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Applicant details	Grundon Waste Management Limited Thames House Oxford Road Benson Wallingford Oxfordshire OX10 6 LX
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1 Introduction

1.1 General

Grundon Waste Management Limited (the 'applicant') has requested that Reva Environmental Ltd (the 'agent') prepares an Environmental Permit (EP) variation application, for its Avonmouth II Facility at Kings Weston Lane, Avonmouth, Bristol, BS11 9FG.

The facility is currently permitted by EPR/LP3241QA which was originally granted in November 2009 as EPR/EP3590SJ to New Earth Solutions (West) Limited. It was most recently varied (and consolidated) by Variation Notice V007 in October 2015 and was subsequently transferred in full to Grundon, on 18 January 2023.

The MBT Facility takes up an area of land that sits alongside another for which Grundon is also the current permit holder. The interaction between the MBT Facility EP boundary and the Energy Facility (the EfW) is shown on the site plan in the current EP for the MBT Facility and is re-presented in **Figure SS1** of the Supporting Statement. The site that is subject to this variation application is being reconfigured and developed as 'Avonmouth II Waste Transfer Station' (WTS). It is not currently operational.

The applicant wishes to vary the permit to reflect the proposed operation as a hazardous and non-hazardous waste transfer station that can blend, repackage, bulk and/or shred waste for onward recovery or disposal.

1.2 Process Description

The key process areas are described in detail in Section 2.2 of the Supporting Statement. Site plans are in **Appendix E** of the 2024 application. The key activities are as follows:

- Acceptance and storage of waste pending transfer or treatment;
- Shredding of non-hazardous and hazardous waste, pending disposal or recovery, or as a pre-treatment for incineration;
- Blending and bulking of non-hazardous and hazardous waste, prior to repackaging for disposal or recovery;
- Treatment of hazardous batteries in a proprietary shredding/recycling unit; and
- Treatment of non-hazardous and hazardous waste in small packages by way of de-packaging comprising crushing and draining of liquid contents.

1.3 Assessment of BAT

As required by Question 3 of EA Application Form Part C3, a best available techniques (BAT) assessment is required to support the operating techniques set out in this application. The activities have been assessed against indicative best available techniques (BAT), in accordance with the relevant sections of the following guidance:

- Sector Guidance Note 5.06 "Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous Waste";
- Non-hazardous and inert waste: appropriate measures for permitted facilities; and
- Chemical waste: appropriate measures for permitted facilities.

The BAT assessment has been written on the basis of information provided to the agent by the applicant.

2 TECHNIQUES FOR POLLUTION CONTROL

2.1 In-Process Controls

BAT guidance recognises that the implementation of pre-acceptance and acceptance procedures for waste, waste storage and waste treatment will prevent the acceptance of unsuitable wastes and therefore limit the likelihood of adverse reactions or uncontrolled emissions. Systems and procedures are required to be in place to ensure that incoming wastes are subject to appropriate review and deemed suitable for the proposed treatment route.

It also requires that an operator should have in place systems and procedures to ensure that incoming wastes can be transferred to appropriate storage and in a safe manner. Segregation of storage may be required where containers that have incompatible residues within them are accepted.

2.1.1 Pre-Acceptance Procedures

BAT and appropriate measures guidance refers to the need for a screening step whereby the operator obtains information on the incoming waste.

Grundon operates in accordance with a Pre-Acceptance Procedure (SO/TD/GEN/002) to ensure that customer enquiries are subject to appropriate technical appraisal. The process is as follows:

- A formal quotation is issued to a customer when quoting for disposal of waste. If a customer wishes to proceed with the waste disposal, they must complete a Quotation Acceptance Form which requires the customer to declare the company SIC code which produces the process producing the waste. The Quotation Acceptance Form also requires the customer to declare the specific process producing the waste.
- When a customer enquiry is received an electronic Pre-Acceptance folder is created. The folder will have a unique identifier (a T number). Analysis received will be saved into this folder which is accessible to all members of the technical team and is therefore available against the enquiry even after the waste has been suitably disposed of. Within this folder will be the customer's written description of the waste or the technically competent and experienced member of staff's assessment. The T number will be present on the transport documentation and container labels. The folder can be accessed directly from the site.
- All quotation requests are to be submitted in writing to ensure there are no discrepancies. There are also specific forms available for the customer to complete with headings for each piece of information required in order to quote for the waste under the Pre-Acceptance Procedure. Grundon will only quote for waste if all the information has been supplied by the customer; this includes the quantity of the waste and its physical form. After receiving written information from a third party, if a sample analysis has not been supplied and is required then a technically competent member of staff experienced in hazardous waste disposal and the requirements of waste treatment facilities will undertake a site visit and assessment. Their expertise enables them to attend a customer's site to assess the waste and obtain sufficient information to characterise the waste. This information is then recorded on a Hazardous Waste Listing Form. When the technically competent member of staff is unable to obtain sufficient information then they will obtain a representative sample of the waste to enable further analysis and classification of the waste.
- If the waste is not a pure product chemical, laboratory small, contaminated clothing/PPE, aerosols/gas cylinders, WEEE, lighting tubes or batteries then an analysis must be supplied by the third party, or a sample must be provided/collected to be analysed by an independent suitably accredited laboratory (conforming to ISO 17025 laboratory quality management standard) or a waste treatment facility laboratory. Note that waste oil will be analysed further if the customer cannot confirm the following components:

  - Chlorine
  - Sulphur
  - Metals
  - PCBs (the site has sufficient storage capacity to be able to store waste oil pending completion of these tests)

- When sampling as part of pre-acceptance various information will be recorded to demonstrate the reliability of the sample. All samples are labelled with a waste sample label (SO/TD/AVO/005b) which includes a reference number, sample date, the person who collected the sample, sample description, customer/destination, hazard property and UN number.
- As part of the Pre-Acceptance Procedure, a technically competent and experienced member of staff will complete a Pre-Acceptance Form, for each enquiry, confirming they have received chemical analysis or the chemical composition of the waste prior to progressing the enquiry. They will also confirm that there is a suitably permitted outlet for the waste. This will be documented on the form, with confirmation that a costing has been received from the receiving site. This information can be gathered either from the customer or from a site visit by a technically competent member of staff. If the customer and technically competent member of staff are unable to obtain sufficient levels of information to characterise the waste, then a representative sample will be taken, and further analysis will be done.
- Grundon has a comprehensive team of technically competent and experienced members of staff who ensure that all relevant information regarding hazards associated with the waste are obtained from the customer in the form of analysis, MSDS or chemical composition. There is a Pre-Acceptance Form they are required to complete confirming they have done this. Once completed all Pre-Acceptance Forms are checked and verified by another HNC or above qualified Grundon personnel. Following this assessment, the enquiry will be passed to a team of HNC or above qualified Administration Chemists who will check the assessment before the waste is collected.
- Grundon has its own 2 laboratory rooms where samples are stored. The main laboratory is in the neighbouring incinerator building (outside of this EP boundary) and a second one will be located at the south of the main storage building (within the EP boundary). Both are in a secure location, with a barbed wire fence, lockable gate, and CCTV cameras. All samples are labelled with a reference number, sample date, the person who collected the sample, sample description, customer/destination, hazard property and UN number. All samples are kept until disposal has been satisfactorily achieved at the final disposal point.
- At quotation stage a Technical Assessor or technically competent and experienced staff member will assess a waste following its characterisation to ensure that there is a suitability for treatment or storage within permit conditions. In addition to this when a waste stream arrives at the Technical Transfer Station it will be receipted into reception where there will be a team of HNC qualified or above and experienced Technical Chemists who will do further checks on the waste prior to transferring the waste to the correct storage bay prior to treatment.
- Grundon has a written procedure for the Off-Site Packing of Waste (SO/AVO/TD/040). As per the procedure all packages containing lab smalls accepted into the Technical Transfer Station must have an itemised list of its contents either attached to the side, placed inside, or saved electronically. The procedure includes instruction for the segregation, packaging, and labelling of laboratory smalls. In addition, there is a written Lab Smalls Procedure (SO/AVO/TD/034) for the receipt and processing of lab smalls at the installation.

- The team of HNC qualified or above chemists on-site receive regular training in addition to their HNC or above qualifications. Training is recorded on a Training Sign-Off Record (HR-GEN-GR-021f) and kept on the chemist's file.

Waste pre-acceptance records are kept at the site for verification at the waste acceptance stage and for a minimum of 3 years. Back-up copies of computer records are also maintained off-site.

2.1.2 Waste Acceptance Procedures

Grundon has a procedure Receiving Waste at the Technical Transfer Station (SO/AVO/TD/003) which is outlines the procedure for load arrival, load inspection, waste acceptance and waste rejection. This is as follows:

- On arrival at the installation, vehicles are required to firstly weigh in at the Weighbridge. After unloading the vehicle, they are required to weigh out at the Weighbridge in order for a net weight to be determined.
- As per the procedure SO/AVO/TD/003 'Receiving Waste at the Technical Transfer Station' the Technical Transfer Station Chemist will ensure that there is enough space to safely accept the consignment. Furthermore, the installation will have access to a Booking in Record (SO/GEN/TD/008a) and a spreadsheet detailing the collections scheduled for each day in order to prepare for the expected loads. All third-party customers are required to book their waste into site at least 24 hours prior to bringing the load to the installation; therefore, the installation will always be able to ensure they have suitable storage capacity each day. A Daily Environmental Record (SO/TD/AVO/019a) will be completed which records the space available in each bay. There is always a minimum of one HNC qualified or above member of staff on site to receipt waste during operational hours.
- All drivers are required to report to the site office upon arrival at the installation. Drivers are required to present all documentation to a technically competent and experienced staff member to check it has been completed correctly and is all present. All wastes receipted must be accompanied by a Waste Transfer Note or Consignment note which will include the physical and chemical composition, hazard characteristics and handling precautions and information specifying the original waste producer and process. The Operator will have access to this written description. The technically competent and experienced staff member will communicate with the reception chemist to ensure that the documentation matches the load before the waste is accepted. For third party customers, a Waste Inspection Form (SO/TD/AVO/005a) will be completed by the technically competent and experienced staff member by conferring with the reception chemist.
- As per procedure SO/AVO/TD/006 Identification, Segregation, Transport and Storage of waste; the reception chemist will check all labelling is correct and relatable to the waste and remove any inappropriate labels and replace them with suitable labels displaying the correct information. All labels must comply with the CDG Road Regulations and include a waste collection date and reference number.
- The start date will be applied to all drums and IBCs when first used for bulking and they will be correctly labelled; identifying the waste chemicals they are to contain as per procedure SO/TD/AVO/009 Bulking of Liquid Wastes into IBCs and Drums. When bulking onto a tanker, procedure SO/TD/AVO/052 Bulking Liquids Onto a Tanker states that the Onsite Chemist will record all the details of each container that is suitable for bulking onto the Technical Transfer Station Tanker using the Tanker Transport List (SO-AVO-TD-016d). The Technical Transfer Station Manager or Deputy will then complete a Tanker Loading Form (SO-AVO-TD-052a) using the Tanker Transport List (SO-AVO-TD-016d) that the Onsite Chemist has provided, whilst bulking up the containers onto the Technical Transfer Station Tanker.

- Waste will be receipted into the reception area where a HNC qualified or above chemist will do a visual inspection and confirmatory checks on the waste immediately upon offloading as stated in procedure SO/AVO/TD/004 'Unloading Consignments of Waste at the Technical Transfer Station.' The Inspection, unloading and sampling areas are depicted on the site plan. This area will have a suitable sealed drainage system (either densiphalt or concrete pads – with liquid fun off capture by the sealed drainage system that drains to a self-bended above ground tank) and benefits from CCTV coverage. The HNC qualified or above chemist will check all containers are clearly labelled, suitable for the waste and undamaged. Following inspection, any unsuitable containers will be moved to a quarantine area, with any unsafe drums being either over-drummed or transferred into suitable containers and the Waste Non-Conformance Procedure (SO/AVO/TD/013) will be followed. As per the Sampling and Testing Procedure (SO/AVO/TS/005) the Reception Chemist will carry out on-site verification tests to confirm the identity of the waste, the description of the waste, consistency with pre-acceptance information and proposed treatment method and compliance with the permit. Records are kept of any sampling carried out, for each load on site, along with the justification for the chosen tests.
- Drummed wastes will be labelled in compliance with current CDG Regulations (must display correct UN number, Proper Shipping Name and Diamond for the waste that they contain no false and un-relevant labels). Waste carried by Grundon vehicles will display the name of the Waste Producer, the collection date, and the designated "T" number. Waste carried by third parties will have the "T" number marked on all containers using a paint pen whilst the chemist carries out the waste inspection. The "T" number is a unique identifier that allows any user to locate all information relating to the waste which is stored in an electronic folder.

  All containers will also be marked with the following minimum information as outlined in SO-AVO-TD-006 Identification, Segregation, Transport and Storage of Waste:

  - Generic disposal routes (shows the location of storage).
  - Date (shows the duration of storage).
  - "T" number (on 205L drums and IBCs).
  - Chemical identity/description (to supplement the label if required).
  - Chemist's initials.
  - Primary (potentially secondary) hazard classification.
  - Any additional safety information.
- Tankers arriving at the installation will have a sample taken from the top, bottom, or composite of the load prior to being unloaded. Tanker loads will not be unloaded until a representative sample has been inspected in accordance with SO/TD/AVO/005. The Reception Chemist will sample liquid wastes by inserting a clear plastic dip-tube into the container of waste, remove a representative column of waste, and transfer it to a suitable container for inspection. For solid wastes the Reception Chemist will take a sample from the top of the container and from lower down when there is a suspicion that the top sample is unrepresentative as per SO-AVO-TD-005 Sampling and Testing Procedures.
- The acceptance of lab smalls at the installation will follow the same procedures as other wastes (SO/AVO/TD/003 Receiving Waste at the Technical Transfer Station, SO/AVO/TD/004 Unloading Consignments of Waste at the Technical Transfer Station and SO-AVO-TD-006 Identification, Segregation, Transport and Storage of Waste). There is also a specific procedure: SO-AVO-TD-034 Lab Smalls Procedure. The Reception Chemist will have, in accordance with SO-AVO-TD-006, identified lab smalls in reception and transported them to the Lab Smalls Reception for processing. Lab smalls will not be processed anywhere other than in the Lab Smalls processing area.

- SO-AVO-TD-009 Bulking of Liquid Wastes into IBCs and Drums and SO-AVO-TD-052 Bulking Liquids onto a Tanker outlines the process that will be followed for creating a batch for treatment or off-site removal. Operators will only create a batch once analysis has been received and the waste has been confirmed as being acceptable for bulking. Once bulked a composite sample will be taken prior to treatment.
- For aqueous wastes, the Onsite Chemist will take two samples of the waste; a 500ml 100% sample of the waste to be sent for analysis prior to disposal, along with a 250ml sample from the bulk storage tanks into a 500ml sample bottle and mix with 250ml of rainwater; therefore, giving a 50:50 representative sample of the potential tanker load to the disposal sites.
- As stated in the procedure SO/AVO/TD/006 Identification, Segregation, Transport and Storage of Waste; priority will be given to the segregation of incompatible wastes which will be dealt with immediately in accordance with the Non-Conformance Procedure SO-AVO-TD-031.
- If wastes fail to meet the acceptance criteria, then the Waste Non-Conformance Procedure (SO/AVO/TD/031) will be followed. This outlines that a quarantine area must be designated, and quarantine labels affixed to the containers. Non-conformances will be recorded on an internal system. If quarantined wastes are held on site beyond the time limits determined in the site permit the Environment Agency will be informed.
- If a container contains non-compliant waste the Technical Transfer Station Manager or Deputy will consider whether the load should be accepted and sorted or rejected following SO-AVO-TD-007 Rejection of Waste and SO-AVO-TD-031 Waste Non-Conformance Procedure. Incompatible substances will be sorted and re-packed in accordance with SO-AVO-TD-033 'Storage of Incompatible Materials' and SO-AVO-TD-031 is followed
- Grundon's procedure; Rejection of Waste (SO/AVO/TD/007) covers the procedure an Operative must follow when rejecting waste. The procedure includes the instruction to notify the Salesperson in the Technical Department who will in turn contact the waste producer and carrier, giving the reasons for rejecting the waste. The procedure also includes the requirement to copy all the documentation and log the details on the Rejected Waste Record (SO/AVO/TD/007a) and file in the corresponding file at the installation. Furthermore, the procedure outlines that the Technical Transfer Station Manager must notify the EA and the HSE if necessary.
- As per the Grundon procedure 'Receiving Waste at the Technical Transfer Station' (SO/AVO/TD/003) all wastes will be receipted into the reception area. The procedure states that all loads must be inspected prior to the end of the day. There will be no bulking, decanting, or mixing of drums within the reception area and wastes will be stored in compatibility with HSE Guidance Note HSG71. Waste will not be stored in the reception area any longer than 5 days.
- As per SO-AVO-TD-020 Housekeeping; the installation has sufficient resources (brooms, shovels, absorbent materials, containers) available to clear up spills. Emergency spill kits around site will be kept fully stocked.
- The tracking system records the following information:
  - Date of arrival on-site
  - Producer's details
  - All previous holders
  - A unique reference number
  - Pre acceptance and acceptance analysis results
  - Package type and size
  - Intended treatment/disposal route

- Record accurately the nature and quantity of wastes held on site, including all hazards and identification of primary hazards
- Where the waste is physically located in relation to the site plan
- Where the waste is in the designated disposal route
- Identification of operator's staff who have taken any decisions re acceptance or rejection of waste streams and decided upon recovery/disposal options

The tracking system will be capable of reporting the quantity of waste on site in appropriate units including a breakdown of wastes on site for storage pending transfer, a breakdown of wastes pending on-site treatment and a breakdown of waste quantities by hazard classification. In addition, the system will show where the waste is located on site, relative to a site plan, a comparison of the quantity on site against the total permitted and comparison of time on-site against the permitted limit.

2.1.3 Waste Storage

The layout of the site activities, including waste storage areas, is shown on the drawings provided in **Appendix E** of this application. The storage location of any one waste material is determined by its potential hazard(s) and each differing type is kept separate from the next. Appropriate labelling of the areas is used to ensure that locations are clear to all operatives. The following measures form part of the site procedures:

- Drums will be stored with identification markings, generic disposal route and a label clearly displayed as per the procedure SO-AVO-TD-006 Identification, Segregation, Transport and Storage of Waste.
- All waste that comes in must be sent out to an onward disposal or recovery outlet; nothing is retained on site or discharged, i.e. there are no direct discharge points to sewer. On-site bulk storage tanks will have all the outlet/inlet valves isolated with keys, which can only be obtained from the site office. Tanks will be numbered and have clear signage depicting their contents and capacity. Records for all tanks at the installation will be kept and will include; a unique identifier, capacity, what the tank is made of and how it was constructed, maintenance schedules and inspection results, any associated fittings and suitable waste types that can be stored within them.
- All areas of operations especially storage areas will be covered by CCTV which is recorded. The storage areas will be monitored daily with the use of daily environmental checks.
- The offloading area within the installation will be either densiphalt or concrete pads, both are impermeable with all liquid run off captured by the sealed drainage system that surrounds the site ending up in a sump. The sump is regularly checked and pumped out to one of the 4 tanks in the southern yard area as required. The reception area will be self-contained allowing the site to assess the hazards associated with any emissions before pumping them into the site drainage system.
- Quarantine areas will be determined dependant on the associated hazards and will be designated at the time of their need, depending on what area is available.
- All waste will be stored under cover.
- Each storage bay within each of the buildings will be self-contained and have a capacity relative to the quantity of packaged waste stored. They are sloped and benefit on 3 sides from sealed fire walls. The buildings themselves also benefit from bunding.
- Storage within the waste reception area will be for a maximum duration of 5 days before transferring the waste into storage. In reality the majority of waste will be moved within 1 day.

Local safe working practices stipulate that sensitive chemicals are removed from waste reception prior to the end of the working day and stored in appropriate locations to prevent adverse reactions. All waste will be removed off site within 6 months of receipt.

- All storage areas within the facility will be under cover to extend the working life of the containers; this also is to ensure that the container is fit for purpose if it is needed to be transported by road. All storage buildings will have been risked assessed and designed to have suitable ventilation whether this is high level and/or low-level ventilation very much depends on the use and the chemicals that are being stored. HSG71 is fully complied with.
- All storage areas are suitably designed away from the perimeter of the site to prevent spills over the sealed area and beyond the permit boundary.
- The installation has been designed to flow logically following receipt of the waste to reduce double handling of the waste, the waste will only be taken out of the storage bays when suitable quantity has been collated for onward disposal.
- Every storage bay will have the following information displayed:
  - Bay maximum capacity
  - Bay capacity
  - Hazard categories
  - UN number
- A daily environmental log will be carried out that checks the contents of each storage bay for fugitive emissions and the integrity of the bay themselves along with weekly plant and equipment checks that includes defect reporting and follow on actions. Any damaged container is removed and repackaged either decanting or over-drumming (placing it into another container thereby providing secondary containment). Each storage bay will have pedestrian access that allows inspection on both sides of the bay and will only contain similar compatible wastes which will be stacked no more than two high ensuring that the contents are visible for inspection.
- All flammable material will be stored in accordance with HSG 51, HSG 71 and HSG 76.
- Over-drumming will only be used in an emergency and only if the container cannot be decanted through whatever reason. All pallets which stability is in question will be either plastic shrink wrapped to the pallet or banded to a pallet. The use of cages/waste safe containers will be common practice within the installation.
- Non-storage activities will be kept to a minimum within storage areas. Any activities will be fully risk assessed prior to the activity taking place, including any maintenance carried out by on site staff and external contractors.
- All containers that contain waste will be fitted with either lids, caps, or valves, which ever are relevant to the type of container.
- Storage of aerosols on site will be in caged storage areas within the designated flammable storage building.
- Tanks will not be used beyond their specified design life and will only be used for substances they were designed for. Tanks will be equipped with high level alarms and bund alarms, both audio and visual. They will also be fitted with robust level gauges that will be inspected when the tank is emptied. The liquids being put into the tanks will be filtered, removing any solid matter and these tanks will be storage tanks as opposed to treatment tanks keeping sludge to a minimum. There will be access hatches at ground level for ease of maintenance and inspections. Any sludge

build up will be removed periodically. An annual CQA inspection will take place, and the records will be kept on site. Tanks will not be open topped, nor inter-connected.

- There will be no storage vessels on site for holding flammable wastes, nor any underground tanks.

As noted in 2.1.2 above, the tracking system will show where the waste is located on site, relative to a site plan, a comparison of the quantity on site against the total permitted and comparison of time on-site against the permitted limit.

Appendix J of the application presents the proposed EWC codes for wastes to be accepted; this is set out for each listed activity and waste operation. The same table identifies the maximum annual throughput for each activity.

2.1.4 Waste Treatment – General Principals

BAT guidance states that treatment involves a change in, or modification to, the characteristics of a substance to make it suitable for another means of disposal. The proposed treatment processes enable the majority of the waste to be recovered/recycled. The key issues dealt with in the relevant guidance are as follows:

- Ensuring that the waste is suitable for the activity (this is covered by pre-acceptance procedures);
- Adequately characterising the waste (this is covered by acceptance procedures);
- Appropriately and safely storing the waste;
- Providing and maintaining suitable infrastructure;
- Ensuring operational control of the treatment processes; and
- Disposal of effluents.

It is confirmed that the treatment processes proposed to be undertaken at the site are all physico-chemical (mechanical treatment). Treatment is described in detail in the Supporting Statement, as being limited to shredding, bulking, decanting/de-packaging, blending, and repackaging. This facilitates onward transfer of the waste for recovery or disposal. A proprietary treatment unit is also proposed for the treatment of hazardous batteries. Where these are treatment processes that are specifically referenced in BAT guidance, these are addressed in turn in this section.

For the general bulking/blending/repackaging activities, it is confirmed that prior to mixing, a compatibility test will be carried out; where any changes to temperature/odour or gases being produced are observed, this will be recorded and investigated. Where necessary, an alternative disposal outlet will be identified. No acids or reactive chemicals are to be bulked; not will tanker loads be accepted into bulk tanks. The latter waste is instead placed into IBCs and tested thoroughly prior to bulking.

2.1.4.1 Shredding

The installation will have a shredder which will operate under the procedure SO-AVO-TD-012 'Operating the Drum Shredder'. The Operator will store drums that can be re-used or sent for reconditioning at an external facility. Any drums that cannot be re-used or reconditioned will be cleaned where required prior to shredding.

BAT guidance notes that container shredding must take account of the former contents and any residues that may be present. Drums are emptied before being shredded; however, the shredder does allow for the collection of any remaining residues and has LEV with a carbon filter system.

The pre-acceptance, acceptance, and storage procedures set out in this BAT Assessment will be followed, to ensure that incompatible reactions from wash waters or residues from the shredding of drums are prevented. Drums containing flammable wastes will be sent for reconditioning where possible; if this is not possible then drums will be emptied using a vacuum pump prior to being physically drained and washed (if required) before shredding. Wash water will be captured.

The Site Chemist will clearly mark containers for shredding using a paint pen, providing the appropriate disposal code, chemical class/hazard present, and the date.

The proposed treatment equipment is recognised as being BAT for the treatment of the proposed waste stream. Plant will be supplied with an operating manual that will set out the designed operational parameters in relation to waste feed rate and treatment, to ensure that the waste is processed correctly.

2.1.4.2 Sludge Treatment

There will be occasions when the installation will accept filter cake and similar waste streams that may be odorous. This will not be subject to any treatment but may be repackaged for onward transfer. The tipping area will be large enough to prevent solid waste being carried out of the designated storage area. Wash down facilities are available for this area, and this operation will be under cover with sealed drainage and an LEV system.

As the installation would only be accepting this type of material and not producing it, the analysis will be carried out as part of the pre-acceptance process.

2.1.4.3 Battery Treatment

This treatment will be carried out in a proprietary unit and comprises Vacuum Battery Shredding/Recycling. The unit is supplied (and built) by the ERMAGA Group and is based on the medical autoclave shredding equipment that they supply. The unit was primarily designed for the processing of EV batteries, requiring those to be discharged prior to shredding; however, the unit is able to process vapes and mobile phones (and other similar devices containing batteries) without the need for pre-discharge.

The unit is a vacuum shredder which incorporates a drier. This is known as vacuum distillation, whereby the electrolytes are liquified and bottled. The shredding takes place in an inert atmosphere with the injection of nitrogen. The process has a full exhaust gas management system which comprises a condenser, scrubber, active carbon filter, cooling unit, and bottling system for the electrolyte. This is all PLC controlled. A small exhaust is from the filtered LEV and is directed to the combined LEV exhaust duct which goes to emission point ‘A1’. The liquid and solid outputs are as follows:

- Solid output (electrolyte-free):
  - Housing components (steel, aluminium, plastic)
  - Electrode foils (copper, aluminium)
  - Black mass
  - Separator foils
- Liquid output:
  - Electrolyte, condensed out, liquified and bottled for off-site transfer.

Specific plant will be supplied with an operating manual that will set out the designed operational parameters in relation to waste feed rate and treatment, to ensure that the waste is processed correctly.

The battery treatment plant will be located within Building 2, as shown on the site layout plan provided in **Appendix E** of this application.

2.2 Emissions Control

2.2.1 Point Source Emissions to Air

Point source emissions are those that result from the collection of gas from a vessel or area and are passed either via abatement or direct to a stack or vent.

Activities on site include the bulking up and transfer of waste, drum crushing and shredding, and battery processing.

It is noted that drums and containers are washed prior to shredding, where appropriate, minimising the likelihood of any air emissions during treatment. Where materials are bulked, it is only compatible materials being bulked with each other.

There are no point source emissions to air from these activities, however all will benefit from a local exhaust ventilation (LEV) system. This comprises a hood extraction which feeds to a combined LEV system which will include filtration. Particulates are not considered to be of concern with the treatment activities; instead, the primary focus is on potential VOCs from the waste (and waste residues) in the containers being processed. The LEV system will therefore provide VOC abatement by way of a carbon filtration system.

Note, all balance lines on the bulk tanks are covered by the LEV system.

The combined emission point for the filtered extracts is marked as **Emission Point A1** on the Site Layout Plan.

Air extraction and LEV systems will be inspected daily for functionality and condition. This includes checking the integrity of joints, pipework, motors, fans, seals etc. Maintenance of the systems will be in accordance with the manufacturer's guidance, with all spent carbon being appropriately disposed of. Routine monitoring of the LEV exhaust emissions would be carried out in accordance with the relevant permit conditions and stated emission limits.

2.2.2 Point Source Emissions to Surface Water and Sewer

The primary consideration is always to prevent releases of harmful substances to the aquatic environment, whether this is direct to the watercourse or via a sewage treatment works.

As the processes at the site are all carried out in covered areas, and within bunded buildings, emissions from the site are limited to clean rainwater collected from the roof and yard areas. This drains by way of gravity to surface water sewer, achieved by the sloping of the ground.

There is no direct discharge to foul sewer from any of the individual processing activities; instead, any spillages are contained within the building in a sump which can be pumped out into any of the 4 storage tanks in the south of the site, pending testing to determine the appropriate disposal/recovery route off site.

The installation will have service plans once it has been constructed; including all drains and pipework.

There will be no sub-surface storage vessels/tanks. The storage bays will each contain a small sump in order to be able to capture run-off and provide the ability to remove any spillages within them.

2.2.3 Point Source Emissions to Groundwater

There are no direct discharges to groundwater from the site and its activities.

2.2.4 Fugitive Emissions to Air

BAT recognises that the level of detail relating to fugitive emissions should be in keeping with the risk of causing annoyance at sensitive receptors. Common sources of fugitive emissions are storage areas, waste loading and unloading activities, transferring/bulking up of materials from one vessel to another, pipework and ductwork systems, poor building containment and extraction, wastewater storage, spillages, and accidental loss of containment from failed plant and equipment.

Standard control measures at the site include the following:

- The covering of all skips and vessels;
- The location of the treatment processes, and waste storage, within a building. There will be no storage of waste outside;
- On the rare occasion that dust is present a dust suppression system is used;
- The site will operate drum rotators if required to decant powders. The installation will not add liquid wastes to solid wastes.
- Although most of the waste will be packaged there will be areas for skips to tip. Within these areas there will be regular cleaning to ensure waste is not trapped outside the building as per SO-AVO-TD-020 'Housekeeping';
- Whilst not currently proposed, if the installation of conveyors is deemed appropriate, these would be enclosed if used for a dusty application;
- On-site bulk storage tanks are inspected annually and maintained as required. They will also be regularly cleaned/de-sludged as required.
- Any dusty materials will be packaged within enclosed containers.

The activities undertaken include shredding and bulking (potentially odorous) however both benefit from the combined filtered LEV system. The waste is not generally dust-producing so there is minimal potential for the fugitive emission of dusts. The activities include waste storage so there is the potential for the emission of odours; there is also the potential for dust generation produced through on-site vehicle movements. Internal roads are kept clean and if needed can be dampened down to prevent the generation of dust. Litter could be a potential hazard from the storage of waste however all wastes are stored in suitable containers and the waste is not generally litter-producing in nature.

Regular site boundary walkovers are carried out and include the inspection of the fence and open areas for any sign of litter or dust escaping the operational areas. Litter picking will be carried out if the inspection deems it necessary.

Fugitive emissions to air are considered in the qualitative Environmental Risk Assessment provided in **Appendix I** of this application (ref. GR_2023.02/04).

2.2.5 Fugitive Emissions to Surface Water, Sewer, and Groundwater

Potential fugitive emissions are considered in the qualitative Environmental Risk Assessment and summarised here:

- Spillage of residues from containers during receipt, handling, bulking/blending/repackaging, and storage; and
- Spillage of raw materials from containers/tanks etc. or bunds.

Emissions are prevented through the implementation of acceptance and rejection procedures, spill kits, bunding and sealed drains in the yard and buildings, and regular inspection of containment.

The installation will have small low point sumps in each of the storage bays. These will be visually inspected every time they are emptied and inspected annually as part of the programmed engineer inspection. The floor surface (both yard and buildings) will be constructed in a way that any liquid emissions will be contained within the operational area. Construction will be impermeable and will take into consideration surface thicknesses, strength reinforcement and level falls. The materials of construction will be resistant to chemical attack. The surface will be visually inspected locally weekly and annually as part of the programmed engineer inspection.

The four above ground tanks at the installation will be self-bunded, impermeable, and resistant to the potential contents. Any outlets will not be in the location of any surface water drains and these outlets will also be bunded to catch any leaks that may occur. Again, these will be subject to a local weekly inspection and an annual programmed engineer inspection. All tanks will be fitted with alarms and high-level probes, including a bund level probe

Spillage procedures (and kits) are in place, and personnel are fully trained in spill response.

2.2.6 Odour

BAT recognises that the level of detail relating to fugitive emissions e.g. odour should be in keeping with the risk of causing annoyance at sensitive receptors. Common sources of fugitive emissions of odour are storage areas, waste loading and unloading activities, transferring/bulking up of materials from one vessel to another, pipework and ductwork systems, poor building containment and extraction, wastewater storage, spillages, and accidental loss of containment from failed plant and equipment.

All waste storage and processing activities take place in buildings. An LEV system is in place for the bulking, shredding, and battery treatment activities; this is filtered for VOCs therefore minimising the potential for odour emission outside the EP boundary.

Regular olfactory monitoring is carried out, at set points around the site boundary, including one moveable point that is selected based on the wind direction at the time of the monitoring.

Any odour complaints are processed in accordance with Grundon's complaints procedure. Odour emissions are considered in the qualitative Environmental Risk Assessment provided in **Appendix I** of this application (ref. GR_2023.02/04). An Odour Management Plan (OMP) has also been developed for the purposes of this application and is included in **Appendix L** (ref. GR_2023.02/07).

2.3 Management

The applicant recognises that an effective management system is a key technique for ensuring that pollution prevention and control techniques are implemented and support compliance with BAT. Appropriate Measures guidance is that an operator must have a written management system. IPPC S5.06 notes that the EA strongly supports the operation of a formal environmental management system (EMS) and recommends certification to a recognised standard such as ISO 14001 or EMAS.

The applicant operates its existing permitted facilities in accordance with a formal integrated management system. The system is certified by BSi to ISO 14001 for environmental management. The applicant also holds certification for PAS 99 (integrated management), ISO 9001 (quality management), ISO 45001 (occupational health and safety management), ISO 50001 (energy management), and CMS (competence management system scheme). A summary of the management system is provided in **Appendix D** of this variation application (ref. OP/GR/GEN/041).

The IMS includes procedures that consider the failure of processes that could result in an environmental impact, for example:

- SO-AVO-TD-003 Receiving Waste at the Technical Transfer Station;
- SO-TD-AVO -004 Unloading Consignments of Waste at the Technical Transfer Station;
- SO-TD-AVO-005 Sampling and Testing Procedures;
- SO-AVO-TD-006 Identification, Segregation, Transport and Storage of Waste;
- SO-AVO-TD-007 Rejection of Waste;
- SO-AVO-TD-009 Bulking Liquid Wastes into IBCs and Drums;
- SO-AVO-TD-010 Operating Bulk Storage Tanks;
- SO-AVO-TD-011 Container Cleaning, Storing & Re-Use;
- SO-AVO-TD-012 Operating the Drum Shredder;
- SO-AVO-TD-015 Loading Vehicles at the Transfer Station;
- SO-AVO-TD-021 Handling Chemical Spillages;
- SO-AVO-TD-030 Operation of the Revolution Hybrid;
- SO-AVO-TD-032 Operation of the Revolution 2000 Waste Processor;
- SO-AVO-TD-033 Storage of Incompatible Materials and SO-AVO-TD-034 Lab Smalls Sorting
- SO-AVO-TD-018 Equipment Checks
- EP-AVO-GR-017 Dealing with Emissions from Site and Control of Firewater
- SO-AVO-TD-018d Preventative Maintenance Schedule

Regular internal audits are undertaken at Grundon sites. Results are reported back to top management to resolve.

It is also a requirement that the management of the site is controlled by a person who is a 'fit and proper person'. Details of the applicant's ability as an operator are provided in Section 2.2.3 of the Application Supporting Statement and evidence is provided in **Appendix C** of this application. The Grundon management system complies with the requirements of the Competence Management Scheme, as detailed with the standard approved by EU Skills. The requirements are documented in the Technical Competence Policy/Procedure, reference MP-GEN-GR-036a. This standard is audited by LRQA to ensure compliance at all Grundon permitted sites.

All employees training records are maintained on the on-line system 'Civica'; this system sends reminders for any refresher training needed. As outlined in MP-GEN-GR-036a Competence Management Policy/Procedure; necessary skills and competencies for key posts are documented and training needs met, maintained, and recorded by:

- Carrying out regular reviews of the training requirements for the employees at the facilities to identify the needs according to the CMS Training Matrix (MP-GEN-GR-036c);
- Prioritising training requirements in relation to the individual's role and the associated risk in relation to them not completing the training;
- Ensuring all training is documented and recorded, as detailed within the Training & Development Policy/Procedure (HR-GEN-GR-021a); and

- Carrying out monitoring following training, when appropriate, to ensure that the contents of the course have been understood and are being implemented appropriately.

Skills and competencies necessary for contractors is outlined in OP-GR-GEN-017d 'Contractors Working For Grundon Guidance & Instructions'. MP-GEN-GR-036a 'Competence Management Policy/Procedure' covers all Grundon staff including those responsible for purchasing equipment and materials. The installation will conduct a Daily/Task Induction with all contractors about to work on a Grundon site. As part of the induction the contractor will be made aware of any potential environmental risks that could occur and instruction is given on how to protect the environment whilst working on site.

Grundon has a written procedure to address handling, investigating, communicating, and reporting of non-compliances; also, for reporting of any environmental complaints, MP-GEN-GR-019a 'Complaints Process'.

Grundon has an Integrated Policy Statement which includes:

- minimising the environment impact from its activities, products or services and ensuring the prevention of pollution in relation to those aspects that may impact on the environment. The company operates to ISO 14001 accreditation, and, within this, annual targets are set to reduce the impact on the environment. The aim of these are for continual improvement to prevent pollution. The company operates internal and external audits to ensure it remains compliant.
- Operating in full compliance with applicable legal and other requirements (such as ISO 9001, ISO 14001, and ISO 50001) to which the organisation subscribes. The company operates internal and external audits to ensure we stay compliant.
- The installation will identify and set objectives. These objectives are monitored during the course of the year, with the installation audited internally twice a year with an additional external audit. The results of these audits are reviewed by senior management to pick up on common trends and put in procedures to reduce these.

Grundon incorporates environmental conditions when changes to both processes and engineering amendments occur at installations; and environmental impacts and aspects are reviewed. The construction, alteration, conversion, fitting out, commissioning, renovation, repair, upkeep, redecoration or other maintenance, decommissioning, demolition, dismantling of a structure will all incorporate environmental conditions. All projects and capital investments to a certain value require a business case which is presented to the board for approval. This also includes financials and expenditure.

Grundon holds a biannual Management Review Meeting. Each site contributes through summary reports prepared locally along with audit findings and company feedback from the public and organisations. This allows it to determine the effectiveness of the management system and for improvements to be considered.

2.4 Raw Materials

BAT recognises that a proportion of raw materials (including auxiliary chemicals) used will end up as a waste or in the effluent.

2.4.1 Raw Material Selection

Details of the raw materials used in support of the operation of the proposed facility are provided in **Table BAT1**. These do not include energy and water (the main raw materials used at the site; these are addressed separately in other sections of this BAT Assessment) but the chemicals and other materials required to undertake the permitted activities.

Table BAT1: Raw Materials

Raw Material	Maximum Stored	Annual Use	Use and Hazards
Activated carbon	Within filter systems	TBC	LEV filter media, BAT (no current suitable alternative). Usage to be confirmed once operational and quantifiable
Hydraulic oil	200 litres	400 litres	Bulk lubricant for plant/machinery, standard application. Stored in 25 litre containers in secure store within building.

Grundon will maintain a list of the raw materials in use and their properties (as set out in Table BAT1 above). In accordance with the standard requirements in the EP, a review of raw material use will be carried out at least every four years. This will seek to identify if there are suitable alternative materials that could reduce the environmental impact or identify opportunities to improve the efficiency of the existing raw material being used.

2.4.2 Waste Minimisation

Waste minimisation is where a systematic approach is taken to reduce waste at source through an understanding of, and applying changes to, processes and activities in order to prevent and reduce waste. This section relates to ensuring efficient use of raw materials and other substances in order to reduce gaseous, liquid, and solid emissions.

In accordance with the standard requirements in the EP, a waste minimisation audit will be carried out at least every four years. This will seek to analyse the use of raw materials, assess the opportunities for reductions and the generation of an action plan to implement identified improvements.

The quantity of chemicals used at the site are recorded and will be tracked during the lifetime of the EP and assessed at regular intervals.

2.4.3 Water Use

The site is likely to be a medium scale user of water, which is primarily used for cleaning of plant and washing of drums prior to shredding. Water use will be metered from the mains supply; there is one meter at the site. The proposed activities will be essentially 'new', as such no water usage information is available at the point of EP application. In accordance with the standard requirements in the EP, a review of water use will be carried out at least every four years, however as a new facility this will be carried out within 2 years of EP issue initially. This will seek to analyse the use of water, assess the opportunities for reductions and the generation of an action plan to implement identified improvements.

In order to minimise water use, dry clean up techniques will be used where appropriate as a primary means of housekeeping. Where water hoses/lances are used, these will be fitted with trigger controls to avoid unnecessary water use.

Rainwater run-off is currently planned to be directed to surface water drain, however the collection of this for use in the facility will be a key consideration in helping the site achieve a reduction in water use per tonne of waste processed (a metric in the objectives and targets for the applicant EMS). Where water is used in the process, an assessment will be made as to whether this can be recycled or whether rainwater could be used.

2.5 Waste Handling

See Section 2.1 above for details of waste pre-acceptance, waste acceptance and waste storage.

2.6 Waste Recovery or Disposal

The fundamental purpose of the facility is to transfer incoming materials; treating by bulking/blending/repackaging only, as required to facilitate onward transfer for recovery or disposal. There is therefore no 'residue' from the processes, other than wash water from housekeeping, shredded drums, and spent carbon.

Wash waters are addressed in Section 2.4.3 above. With respect to drums, these are sent (along with other containers e.g. IBCs) for reconditioning wherever possible; only those unsuitable for reconditioning will be treated on site, allowing the waste to be recycled. Spent carbon will be returned to the supplier; this is usually regenerated for repeat use.

2.7 Energy

The requirements of BAT depend on whether the operator is a participant to a Climate Change Agreement. Grundon is not, and as such for the purposes of this BAT Assessment is required to demonstrate that it meets both the basic energy requirements set out in Sections 2.7.1 and 2.7.2 of BAT 2018, and the additional requirements in Section 2.7.3.

2.7.1 Basic Energy Requirements

In accordance with the standard requirements in the EP, the applicant will provide an annual report on energy consumption relating to the use of electricity, oil, and any other energy source. This will be submitted to the EA as required by the EP.

The site operates a series of straightforward processes which, whilst they enable the recovery of waste materials, do not seek to generate any energy, or recover any heat energy as the techniques in place do not lend themselves to this.

The applicant has a scheduled maintenance programme that focuses on the key energy users (process plant, generators, pumps, air compressors, motors etc.). This ensures that all plant and equipment is operating at its optimum efficiency, and is devised from the manufacturing specifications, current legislation, and company procedures.

2.7.2 Basic Energy Requirements (2)

Energy use will be monitored and recorded, allowing regular assessment to identify any opportunity for reduction. Once operational, energy use will be reviewed against tonnes of waste processed in order to identify the Specific Energy Consumption (SEC).

In addition to maintenance, housekeeping checklists will be completed daily on mobile plant and static equipment, weekly and monthly checks will be carried out with rectification actions taking place when required.

The applicant's EMS requires the establishing of annual Objectives and Targets, and these include the reduction in energy use per tonne of waste processed from the previous calendar year.

An energy efficiency plan will be developed for the installation following identifying significant energy usages at the installation. Part of this will estimate the potential CO_2 savings. Information on activities at the installation to include expenditure and cost per tonne of CO_2 saved will be explored when selecting new equipment.

2.7.3 Further Energy Efficiency Requirements

There are limited opportunities for energy efficiency measures to be applied at the site, but a number of initiatives are proposed to minimise unnecessary energy usage, as follows:

- Energy efficient buildings will be specified for construction at the site as part of the design brief.
- All plant and equipment will be considered and chosen based on a cost benefit analysis which will consider energy consumption/efficiency.
- CCTV installed will have a night vision mode of operation, negating the need for lighting to be on outside of operational hours;
- There will be PIR sensors on key external lights for example access routes.
- When purchasing new plant or equipment, consideration will be given to the fuel demand and type and the potential for practicable energy recovery.

2.8 Accidents

BAT requires the applicant to have an accident management plan that identifies the likelihood and consequence of accidents and action to prevent and mitigate these. BAT guidance also sets out the general management requirements for operators under the EP regime. This is based on three components: the identification of hazards posed by the permitted activities; an assessment of the risks of accidents and possible consequences; and the implementation of measures to reduce the risk, as well as consideration of contingency measures in the event that accidents do occur.

The applicant operates its other sites in accordance with an EMS; this will be implemented at the Avonmouth II site. This includes RA-AVO-TD-075 'Accident/Emergency Management Plan' and EP-AVO-GR-019 'Hazop Assessment' which incorporates the various controls and procedures associated with the reception of waste, identification, segregation and storage of waste, transfer of substance, waste processing, emergency situations, transfer of substances, emissions, failure of containment, control of fire water, control of incompatible substances, failure of electric and water supplies, operator error and vandalism.

There is a procedure to risk assess the processes at the installation. Utilising this, the site will identify how likely the event will occur, what substances could be released, identifying sources, pathways and receptors, the consequence of the emissions and the measures taken to prevent accidents and reduce the environmental consequences. A full environmental risk assessment will be undertaken on all activities at the installation due the hazardous nature of the waste received and stored on site and the proximity of the receptors.

There is a written procedure, OP-GEN-GR-004a 'Reporting of Personal Accidents & Incidents' which includes the investigation of Accidents/Incidents and OP-GEN-GR-004g 'Near Miss Reporting' which includes investigation of near misses. Grundon also has an investigation process which includes a thorough investigation with supporting evidence. The Incident Review form is then passed to the relevant SHEQ Advisor for them to add further comments. This document forms part of the investigation process carried out by the SHEQ Team. The form is then passed to the senior manager responsible for the department where the incident occurred. They will need to ensure any actions identified are completed and then maintained. Once completed, the form is passed to the relevant Director, who will review the details and present the information at the next Board meeting.

The EMS also includes consideration of accidents by way of emergency scenarios in the Aspects and Impacts Register. This is supported by emergency plans (i.e. business continuity). It is recognised that the typical environmental risks for the site are the potential for spillages of materials as a result of leaks, spillages or mishandling of wastes. Key provisions for the prevention of accidents are included below (but are augmented by the procedures and EMS documentation):

- Provision of up-to-date and current site plans including the hazards associated with the waste within the storage bays – located in multiple places across the site.
- All waste will be tested, and compatibility checks will be carried out before materials come into contact with each other.
- Tanks are fitted with high level alarms to prevent overfilling them; procedures will state that the bulk-storage tanks will have sufficient spare capacity to receive the waste destined for the tank. All the activities will rely on manual supervision to reduce probability of incident and to maintain control during emergency situations. The procedure for Bulking of Liquid Wastes into IBCs and Drums (SO-EWE-TD-009) has a specific section for bulking flammable wastes. On-site Chemists will take caution when bulking to avoid the generation of static electricity. The installation will not bulk flammable liquids into anything larger than an IBC (1000ltrs) for storage.
- Design of the facility will reduce the interaction between pedestrians and vehicles and provide protection of plant again vehicles by installing barriers and posts where possible.
- The installation storage area will have multiple bays within the building, the contour of the floor will slope towards the rear and there will be a low point to be able to empty when required. The process areas of the site will follow the similar design. The contours within the building will prevent any liquid escaping from the site.
- The installation is within flood zone 2. A flood risk assessment will be carried out. The contours of the site and bunding will prevent emissions to mix with flood waters. The majority of the waste which will be received at the facility will be packaged in containers, UN approved containers where applicable. Any processing machinery will be elevated above floor level.
- The site will be secure with fencing and gates to prevent any unauthorised access to the facility.
- Grundon operates various procedures related to accidents and incidents; within each is detailed roles and responsibilities.
- The installation will have a series of emergency procedures to cover and guide site personnel on various accident/incident scenarios.
- There are procedures addressing the management of maintenance and contractor works to include inductions and permit to work documentation, these are displayed in a location visible to staff.
- The plant and equipment operated within the installation will have procedures to enable safe shut down.
- The emergency procedures will include contact details for the emergency services and Grundon will actively encourage the fire service to visit site in order to explain the common hazards and storage quantities associated at the facility.
- The installation will be designed and built with appropriate control measure in place to control the unlikelihood of incidents. The site consists of fire walls to segregate the waste storage bays with individual self-contained sumps. The site will also be self-bunded. The site will also have a comprehensive automated fire suppressant system. All personnel at the installation will be trained on the emergency procedures including all of the firefighting equipment and any shut off systems.
- Any critical equipment will have a duty standby if required.
- Part of the emergency procedures and local spillage procedure will include the actions to be taken in the event of a spillage. The site is bunded and will prevent spills from leaving the

permitted area. Any liquid spills including fire water will be tested before bulking them up or sending them off site for disposal at a permitted facility. All spills will be cleaned up as soon as practicably possible in order to reduce the probability of accidental emissions. Any spillage within the facility will be logged within the site diary and spillages of more than 20 litres will be informed to the Environmental agency.

- The following spillage prevention controls will be in place:
  - Unloading from and loading into tanks will always be carried out under the supervision of personnel from the installation.
  - Any hoses including couplings will be visually inspected prior to be used, they must be in fully working order and have a rubber gasket. The securing clips that connect the hose to the connect must be also checked.
  - The transferring pressure will be kept to minimum and only specific hoses are used that can accommodate the working pressures of the various pumps.
  - Any spills from the use of the tanks will be cleaned up as soon as practicably possible to prevent build up and degradation of the floor surface.
  - No malodourous liquid waste will be bulked into the tanks on site. Again, all spills will be cleaned up.
  - The position of the tanker will be so that the least number of hoses, ideally one, will be used. All connections will be checked and tightened appropriately.
  - Site procedures will include loading tankers though a filter system if required and the process that is followed to minimise any spillage. All incoming loads will be pre-assessed and tested on arrival.
  - The area around the tanks will be bunded and in emergency situations could accommodate a leaking vehicle if required should a seal fail on a road tanker.
  - All valves to tanks will be locked. All fixed pipework will be individual to each tank and therefore eliminate cross contamination.
  - The storage tanks will hold liquid that will be transferred off site to its final disposal point.
- When bulking liquid wastes into larger ones, again this is covered by a local bulking procedure, where the capacity is checked to ensure there is enough volume for the liquid, funnels will be used. Hand bulking is limited to small volumes. The site will operate machines to bulk, but these will include valves to stop liquid flows to enable the larger containers to be exchanged if required.
- Unloading/movement of drums and containers:
  - The facility accepts drums and containers on pallets; the unloading area will be bunded and any fugitive liquid emissions will not leave the permitted area. All FLT operators will be trained, and pallets will be assessed prior to unloading, loading, or moving.
  - Any damaged pallets which are suitable for use will be replaced prior to transferring them into storage.
  - The facility is designed to have sufficient space for unloading and storage in order to reduce damage caused by FLTs.
- Any liquids accumulating within bays or bunds will be removed promptly and will be tested prior to identifying a disposal outlet.

Details of provisions made for the minimisation of fire risk, for fire detection, and for fire suppression are given in the Fire Prevention Plan provided in **Appendix G** of the EP application (ref. GR_2023.02/03).

It is confirmed that the site will not fall under the COMAH Regulations.

2.9 Noise

BAT Guidance recognises that the level of detail relating to fugitive emissions e.g. noise and vibration should be in keeping with the risk of causing annoyance at sensitive receptors.

With regards to noise, the potential noise sources, the pathway for propagation, and the sensitivity of the receptors have been considered in the qualitative risk assessment (a copy of which is provided in **Appendix I** of the EP Application (ref. GR_2023.02/04).

Any equipment chosen to be used within the facility will always consider the potential for noise and vibration impacts on the operators and at the permit boundary and ensure that this is kept to a suitable level. All equipment will be maintained at a frequency stated within the O&M manuals to prevent any potential increases to both noise and vibrations.

All noise levels associated with operations within the facility will be within the constraints of the planning permission at the site boundary. Night operations will not take place under normal operating conditions, there could be emergency inputs that are required to be held at the facility, but all movements will be kept to a minimum.

As part of the company's Control of Noise Policy and Procedure, a noise risk assessment will be carried out on all potentially significant noise activities at the facility. A noise survey will be carried out on all operations and will be reviewed every 24 months. This noise survey will identify any additional controls that will have to be engineered into the processes.

Records will be retained of any complaints received, including those relating to noise. All complaints will be fully investigated, and action taken where substantiated.

The location of sensitive receptors, relative to the site, is described in the ERA.

2.10 Monitoring

2.10.1 Emissions Monitoring

There are no direct point source emissions from the plant; other than the exhaust from the filtered LEV systems. Monitoring will take place on commissioning and periodically as directed by the permit on any abatement equipment used on site.

Visual and olfactory checks will be carried out periodically around any extraction system.

2.10.2 Environmental Monitoring Beyond Installation

No monitoring is proposed beyond the EP boundary. Environmental monitoring will take place if there are any of the following:

- There are vulnerable receptors.
- The emissions are a significant contributor to an Environmental Quality Standard that may be at risk.
- The operator is looking for departures from standards based on lack on the environment.
- To validate modelling work.

Any environment monitoring that needs to be carried out will be performed as per standard reference methods/protocols. There will be a monitoring strategy with set monitoring points in order to analyse for trends from the findings. In order to establish the effects, background levels will be measured. Grundon operate an approved supplier list to ensure any monitoring contractor used will conform to all quality assurance and quality control protocols.

2.10.3 Monitoring of Process Variables

Regular visual inspection will be carried out and recorded for the plant and associated equipment and hardstanding. Any processes that are perceived to affect the environmental will be identified and will be monitored as appropriate.

2.10.4 Monitoring Standards

For England and Wales, the Environment Agency has established its Monitoring Certification Scheme (MCERTS) to deliver quality environmental measurements. MCERTS provides for the product certification of monitoring systems (for example, instruments, analysers, and equipment), the competency certification of personnel and the accreditation of laboratories under the requirements of European and International standards.

Where monitoring is required at the installation the contractor used will comply with the requirements of MCERTS and any other regulations. If any doubt the operator will seek guidance from the regulator.

2.11 Closure

There will be a site closure plan for the site which details how the site would be decommissioned to return it to a satisfactory state upon the cessation of activities on the site.

It will cover the following (where applicable):

- Plans showing the position of underground pipework, culverts or other structures, the location of watercourses and drains, and the permeability of the underlying ground structure;
- Identification of potentially hazardous materials located in above or underground structures;
- Identification of how those structures will be de-contaminated, in addition to consideration of any other hazards that dismantling the structures may pose; and
- Identification of any other pertinent issues that might need addressing at the point of decommissioning.

This will be subject to regular review and update, including after any significant changes to the site that could impact the context of the closure plan.

It is considered that operations at the facility during the life of the IPPC Permit should not lead to any deterioration of the site. There will be regular inspections and maintenance when required. Records will be kept of these, for the lifetime of the EP as they will support a future application for surrender of it.

3 EMISSION BENCHMARKS

3.1 Emissions Inventory

In accordance with EA guidance, the nature and sources of foreseeable emissions will be identified.

There are no direct point source emissions from the plant; just the filtered LEV exhausts which will be included in the permit with appropriate emission limits.

Monitoring of emissions at the site is otherwise limited to the recording of the quantity and composition of waste transferred off the site, recorded as tonnes per month.

4 Impact Assessment

EA guidance indicates that an assessment is required to look at the significant environmental effects of foreseeable emissions. The EA guidance also indicates that the depth to which this assessment should go should be discussed with the Regulator.

It is considered that the nature of the proposed activities is such that emissions will be very limited, if occurring at all, and thus the overall environmental impact of the site will be minimal. As the site is operated with the purpose of recovering waste that would otherwise be disposed of, the site is having an overall positive impact on the environment. As such, it is not considered that an in-depth impact assessment is required.

The location of sensitive receptors, relative to the site, is described in the qualitative environmental risk assessment in **Appendix I** of the EP Application (ref. GR_2023.02/04). This defines the receiving environment in terms of potential receptors of pollution, and the potential impact is considered in detail.

See Section 6 below regarding habitat sites.

Any abatement system that is required will include an appropriate assessment of the vent or chimney height in order to ensure there is adequate dispersion of the minimise emissions. The abatement system used on site will recognise that the vent could be used as an emergency emission point. Although the likelihood of the equipment failure due to maintenance schedules etc. is low, emission modelling will be carried if deemed to be required.

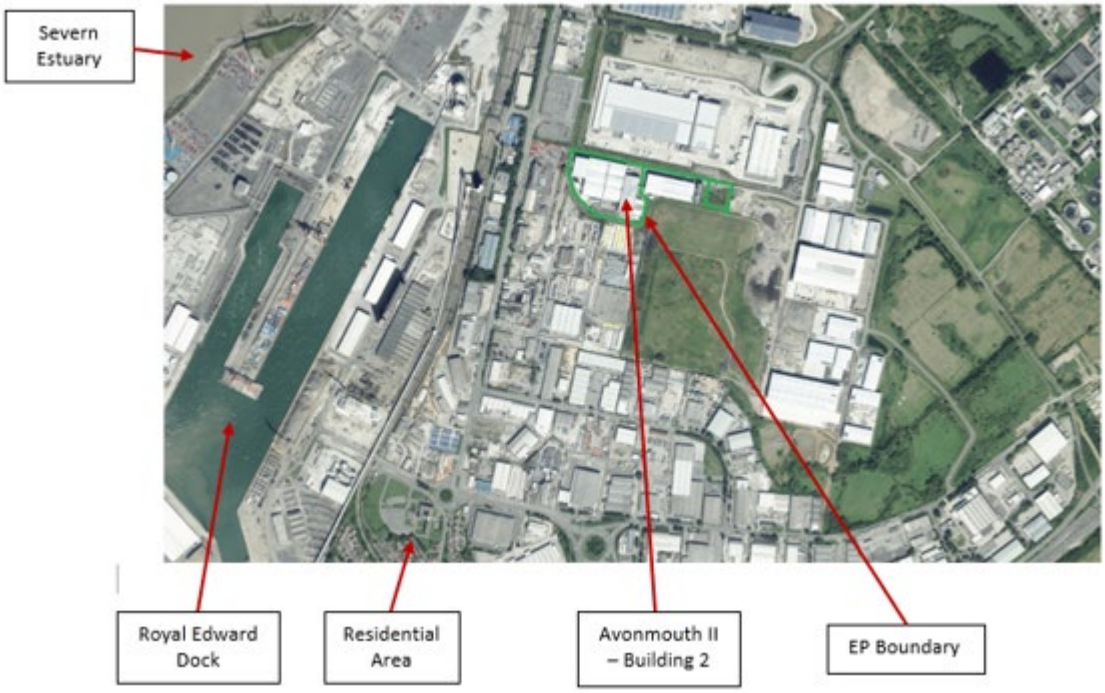
It is believed that the measures stated in the environmental risk assessment will prevent any significant pollution. If there is any uncertainty about this the assessment will be revisited with additional appropriate further improvements implemented.

5 Waste Management Licensing Regulations

The information provided in this BAT report addresses risks to water, air, land, and habitats. It also considers 'nuisance' relating to potential noise, dust, odour etc. As confirmed in Section 6 below there are several habitat sites within the screening distance of the site, and these have been appropriately considered in the application.

6 Habitats Regulations

The location of sensitive receptors, relative to the site, is shown below:



This defines the receiving environment in terms of potential receptors of pollution, and the potential impact is considered in the qualitative environmental risk assessment in **Appendix I** of the EP Application (ref. GR_2023.02/04_v1).

Local Receptor Type and Distance	Receptor Name
Residential properties - none within 1 km (closest is 1.8 km to the south)	N/A
School – none within 1 km	N/A
Public highways: Adjacent to the north 150 m to the west 1 km to the south 800 m to the east	 Zinc Road A403 Saint Andrews Road Third Way Boundary Road
Statutory Habitat Site (SPA, SAC, Ramsar, SSSI <1 km to the west	Severn Estuary
Local Wildlife Site <250 m to the west	Saint Andrews Road Rhine

A screening request was made to the EA at the pre-application stage; this identified several habitat sites within the screening distance of the site (see **Appendix B** for a copy of EA pre-application advice letter), as follows:

- Special Areas of Conservation (SAC). Within the 10 km screening distance there are two SACS: the Severn Estuary and Avon Gorge Woodlands. The Severn Estuary is also designated as a Special Protection Areas (SPA) and a Site of Special Scientific Interest (SSSI, for which the screening distance is 2 km).
- Local Wildlife Sites (LWS). Within the 2 km screening distance there are 13 sites listed.

These have been explicitly considered in the ERA, the outcome of which is that there is insignificant potential impact, and that no further habitat assessment is required.