



PROPOSED PROTEIN RECOVERY PLANT (PRP)

24 SCOTT STREET, WARRNAMBOOL

WORKS APPROVAL APPLICATION

Prepared by The Midfield Group Pty Ltd

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APPENDICES

SECTION 1 – INTRODUCTION

Midfield Meat Processing Pty Ltd (also referred to as The Midfield Group) proposes to upgrade its protein recovery operations by investing in new *best in class* technology at its existing abattoir located at 24 Scott Street, Warrnambool. An EPA Works Approval is required for the proposed Protein Recovery Plant (PRP) under Section 19B of the *Environment Protection Act 1970* (EP Act). It also addresses commissioning approvals under Section 30A and applications for new licences or licence amendments subsequent to works approvals.

Refer to Appendix 1 – Company Registration.

The PRP will be designed and constructed by Haarslev, the world-leader in the design and manufacture of protein recycling technology. The Midfield Group will work closely with Haarslev, EPA, Warrnambool City Council and the community to implement this new project. As a result of Midfield's investment in the new PRP and when it is fully operational, the existing protein recovery at its Co-Products site will ultimately be discontinued.

The proposed PRP will deliver exceptional community and sustainability benefits as it will result in the ultimate cessation of rendering activities at the Co-Product's site at 165 Swinton Street, Dennington. A current planning permit is in place to facilitate upgrades to the wastewater treatment and associated pipeline, however the technology at the Co-Products site has old technology which is challenging to upgrade to contemporary standards. A new purpose built, PRP will incorporate the absolute best design and construction standards to minimise potential impacts on neighbouring properties and beyond.

Midfield is committed to a long, sustainable future in Warrnambool and the region, and this proposal is considered a flagship investment to improve energy efficiency, reduce transport movements and water consumption, and most importantly have greater control of potential noise and odour emissions.

A new building will be constructed on the same footprint as the existing sheds to accommodate the ovine and bovine process lines. A point-source capture system will ensure that the potential odour sources are unlikely to be emitted therefore it is unlikely to be noticeable impacts on the neighbouring community, most importantly residents located within proximity to the site. An independent odour assessment has been undertaken of the proposal and also the potential odours source and this is discussed further in Section 7 of the Application.

The Works Approval application is supported by technical reports, including odour and noise assessments. Midfield also commenced a community and stakeholder engagement strategy to inform and consult with interested parties regarding the proposal.

An amendment to the existing abattoir permit is also sought through the Warrnambool City Council. It is proposed that this Works Approval is considered jointly with the Planning Permit Amendment application. It is proposed that this application will be a joint application under the *Planning and Environment Act 1987*.

1.0 PROPOSAL

1.1 Overview

The Midfield Group (Midfield) own and operate an abattoir at the corner of Scott Street and McMeekin Road in Warrnambool, known as 24 Scott Street, Warrnambool. **Refer to Attachment 2 – Titles.**

Midfield are proposing to develop a Protein Recovery Plant (PRP) on part of the site. The abattoir is located in Warrnambool West in the Industrial Estate. Figure 1 illustrates the location of the existing abattoir and Co-Products facility.

Figure 1 - Location



The Midfield Group has been operating this abattoir on the site since the 1980's and the business now employs approximately 1500 people, mostly in the region. The Co-Products Facility at 165 Swinton Street commenced operations in 1965 and operates under an existing EPA Licence (EM2) #2181.

The PRP is a long-term solution for Midfield – it will deliver environmental, energy efficiency and sustainability outcomes that could not be achieved through the continued operations at the Co-Products site. New technology will introduce advanced protein recovery technology and address ongoing issues regarding potential odour at the Co-Products. Midfield is investing in the future of Warrnambool as well as its own future.

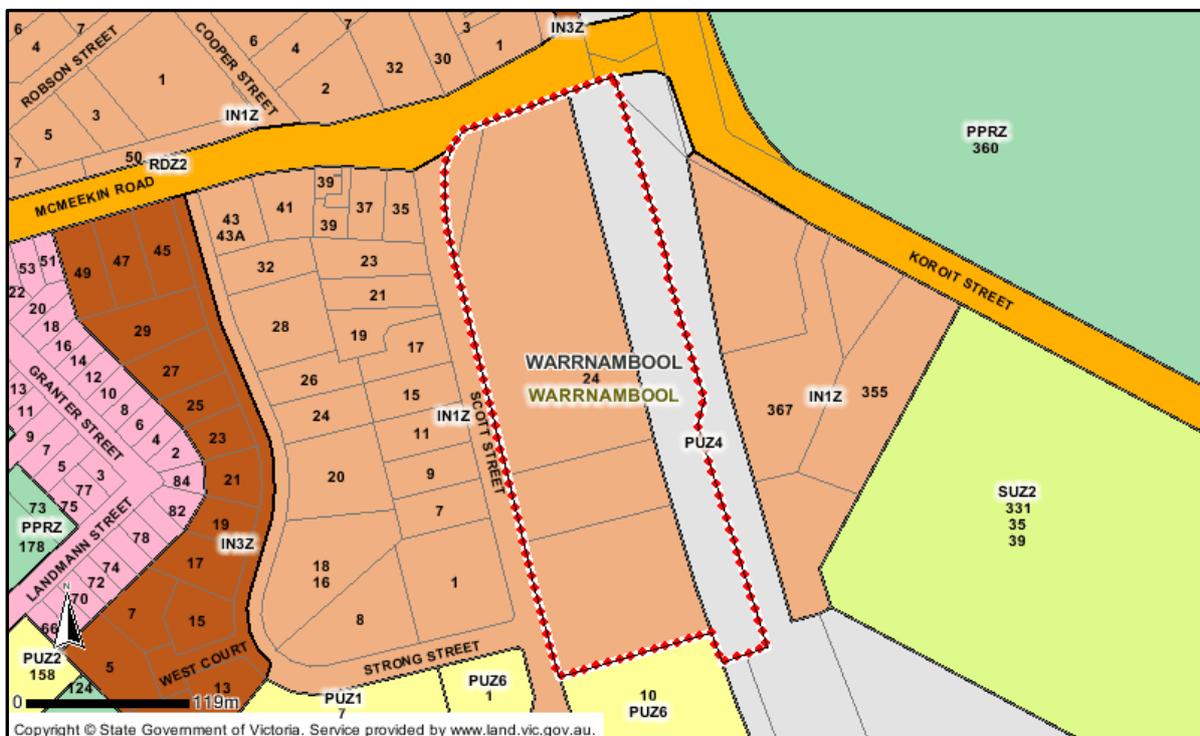
Midfield extensively evaluated the proposal to locate the PRP on the current abattoir site. Factors which have been considered are as follows:

- Recovery of waste heat from the PRP. Heat recovered will be used to heat water used in the abattoir i.e. in sterilisers and other onsite functions and will provide approximately 60 to 70% of the current hot water needs;
- Re-use of condensate from the Protein Plant;
- Odour and noise impacts from the PRP, biofilter and wastewater treatment;
- Decommissioning the Co-Products facility;
- Decommissioning the waste water lagoons at Co-Products facility;
- Access to onsite infrastructure including a newly installed DAF for the treatment of waste water at McMeekin Rd;
- Energy savings creating Green House Gas (GHG) offsets in excess of 100,000 tonnes Co2 equivalent;
- Elimination of the transport of raw material from McMeekin Rd to Swinton Street;
- Development of a world class facility with point source odour capture; and
- Fully integrated system with real time processing capabilities.

1.2 Planning Framework

The subject land at 24 Scott Street is zoned Industrial Zone 1 (INZ1) and Public Use Zone – Schedule 4 (Transport) in the Warrnambool Planning Scheme and not affected by any Overlay Controls. The subject site adjoins PUZ4 to the east, RDZ2 to the north, PUZ6 to the south and INZ1 to the west. Refer to Figure 2.

Figure 2 – Zoning Plan – Warrnambool Planning Scheme



The proposed use of *Protein Recovery Plant* is not a defined use in the Warrnambool Planning Scheme. Given the proposal seeks to undertake rendering, which is referenced in the definition of the abattoir in the Scheme, the proposed use is interpreted as 'rendering'.

Pursuant to Clause 52.10 of the Warrnambool Planning Scheme, the threshold distance for rendering is 1000m.

A planning permit is required for Industry, if the threshold distance, amongst others, in Clause 52.10 cannot be met. The proposed activity is located within 1000m of a residential zone, therefore a planning permit would normally be required for the proposed PRP.

There is an existing Planning Permit 110/99 which was issued for the use and development of the land for an abattoir. It is proposed to amend this permit to allow for the proposed rendering use and associated works. It is proposed that the planning permit application will run simultaneously with the Works Approval application.

The subject site has been selected as it is adjacent to the existing abattoir and will reduce vehicle movements and maximise energy and water savings onsite.

2.0 TRACK RECORD

In preparing this Works Approval application, both Council and EPA have verbally advised that there has been contact with the relevant organisations regarding potential noise and odour impacts. To date, the details of the reported potential impacts have not been provided so it is likely that issues raised are associated with the Co-Products facility or one-off incidents.

The Midfield Group will continue to work with the EPA and Council to minimise impacts on the surrounding community. Capital improvements are approved for the construction of a waste water treatment plant including anaerobic digestion and connection to trade waste at the Co-Products Facility. This project has now been suspended pending the development of the PRP.

The EPA and Council provided information regarding mostly noise and odour complaints. The majority of the complaints relate to the Co-Products operation. If the PRP is approved, the key concerns of residents (odour, noise and traffic) will be addressed.

3.0 COMMUNITY ENGAGEMENT

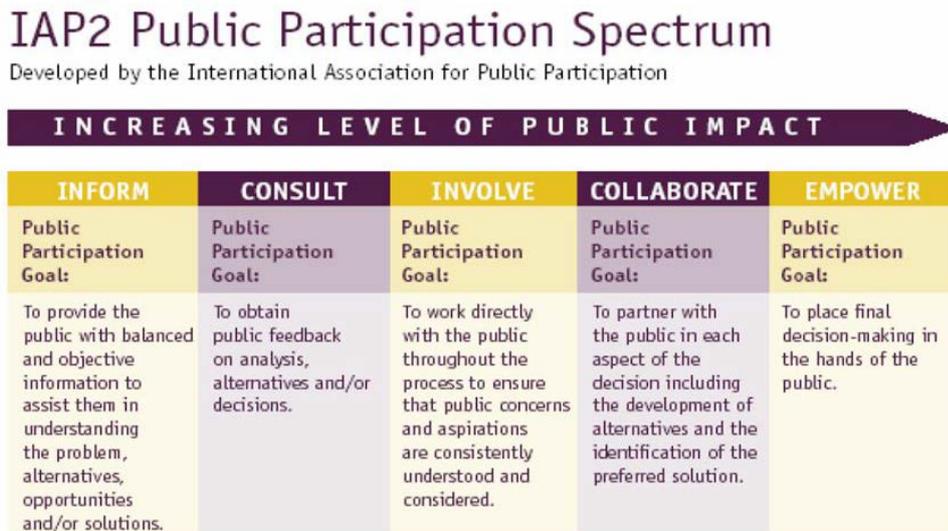
Midfield's abattoir and wider operations including agriculture, dairying and transport, are integral to the South-Western Victoria community. The proposed PRP is expected to deliver improved environmental and sustainability outcomes that will not adversely impact the local community. The Haarslev design and development is considered the best-in-class and constructed to meet the specific requirements for Midfield.

The community engagement is an important part of the application process. Midfield commits to cessation of the rendering activities at its Co-Products Facility at 165 Swinton Street, when this proposal is approved and fully operational. The Co-Products facility is located near the coast and consolidation of the abattoir activities in Scott Street will also result in less traffic movements between the sites, which will also deliver significant community benefits.

The existing Co-Products Facility is an older facility with old technology. Odour has been a key concern and Midfield has taken steps to address environmental conditions, a new point source capture system and biofilter have been improvements implemented in recent years at the existing render which greatly improved the amenity of the operation.

The IAP2 Spectrum is used as a basis of the Community Engagement program. Refer to Figure 3.

Figure 3 – IAP2 Spectrum



On 7 February 2018, Midfield hosted a ‘Open Community Drop-in Session’ from 4-6pm at the Archie Graham Centre in Warrnambool. A notice was placed in the Warrnambool Standard advertising the event. Representatives from Midfield, Council and EPA were present.

At this Drop-in Session, project information was displayed including location aerials, facility layout, building elevations, system images and text posters outlining key aspects of the proposal.

Approximately 50-60 local residents over a two-hour period. Most attendees indicated they were either residents living near Midfield’s main operations site in the industrial precinct or residents interested in the future of the Levy’s Point coastal site.

Figure 4 – Community Engagement Session



Key issues raised:

- Management of emissions - odour, noise and, vibration?
- Can you guarantee the proposed new in-line system and technology will lead to environmental improvement and minimal impact on nearby neighbours?
- Will this really happen or is it just an idea being floated by the company?
- Truck movements between main site and Levy's Point – impact of proposal?
- Why now consider closing the old rendering plant after VCAT gave approval only three years ago for an upgrade to extend its operating life?
- Future use of the old render site at Levy's Point – decommissioning or other use?

Other issues raised included:

- Random noise emanating from the drive of one of the skinning machines
- 2015 proposal for milk plant and cold store – is that project still going ahead?
- General dissatisfaction with the location of the industrial precinct.

Midfield emphasised that while its main operations are in an active industrial precinct, the company is mindful of both regulatory compliance and community expectations and is utilising new technologies and processes to improve environmental performance.

Direct community feedback at the drop-in session and online since is that Midfield has been responsive and 'things have definitely improved' at the company's processing sites.

In general, the proposal to implement an in-line sealed protein recovery system and the potential for closure of the existing rendering plant has been well received.

Most attendees took the opportunity to openly discuss their concerns, including a range of issues not connected to Midfield's current proposal, and provided names and contact details for information updates on project initiatives of Midfield Group.

After the public drop-in session, Midfield initiated an investigation of the complaint regarding 'a high-pitched noise from the skin salting process'.

The machine causing random noise was pinpointed and Midfield has asked suppliers to provide options for replacement of the current drive mechanism with a low emission drive unit.

Supplier responses will be reviewed in the next few weeks and urgent action taken to replace the noisy mechanism with the selected new drive to overcome the issue.

Other vague concerns have come online from a few people who appear to be entrenched critics of the industrial estate and some who have been involved in objections to previous proposals by Midfield Group.

However, as the attached clippings from the Warrnambool Standard indicate, broad community response to the current proposal is favourable and community interest is focused on the beneficial outcome of closure of the old render plant.

Engagement with Council, VicTrack and Council will continue.

Appendix 3 - Community Engagement and Stakeholder Plan.

4.0 PROPOSAL

4.1 Existing Operations

The Abattoir on the corner of Scott Street and McMeekin Road, has operated for more than 50 years. The rendering operations are located at 165 Swinton Street, approximately 5km from the Abattoir site. Today, the Abattoir is located in the Warrnambool West Industrial estate and approximately 400m from the nearest residential zoned land. Midfield currently are permitted to operate 7 days a week, 24 hours a day. The usual operations are Monday to Friday (from about 4am to 10pm and Saturday mornings) however from time-to-time the hours vary.

Refer to Appendix 4 – Site Plan.

Figure 4 Midfield Abattoir – Existing Operations



The abattoir includes the main processing, cattle and sheep lairages, loading and unloading facility and an administration building. The administration building is located to the left in Figure 4.

To the south of the proposed location of the PRP, there is an approved permit for a milk processing facility. Works have not yet commenced, but the permit is still valid. This proposal will not impact on the approved permit.

Rendering operations commenced at Swinton Street in 1965. Midfield acquired ownership of the premises in 1992 after operating the plant from 1988. The facility operates under an existing EPA Licence (EM2) #2181. Animal by-products are transported to the Co-Products Facility from the abattoir by road transport. Material is processed and some is transported off-site and further processing. A Planning Permit was granted to upgrade the wastewater treatment and connect main infrastructure via a new pipeline. This permit is still valid; however, works have not commenced.

4.2 Proposal

Midfield propose a purpose built, Haarslev protein processing facility on its Abattoir site. The Abattoir site has an existing permit which allows for the use and development of the land for an abattoir. This permit does not allow rendering activities on site. **Refer to Appendix 5 –Plans & Elevations.**

The PRP will be best-in-class technology. Animal by-products, mostly from the Midfield Abattoir will be processed on site therefore a planning consent is required for the proposed use. An EPA Works Approval is also triggered.

Prior to the preparation of this application, Midfield inspected other similar operations to understand the technological and operational improvements. This application seeks to install a new processing facility adjacent to the existing abattoir, but in close proximity to the existing residential areas of Warrnambool.

The PRP site has been selected for a number of factors but mainly due to the ability for Midfield to consolidate its abattoir operations which will deliver significant environmental and community benefits. A new DAF (which will also cater for the existing operations) and proposed biofilter will deliver energy and water saving opportunities for the business and the Warrnambool community.

The key components of the new proposal include:

- Protein Recovery Plant (PRP) located in a purpose-built structure;
- Biofilter; and
- Dissolved Air Filtration (DAF).

Processing Facility

The proposal is for a bovine and ovine processing plant of a raw material capacity of **400t per day**, with point source capture with a total point source extraction from both the low temperature plant and the 5t/hr batch plant. The total point source air extraction and room temperature extraction of both plants is in excess of 75,000m³/hr. A new 12m high concrete tilt-panel building with an area of 2280m² will be constructed (replacing existing open area sheds). Part of the site will be located 5.3m below the existing ground level. The existing access and egress from the site not be altered. **Refer to Appendix 6 –Processing Line.** The animal by-product raw material (offal, bones and other animal by-products) will derive from two sources – onsite and off-site. At present, the raw material is transported to the Co-Products facility via trucks. The raw materials will be received in the designated unloading area for both external and internal materials. The receival area will have two bins - 1x100m³ Bovine and 1x50m³ Ovine.

The on-site raw material will be collected and fresh (i.e. less than 12 hours) raw materials (including chilled material from the boning room) transported across the site in open containers directly from the boning rooms to the new PRP for processing and deposited in the ovine or bovine bins via hook lift system.

Approximately 50-100t will be sourced externally. The external materials will be transported by trucks. The materials will be unloaded and deposited into the raw material bin which will be accessible via the fast-acting retrieval doors which will be fitted with hydraulic, self-closing lids with a vacuum seal. The raw material bins include one bovine bin of 100m³ and one ovine bin of 50m³. External material older than 36 hours will not be received. Transportation documentation will be required to verify that the raw materials are 36 hours old or less. In the event that the material does not meet the requirements, the raw material will be returned to the supplier.

Bovine and Ovine streams will be processed separately. The crusher mill for the ovine line will include secondary processing for finer crushing and both lines are fitted with point source capture.

Approximately 80% of the ovine and bovine blood is collected to be processed off-site, and the remaining 20% does not require a stand-alone dryer as it will be stored in a 25,000l lidded tank. The remaining raw blood is gradually introduced into the process. There is provision for blood drying in the proposed PRP, if required.

The solid phase from the decanter around 250 kg/h is metered and mixed with approximately 4,500 kg/hr of press cake and the mixture dried in the indirect disc dryer to produce meat and bone meal. The figures above show that the processing of blood residue would have a minor effect on the total Bovine rendering material processing and the plant's effluent treatment.

All the processing vapour is contained in pipes and closed vessels and emissions are collected as point source hot odorous flows and treated in the biofilter.

The internalisation of the activity would essentially eliminate the external truck movements between the sites. The fresh raw material product would be processed inside the building. No raw materials will be stored outside. In addition to the Midfield raw material, the PRP will be designed to process external animal by-products if less than 36 hours old. The majority of the processing will be sourced from Midfield.

The sized material is then continuously pumped to the respective process lines with the ovine material is processed in high temperature batch cookers, and the ovine batch cooker system will comply with EU requirements for temperature and time. Midfield will be seeking EU accreditation to become one of few Australian processors to meet the stringent EU requirements. The Bovine material is processed in a continuous low temperature dryer. Both are fitted with point source capture.

Ovine material is processed in high temperature batch cookers. The Ovine batch cooker system will comply with EU requirements for temperature and time. Midfield will be seeking EU accreditation to become one of few Australian processors to meet the stringent EU requirements. The Bovine material is processed in a continuous low temperature dryer. Both are fitted with point source capture. The ovine and bovine lines are pressed separately and all equipment is fitted with point source capture.

The meal is then cooled, milled and screened prior to storage in the meal storage bins. The equipment is sealed and covered and is fitted with point source extraction.

The vapours (non-condensable) from all condensers are collected as hot point sources and ducted to the humidifier and then then treated in the biofilter. The waste steam and vapours from the bovine plant are ducted to the waste heat evaporator to concentrate stickwater (concentrate mixed with press solids and dried to meat and bone meal).

The meal will then be loaded and transported off-site.

The processing plant is completely internalised in a new purpose-built building, located within the Midfield site. All vehicles will enter and exit the site via the existing secure gates.

The tallow tanks have level sensors with point source collection from vents and are bunded as required by the EPA's publication 347.1 and AS1940:2004. The tallow tanks will include vents.

Biofilter

A dual cell biofilter will be connected to the PRP via a concrete duct (approx. 1.8m diameter) and a fan and dehumidifier fitted to extract and deliver the building and point source captured air to the biofilter. The biofilter will be above ground of concrete wall construction including dual cells. The concrete construction of the biofilter will be designed to cater for some 100,000m³/hr. The residence time will be designed to be twice the recommended EPA criteria. **Refer to Appendix 7 –Biofilter.**

If both cells are used the empty bed residence time (EBRT) is 60 seconds, if one cell only is used EBRT is 30 seconds. It is not possible to give a residence time with media as media characteristics vary from biofilter to biofilter. With media, residence times will be below EBRT. The only way to determine the residence times with media is to do a smoke test; for

this we need to build the biofilter first. Neither the Victorian biofilter design guidelines or any other state or country require actual residence times through media.

The area of the biofilter is 762.5m² and has an active biomass depth of 2.20m. Refer to Attachment – Biofilter Plan. The biofilter designed has been tried and proven in 40 rendering plants in Australia, New Zealand, India and Chile. In addition, the same design has been installed in Municipal wastewater plants in Australia and New Zealand. The proposed design includes

The biofilter is designed to achieve a maximum of 2000U to minimise potential impacts on the surrounding area. The pre-treatment of the biofilter includes an air-wash humidifier which will control humidity via the SCADA alarm for changes of operation and effectiveness and will be fitted with Fitted with inflow temperature control with auto cut out at >40°C. The negative pressure rating of the internal of the PRP will be monitored and monitoring equipment connected to the controls and SCADA. Alarms will alert if the pressure increases.

Ducting to the biofilter will be designed to drain to a single point where there will be a sump and automatic pump which will pump any condensation to the effluent system of the protein plant and on to the main waste water treatment system. The pump will be reporting alarms to the SCADA system for fault management.

Dissolved Air Filtration (DAF)

The wastewater will be treated in the existing wastewater facility on site. Midfield's new Dissolved Air Filtration (DAF) will also be connected to the PRP. The preferred provider has installed several activated carbon filter systems for the treatment of air from DAF systems. These are sized according to the volume of air to be treated, in this case the volume is around 200m³.

The mixing of the abattoir and the PRP water will take place in the pipe system prior to the screening process. The mixing pit is 1.8 x 1.0 m. Screening consists of a Huber in tank rotary drum screen. The screen tank has a sealed lid and the screened solids are removed via an auger which compresses and dewateres the solids into a cake.

The traditional production of stickwater is avoided given the recovery of solids via the evaporators. The solid fraction from this is mixed with the press solids and dried as per mass balance.

DAF sludge is dewatered to a cake form via the screw press along with the dewatered screenings and will be sent to our compost site. This will occur as needed for volumes but as a minimum removed daily in covered trucks. The liquor from the screw press is returned to the balance tank for reprocessing. Note the red line screenings will be directed to the protein plant via trucks or forklift for reprocessing into meal products.

4.3 Process and Technology

Haarslev are the world leader in *protein recycling and world class equipment supplier for drying of sludge, biomass and biofuel*. The company objective is to undertake *protein recycling in an environmentally friendly way to recycle material that would otherwise be wasted*.

The abattoir has an existing wastewater treatment system and a new Dissolved Air Floatation (DAF) tank (part of a separate application) will be connected to the PRP.

Point Source Capture of odour at source will be supported by a secondary odour capture of the building in a negative pressure environment. A new biofilter will be installed to treat captured air and the heat recovery will provide an alternative energy source for the site.

The PRP will be located in a negative pressure environment which will be managed by seal locks around the doors to provide an extra security level to control the facilities air.

4.4 Choice of Process and Technology

Haarslev is a world leading provider of animal processing technology. Haarslev have a proven track record of implementing best in class technology around the world, including Australia.

Midfield has undertaken extensive analysis of the best in class technological options for the site. It is through this competitive process that Haarslev was selected. Midfield has required performance-based conditions (with financial penalties) in the contract to provide an additional level of assurance for compliance that the technology and process will meet the expectations of Midfield, EPA, Council and the community whilst it is in operation.

As mentioned, the majority of the material processed will be sourced from Midfield's existing abattoir however external material will also be processed at the proposed PRP. The application seeks approval for the external material to meet export requirements and market opportunities.

SECTION 2 – ENVIRONMENTAL INFORMATION

5.0 CLIMATE CHANGE

The *Climate Change Act 2017* has been considered in preparation of the application. The social, economic and environmental benefits of the PRP have been considered and discussed throughout the application.

Potential Impacts

The proposed PRP is located in an area that will not be subject to coastal inundation for flooding events. The existing Co-Products facility is located in a more sensitive environmental site and cessation of the industrial land uses at this site will deliver environmental benefits. The existing Co-Products facility is located closer to the coast and Merri River and may be subject to rising water levels in the future, therefore the central relocation of this key operation of the business.

The reduction of electricity, gas and water consumption is a positive climate change outcome. The direct environmental benefits include reduced transport movements, more efficient water consumption all of which will be beneficial to the Warrnambool and Victorian environment.

This proposal will implement new infrastructure which will be climate change resilient by:

- Being located in an area that is not subject to flooding or an environmentally sensitive location;
- Consolidate building operations on one site which will support sustainable business practices through the implementation of improved wastewater management, energy savings and reduction in greenhouse gas emissions.

A Climate Change Adaptation Management Plan is not considered necessary for this proposal.

Contribution to Reduction of Greenhouse Gas Emissions

Deakin University's Sustainable Energy Research Group has prepared a Greenhouse Gas and Energy Impact Assessment. The assessment was based on the National Greenhouse Accounts (NGA) Factors 2017 and incorporates the Greenhouse Gas Protocol. The Greenhouse Gas Protocol provides an internationally accepted approved to Greenhouse Gas Accounting. **Refer to Appendix 8 – Greenhouse Gas Report.**

The gases which are included in Kyoto Protocol are:

- Carbon dioxide
- Methane
- Nitrous oxide
- Hydrofluorocarbons
- Perfluorocarbons
- Sulphur dioxide

Rendering is a use that converts animal by product raw material into stable, value-added products. The process uses steam from gas fired boilers to heat the material and equipment. According to Deakin, approximately 40% of the input energy is lost to the atmosphere at the Co-Products site which is processing around 250t per day which consumes 63Kwh of electricity and 2.62 GJ of gas per tonne of raw material processes.

The proposed PRP will process up to 400t per day will consume proportionally less energy and less gas than the current facility.

Energy Consumption for Proposed PRP (400t/ day)

	Existing	Proposed
Power Consumption (kwh/trm)	400	400
Gas Consumption (GJ/trm)	63	61.5
Heat Recovery / Reuse	2.62	1.97
Flue Gas (GJ/trm)	0	0.35
Hot Water (GJ/trm)	0	0.52
Transportation Fuel (Diesel)	55.7	0

The proposed plan is projected to save 102,898 tonnes of GHG-e which is the equivalent to 3,124,079 incandescent lamps converted to LED or 10,080 homes energy use over one year. This is significant energy saving and will help the Council and Victorian Government meet its emissions reduction target.

6.0 WATER USE

6.1 Water use in process

Midfield currently used large volumes of water in its abattoir operations for a variety of activities including washing. It is proposed that the treated recycled water along with the production of hot water from the new PRP will be used on the abattoir site which will dramatically reduce energy consumption.

Midfield has an existing trade waste agreement with Wannon Water. Figure x documents that Trade Waste Agreement volumes compared to actual and proposed discharge quality and volumes including the Protein Recovery Plant.

Figure 5 – Waste Water Discharge

Parameter	Trade Waste Limit	Current Abattoirs only (screened)	Protein Plant Raw	*DAF Treated Effluent
Daily Volume	3.2 ML Daily	Average 1.7 ML, daily high 2.7 ML	180KL daily high 250KL	Average 1.9 ML daily high 2.95 ML
Suspended Solids	1,300 mg/l	800-1,000 mg/l	1,500-2,500 mg/l	500-600 mg/l
BOD	1,300 mg/l	900-1,100 mg/l	600-900 mg/l	150-300 mg/l

The DAF includes a performance Guarantee of an 80% reduction of insoluble BOD and 95% removal of Suspended solids. This guarantee was determined after several weeks of on jar testing of the mixed effluent at the proposed ratios. The determination also includes the use GRAS approved coagulants of an organic nature.

The ammonia levels will be impacted and reduced by the DAF. The protein facility design is such that all stick water will be processed via the evaporator which will recover any solids.

The peak hourly total flow is assessed as being 170 to 180 KL per hour.

The pre-screening capacity will consist of two by 200m³/hr flow rate rotary drum screens fitted with dewatering augers. The normal configuration will see the effluent split into red and green and directed to separate screens. As a contingency the units can have the combined effluent directed to either of the two screens if required.

There is a balance tank which has the capacity of 3 hours peak flow.

The DAF unit is rated at 200m³/ hr and will have a reaction tank fitted prior to mix the organic based GRAS coagulant. The resultant DAF sludge removed will be pumped to a storage tank (25KL) and then the sludge will be processed through a dewatering screw press to produce a cake. The waste water system provider has installed several activated carbon filter systems for the treatment of air from DAF systems. These are sized according to the volume of air to treated, in this case the volume is around 200m³. Refer Hydroflux proposal as per Appendix D

Red stream abattoir waste water (sourced mainly from the process areas) is approximately 1500 mg/l, while PRP wastewater will be approximately 600-900mg/l. The PRP wastewater will make up approximately 9% of the total abattoir red water. PRP water will be mixed with the abattoir water prior to the pre- screening in sealed pipes. Screening consists of an in-tank rotary drum screen. The tank has a sealed lid and the screened solids are removed via an auger which compresses and dewateres the solids into a cake.

The recovery of solids via the evaporators avoids traditional stickwater production. The solid portion is mixed with the press solids and dried to meet mass balance outcomes. The screening equipment will be housed in the wastewater

treatment area. The equipment will be housed in the waste water treatment area and refer above the system description of enclosed equipment.

Both the dewatered screening solids and the DAF cake will then be collected in either a skip bin or truck as it is produced. This material will then be 100% recycled via to either composting at our compost facility or will be processed in the protein plant to recover meal and tallow.

DAF sludge is dewatered to a cake form via the screw press along with the dewatered screenings into open top containers including trucks. This will be removed daily in covered trucks, as required. The liquid from the screw press is returned to the balance tank for reprocessing. Note the red line screenings will be directed to the protein raw material bin via trucks or forklift for reprocessing into meal products.

7.0 AIR EMISSIONS

Air Quality Professionals were engaged to undertake an assessment of the potential odour impacts and advise on an appropriate separation distance from residential dwellings. It is acknowledged the proposed PRP is located on the site of an existing abattoir within an established industrial precinct. **Refer to Appendix 9 – Odour Assessment.**

The State Environment Protection Policy (Air Quality Management) (SEPP(AQM)) has been considered in the preparation of the odour assessment. The EPA's Recommended Separation Distances for Industrial Residual Air Emissions (March 2013) has also be considered. The EPA Separation Distance Guidelines specify a distance of 1000m for rendering and casing works.

The assessment observed the metrological conditions and commented that potential odours impacts are most noticeable during "light winds" because the lower wind speed and slower rate of dispersion. It is possible in this location that higher wind speeds may generate increased odour dispersion. The nearest Bureau of Metrology (BoM) monitoring station is at Warrnambool Airport approximately 9.6 km from the site, which is conclude to more likely to represent the wind conditions at the Midfield site.

The Air Pollution Model (TAPM) 4.0.5 was used for the simulation as per the EPA specification. It was run for five (5) calendar years from 2012-2016. The windspeed observations for the Warrnambool Airport are with the TAPM, and the TAPM simulation shows slightly higher percentage of low wind speed. The report concluded the TAPM modelling is a reasonable representation of wind speed and direction.

The topography of the site is also an important consideration in the assessment of potential odour impacts. The site is located on a rise, falling to the northwest, southwest and south east. The terrain is regarded as *complex*.

The proposed PRP odours will be within the internal sealed processing line, but the point source capture system is designed to capture the odour sources within the equipment itself. The additional negative pressure environment in the building, reinforced in the loading/ unloading bays, will capture the potential for release of fugitive emissions. Additional odour control measures include building air captured from raw materials reception areas and finished product area directed to on-site boiler feed, to reduce volumetric load and biofilter.

Raw materials will be deposited directly into the raw material bin for processing which includes fast acting entry doors along with hydraulic lid for sealing the bin after receival; all in the enclosed PRP. No solid waste is generated by the PRP.

As mentioned, the wastewater area dewatered cake is deposited into trucks/skips within the wastewater treatment enclosure, then transported off site. The waste water flows to the waste water treatment area via an enclosed system. There is then primary screens (1mm) which remove solids material. Theses screens are fully sealed in an above ground tank

unit fitted with lids. The solids are removed from the screens via an integrated auger which is designed to dewater the solids into a cake type material for transport. The liquor from the augers is returned to the balance tank for treatment. The screen effluent is then pumped to a balance tank which again is fitted with a lid. The effluent then flows (gravity) to the DAF unit. The DAF unit is fitted with a hood and the air extracted to a carbon filter system (as above).

The non-condensable gases (NCG) estimate at 1,500m³/hr from the Bovine low temperature plant and 1,000m³/hr from the Bovine batch cooker high temperature plant would be mixed with other point source hot emissions and room air to make up the total 100,000m³/hr and treated in the biofilter. If in future it is required to reduce the load in the biofilter, there is a contingency option of incinerating the 1500m³/hr NCG from the Bovine plant which being a continuous process would be emitting a steady flow to be incinerated. Information regarding the incineration of rendering odour in boiler is given separately.

Please also refer <https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=2000WUWO.TXT>

Control of fugitive odour emissions is very important with protein recovery plants and is often the cause of problematic odour emissions in older plants. On the other hand, new protein recovery plants such as that proposed for the Site are designed to minimise the risk of fugitive emissions with point source odour capture built-in to process units. This means the odour concentration within these buildings is low. In addition, the buildings are purpose-built to maintain negative pressure so the potential for fugitive emissions is minimised.

The two main methods of odour treatment proposed for air extracted from the protein recovery plant are as follows:

- Extraction of non-condensable gases from process units with high odour concentrations to a boiler for odour treatment by combustion. Residual odour emissions in the boiler exhaust will be negligible.
- Biofilter treatment of remaining air flows from the building and other process units. The biofilter has been designed with a residence time that is twice as high as EPA Victoria's recommended guidelines¹, and residual odours discharged from the biofilter will have a musty, earthy character that blends rapidly with natural background odours as it disperses in the wind.

Atmospheric dispersion modelling demonstrated that emissions from the biofilter under normal operation will not cause local amenity to be adversely affected by offensive odours. Even though the model results exceeded EPA Victoria's generic design criteria for odour emissions, this is not considered to indicate a risk of offensive odour impacts because:

- The design criteria is very conservative, even for offensive odours,
- The biofilter odour emissions have a benign, low-offensiveness character of biofilter, and
- Other odours from the existing site and neighbouring industries contribute to background odours in the area and the biofilter odour will not be distinguishable cumulatively with those background odours.

The odour assessment also considered separation distances to residential properties. The EPA Victoria buffer distance policy is described in Publication 1518, "Recommended separation distances for industrial residual air emissions" (March 2013) (EPA, 2013). The protein recovery plant proposed for the Midfield Site comes under the category of "rendering and casings works" in Publication 1518, for which the specified default separation distance is 1000m.

¹ EPA Victoria (2017), "Selected Scheduled Premises – Prompt Sheets". Publication 1659, June 2017.

A 1000m separation distance for a protein recovery plant would apply whether the plant was old with poorly-retrofitted odour control and a high chance of unintended or accidental emissions, or new with built-in primary (point source) and secondary (building ventilation) odour capture. These two extremes of plant design have very different potential for frequency and magnitude of unintended or accidental emissions, even though the same separation distance applies to both.

The available separation distances are less than the default value of 1000m specified in Publication 1518. However, having separation distances less than the default values specified in Publication 1518 does not mean that offensive odours from the plant will be noticeable at sensitive receptors on a day to day basis. The separation distances are only intended to reduce impacts from offensive odours when the plant is not operating normally – i.e. during some kind of “upset” (accidental or unintended emissions).

A range of potential upset scenarios at the protein recovery plant were considered. The only upset operating condition that was considered reasonable to include as a source of accidental or unintended emissions in the context of estimating separation distances was biofilter operation. Atmospheric dispersion modelling demonstrated that the available separation distances to residences were sufficient for odour emissions from the biofilter under upset operating conditions.

8.0 NOISE EMISSIONS

Watson Moss Growcott (WMG) were commissioned to undertake a noise assessment of the proposed use. The Noise Assessment was based on the location of the sensitive receptors being located within proximity to a residential area (430 m to the north west, 615 m to the west, 340 m to the south east and 356m to the east. **Refer to Appendix 10 – Noise Assessment.**

The report finds there will be no noise impact from the PRP at any of the above residences.

The proposed building will be constructed of tilt-panel concrete to a width of 150mm. The building will be designed to ensure that unreasonable noise levels will not be emitted beyond the building and site boundary. Haarslev has ensured the sound pressure level from the rendering equipment below 65dB(A) measured at the site boundary.

The Noise Assessment considered Noise from Industry in Regional Victoria (NIRV) and also SEPP N-1. The background measurements are ‘neutral’ relative to the planning scheme zoning around the residential premises. The noise level is based on the zoning, and the subject site is located in an Industrial 1 Zone.

Equipment inside the building could generate noises up to 85dB(A) and given the proposed design of the building with the 150mm thick concrete walls and the conventional metal clad roof, the 65dB(A), 7 m from the building is expected to be achieved. The noise requirement (as per the contractual requirements) of 65dB(A) at 7m from the building.

The DAF has also been considered and its fan will not generate noise levels in excess of the SEPP N-1 requirements.

Noise receptor(s)	Time periods	Background noise level dB(A)	SEPP N-1 Noise limit dB(A)
100 Atkins Road	Daytime	42	51
	Evening	40	45
	Night-time	36	40
4 Granter Street	Daytime	43	56
	Evening	40	49
	Night-time	34	44

9.0 WATER

As mentioned, Midfield has an existing Trade Waste Agreement with Wannon Water the discharge is proposed to increase slightly, however there is a significant improvement in the quality of the water discharged. The environmental efficiencies proposed also ensure that demand for additional water supply will decrease as there is a greater opportunity for use of recycled water i.e. on-site in washdown areas.

The pre-screening capacity will consist of two by 200m³/hr flow rate rotary drum screens fitted with dewatering augers. The normal configuration will see the effluent split into red and green and directed to separate screens. As a contingency the units can have the combined effluent directed to either of the two screens if required.

There is a balance tank which has the capacity of 3 hours peak flow.

The DAF unit is rated at 200m³/ hr and will have a reaction tank fitted prior to mix the organic based GRAS coagulant. The DAF unit has coagulation dosing and dissolved air including surface scraper system and a dewatering screw to produce a cake for further recycling. The resultant DAF sludge removed will be pumped to a storage tank (25KL) and then the sludge will be processed through a dewatering screw press to produce a cake.

Both the dewatered screening solids and the DAF cake will then be collected in either a skip bin or truck as it is produced. This material will then be 100% recycled via to either composting at our compost facility or will be processed in the protein plant to recover meal and tallow.

Refer to Attachment – Wastewater

The current shed housing the baleen filters will be replaced with an open one sided shed that houses the DAF; covering and allowing access to the tank screenings.

Raw material trucks can be washed at receival bins and washings directed into the raw material bin on arrival.

Stormwater

The development of the PRP is self-contained and all areas are fully enclosed whereby there will be no contact with rainwater from the processing areas. The proposed PRP building and other structures storm water roof catchment area is less than the existing building being replaced. The storm water will be directed to the existing on-site stormwater system. The site storm water is not discharged to the municipal system and is reused on site for ancillary uses e.g. dust suppression.

It is therefore determined that the existing storm water system will be adequate. The area where raw material trucks back in will be bunded and any water collected here will be directed to the effluent system.

Midfield's current stormwater system includes underground pipes and connects to an open pond. A silt trap is located at the entrance to the pond and is regularly cleaned.

Any ground level surface run-off within the PRP area will be directed into the wastewater system for processing.

Any excess moisture from rainfall on the bio-filter will be collected via the sloped base of the bio-filter and any flow will be directed via the enclosed ducting system to the condensation pump and pumped to the wastewater system.

All traffic areas are part of the existing abattoir area and operations.

10.0 WASTE

The term waste doesn't apply to the animal by products raw material as it will be directed downstream to the PRP for further processing into protein-based products of tallow and meat meal.

Industrial waste to be generated by the proposed facility will be sludge from the wastewater treatment process this will predominately reprocessed at the PRP and or will be transported to Midfield's composting facility in Woolsthorpe, EPA licence number 9671. Compost produced is used on Midfield's farm land; an entirely closed loop waste treatment system.

Solid waste from staff amenities will be disposed of using existing commercial waste disposal suppliers.

The meal will be transported from the site.

11.0 INTEGRATED ENVIRONMENTAL ASSESSMENT

The *Climate Change Act 2017* requires the consideration of potential impacts as discussed including the EPA ‘Demonstrating Best Practice’ (Publication 1517.1 October 2017) is a guideline of how the EPA assesses best practice. This application seeks to implement ‘best practice’ and is supported by odour, noise, wastewater and greenhouse technical reports.

This proposal required a Planning Permit as well as a EPA Works Approval. Section 7 and 8 of the report address the State Environment Protection Policy (SEPP) for odour and noise. In addition, the EPA’s Recommended Separation Distances for Industrial Residual Air Emissions (March 2013) has been considered.

Under the Separation Distance Guidelines, a threshold distance of 1000m is required for rendering and casing works. The reduction of recommended distance is supported for the proposed PRP.

The approach for the ‘best practice assessment’ has been undertaken generally in accordance with the types and evidence in Table 3 of the EPA ‘Demonstrating Best Practice’ (Publication 1517.1 October 2017).

Literature Review	The technical reports have considered the relevant EPA Guidelines and also industry accepted models and guidelines.
Benchmarking	Midfield has selected Haarslev to design and construct the PRP as they are a world leading ‘best in class’ provider of the proposed technology.
Application of waste hierarchy	The proposed PRP will convert animal by-products into a range a value commodities and resources for the business. It is proposed to increase water-recycling and capture energy which will deliver waste efficiencies across the business.
Integration of economic, social and environmental considerations	As discussed throughout the application, the PRP will deliver long-term sustainable solution for Midfield, a key employer in Warrnambool. This project will also result in significant waster saving and environmental improvements, which would not be achieved via the operation of two discrete operations. The proposed development will implement mitigation to minimise potential odour and noise to preserve the amenity of the residential areas.
Integrated environmental assessment	<p>The proposed use and development land has been assessed to determined the potential odour and noise impacts. The assessment (as discussed in Sections 7 and 8 of this Application, indicates that the impact will be minimal, if at all. The major environmental benefit associated with this project is the cessation of the use of at the Co-Products operation.</p> <p>The reduction in the greenhouse gas emissions and water also deliver an overall net social, economic and environmental benefit.</p>

11.0 ENVIRONMENTAL MANAGEMENT

Potential impacts from the construction of the proposed facility will be managed in accordance with the table below. A detailed risk assessment has been prepared to support this application. **Refer to Attachment 11.**

Construction Impact Management

Item/Impact	Description
Duration of construction	Up to 2 years
Hours of operation	24 hours
Hours of construction	7am and 6pm Monday to Friday winter and 6am to 8pm EDST 7am to 5pm Saturday and Sunday Otherwise notify local residents when outside ours work is required
Staff	Between 1 and 10 additional staff will be required on site at any one time
Traffic and parking	Parking is ample in the surrounding area, limited onsite parking of work vehicles is available An additional 1 to 10 staff vehicle movements will be experienced. An estimated 40 delivery trucks will cause a short term increase in trucking movements Comply with hours of operation
OHS	Supplier Safe Work Method Statements and JSA's required Certificate of insurance for Public Liability and work cover Daily tool box meetings Personal Protective Equipment to be worn Suppliers to abide by all on site safety requirements
Vibration	Vibration maybe generated from heavy equipment and tools Comply with hours of operation
Dust	Dust maybe generated during earthworks A water cart will be used to supress dust Duration of exposed earth will be kept to a minimum Dust can impact onsite animals and food processing works
Noise	Noise maybe generated from heavy equipment and tools Comply with hours of operation Well maintained equipment Schedule particularly noisy activities between 10am am and 3pm Appoint a principal contact Turn off plant when not being used Fit silencers to pneumatic tools Reversing beepers
Stormwater and sediment control	Sediment catchment (straw bales) will be located in front of stormwater catchment pits
Site security	A security card system is operational at McMeekin Rd, the public cannot access the work site
Waste and litter	Waste will be contained in front lift bins and recycled where possible On site litter will be collected when necessary
Site contamination	Spills will be cleaned up immediately using onsite spill kits
Emergency Procedures	As per onsite Emergency Procedures

11.1 Biosecurity

The Midfield Group has an existing Q Fever policy and this will apply to the proposed use. **Refer to Appendix 12 – Q Fever Policy**

SECTION 3 – OTHER APPROVALS

12.0 COMMISSIONING PLAN

Commissioning Plan

Item	Details
Timeline	18 months from commencement
Process	Swinton Street will operate until an agreed term after full commissioning of the new plant is satisfactory Staged approach to commissioning will be undertaken 1 batch 2 batches Etc
Critical control points and environmental risks	Biofilter operation Air extraction system Etc Etc
Performance testing	Parameters to be monitored Frequency Reporting

13.0 POST DECISION – OPERATION REQUIREMENTS

13.1 Financial Assurance

Midfield is committed to the delivery of this project and has the financial capacity to implement, maintain and also decommission the Co-Products facility.

14.0 CONCLUSION

The proposed PRP will deliver significant environmental benefits including reduction of greenhouse gas emissions, water and energy consumption. The proposed \$18m investment will also secure long- term jobs in the Warrnambool community as Midfield addresses the increasing energy costs. This is a transformational project for Warrnambool which will ensure that the surrounding residents will not be impacted by odour or noise from the proposed use.

APPENDICES

Appendix 1 – Company Details

Appendix 2 – Titles

Appendix 3 – Community Engagement and Stakeholder Plan

Appendix 4 – Site Plans

Appendix 5 – Plans and Elevations

Appendix 6 – Processing Line

Appendix 7 – Biofilter Plans

Appendix 8 – Greenhouse Gas Report

Appendix 9 – Odour Assessment

Appendix 10 – Noise Assessment

Appendix 11 – Risk Assessment

Appendix 12 - Q Fever Policy

APPENDICES