graz & Wien, Austria
p: +43 316 6902 0

ANDRITZ AB

Sundsvall, Sweden
p: +46 660 295334

recycling@andritz.com

www.andritz.com/recycling

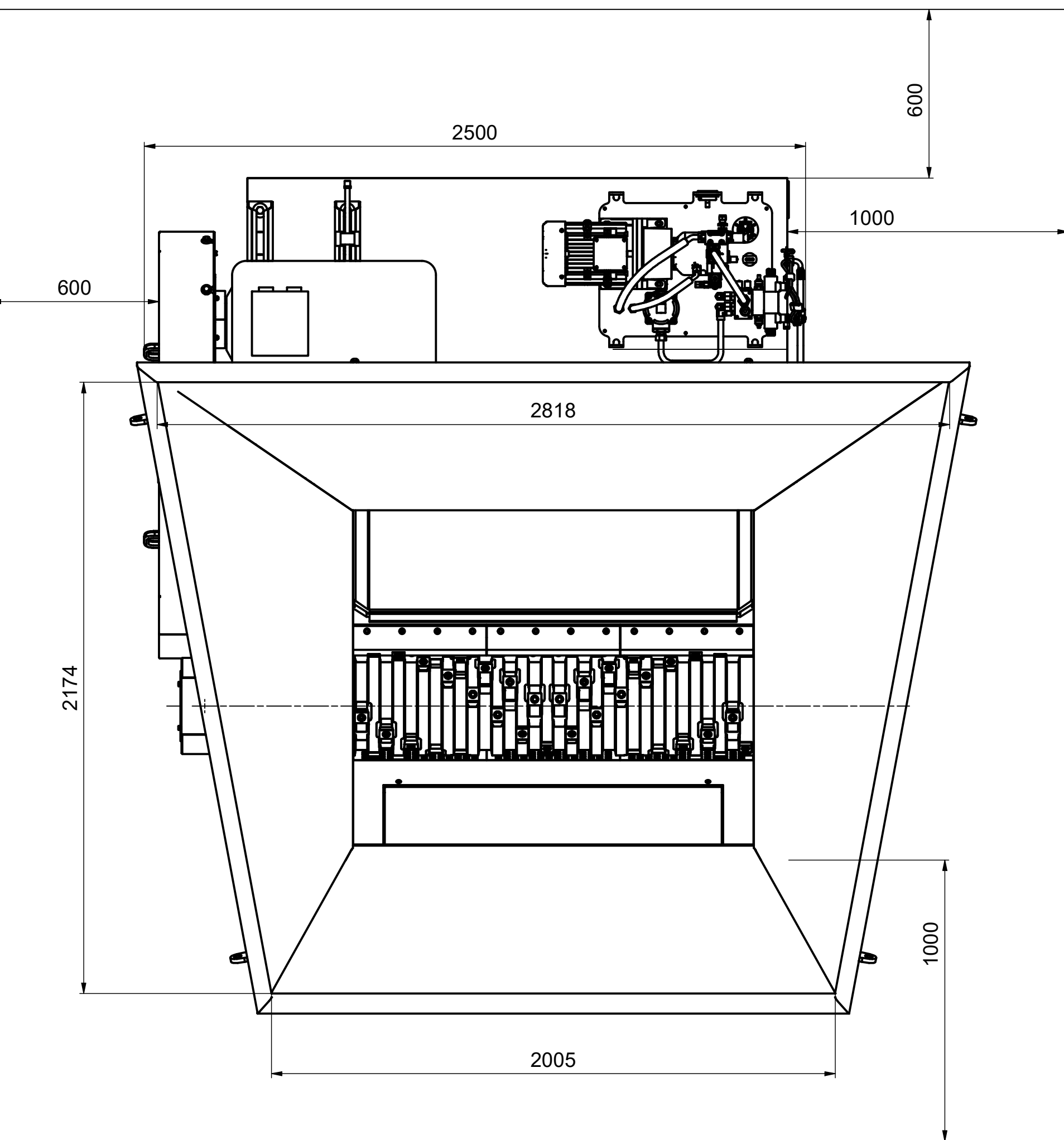
FCA European ANDRITZ Workshops according to Incoterms 2020.

The relevant General Terms of Sale and Delivery of ANDRITZ apply additionally.

All above mentioned products and prices are subject to change without notice.

Prices are net prices in EURO currency excluding taxes, customs duties & dues, etc. as of July 2020.

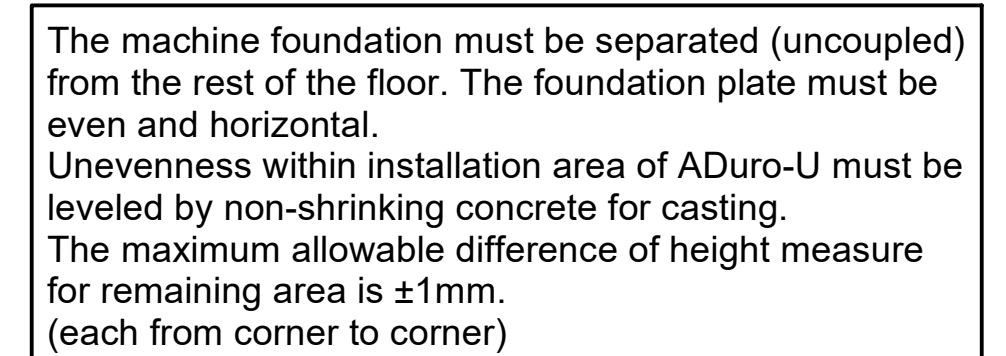
This price list shall be treated confidentially - no duplication or disclosure to third parties permitted.



Technical drawing of the side view of the machine, showing dimensions in millimeters. The drawing includes a large hopper at the top, a central processing unit, and a base. Dimensions are provided for overall height (2981), hopper height (2406), main body height (2163), and base height (1555). The width of the machine is 2971 mm. Other dimensions include 2425, 2910, 670, 418, 227, 938, 570, 46-61, and 2219,82.

[illegible]

Load condition A: static load at stopping condition
Load condition B: dynamic load at nominal motor moment
(with dynamic factor 1,2)
Seismic loads not included in any case!



Total weight: 5,5 to
Heaviest machine parts
during service to works:
Rotor: 1,05 to

Attention: all metal parts of a plant, such as machine, gearbox and motor, to be connected to grounding system

Size ISO 14405 ©																																				
General tolerances	Tolerances for linear dimensions (except chamfers and fillets)																																			
	<table><tr><td>ISO 2768-mk-E (Machining)</td><td>over 0,4 up to 6</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td><td>± 0,3 ± 0,2</td></tr><tr><td>ISO 1329-B-A-F (Steel fabric.) ≤2000 B, >2000 A</td><td>over 0,3 up to 10</td><td>± 0,1 ± 0,1</td><td>± 0,2 ± 0,2</td><td>± 0,2 ± 0,2</td><td>± 0,2 ± 0,2</td><td>± 0,2 ± 0,2</td><td>± 0,2 ± 0,2</td><td>± 0,2 ± 0,2</td><td>± 0,2 ± 0,2</td><td>± 0,2 ± 0,2</td><td>± 0,2 ± 0,2</td></tr></table>												ISO 2768-mk-E (Machining)	over 0,4 up to 6	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	ISO 1329-B-A-F (Steel fabric.) ≤2000 B, >2000 A	over 0,3 up to 10	± 0,1 ± 0,1	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2
	ISO 2768-mk-E (Machining)	over 0,4 up to 6	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2	± 0,3 ± 0,2																								
	ISO 1329-B-A-F (Steel fabric.) ≤2000 B, >2000 A	over 0,3 up to 10	± 0,1 ± 0,1	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2	± 0,2 ± 0,2																								
	<table><tr><td rowspan="2">Basic Material Name</td><td colspan="10">Basic Material Standard</td></tr><tr><td colspan="10">5472 kg</td></tr></table>												Basic Material Name	Basic Material Standard										5472 kg												
Basic Material Name	Basic Material Standard																																			
	5472 kg																																			
Product Type												5472 kg																								
Initial Revision												Actual Revision																								
Drawn	R. Ulrich		vier0r11		31.03.2021																															
Checked																																				
Replacement for Drawing No.												Rev																								
Copy from Drawing No.												Rev																								
Old Drawing No.												Rev																								
Revision												Rev																								
Description												Drawing No.	Rev																							
FINE-SHREDDER												703073518																								
OUTLINE DRAWING; ADuroU-1400; HOPPER; 45+55kW,												<table><tr><td>Scale</td><td>Sheet/Total</td><td>Scale</td></tr><tr><td>A1</td><td>1/1</td><td>1 : 15</td></tr></table>	Scale	Sheet/Total	Scale	A1	1/1	1 : 15																		
Scale	Sheet/Total	Scale																																		
A1	1/1	1 : 15																																		
Remarks ol-m-fineshredd-186-194-010-00010003-fine-shre -93090514455.idw												VAULT Database																								

Please find a summary of the proposed processes, along with a budgetary price provided below by Wastech Engineering.

Requirement

To shred mattresses of all sizes, from Single (920mm x 1,870mm) up to Super King (2,030mm x 2,030mm), with a maximum weight each of around 60Kg.

The shred will exit the shredder and pass up a belt conveyor and past an overbelt magnet which will remove the steel from the shred and deposit it in a bin at the side of the conveyor. The remaining shred (the textile, timber and foam etc.) will continue along the conveyor and drop off the end into a bin.

Equipment

Key to this process is the shredder. We propose an Andritz single-shaft shredder, model ADuro U-1400 (please see attached), fitted with a flared sided hopper to facilitate loading mattresses. Using this hopper allows mattresses to be loaded directly into the hopper by forklift truck. The shredder is able to shred down to 10mm, so will be fitted with a screen of the size required by the customer.

Fitted with a 55KW motor with frequency control, this is a powerful and easily controllable shredder.

This shredder has an infeed size of approx. 1,420 x 1,200mm, so will accommodate whole mattress from Single up to Queen, but larger mattresses will need to be cut into two parts (e.g. using a band-saw) prior to loading to the shredder. Going to the next model shredder, the U-2000, will give a larger infeed area (1,910 x 1,200mm), but will add roughly a further **\$180,000.- (Excl. GST)** to the project price.

The ADuro U-1400 shredder has a throughput of around 2 – 3 Tonnes / hour, which is sufficient to shred around 50 – 60 mattresses per day (maximum mattress weight of 50Kg), which should be sufficient to meet your requirement for process 20-25 mattresses per day, and still have room for growth. The shredded mattresses exit the shredder on a conveyor belt.

Following the shredder, we propose to install an inclined belt conveyor which will receive the shredded mattresses from the shredder. This conveyor will take the shred up and past an overbelt magnet, mounted above, and at right angles to, the conveyor belt. The cut up springs from the pallets will be removed and will drop down a chute and into a bin next to the conveyor. Meanwhile, the clean shred will continue along the conveyor and drop off the end into a bin.

Removing the box springs is not necessary as the shredder will cut them and they will be removed on the outfeed conveyor by the overbelt magnet.

Process overview

The process would then be:

- Manually cut larger mattresses into two parts.
- Forklift loads mattress into hopper of shredder.
- Shredder shreds the pallets to typically <=50mm.
- Shred leaves shredded on a conveyor and passes an overbelt magnet which remove cut springs.
- The cut springs drop into a bin next to the conveyor.
- The shredded mattress material (textile, foam, timber etc.) drops into a bin at the end of the conveyor.

Budgetary investment

The budgetary investment required for the supply and installation of the above equipment in Mildura, inclusive of mechanical and electrical installation and commissioning, will be around **\$420,000.- (Excl. GST)**

Notes:

- This proposal is subject to firming up the size range and quantity of mattresses to be shredded.
- To provide firm pricing we will need to visit site to produce an installation drawing.
- Pricing is subject to change due to COVID.



CAUTION
STAY AWAY FROM MAGNET

IMT

APPENDIX 2 EXCAVATOR SPECIFICATIONS



SANY

SY26U

MINI EXCAVATOR

The Sany SY26U is superior for high power output within tight working environments and fits perfectly to 3500kg electric braked towing vehicles. The 19.6hp Yanmar customised engine is designed for efficiency and productivity while reducing fuel consumption.

**RELIABLE PROVEN
COMPONENTS FOR
EVERY WORKING
ENVIRONMENT**

**YANMAR TIER 4
CUSTOMISED ENGINE**

**CLOSED
CABIN SY26U
ALSO AVAILABLE**

**EUROPEAN/
JAPANESE
HYDRAULICS**

**EASY
ACCESS AND
MAINTENANCE**

**ZERO TAIL
SWING**

**BUCKET DIGGING
FORCE 24.3 KN**

ULTRO SY26U BUNDLE PACKAGES AVAILABLE



AUGER PACKAGE



BUCKET PACKAGE



TRAILER PACKAGE

SY26U SPECIFICATIONS

WEIGHT: 2680 KG

ENGINE: YANMAR 3TNV80F-SPSY

ENG PWR: 20 HP/15.2 KW@2500 RPM

BUCKET DIGGING FORCE: 24.3 KN

HYDRAULIC PUMP FLOW: 72 L/PM

WARRANTY: 5 YEAR/5000 HR

SY26U DIMENSIONS & SPECIFICATIONS



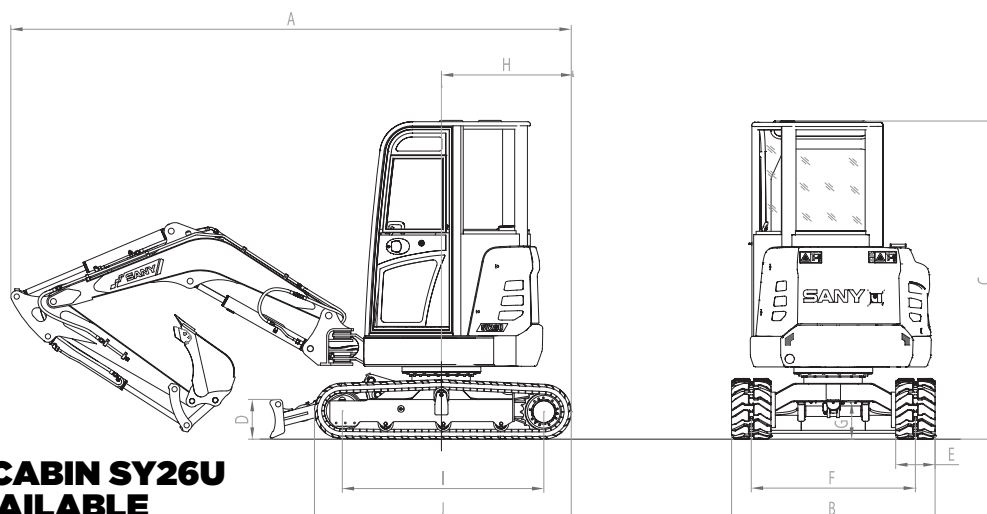
**5 YEAR KEEP
YOU GOING
GUARANTEE***



**5YR-5000HR
FACTORY
WARRANTY**



**CLOSED CABIN SY26U
ALSO AVAILABLE**

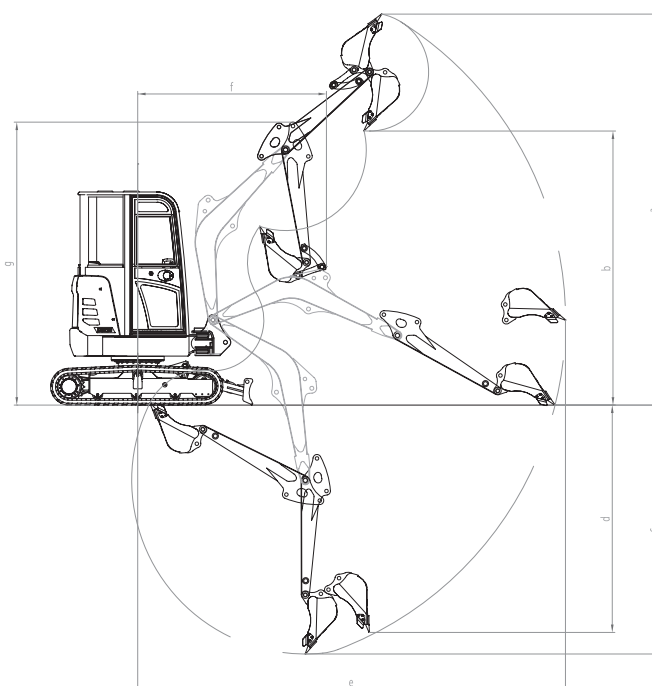


OVERALL DIMENSIONS

A	Transport Length	4285 mm
B	Transport Width	1550 mm
C	Transport Height	2430 mm
D	Blade Height	300 mm
E	Track Width (standard)	300 mm
F	Track Gauge	1250 mm
G	Minimum Ground Clearance	290 mm
H	Tail Swing Radius	775 mm
I	Track Ground Length	1560 mm
J	Track Length	1960 mm
	Boom Length	2100 mm
	Arm Length (standard)	1300 mm

MACHINE PARAMETERS

Weight	2680 kg
Engine Type	Yanmar Tier 4 final
Engine Max Power (Gross)	20 hp (15.2 kW) @ 2500 rpm
Main Pump Flow	72 lpm
Swing Speed	10 rpm
Travel Speed	2.4/4.5 km/h
Tractive Effort	20 kN
Bucket Digging Force	24.3 kN
Number of Upper Rollers	1
Number of Lower Rollers	3
Fuel Tank Capacity	35 Litre
Hydraulic Tank Capacity	30 Litre
Cooling System Capacity	4.1 Litre
Engine Oil Capacity	3.4 Litre
Ground Pressure	3.7 psi/25.5 kPa



WORKING RANGE

a	Maximum Digging Height	4435 mm
b	Maximum Dumping Height	3110 mm
c	Maximum Digging Depth	2825 mm
d	Maximum Vertical Wall Digging Depth	2585 mm
e	Maximum Digging Reach	4850 mm
f	Minimum Swing Radius	2145 mm
g	Maximum Height at Minimum Swing Radius	3210 mm

Ultron Plant & Equipment assume no responsibility or liability for any errors or omissions in the content of this brochure. Specifications from the manufacturer are subject to change without notice. Refer to our sales team for official Sany model specifications at time of purchase. *Keep You Going Guarantee applies to models SY16C through to SY50 only.

ULTRO
PLANT & EQUIPMENT

SANY AUTHORISED DEALER

☎ **1300 475 268**

📍 **5/100 BALD HILL ROAD, PAKENHAM VIC 3810**

💻 **WWW.ULTROPLANTANDEQUIPMENT.COM.AU**

ULTRO PLANT & EQUIPMENT

PROPOSAL

Excavator

SY26U

NEW 2021 SANY SY26U Excavator Canopy



PREPARED FOR
JASREENA KAUR
SALT 3

PREPARED BY
PETER WALLA
ULTRO PLANT & EQUIPMENT

ULTRO
PLANT & EQUIPMENT



CONTENTS

INTRODUCTION

PRICE ESTIMATE

OFFER AND ACCEPTANCE

SPECS AND DIMENSIONS

TERMS & CONDITIONS

INTRODUCTION

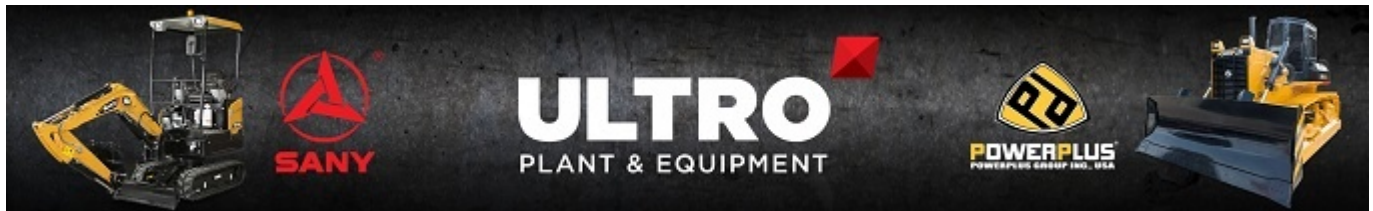
Ultero Plant & Equipment Pty Ltd is an Australian company born out of the Ultero Group of companies specialising in recruitment services for the building & construction industry and labour hire services for those industries in all States.

Given the level of experience in the building and construction sector, Ultero Plant and Equipment was a natural extension to the business and was formed by owner, Matt Lynch. Its purpose: to deliver new equipment for the local industries, accompanied by outstanding customer service.

The heart of Ultero Plant and Equipment operations is the newly launched Victorian head office in Pakenham which has a dedicated sales showroom and service and spare parts centre, staffed by a team of experts who pride themselves in delivering first-class customer service the old-fashioned way.

All machines are cleared through Melbourne port to our Pakenham head office and showroom for sale ex-store or delivered to suit.





CUSTOMER INFORMATION

CUSTOMER	Salt 3	DATE	2/12/2021
CONTACT	Jasreena Kaur	PHONE	
ADDRESS	51 Queens St	SUBURB	Melbourne
STATE	Vic	POSTCODE	3000
EMAIL	jasreena.kaur@salt3.com.au	ABN	

Dear Jasreena,

Thank you for the opportunity to quote a quality new machine from Ultro Plant & Equipment.

I hope you find the below pricing proposal to your satisfaction, feel free to contact me if you have any queries at all. My contact details are at the end of this proposal.

ITEM DESCRIPTION	QTY	UNIT PRICE	PRICE	EX GST
 NEW 2021 SANY SY26U Excavator Canopy CODE: SY26U	1	\$43,990.00	\$43,990.00	
 Yanmar 2-3T Half Hitch CODE: YM-VIO20-HH	1	\$679.00	\$679.00	
 Yanmar 2-3T Hydraulic Grab CODE: YM-VIO20-HG	1	\$2,440.00	\$2,440.00	
Auxiliary Couplings fitted to machine CODE: FIT COUPLING	1	\$363.64	\$363.64	

CONTINUED NEXT PAGE >

ITEM DESCRIPTION	QTY	UNIT PRICE	PRICE	EX GST
DELIVERY DETAILS			PRICE	EX GST
Pickup				\$0.00
NOTES This quote is valid for 30 days. Prices quoted are for pickup from Ultro Pakenham, if you require delivery please advise and we can arrange competitive freight quotes.	SUBTOTAL		\$47,472.64	
	GST		\$4,747.26	
	DELIVERY		\$0.00	
	TOTAL INC GST		\$52,219.90	

READY TO PROCEED

A 20% deposit is required before the sale is finalised.

Please pay deposit into the following account: **BSB: 033-305 Account: 618603**

Please reference this invoice number in your payment description.

DEPOSIT REQUIRED

20% of Total inc. GST 10,443.98

ULTRO INCLUSIONS

Only Ultro Plant & Equipment offer the following on new Sany Excavators. Terms and Conditions apply.



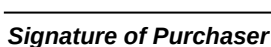
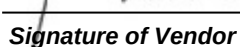
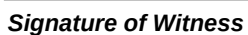
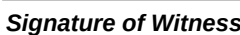
Should this proposal meet with your approval and you wish to purchase the goods, please show acceptance and sign this document in the space provided below.

Your signature constitutes an offer by you to purchase the Goods on the terms and conditions set out in this document.

Ultron Plant & Equipment Pty Ltd's standard terms and conditions of sale form part of this document and, with an offer and acceptance executed by both parties, form the agreement between the parties for the sale of the Goods.

Ultron Plant & Equipment Pty Ltd may accept or reject your offer to purchase, in its absolute discretion.

If Ultron Plant & Equipment Pty Ltd accepts your offer to purchase, a binding contract will exist.

ACCEPTED BY PURCHASER	ACCEPTED BY VENDOR
SALT 3	ULTRO PLANT & EQUIPMENT PTY LTD
	
	
DATE / /	DATE 02/12/2021

YOUR SALES CONSULTANT

PETER WALLA
Sales Consultant

ULTRO
PLANT & EQUIPMENT

T 1300 475 268
M +61 455 571 517
E peter.walla@ultrogroup.com.au
A 5/100 Bald Hill Road,
Pakenham VIC 3010 Australia
W ultronplantandequipment.com.au

SCAN TO SAVE MY
CONTACT DETAILS



APPENDIX 3 BALER SPECIFICATIONS

ORWAK POWER 3820

POWER

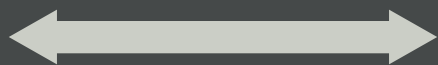
ORWAK POWER is a dynamic baler family based on an innovative hydraulic concept, Black Star Technology. Stronger, faster and smarter to give you more value for the money! 3820 has an extra generous infeed opening for large boxes up to 1500 mm wide.



Complies to
EN 16500
Safety standard

ORWAK

**Extra-wide
infeed**



500 kg

BALE WEIGHT
CARDBOARD

 BLACK STAR TECHNOLOGY

Orwak benefits

MORE PRODUCTIVE USE OF TIME

Less time spent on waste handling, more time for your core activities!

MORE SPACE & ORDER

Our balers rapidly minimize the space the waste takes up, keeping aisles free and tidy.

LESS COSTS, MORE VALUE

More compaction = less waste volume to transport. Fewer transports required results in lower transportation costs and reduced CO₂ emissions. Sorting at source yields a higher quality of waste material for recycling.



Why Orwak Power?

- + Powerful compaction of large volumes of waste
- + Low-built design for easy transportation and rich placement opportunities
- + Intelligent features make you stay in control

www.orwak.com

 **ORWAK®**

ORWAK POWER 3820

ORWAK POWER 3820 IS OPTIMIZED FOR:

PAPER

- + Cardboard
- + Shredded paper

PLASTIC FOIL

- + Shrink film (LP)
- + Plastic bags (LP)

Generous infeed for extra large packaging

STRONGER

BLACK STAR TECHNOLOGY The innovative hydraulic concept, introduced by us as Black Star Technology, is based on the reverse technique of pulling instead of pushing the press-plate downwards when compacting material.

Advantages:

- the cylinders are at its strongest point when pressure peaks
- a long piston stroke

These factors contribute to powerful compaction into dense bales!

SOLID DESIGN ORWAK POWER, with its light spherical design, the ISO 3834-certified welding of the chamber and the durable cylinder design, is created for a long heavy-duty service life.

FASTER

RAPID BALER KEEPS UP WITH YOUR PACE

- More throughput at less energy consumption than in traditional baling systems!
- Very short cycle time of only 24 seconds!
- Autostart and a sliding door that reopens automatically after each press cycle
- The gas spring-driven shutter goes up in less than 2 seconds!



SMARTER

INTELLIGENT BALER

The new PCB features data storage capacity, technical machine monitoring, communication opportunities and - as forerunner in the baler business - fulfills performance level D for personal safety.

SPECIAL PLASTIC MODE

Equipped with a special software for successful compaction of plastic foil. It gets activated when the baler is run in the manual LP mode and will keep the waste under pressure for 5 minutes to squeeze out more air from the bulky plastic.

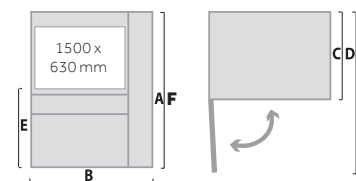
MORE GREAT FEATURES

- Low-built design for easy transportation and successful installation where space is limited
- Silent operation
- User-friendly panel & bale indicator
- Material selector HP (cardboard) & LP (plastic)
- Bales can be secured by polyester straps or wire
- **Complies with the EN 16500:2014 safety requirement standard for vertical balers**

DIMENSIONS & SPECIFICATIONS

DIMENSIONS

A	B	C	D	E	F*
2576 mm	2075 mm	1060 mm	2625 mm	1144 mm	1980 mm**



*Transport Height

**Transport feet add 100 mm but can be removed after unloading

TECHNICAL SPECIFICATIONS

LOADING APERTURE	CYCLE TIME	PRESS FORCE	BALE SIZE	BALE WEIGHT	NOISE LEVEL	MACHINE WEIGHT	OPERATING POWER
Width: 1500 mm Height: 630 mm	24 secs	26 ton, 260 kN	Width: 1500 mm Depth: 800 mm Height: 1140 mm	Cardboard: Up to 500 kg	≤ 65 db (A)	1220 kg	3-phase 3x400 V, 50 Hz

We reserve the right to make changes to specifications without prior notice. Bale weights are dependent upon material type.





APPENDIX 4 DUST EXTRACTION SYSTEM SPECIFICATIONS



DUST EXTRACTION SOLUTIONS PTY LTD

FACTORY: 45 Progress Drive

Carrum Downs, Vic 3201

phone +61 3 9786 3315

mobile +61 404 998 090

1300 800 380

sales@dustextraction.com.au

www.dustextraction.com.au

SALT3

Ref: R2372-1221

L3, 51 QUEEN ST, MELBOURNE

VIC 3000

**RE: New Dust Extractor System, Ventilation for a Mattress Processing Facility –
Swan Hill, Vic**

8 December 2021

Attention: Jasreena Kaur

Dear Jasreena

Thank you for the opportunity to provide a proposal on your Dust Extraction requirements to supply and install a dust extractor to take air bourn dust out of the room during the dismantling of mattresses. Assuming there will be light lint & general dust from the mattresses.

We have allowed for 60 air changes per hour from the room.

We will run a main duct to the end of the room, with exhaust grills and exhaust air back through the dust extractor.

Also, on the opposite end of the room, if it is sealed off, we will fit inlet grills.

You have mentioned that the dust is not combustible or explosive, therefore we have not included relevant protection devices. However, if you believe there is then please let us know.

If you have any lab tests done on the materials then please advise us.

Below you will find specifics of the quote such as works to be carried out, costs, extras, exclusions and conditions and terms of payment.

Scope of Works

To achieve optimum results, the following will need to be carried out:

Dust Extractor Supply and Install

- ✓ **Dust Extractor:** Supply One (1) NEW **Reverse Pulse Dust Extractor MODEL DES CX4-16** including support legs. Heavy Duty Carbon steel construction. 5mm fully welded seams. Uses compressed air to clean the filters. Continuous cleaning. Positioned outside the building next to the processing room. Made in China
- ✓ **Fan:** One Centrifugal Clean air fan. ***Fan Made by Aerovent Australia*** & discharge Acoustic Silencer. Fan mounted on the dust extractor. 18.5kw.
- ✓ **Control Cabinet:** Supply and Install One Metal cabinet including a VSD
- ✓ **Electrical:** Wire up fan, control pulse timer, solenoids and wire to the Control Board (Excludes power supply & connection to our board)
- ✓ **Control Pulse Timer:** Supply and fit one electronic Control Pulse timer to operate the solenoids and the diaphragm valves
- ✓ **Pulse Valves:** Prewire 4 x pulse valves & remote solenoids.
- ✓ **Pressure Gauge:** One magnehelic gauge
- ✓ **Filters:** 4 x High Efficiency Filters – Cellulose/polyester anti- static filters, 5-10 Micron efficiency.
- ✓ **Discharge:** 100lt bin with sealed lid & toggles
- ✓ **Delivery to site: Unloading & install**
- ✓ **Lifting:** Hire Lifting equipment supplied
- ✓ **Access Equipment:** Hire equipment supplied
- ✓ **Duct work:** Supply and install new galvanised modular duct work
- ✓ **Compressed Air Supply:** we will connect to your compressed supply, we have allowed 5m of air hose
- ✓ **Air Regulator:** Supply & fit
- ✓ **Wall & Ceiling Grills:** Supply & Fit grills

INVESTMENT PRICE	= \$69,410.00 Plus 10% GST
-------------------------	-----------------------------------

Delivery:

Delivery would be achieved within 10 – 16 working weeks or sooner from receipt of a purchase order, settlement of technical details and full payment of deposit monies if applicable.

Prior to these requirements being finalized, we will not proceed with any design or manufacture of the equipment, which could extend the above stated delivery period. Should this period be unacceptable, please feel free to contact us.

Note:- Delivery of equipment to be confirmed at order placement and would depend on workloads at time of order.

ADVANTAGES FOR OUR CX RANGE

We have offered one of our Reverse Pulse Type Cartridge Dust Extractors for the following **ADVANTAGES: -**

- ✓ One of the **STRONGEST** Built Dust Extractor available on the Market
- ✓ **NO** moving internal parts.
- ✓ **CONTROLLED** and **CONSTANT** pressure drop.
- ✓ Fully **AUTOMATIC** cleaning and continuous on line filtration, without the need to shut down the Dust Collector for the cleaning cycle. (Shaker systems only clean when they are turned off – pressure drop could be higher)
- ✓ **WIDE SPACING** of the cylindrical cartridges to avoid dust bridging between the cartridges and re-entrainment of dust. (Vertical filters with bags and or cartridges can have a higher can velocity resulting in a higher pressure drop, bridging & dust re-entrainment)
- ✓ Cartridges replaced and inspected from outside of the dust extractor unit thereby **ELIMINATING** any confined workspace regulations. (Some types of extractors you need to take the fan off or side panels or even get into the dust extractor to change filters – this can be a Confined Space issue, expense and time delaying.)
- ✓ **EASY** to get to by platform or access lift
- ✓ **NO TOOLS** required to change the filters
- ✓ **ROBUST** construction **5MM** carbon steel with fully **WELDED** seams, (most other types are a thin sheet-metal flat pack design, folded sheet metal, with many nuts and bolts. In the event of a **FIRE** many of these thin designs cannot be repaired, or very expensive to repair, with the possibility of a new dust extractor that could be required. This causes delays in your production, inconvenience & higher expenses. **OUR CX RANGE** will **WITHSTAND** these conditions and will normally just require new filters – very **QUICK** change over
- ✓ **VERTICAL** explosion panels with release and easy to reset mechanism (not like bursting fabric types which can be expensive and time consuming to replace)
- ✓ **DOWN DRAFT DESIGN – RECOMMENDED** by the **American Conference of Governmental Industrial Hygienists** (inlet is designed at the top of the dust extractor – this allows dust to drop under gravity, not like many other systems where dust comes in from the side or hopper which can cause re-entrainment of dust back on the filters with a higher can velocity)

Dust Extraction Solutions

Dust Extraction Solutions have been helping businesses keep their work environments clean and safe from dust for over 17 years. We have installed solutions to extract dust produced from numerous industries and our clients include many renowned Australian companies, including:

- ✓ *Walkinshaw Group*
- ✓ *Automobility*
- ✓ *Australian Dairy Packaging*
- ✓ *Peters Ice-cream*
- ✓ *Kagome*
- ✓ *Fonterra*
- ✓ *Knauf Plaster Board Manufacturer*
- ✓ *Downer EDI Rail*
- ✓ *Australian Pharmaceutical Manufacturers*
- ✓ *Jalco*
- ✓ *CFMEU Trade Training Port Melbourne*
- ✓ *Schiavellos*
- ✓ *Bosch - Clayton*
- ✓ *Simms Metal Management – Brooklyn & Broadmeadows*
- ✓ *Dunlop Fenner – West Footscray*
- ✓ *Rio Tinto*
- ✓ *Hotys spices*
- ✓ *Langdon Ingredients*
- ✓ *Scalzo Foods*
- ✓ *Pharmalat*
- ✓ *Goodmanfielders*

Exclusions:

- Any supply power or upgrade power to the control board
- Any compressed air supply, needs to be clean & dry
- Any Filtered Make up air back into the room
- Any CAD drawings or sketches
- Any Spark resistant fans and motors, senses etc
- Any explosive venting devices, etc
- Any Platforms and Ladders.
- Any fire extinguishing or suppression systems
- Any statutory authority's approvals, permits or building approvals.
- Any concrete support pads
- Any Lab dust analysis
- Any delays and associated costs outside our control.
- Any GST component.

Confidentiality Clause:

All quotations, specifications, sketches, drawings, plans etc. submitted by Dust Extraction Solutions during the tendering process, shall remain the sole property of Dust Extraction Solutions and not disclosed, discussed or offered to a third party in any form before obtaining written approval from Dust Extraction Solutions.

In the event that an order is not placed with Dust Extraction Solutions, all documents submitted during the tendering process, shall be returned to the Company.

Hours of Work and On-Site Inductions (if applicable to the quotation)

The above project has been based on a 40 hour week excluding any overtime i.e. Saturday, Sunday, Public Holidays RDO's etc. unless specifically requested in writing by the customer and accepted by Dust Extraction Solutions in writing. Installation and commissioning is normally costed on a single site visit.

Should the customer, nominated supplier or sub contractor(s) prevent Dust Extraction Solutions installing or commissioning their equipment for whatever reason, any delays will be charged.

Should any Dust Extraction Solutions personnel or their nominated sub contractors be required to attend site induction programmes at the request of a customer, time will be charged at the appropriate rate of A\$110.00 / hr/man and will be additional to the contract

Terms of Payment

50 % of the Contract Value is paid with placement of Purchase Order.

40% of the Contract Value is paid with prior to deliver

10 % of the Contract Value is paid on completion

All goods supplied with a 12-month warranty against faulty parts and/or workmanship.

Validity:

This quotation is valid for a period of 30 days from the date hereof.

We trust the above meets with your approval; however please feel free to contact us should additional information be required.

Yours faithfully,
for Dust Extraction Solutions Pty Ltd

Rod Hareb
Managing Director

DUST EXTRACTION SOLUTIONS PTY. LTD.

General Terms & Conditions of Sale

1. GENERAL

(a) The buyer by ordering goods and for accepting delivery of goods from Dust Extraction Solutions Pty Ltd incorporated in the State of Victoria (herein thereafter called the Company) acknowledges and agrees that it is expressly contracting with The Company upon the Terms and Conditions set out herein and that it will be bound by these Terms and Conditions which form part of and are incorporated into the agreement between The Company and the Buyer.

(b) Variations to The Company's Terms & Conditions may be granted but only if agreed and confirmed in writing by The Company.

2. TERMS OF PAYMENT

Refer to The Company's written quotation for the applicable terms of payment clause (a) or (b) or (c) below.

(a) Payment in full equal to the contract value next 30 days from invoice date. No retention of monies would apply.

(b) Deposit equal to 30% of the contract value, paid with order, balance nett 30 days from invoice date. No retention of monies would apply.

(c) Monthly progress payments nett 30 days to the value equal to 90% of the contract value balance paid nett 30 days from the invoice date, where alternative terms of payments are applicable these alternatives shall only apply when confirmed in writing by The Company or when specified under The Company's written quotation

3. LATE PAYMENT

(a) The Company shall retain title to any goods supplied until payment in full has been received. Payment in full shall include any penalties incurred due to Interest being added to the contract for late payment within the applicable period specified under Clause 2 as nominated under The Company's official quotation or agreed terms to the contrary which have been confirmed as accepted in writing by The Company

(b) The rate of interest for late payment shall be applied at 15 per cent per month calculated on a daily basis on the amount outstanding and such Interest shall accrue daily and added to The Buyer's account

(c) Any disputes re the issued invoice shall be made within 10 days of the invoice date otherwise it shall be deemed accepted by The Buyer

4. PRICE VARIATION

Refer to The Company's written quotation for the applicable price variation clause (a) or (b) below

(a) The price so quoted would be firm, for the duration of the contract and not subject to escalation for material and labour increases which may occur during the course of the contract Clauses 4.i) and 4.ii) shall apply

(b) The price(s) quoted would be subject to calculation for materials and labour content. Variations in the selling price would be based on adjustments covered under the Federal Metal Trades Award for the labour content and adjustments published by the Australian Bureau of Statistics for the material content. Adjustments in the contract value to compensate these increases would be applied at the completion of the contract, Clause 4.i) shall apply.

(c) Notwithstanding the aforementioned, the quoted price may alter due to late payment of The Company's issued invoices. The rate of change would be as specified under the conditions stated herein under the heading 'Late Payment'.

In addition to paragraph (a) above, the price quoted as firm is firm for the period of the contract but if the contract is delayed by The Buyer for a period exceeding 25 per cent of original delivery period quoted by The Company, then The Buyer may be required to pay escalation charges due to material and labour increases. These increases shall be calculated in accordance with paragraph (b) above

5. WARRANTY

(a) Equipment manufactured and supplied by The Company is warranted against faulty workmanship and/or materials for a period of twelve months from the date goods are dispatched

(b) In the event that goods supplied are not put into operation within three months of the dispatch date, no liability under the terms of this warranty would apply unless equipment is inspected and approved by The Company. Costs for the above inspection would be at the expense of the purchaser

(c) Warranty offered is limited to the repair or replacement of the faulty component(s) and in all claims the faulty component(s) must be returned to the place of its original manufacture. The Company will not be held responsible for the costs of any damage repairs or replacement to other building plant or equipment (whether consequential or otherwise) which may or may have occurred due to the failure of any of the said faulty component(s)

- (d) Costs involved for the removal and or reinstallation of any faulty component(s) or complete equipment would be at the expense of The Buyer with no claim to The Company.
- (e) Warranty offered does not include failure due to Corrosion etc
- (f) Proprietary items such as prime movers. Transmission, equipment, electrical devices, bearings and protective coatings would not be covered by the above warranty but covered under the warranty offered (if any) to The Company by the proprietary equipment manufacturer.
- (g) In the case of the fabric filters the above warranty does not apply to the filter fabric which would be warranted for a period of eight weeks from dispatch date or four weeks from commencement of filter operation
- (h) All claims made under this warranty must be in writing and given to The Company within seven (7) days stating clearly all particulars resulting to the claim.
- (i) Freight and transport costs for Goods returned and re-supplied under warranty shall be at The Buyers expense

6. CANCELLATION

(a) Cancellation of any order placed with The Company will incur a minimum of ten per centum of the contract sell price. This minimum amount would only apply where work has not commenced. Where work has commenced, whether it be design or fabrication, cancellation charges would include for all labour performed, materials purchased, engineering and administrative charges pertaining to the cancelled order. In any case where an order is cancelled only the partially completed or completed equipment becomes the property of The Buyer and the designs remain the property of The Company. Payment of cancellation costs would be net 7 days and subject to the same payment conditions.

(b) Freight and transport costs for goods returned to and from The Company shall be at The Buyers expense

7. GST

All prices quoted exclude GST.

8. DELIVERY INSURANCE

Equipment quoted by The Company will not be insured and it is the responsibility of the purchaser to insure all goods in transit and for any other losses which may arise from delays due to equipment lost or damaged

In the case where The Company quotes and is ordered the same for site installation, transit insurance to cover loss of goods ordered. Only would be the responsibility of The Company. Again claims for any other losses will be the responsibility of The Buyer with no claim to The Company.



Service. Approachability. Loyalty. Transparency.

MELBOURNE Level 3, 51 Queen Street Melbourne VIC 3000
+61 3 9020 4225

SYDNEY Suite 303/61 Marlborough Street Surry Hills NSW 2010
+61 2 9068 7995

HOBART Level 4, 116 Bathurst Street Hobart TAS 7000
+61 400 535 634

CANBERRA 45 West Row Canberra ACT 2601
+61 2 8415 9781

www.salt3.com.au