

Sant' Antnin Waste Treatment Plant: Material Recovery Facility and Mechanical Treatment Plant with Anaerobic Digester

**Application for Renewal & Variation of IPPC permit
IP 0005/13/A**



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1. Introduction & Non-Technical Summary

1. The Sant' Antnin Waste Treatment Plant consists of a waste management facility designed for the management of pre-treated and unsorted municipal wastes, through the following operations:
 - Material Recovery Facility intended to recover materials for recycling from the collection of sorted wastes from households;
 - Mechanical Treatment Plant intended to recover materials for recycling from municipal wastes, and organic wastes from Municipal Solid Waste; and
 - Anaerobic Digester for the digestion of organic wastes to produce gas suitable for the generation of electricity for a Combined Heat and Power Plant (CHP).
2. Various ancillary facilities are required to allow the proper functioning of the above, including the CHP, composter, storage yards, and the various ancillary equipment required as environmental abatement measures. The above facilities are described in detail in the original IPPC application and Environmental Impact Statement, on which this application for renewal is based.
3. This plant was first approved (as an outline permit - PA 2838/03) in September 2005, allowing for the part demolition of existing plant and upgrading of the existing facility to accommodate a material recovery facility, a mechanical treatment plant, a digestion plant and a composting plant. Full development permission (PA 4607/06) was issued in February 2007). The development permit process followed assessment through submission of an Environmental Impact Statement.
4. The operations of the plant were first permitted by EP 0021/09, as per the requirements of the Waste Framework Directive. However, this permit was superseded by the issue of IP 0005/13A, given that this plant now falls within the scope of the Industrial Emissions Directive (IED) 2010/75/EU. The latter permit was issued in December 2015, and detailed various points in the improvement programme where further investment in plant and resources were required, so as to bring the plant up to the standard imposed by the IED.

5. Two incidents of note have occurred on the Sant Antnin site that require consideration as part of the renewal process. These are:
 - The damage sustained to the Anaerobic Digester facility in 2013, where internal components of the tanks were sheared, resulting in damage to the tank structure. This incident required extensive repairs, and triggered preventative maintenance on the other tanks to prevent reoccurrence of this damage. This maintenance required extensive works and investment, to empty the tanks, open the tank structures to access the components that actively circulated the wastes in the tanks during the digestion process, and carry out the necessary investigations and repairs.
 - The fire in March 2017 that resulted in the obliteration of the MRF hall. This has halted the processing of separated wastes collected from households, but has not affected the operations at other parts of the plant.
6. In early 2017, the Government of Malta declared its intention to relocate the Sant' Antnin plant from its current location in Marsascala, within a time span of 7 years. Planning for this relocation is under way.
7. This application is an application for renewal and variation of permit for the operations of the Mechanical Treatment Plant and the Anaerobic Digester, as permitted under IP 0005/13/A. Given the recent incidents on site, and new developments, an application for variation is also being submitted to:
 - modify the existing plant to include a sorting line to assist in the recovery of recyclables in the grey bag, as an interim measure until a fully-fledged Material Recovery Facility is constructed.
 - modification to existing plant to improve management of the liquid fraction of biowaste through a collection system that pumps it to the permitted anaerobic digesters;
 - Permit the operation of the new chemical store permitted via PA 9807/17 for the construction of a chemical store.
8. This application has been reviewed by the Environment and Resources Authority, as well as the Statutory Consultees as identified within SL 549.76 Industrial Emissions (Framework) Regulations. The feedback of the Authority, as well as the applications responses, are provided as Annex 22. The information provided within the feedback has been integrated into this application to form the final consolidated version of this IPPC application.

9. This application includes:

- a review of Best Available Technique conclusions as applicable to waste treatment installations;
- an updated process flow diagram outlining operation of the plant as varied;
- operations details such as Environmental Management Systems, Cleaning Plans, Maintenance Plans, Fire & Safety, etc.;
- Monitoring Proposals;
- updated chemical inventories;
- specifications of new plant; and
- certifications, permits and permit applications.

2. Scope of the application

10. This application is an application for renewal and variation of permit for the operations of the Mechanical Treatment Plant and the Anaerobic Digester, as permitted under IP 0005/13/A. Given the recent incidents on site, and new developments, an application for variation is also being submitted to:
 - modify the existing plant to include a sorting line to assist in the recovery of recyclables in the grey bag, as an interim measure until a fully-fledged Material Recovery Facility is constructed.
 - modification to existing plant to improve management of the liquid fraction of biowaste through a collection system that pumps it to the permitted anaerobic digesters;
 - Permit the operation of the new chemical store permitted via PA 9807/17 for the construction of a chemical store.
11. The application for renewal includes the following documentation (as annexes), to facilitate review of implementation of permit requirements and operations:
 - Annex 01: IPPC application forms
 - Annex 02: Existing Permits
 - Annex 03: Company Registration Certificate
 - Annex 04: Plans
 - Annex 05: Improvement Programme of IP 0005/13/A
 - Annex 06: Best Available Techniques Review
 - Annex 07: Cleaning Plan
 - Annex 08: Maintenance Plan
 - Annex 09: Process Flow Diagram
 - Annex 10: Chemical Store Inventory
 - Annex 11: Fire Safety Report
 - Annex 12: MRF sorting line specifications
 - Annex 13: photo of chute and containers as per items 9 & 13 of the improvement programme & specifications of containerised quarantine area
 - Annex 14: covering of bales
 - Annex 15: certifications
 - Annex 16: fuel storage certification
 - Annex 17: Environmental Monitoring Plan
 - Annex 18: Bag filter specifications
 - Annex 19: Outline decommissioning Plan
 - Annex 20: Register of Mobile Equipment
 - Annex 21: Odour Management Plan
 - Annex 22: Consultation with Government Agencies
 - Annex 23: Environmental Management System
 - Annex 24: Emergency Response Plan
 - Annex 25: Chemicals used in atomiser
 - Annex 26: Biogas Flaring Model

- Annex 27: Pest Control Stations
- Annex 28: Dangerous Substances List
- Annex 29: Registration of CHPs as MCP
- Annex 30: Reception Hall walls
- Annex 31: Proposal for Baseline Study
- Annex 32: Water Discharge Permit Application
- Annex 33: New Baler Specification

12. A review of the improvement programme indicates that various deliverables have not been implemented on the date stipulated within the permit, and work on these deliverables is still under way given the following constraints:

- Budgetary limitations and procurement processes have hampered effective delivery of elements requiring investment;
- The incidents listed previously have interrupted normal operational processes on site at Sant' Antnin for a significant period of time, including the development of the required deliverables; and
- Recent decisions to relocate activities at Sant' Antnin due to conflicts with surrounding users have required a re-evaluation of strategy with respect to developments at Sant' Antnin.

It is recommended that the renewal process of IP 0005/1/3A give due consideration to the constraints listed above when setting time frames within the updated improvement programme, through discussions with Wasteserv Malta Ltd.

3. Technical Details

13. The changes in operations consist of the following:
 - The introduction of a chemicals storage room (as per plans included in Annex 4)
 - Improvement in leachate collection and management;
 - The introduction of an MRF sorting line (see specifications provided in Annex 12)
14. The **chemicals storage room** will be equipped with bunding to ensure proper containment of the materials in case of spill. Most of the chemicals consist of various oil derived lubricants used for the maintenance of the plant. However, various chemicals such as the hydrochloric acid and the solvents will require separate storage, to ensure that there is no cross-contamination in case of accident.
15. The **MRF sorting line** consists of the following equipment that is organised in sequence:
 - A bag opener to open the bags on reception
 - A system of conveyor belts onto which the wastes are loaded for sorting
 - A sorting platform from which wastes are sorted manually i.e. different waste streams are picked off the conveyor and deposited in selected binds

The machinery is controlled from a control panel; the entire process is summarised in Annex 9 – Process Flow Diagram.

16. **Management of liquid fraction of biowaste:** following unloading of waste in the reception area, RCVs can unload the waste liquor in the gutter (also situated in the Reception Hall). Flooring and gutter shall be impermeable. The gutter shall be linked to a bunded IBC situated in the WET MTP area. The IBC's capacity shall be that of 1 cubic meter. Through the use of a flow switch, waste liquor is continuously diverted to the AD. Waste liquor system checked daily for functionality twice a day (refer to form SAWTP065).

17. The following table provides responses and references to the various requests for information included within the IPPC permit application (form C).

Section	Relevant Information
B2.1 Environmental Management System Provide details of any changes to environmental management techniques resulting from your proposals.	An in-house system is in the process of being updated that to reflect the requirements of the eventual IPPC permit, and the operations which will be included as a result of these changes. (See also responses to BAT 1, 3, 5 & 17 in BAT conclusions – Annex 6 for specific details)
B2.2.2 Describe the proposed techniques and measures to prevent and reduce waste and emissions of substances and heat (including during periods of start-up or shut-down, momentary stoppage, leak or malfunction) as a result of your proposals.	Techniques used to prevent and reduce waste and emissions of substances and heat are given in Annex 06 – Best Available Technique. The introduction of the temporary MRF is an initiative to improve waste management practices as an interim measure until a full-fledged facility is constructed. Energy consumption is minimal, and operations are integrated into those of existing facilities to ensure maintenance of operational efficiency in so far as this is possible.
C2.2.3 Submit a flow diagram summarising the proposed installation activities and indicating the changes.	Process flows remain unchanged from the original application, with the exception of the introduction of the temporary MRF as interim replacement for the facility lost to the fire incident, until such time as a replacement is available. See Annex 09 for the process flow of the interim MRF facility.
B2.2.5 Include an outline of the main alternatives considered to the proposed technology, techniques and measures.	The proposed changes are an interim response to the incident which resulted in the destruction of the Sant Antnin MRF facility. Additional waste liquor collection and treatment measures indicated in this update should serve to direct the liquor to the AD process, which is the most appropriate treatment.
C2.3 Raw materials Identify any changes to the raw and auxiliary materials, and any other substances (including fuels) proposed to be used as a result of your proposals.	No changes are being proposed. However, the proposed chemical store will consolidate the storage of materials present on site (see Annex 10 – Chemical Store inventory)

Section	Relevant Information
B2.4 Ozone depleting substances and fluorinated greenhouse gases Identify any changes to the equipment using ozone depleting substances and fluorinated greenhouse gases, with a fluid charge of 3 kg or more.	No further equipment using ODS or F-gases will be installed.
C2.6 Energy C2.6.1: Describe any changes to the annual energy consumption, highlighting the main energy-consuming equipment, and generation by source and end-use (including information on energy generated on site, if applicable).	Energy consumption resulting from this variation is expected to be limited; consumption is expected to be a continuation of the existing scenario for the foreseeable future.
C2.7 Water Provide a breakdown of any changes to the proposed annual water consumption by source and end-use.	The proposed changes are not expected to introduce any changes in terms of water consumption.
C2.8 Risk assessment Describe any changes to the documented system used to identify, assess and minimise the environmental risks and hazards of accidents and their consequences. Include any changes to emergency plans in case of fire, actions to be taken in case of failure of abatement equipment and other environmentally relevant incidents (e.g. spillages, gas leakage).	Annex 11 includes a Fire and Safety report for the new chemicals room. The changes in the Material Recovery Facility are of limited technical complexity; however, reference to these structures will be included in the Emergency Response Plan.
C2.9 Training Please indicate whether any changes to the staff training programme will be required. Please submit the name of the technically competent person on site who will be responsible for such training	Training for staff handling the MRF will be for: <ul style="list-style-type: none"> • Sorting • Use of forklifts & of telehandlers for movements of waste

Section	Relevant Information
<p>C2.10 Cessation Describe any changes to the outline decommissioning plan describing the draft proposed measures upon definitive cessation of activities, to avoid any pollution risk and return the site of the installation to a satisfactory state (including relevant measures for the design and construction of the installation).</p> <p>This plan shall include a draft waste management strategy, and a qualitative assessment of the potential for contamination of land and groundwater pollution which might arise from the historical and current processes carried out at the installation.</p>	<p>The introduction of the interim MRF facility does not introduce any significant features that would impact the outline decommissioning plan. The infrastructures introduced are basic and would largely result in generation of scrap metal, and some limited WEEE.</p> <p>The introduction of the chemical room would introduce the need of maintaining a proper inventory of materials, and ensuring proper disposal at the end-of-life. However, since the introduction of this facility is effectively allowing improved storage of chemicals already on site, this is likely to simplify this process.</p>
<p>C3.1.2: Describe any changes to the proposed measures for waste management, storage and handling. If any are identified, also indicate the storage location of wastes on a site layout plan and give details on:</p> <ul style="list-style-type: none"> • Maximum storage capacity; • Containment measures (including bunding capacity, where applicable); • Protective measures (including security). 	<p>Changes to the proposed measures for waste management, storage and handling are limited to the proposed operations in the interim MRF. New storage locations and mass balances are given in Annex 04.</p> <p>A change included in this application is the handling of the waste liquor derived from the organic fraction of the biowaste collected. A suitable code would be EWC 20 01 08 - biodegradable canteen and kitchen waste.</p> <p>RCVs unload their waste liquor in the gutter in the Reception Hall. The gutter is linked to a bunded IBC situated in the WET MTP area. The IBC's capacity shall be that of 1 cubic meter. Through the use of a flow switch, waste liquor is continuously diverted to the AD. Waste liquor system functionally to be checked twice daily (refer to form SAWTP065). IBC is away from the traffic route.</p>
<p>C3.3.1: Is a new sewer connection envisaged as a result of your proposal?</p> <p>If yes, please submit a block plan of the site, showing the proposed layout of sewer connections and any other drains (colour-coded), as well as the proposed discharge point(s).</p>	<p>Discussions are under way with Water Services Corporation regarding the possible introduction of a sewage discharge permit for trade effluent. Wasteserv has contracted technical assistance for the treatment of all waters on site as part of a holistic exercise involving all Wasteserv facilities.</p> <p>The required plans and connection details will be available once these discussions progress. A copy of the Discharge Permit application is included in Annex 32.</p>

Section	Relevant Information
<p>C3.6 Emissions to Air Identify if there may be any changes in emissions of substances to air.</p> <p>If any are identified, submit details of each emission point, the nature and the proposed quantities of substances emitted from each point and treatment/abatement measures. A block plan of the site showing each emission point should be submitted.</p> <p>For each new boiler/generator, submit the following details: rated thermal input, energy output, date of manufacture, stack height, fuel type and annual fuel consumption.</p>	<p>Emissions from the proposed operations will be abated as documented in the BAT review (see Annex 6).</p> <p>No new boilers or generators are being envisaged.</p>
<p>C3.7 Odour emissions Identify if there may be changes in emissions of odour.</p> <p>If any are identified, submit details of the main sources of odour, and the proposed techniques and measures for control of odour.</p>	<p>The proposed operations are smaller than those of the original MRF by orders of magnitude. Furthermore, the abatement system of the proposed location for these activities is designed to handle more odorous waste streams.</p>
<p>C3.9 Noise Describe:</p> <p>C3.9.1: The main sources of noise and vibration (including infrequent sources) of the new proposal;</p> <p>C3.9.2: The proposed techniques and measures for control of noise;</p> <p>C3.9.3: The nearest noise sensitive locations and distance away from the site (a site map may be submitted for this purpose); and</p> <p>C3.9.4: Relevant environmental noise measurement surveys which have been undertaken (monitoring shall be according to the latest revisions of ISO1996 and the rating of industrial noise affecting residential areas shall be according to BS 4142; monitoring shall be carried out exclusively using type 1 sound level meter).</p>	<p>The only source of noise introduced by this variation is the interim MRF sorting line electric engine and conveyor system.</p> <p>Control of noise emissions will be ensured through proper maintenance on the system to ensure smooth performance i.e. prevention of excess vibration from the engine or conveyor system.</p> <p>However, since the proposed equipment will be enclosed in the sorting hall, it is not envisaged that this will result in any appreciable noise source.</p> <p>The existing monitoring strategy for noise is considered to be adequate with respect to monitoring requirements.</p>

Section	Relevant Information
<p>C3.10 Monitoring Describe the proposed measures for monitoring emissions arising from the proposal, including any environmental monitoring. The following must be specified:</p> <p>C3.10.1: The location of each proposed monitoring point (plotted on a suitably-labelled block plan of the site);</p> <p>C3.10.2: The substances (in each environmental medium) which are proposed to be monitored;</p> <p>C3.10.3: The frequency with which monitoring is proposed to take place;</p> <p>C3.10.4: The proposed measurement methodology, which should be a standard methodology, such as EN or ISO standard, or equivalent;</p> <p>C3.10.5: The proposed procedure for evaluation of the results.</p>	<p>The existing monitoring strategy is deemed to be adequate with respect to the monitoring requirements emanating from this variation.</p> <p>However, the obligation to review Best Available Technique has highlighted some divergences that will require an upgrade to the existing strategy (see Annex 06: BAT conclusions).</p>
<p>C4.1 Environmental effects Provide an assessment of the potential significant environmental effects (including transboundary effects) of the foreseeable emissions from the proposal.</p>	<p>Given the limited scale of the variations proposed, emissions to air, water or land are not expected to cause an impact more significant from that originally contemplated in the Environmental Impact Assessment originally carried out for this project.</p>
<p>C4.2 Effects on other sites Provide an assessment of whether the proposal is likely to have a significant effect on another site in Malta and, if it is, provide an assessment of the implications of the installation for that site.</p>	<p>Given the limited scale of the variations proposed, emissions to air, water or land are not expected to cause an impact more significant from that originally contemplated in the Environmental Impact Assessment originally carried out for this project.</p>
<p>C9.1 Expenditure plan Please provide a plan of the estimated expenditure for each phase of the following specified activities arising from your proposal.</p> <p>The plan should include the likely costs of:</p> <ul style="list-style-type: none"> ▪ monitoring (emission/discharge and ambient monitoring); ▪ clearing the installation (including drainage systems) of all wastes; ▪ remedial action in the event of the failure of pollution control systems. 	<p>As a waste management facility of last resort, all Wasteserv operations are dependent on Government subvention as per applicable annual budgetary allocations.</p>

Annex 01: IPPC application forms

Annex 02: Existing Permits

List of development permits:

Application number	Application Title	Status
PA/02838/03	Part demolition of existing plant and upgrading of the existing facility to accommodate a material recovery facility, a mechanical treatment plant, a digestion plant and a composting plant.	Approved
PA/04607/06	Master plan and full development application for part demolition of existing plant and upgrading of the existing facility to accommodate a material recovery facility, a mechanical treatment plant, a digestion plant and composing plant	Approved
PA/05076/10	To sanction minor alterations to overall layout and to sanction additions to the shed covering the approved mechanical treatment plant as per PA 4607/06	Approved
PA/00339/15	Renewal of PA5696/08 - to sanction demolition of part of existing administration building and excavation. Proposed re-building and extension of existing administration building.	Approved
PA/01191/17	Addition of toilets to security room	Approved
PA/03160/17	Change of use from waste pit to class 5A, relocation of approved washing facility and sanctioning of glass crusher.	Approved
PA/09807/17	Construction of Chemical Room over existing garage	Approved
PA/09780/18	Construction of car port shed	Approved
PA/01275/19	Widening of door and extension to Mechanical Treatment Plan	Awaiting recommendation

Annex 03: Company Registration Certificate

Annex 04: Plans

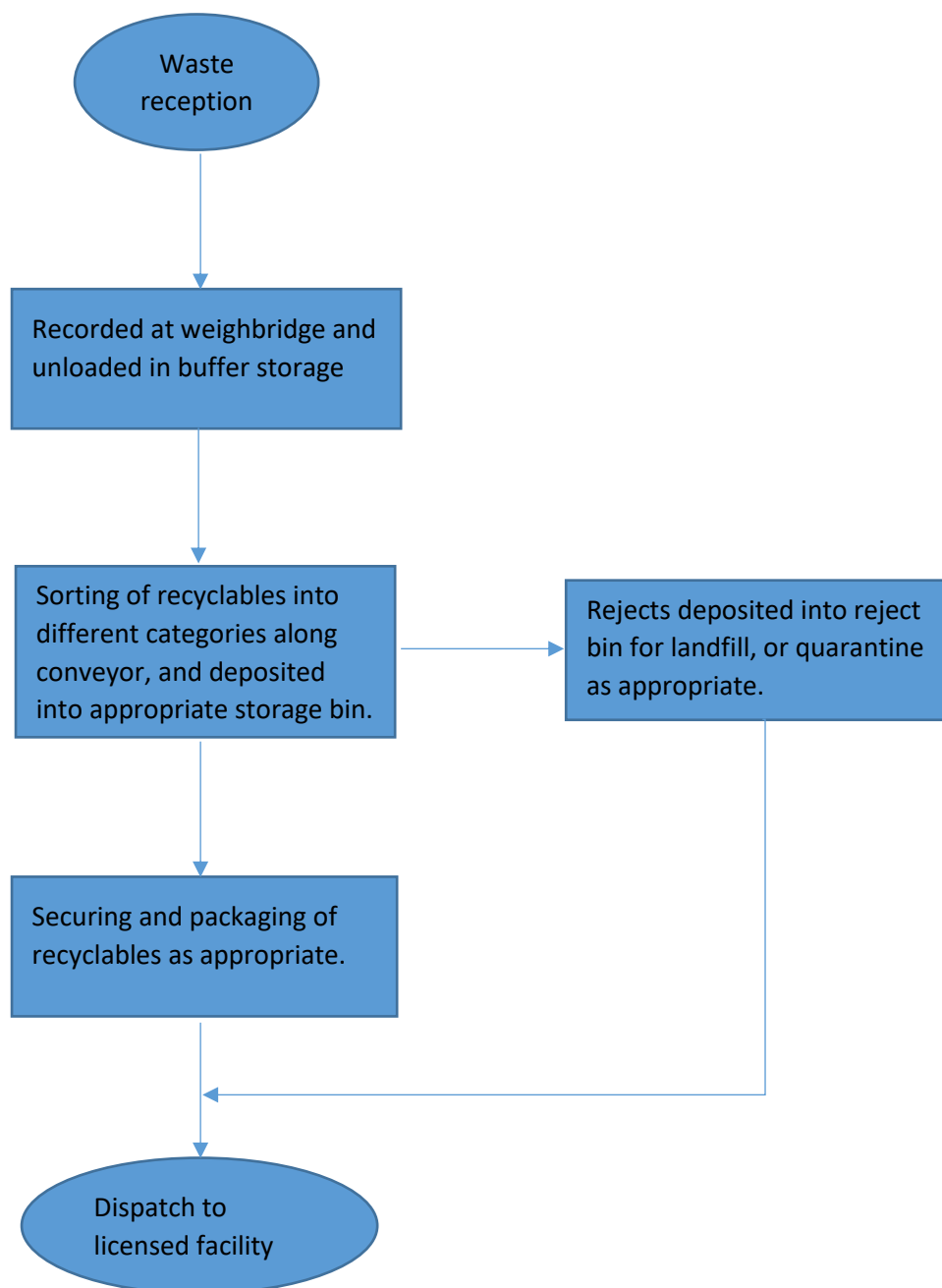
Annex 05: Improvement Programme of IP 0005/13/A

Annex 06: Best Available Techniques Review

Annex 07: Cleaning Plan

Annex 08: Maintenance Plan

Annex 09: Process Flow Diagram



Annex 10: Chemical Store Inventory

Annex 11: Fire, safety report

Annex 12: MRF sorting line

Annex 13: photo of chute and containers as per items 9 & 13 of the improvement programme

Annex 14: Cover for waste bales

Annex 15: Certifications

Annex 16: Fuel Storage Certification

Annex 17: Environmental Monitoring Plan

Annex 18: Bag filter specifications

Annex 19: Outline Decommissioning Plan

An outline decommissioning was accepted as part of the original IPPC application:

At the end of the plant life, a detailed plant decommissioning plan will be implemented to ensure that the site is returned to a satisfactory state for on-going use. The plan will consist of the following elements:

- 1. An inventory of assets to be decommissioned will be produced followed by consideration of the need for risk assessments, site supervision/management, and consultation of Regulations.*
- 2. Disconnection of site services, whether partial or complete will be considered before dismantling work commences on-site.*
- 3. Equipment, where possible, will be decontaminated on-site, followed by inspection and if necessary further decontamination, once the equipment has been removed from position and before it has been removed from site.*
- 4. Dispatch of equipment from site whether as a saleable asset or as scrap, will be accompanied by a Certificate of Decontamination.*
- 5. All equipment containing chemicals will be drained and the chemical stored in appropriate containers and removed off-site to reduce the potential for spillage.*
- 6. Dismantling of equipment shall be subject to the same conditions and control of works as required by relevant Health and Safety legislation.*
- 7. The site will be left in a safe manner and adequate regular site inspections will be carried out until such time as responsibility for the site has been transferred to the new owners.*

Decommissioning of the proposed waste liquor collection system will essentially consist of the dismantling of the IBC, pipework and associated pumps. This will be incorporated into the full decommissioning plan for the site, as considered in the original Decommissioning Plan attached. Refer to Attachment 07.

The above caters for the variations introduced through this application:

- the MRF line and the waste liquor collection system would be addressed via point 3;
- the chemical store would be addressed through point 5.

It is understood that a full decommissioning method statement would be required once a decision is taken to decommission these components, together with any ground investigations that may be considered necessary through an appropriate risk assessment.

Annex 20: Register of Mobile Equipment

Annex 21: Odour Management Plan

Annex 22: Consultation with Government Agencies

Annex 23: Environmental Management System

Annex 24: Emergency Response Plan

Annex 25: Chemicals used in atomiser

Annex 26: Biogas Flaring Model

Annex 27: Pest Control Stations

Annex 28: Dangerous Substances List

Annex 29: Registration of CHPs as MCP

Annex 30: Reception Hall walls

Annex 31: Proposal for Baseline Study

Annex 32: Water Discharge Permit Application

Annex 33: New Baler Specification