Recycling and recovery UK

Sidegate Lane

Battery Recycling Facility

1.2 Operations and Emissions Management Plan

June 2025

DOCUMENT DETAILS

Document title	Sidegate Lane Battery Recycling Facility Operations and Emissions Management Plan
Version	3.0
Date	June 2025
Prepared by	Katie Heath – Environment Permit Manager
Reviewed by	Geraldine Guiguet-Doron – Environment Permit Manager Amy Mcaree – EIR Manager Alan Colledge – Technical Director
Approved by	Nigel Ingram – Operations Director
Distribution	SUEZ – Site Copy SUEZ – Environment & Industrial Risk Department Environment Agency

DOCUMENT REVIEW HISTORY

Date	Description	Summary of Changes
November 2013	Version 1.0	Original document
May 2019	Version 2.0	Change in format to SUEZ template.
October 2019	Version 2.1	Changes following EA review
April 2021	Version 2.3	Updated following external waste storage containers
December 2023	Version 2.4	Operational review and update
February 2024	Version 2.5	Review and update following EA comments
June 2025	Version 3.0	Updated to new template for permit variation to add battery recycling facility

CONTENTS

APPENDICES

1 INTRODUCTION

1.1 Operational Hours

1.1.1 The operational hours of the site are detailed within the Planning Permission and all specified waste management activities will be undertaken within the hours specified.

1.2 Permitted Activities

1.2.1 The site operates under Environmental Permit (permit) reference EPR/XP3092NX. The site is permitted to operate as an Open Windrow Composting (OWC) facility and a Transfer Station (TS) facility, although the OWC activity is not currently operated. This document is written to support an application to vary the permit to allow the site to operate as a battery recycling facility. The site will retain the ability to operate as a OWC and TS activities, however the site will operate solely as a battery recycling facility. Therefore, this document only considers aspects of the battery recycling facility.

1.2.2 As part of the battery recycling operation, lithium-ion batteries and lithium-ion battery materials will be stored and treated on site. Lithium-ion battery 'materials' include lithium-ion battery scrap materials sourced from battery manufacturing and pre-shredded lithium-ion batteries from other permitted waste operations. The treatment operation will consist of battery discharge, dismantling, shredding, and subsequent separation and sorting of shredded materials to send for further recovery. Lithium-ion batteries may also be bulked for transfer only. Pre-shredded lithium-ion batteries will be subject to separation and sorting only. Batteries of other chemistries and fluorescent tubes will be accepted for storage and transfer only.

1.2.3 The waste types permitted to be accepted at the battery treatment facility are detailed in Appendix A. The waste types accepted at the site mainly consist of lithium-ion batteries and lithium-ion battery materials from the manufacturing process. Small volumes of other battery types are also accepted for transfer only, including Ni-Cd batteries, mercury-containing batteries, alkaline batteries, and fluorescent tubes. Hazardous wastes permitted on site will include hazardous batteries, battery materials and outputs from battery treatment.

1.2.4 The waste acceptance limit for lithium-ion battery treatment operation is 20,000 tonnes per annum.

1.2.5 The following installation activities listed under Schedule 1 of The Environmental Permitting (England and Wales) Regulations 2016 will be undertaken on the site:

- Section 5.3 Part A(1)(a)(ii) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.
- Section 5.6 Part A(1)(a) Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending any of the activities listed in Sections 5.1, 5.2, 5.3.

Directly Associated Activities (e.g. treatment of metal waste in a shredder) will also support the site operations.

1.2.6 There will be no more than 75 tonnes of non-hazardous waste treated on site per day.

1.2.7 The D and R activity codes that will be carried out on site are detailed in Table 1, below.

Table 1: D&R codes

D15	Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced)
R4	Recycling/reclamation of metals and metal compounds
R5	Recycling/reclamation of other inorganic materials
R13	Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)

2 OPERATIONS

2.1 Activities & Processes

2.1.1 The following waste activities and processes are carried out at the facility:

- Waste pre-acceptance and acceptance.
- Unloading of waste, including lithium–ion batteries, lithium-ion battery materials, non lithium–ion batteries and fluorescent tubes.
- Storage of lithium-ion batteries and lithium–ion battery materials.
- Storage and transfer of non lithium-ion batteries and fluorescent tubes.
- Treatment of lithium-ion batteries and materials including, as appropriate, discharging, dismantling, shredding and separation and sorting.
- Loading of batteries, fluorescent tubes and lithium-ion battery treatment outputs for further recovery.

2.2 Waste Pre-Acceptance and Acceptance

2.2.1 Waste acceptance, rejection and dispatch procedures are detailed in IMS - Duty of Care. Procedures associated with hazardous waste are detailed in IMS – Hazardous Waste.

2.2.2 Waste accepted on site will include mainly lithium-ion industrial battery packs and lithium-ion battery materials. Batteries of different chemistries will also be accepted for bulking up for further transport to a third party recyclers. Batteries may also be accepted for re-use.

2.2.3 A battery risk assessment form is completed as part of the initial sales enquiry process. Where required, SUEZ undertake further checks, obtain additional information and undertake an inspection prior to transport to site. The sales enquiry process will determine if lithium-ion batteries accepted at the site will be suitable for reuse, or whether they will be treated normally determined by the waste producer.

2.2.4 Lithium-ion, lithium metal and lead acid batteries are classed as a Dangerous Good and will be consigned and moved in accordance with ADR 2025 (e.g. UN3480 Lithium ion Batteries, UN3481

Lithium ion Batteries Contained in Equipment, UN3090 Lithium Metal Batteries, UN3091 Lithium Metal Batteries Contained in Equipment, UN2794 Batteries Wet, Filled with Acid).

2.2.5 Lithium-ion batteries and lithium-ion battery materials from manufacture arriving on site will be packed in UN approved cases. Pre-shredded material will arrive in UN approved packaging e.g. closed flexible intermediate bulk containers (FIBCs). All batteries and materials will be logged and tracked from acceptance through to which treatment output container they are stored in for onward recovery.

2.2.6 The vehicles arriving on site containing waste will be directed (via signage) around the site and kept separate from other site traffic.

2.2.7 All waste will be weighed on receipt via the weighbridge (or more sensitive scales where batteries arrive in small volumes). Vehicles will be unloaded either within the site building or the external yard as deemed appropriate. All loads will be visually inspected on site as the waste is offloaded from the delivering vehicle.

2.2.8 Upon arrival at the site, lithium-ion batteries are visually checked to ensure they are as described during pre-acceptance checks and scanned with a handheld thermal imaging camera.

2.3 Unloading Waste

2.3.1 Battery packs that pass waste acceptance and thermal imaging checks (i.e. in the expected condition and do not exceed ambient temperature) are unloaded into temperature-controlled ISO containers using a forklift truck. All other battery waste is unloaded using a forklift truck into the appropriate container or waste storage area.

2.3.2 All areas internal and external to the site which are used by visiting traffic are constructed from impermeable concrete surface.

2.3.3 Visiting drivers are required to inspect their vehicles before exiting the transfer station to ensure there is no debris on the body/container doors/openings, wheels, nuts or other parts of the vehicle.

2.3.4 Daily inspections of the site building and external areas are undertaken to check for leaks and spillages to ensure that any leaks and spillages identified are contained within the site.

Batteries of Concern

2.3.5 Batteries accepted at the site may not arrive in the anticipated condition and may need to be subject to alternative unloading procedures. These batteries of concern are subject to a dynamic risk assessment in line with the site's Standard Operating Procedures (SOPs).

2.3.6 Where safe, batteries of concern can be immediately discharged with regenerative power discharge equipment within the container located outside the building.

2.3.7 Where safe to handle, batteries that cannot be discharged with regenerative discharge equipment (e.g. damaged and defective batteries) will be quarantined before being sent to the electrochemical discharge area for submersion in a salt solution (see section 2.8).

2.3.8 There is also an emergency quench tank in close proximity to the site building for immediate emersion (see section 2.8).

2.3.9 Batteries not safe to handle will be subject to dynamic risk assessment in accordance with the site's SOPs, which could include actions like deploying appropriate fire extinguishers, covering with a fire blanket if safe to do so, or evacuation of the affected area. The emergency services will be called as appropriate and where necessary, procedures in 1.7 Fire Prevention Plan will be followed.

2.4 Battery Storage

2.4.1 Once acceptance checks have been completed, lithium-ion batteries will be stored on site in dedicated containers. Lithium-ion batteries will be stored separately from all other battery types on site in temperature-controlled ISO containers equipped with a fire detection system which is capable of being flooded with water should thermal runway occur. The ISO containers will be separated by 6 meters to act as a fire break. Containers will be vented and fitted with temperature control units that will maintain a safe temperature for battery storage. Manual thermal imaging checks are undertaken twice a day.

2.4.2 Battery materials will also be stored in ISO containers.

2.4.3 Batteries of other chemistries (i.e. lead batteries, Ni-Cd batteries, mercury-containing batteries, alkaline batteries), and fluorescent tubes will be stored in dedicated sealed containers in an ISO container.

2.4.4 Batteries and battery materials are stored with the aim of ensuring that different types of waste are stored separately to ensure they can be reused or recovered more easily, and transfer notes can be completed correctly. All wastes delivered and accepted to the site are directed to specific areas for storage (or treatment prior to storage). There will be no mixing of different waste types.

2.4.5 All wastes on site are stored safely and securely using suitable buildings and/or containers. Where wastes are stored in containers they are labelled correctly and covers are utilised where possible to prevent litter and rainfall infiltration and the potential for contaminated surface water run-off.

2.4.6 Batteries, battery materials and treatment outputs are stored in line with the controls as set out in the site Waste Storage Plan as detailed in Appendix B. Site layout plan detailing the location of the waste storage areas on site is included in the Site Infrastructure plans (Document Reference 1.1).

2.4.7 No waste types are stored on site for longer than 6 months.

2.4.8 The key control at site to ensure wastes are stored for the minimum timescales is the use of digital quick response (QR) codes to log and track all lithium-ion batteries from acceptance to dispatch. Materials are handled and removed from site in order of receipt ensuring they do not exceed their maximum storage times.

2.4.9 Daily inspections are undertaken at the waste storage areas as set out in Section 3.1. Inspections will include checks for any leaks and spillages and an assessment of pests, odour, dust, litter and noise.

2.5 Waste Treatment

2.5.1 Treatment on site is limited to the manual and mechanical treatment of lithium-ion batteries and lithium--ion battery materials only. A process-flow diagram of the treatment process is provided in Appendix C and drawings of the treatment plant design is provided in Appendix D.

Re-use

2.5.2 Battery packs which have been identified as suitable for re-use during pre-acceptance discussions will be repackaged and sent for onward re-use.

2.5.3 Modules identified for re-use are repacked in accordance with ADR 2025 - Agreement concerning the International Carriage of Dangerous Goods by Road requirements and stored in temperature-controlled ISO containers prior to being shipped to European partners under approved Trans Frontier Shipment Licences.

2.5.4 Modules subsequently identified as not suitable for re-use following acceptance at the site may be diverted to treatment in agreement with customer or will be otherwise returned to the customer.

Battery Discharge

2.5.5 Batteries which have been identified as suitable for recycling and treatment will be discharged. Visual and temperature checks are undertaken on each battery pack before being discharged.

2.5.6 If there are no issues identified during visual and temperature checks, batteries are discharged using a regenerative power supplies in the designated ISO container. When the discharge is complete, the unit is checked for compliance by one of the trained and authorised technicians who fits a jumper lead between the positive and negative terminals on each battery to cause a short-circuit and stop any potential chemical recharge (voltage creep).

2.5.7 Lithium-ion batteries which are not suitable for discharge by regenerative power supply will be subject to electrochemical discharge by submersion in a salt solution. Batteries are placed into open IBCs containing the salt solution, which are stored undercover on bunded pallets.

2.5.8 Discharge by submersion takes up to 4 weeks, dependent on battery pack size and state of charge.

2.5.9 Batteries identified as defective during waste acceptance will be quarantined before being sent for electrochemical discharge by submersion, if appropriate. There is also an emergency quench tank in close proximity to the site building for immediate emersion (see section 2.8).

Battery Pack Dismantling

2.5.10 Fully discharged battery packs will be moved into the workshop in the main building where they are dismantled by trained, competent and authorised technicians in accordance with the site's SOPs.

2.5.11 Discharged batteries are dismantled manually to a modular level at designated disassembly stations within the site building.

2.5.12 Casing materials including hard plastics, copper bus bars and cabling are sorted into separate containers. The resulting battery modules are sent for further treatment by shredding.

Battery Shredding

2.5.13 Once discharged and dismantled, batteries are kept for a short observation period and then shredded or placed in the temperature controlled ISO containers pending treatment.

2.5.14 All lithium-ion batteries discharged and dismantled on site will be subject to treatment by shredding. Lithium-ion battery materials from manufacturing processes will also be shredded. Pre-shredded lithium-ion batteries will be inputted directly to the sorting and separation stage.

2.5.15 The shredding of lithium-ion batteries and lithium-ion battery materials takes place inside the site building within an area benefitting from sealed drainage using a fixed shredding plant specifically designed and commissioned for the mechanical treatment of lithium-ion batteries. The lithium-ion batteries and lithium-ion battery materials enter the shredding plant via a gravity conveyor belt. No personnel are located next to the shredder plant when in operation.

2.5.16 The shredder is fitted with dust extraction management including a purpose-built Local Exhaust Ventilation (LEV) system with abatement provided by a baghouse filter and carbon filters.

Sorting and Separation

2.5.17 Immediately following shredding, the outputs from the shredding process will be separated into different fractions using a zig-zag density separator, turbo mill and SRV shaker/ screen. At this stage in the process, pre-shredded lithium-ion batteries may also be introduced to the process via a conveyor which by-passes the shredder.

2.5.18 The zig-zag density separator separates the shredded material into a heavy fraction and light fraction. The heavy fraction mainly comprises case metal and plastic, which is collected for storage and transfer only and not subject to further treatment. The light fraction comprises battery cell materials including the anode and cathode black mass, which is diverted directly to the turbo mill.

2.5.19 The turbo mill delaminates anode and cathode foils and refines the battery cell materials into a finer particle size, allowing their separation from remaining larger particles comprising mainly light plastics.

2.5.20 The outputs of the turbo mill are directed to the SRV shaker/ screen, which removes the remaining larger particles (>3mm plastics) which are compacted using a press in a briquetter. The finer particles are graded into a 0 - 250µm fraction consisting of black mass, a 250 - 500µm fraction consisting of a courser black mass grade and a 500µm - 3mm fraction consisting of copper and aluminium residues.

2.5.21 All parts of the sorting and separation plant benefit from dust extraction management utilising a second LEV system. The LEV system is fitted with a baghouse filter. Material captured by the baghouse (e.g. black mass, metals and light plastics) is collected, then directed to and recovered using a smaller secondary SRV screen, sorting into a 0 - 250µm fraction consisting of black mass, and light plastics which are compacted in the briquetter.

2.5.22 All equipment will be checked and serviced in line with routine maintenance procedures and the manufacturers recommendations.

2.6 Output Storage

2.6.1 The site infrastructure plan (document reference 1.1) details the location of the waste storage areas, outputs storage and containers on site.

2.6.2 Lithium-ion batteries awaiting treatment are stored in temperature-controlled ISO containers in the northern yard area of the site.

2.6.3 Aluminium battery trays from disassembly are stored in the northern yard in 40 yard ROROs.

2.6.4 Other outputs from dismantling (hard plastics, copper bus bars and cabling) are stored in separate containers inside the main building. Once full, these are covered and moved to the northern external yard.

2.6.5 Outputs from the zig-zag density separator (case metal and plastics) will be collected and stored in separate flexible FIBCs under the treatment plant. Once full, these will be stored within an ISO container in the northern external yard.

2.6.6 Outputs from the SRV shaker/ screen (i.e. black mass, and copper and aluminium) will be collected and stored in UN approved packaging. Compacted plastic will be captured and in an FIBC under the treatment plant. Once full, these will be stored within an ISO container in the northern external yard.

2.7 Waste Loading

2.7.1 All treatment outputs and other wastes for transfer on site are dispatched by road.

2.7.2 Wastes and outputs stored in UN approved packaging, FIBCs and containers are lifted into collection vehicles and dispatched from site. Loading is undertaken in the area external to the site building.

2.7.3 Wastes stored within RORO containers and skips are lifted onto vehicles and dispatched from site.

2.7.4 The site operates a forklift to support with waste loading and transport around the site.

2.8 Quarantine

2.8.1 Staff will carry out inspection of the batteries on delivery. Batteries that have been identified as unsafe to discharge with regenerative discharge equipment (e.g. damaged and defective batteries) will be quarantined.

2.8.2 The site benefits from a dedicated quarantine area in the yard outside the site building, comprising a bay enclosed on 3 sides by legio blocks. Quarantined waste will be kept segregated from all other waste.

2.8.3 The site also benefits from a large yard area that can be utilised for the establishment of temporary quarantine areas, as needed.

2.8.4 Quarantined lithium-ion batteries will be subject to the electrochemical discharge process, where they will be submerged in a salt solution in covered open IBCs stored on bunded pallets.

2.8.5 Discharge by submersion takes up to 4 weeks, dependant on battery pack size and state of charge.

2.8.6 A 1200l quench tank is also present in close proximity to the site building e.g. in case of batteries requiring immediate emersion.

2.8.7 Records will be kept of any rejected or quarantined waste.

2.8.8 Any non-conforming waste accepted on site will also be quarantined and removed from site as soon as possible, within 24 hours of receipt.

3 INSPECTION, EMERGENCY PREPAREDNESS & MANAGING NON-CONFORMANCE

3.1 Site Inspections

3.1.1 Daily inspections of the site infrastructure are undertaken in line with SUEZ IMS Procedure - Site Inspection, Audit & Reporting. Any required site and equipment maintenance is carried out in line with the manufacturer's instructions.

3.1.2 Site inspections are recorded on the Daily/ Weekly QEMS checklist or the Vision App.

3.1.3 The daily inspections will include checks for the below key risks:

- Leaks and spillages
- Litter
- Dust/particulate matter
- Odour
- Noise
- Pests
- Fire

3.2 Emergency Preparedness

3.2.1 Emergency preparedness and response measures are set out within SUEZ IMS Procedure - Emergency Preparedness & Response including:

- Spillages
- Fire

3.2.2 Detailed procedures for the prevention of fire and emergency measures to be taken in the event of a fire are described fully within the separate site-specific Fire Prevention Plan (document reference 1.7).

3.2.3 General accident management measures are listed in the Accident Prevention and Management Plan (document reference 1.4) and business continuity measures are listed in the Business Continuity and Contingency Plan (document reference 1.5).

3.3 Managing Non-Conformance

3.3.1 Procedures for identifying, reporting, investigation and remediation of non-conformances are set out in SUEZ IMS Procedure - Managing Non-Conformance, Corrective and Preventative Action.

3.4 Complaints

3.4.1 All complaints are managed in line with SUEZ IMS Procedures Complaints, Managing Non-Conformance, Corrective and Preventative Action, Amenity Control and Monitoring and Amenity Complaints.

3.5 Leaks & Spillages

3.5.1 Any spillages or leaks will be dealt with promptly according to the emergency procedures detailed within IMS Section - Emergency Preparedness and Response.

3.6 Site & Equipment Maintenance

3.6.1 The selection process of plant and equipment used on site will ensure that it is fit and suitable for the relevant work activity, can be maintained safely, is CE marked and provided with test certificates where necessary.

3.6.2 All equipment will be inspected, maintained and serviced in accordance with the manufacturer's/ supplier's instructions and any relevant statutory requirements. Maintenance of plant, equipment and infrastructure will be scheduled as necessary, and implemented and recorded on the site-specific Maintenance Planner.

3.6.3 The maintenance schedule will include all items which are critical to environment and industrial risk.

4 EMISSIONS MANAGEMENT AND MONITORING

4.1 Summary

4.1.1 The site operates the necessary control measures to prevent fugitive emissions to land, air and water.

4.1.2 Channelled emissions from site include emissions to air from the local exhaust vent (LEV) dust abatement systems and clean surface water to the surface water system.

4.2 Surface and Foul Water Management and Monitoring

4.2.1 The operational areas of the site comprise reinforced concrete and tarmac and is constructed to a sufficient standard to withstand the combined weight of the stored wastes and the operational vehicles using the facility. Battery dismantling, shredding and outputs separation is undertaken within the enclosed building.

4.2.2 The concrete surfacing forms an impermeable barrier to prevent the release of liquids into the underlying land and/or groundwater, and is constructed with suitable engineered gradients to direct all rainfall runoff to the appropriate drainage system.

4.2.3 The drainage system is installed in accordance with IMS - Surface Water Management.

4.2.4 The drainage system directs run-off from the northern area of the site to the sealed surface water lagoon. The lagoon is monitored daily to ensure content level, removal of debris and integrity of the surrounding fence.

4.2.5 All surface water run-off from the external impermeable surface in the yard area in front of the site building is directed to the interceptor (9000 litres) through gullies and drains. This runoff is collected in a Class 1 Full retention Interceptor and cellular attenuation tank before discharging to soakaway. The system is equipped with a penstock valve to allow any contamination to be contained in the event of an incident.

4.2.6 The integrity of the impermeable surface will be inspected by site staff on at least a weekly basis, as required by SUEZ's ISO 14001 certified Integrated Management System (IMS), and any structural deficiencies will be reported immediately to the Site Manager. Repairs will be initiated as soon as practicable.

4.2.7 Solid matter accumulating in the interceptors and gullies will be removed as and when required by a suitably experienced and registered waste disposal contractor. As a minimum the site interceptors will be inspected every 6 months and cleaned as necessary.

4.3 Channelled Emissions to Air and Monitoring

4.3.1 There will be two point-source channelled emissions to air resulting from the local exhaust vent (LEV) dust abatement systems, which are designed to meet Best Available Techniques (BAT) standards to prevent harmful emissions.

4.3.2 The first LEV system serves the shredder. The system extracts air from the shredder process and directs it to the LEV stack located outside the building. Dust abatement is provided by baghouse filter and collection unit in addition to carbon filters to capture VOCs and other hazardous gases.

4.3.3 The second LEV system serves the sorting plant, also extracting air from the process to an external LEV stack. It utilises a baghouse filter situated inside the building, the contents of which are captured for further treatment to collect valuable outputs.

4.3.4 Channelled emissions to air will be monitored in accordance with the conditions of the permit, in line with relevant legislation and guidance.

4.4 Litter

4.4.1 Wastes accepted at the site are highly unlikely to generate litter. Materials which might have a potential to generate litter nuisance (e.g. light plastics pre-shredded lithium-ion batteries) will only be stored in appropriate containers in the site building or enclosed ISO containers.

4.4.2 Pre-shredded lithium-ion battery material is received and handled in FIBCs which are stored in ISO containers ensuring that there is no escape of litter. Light plastics are compacted in briquetter and captured and stored in FIBCs, preventing the potential for the generation of litter..

4.4.3 A final inspection around the site at the end of the working day by Site Management shall ensure that the site is free of all litter by the end of each business day.

4.4.4 In the event the unlikely event litter escapes from the site, litter picking will be undertaken of the affected areas by the end of the working day. The source of the escape of litter will be identified and the cause rectified, with a record made in the site diary.

4.4.5 Any excessive spillage of materials anywhere within the site or on the adjacent highway will be dealt with immediately by sweeping of the surface and litter picking if required. Such a spillage and the action taken will be recorded in the site diary.

4.5 Mud and Debris

4.5.1 General site operations are unlikely to lead to mud and debris emissions as there are no waste types accepted that are likely to generate mud.

4.5.2 Regular sweeping of external yard areas takes place to ensure any mud is not tracked off site.

4.5.3 In the unlikely event that site is notified or become aware of any mud or debris being tracked onto the access roads or highway then immediate arrangements shall be made for clean-up.

4.6 Dust and Fibres

4.6.1 There is a medium risk of dust to be produced during treatment of batteries by shredding. An Air Emissions Risk Assessment (reference 416.066034.00001_SUEZ Sidegate Lane_AERA) has been completed demonstrating that dust abatement in place effectively protects the environment from point-source emissions of dust.

4.6.2 Battery treatment activities with the potential to generate dust are undertaken within the site's building, preventing the escape of fugitive emissions of dust.

4.6.3 The whole treatment plant benefits from dust extraction management comprising two separate purpose-built LEV systems which negatively extract air from the processes.

4.6.4 The first LEV serves the shredder, for which dust abatement is provided by baghouse filter and collection unit in addition to carbon filters, which are situated outside of the building.

4.6.5 The second LEV system serves the sorting plant and utilises a baghouse filter situated inside the building, the contents of which are captured for further treatment to collect valuable outputs.

4.6.6 Both systems effectively minimise the emission of fine particles. Treatment can only take place when the LEV extraction systems are operational.

4.6.7 Regular sweeping of internal and external areas is carried out to prevent build-up of dust on site surfaces.

4.6.8 Wastes and treatment outputs with the potential to generate dust are stored in appropriate enclosed containers preventing any emissions.

4.6.9 In the unlikely event excessive levels of dust are identified external to the site building, then the use of water mist sprays or manual watering with a hose will be used as necessary.

4.7 Odour

4.7.1 No putrescible wastes are accepted on site as part of the battery recycling operation. It is unlikely that odour will be generated as part of the process. In any case, the treatment is undertaken within the site's building, preventing the escape of odour beyond the permit boundary.

4.8 Noise and Vibration

4.8.1 Battery treatment has the potential to generate noise, however this is undertaken inside a building and is not expected to generate noise levels that are deemed excessive.

4.8.2 The site building is fitted with roller shutter doors, which can be closed to further prevent the risk of noise escaping from the building e.g. during shredding and treatment.

4.8.3 The site staff will ensure that the delivery, treatment and loading of waste takes place in a controlled manner so that noise generation is kept to a minimum.

4.8.4 Increases in plant noise are often indicative of future mechanical failure, as such all relevant plant will be regularly and effectively maintained as set out in the Site and Equipment Maintenance Plan.

4.9 Pests

4.9.1 Wastes accepted at the site have a very low risk of attracting pests.

4.9.2 In addition to continuous monitoring by site staff, a specialist contractor may attend to any specific incidence of pests on request to ensure eradication.

4.9.3 If deemed necessary due to the detection of pests, regular pest control visits will be carried out to monitor pest levels and to ensure that activity does not cause issues.

5 STAFF COMPETENCY & TRAINING

5.1 Summary

5.1.1 All sites operating under an environmental permit are required to ensure sufficient staff and resources are available to operate the site effectively and in compliance with the Permit/Integrated Management System.

5.1.2 All sites are required to ensure:

- all relevant tasks are undertaken by competent personnel.
- appropriate records of education, training, skills and experience are held.
- all personnel performing work on behalf of SUEZ are aware of the SUEZ Integrated Management System (IMS) policies and procedures.

5.2 Staff Competence & Training

5.2.1 All new and existing personnel are adequately trained to perform the tasks assigned to them, preventing potential environmental or personal harm.

5.2.2 The following table details the roles undertaken on site, with primary and secondary responsibilities listed.

Table 3: Site Roles

Tasks	Primary Responsibility – Role	Secondary Responsibility - Role
Waste Acceptance		
Weighbridge waste acceptance checks	Site operatives	Team Leader/Supervisor
Site waste acceptance checks	Site operatives	Team Leader/Supervisor
Waste Storage		
Daily plant checks and cleaning	Site operatives	Team Leader/Supervisor
Cleaning of site	Site operatives	Team Leader/Supervisor
QEMS checks	Site operatives	Team Leader/Supervisor
Supervisor checks	Site Supervisor	Site Manager
Managers monthly checks	Site Manager	Regional Manager
Waste Processing		
Arrange haulage for waste to be removed from site	Team Leader/Supervisor	Team Leader/Supervisor
Operating mobile plant to move & load waste materials	Site operatives	N/A

Tasks	Primary Responsibility – Role	Secondary Responsibility - Role
Maintenance		
Infrastructure	Team Leader/Supervisor	Site Manager
Fixed plant	Team Leader/Supervisor	Site Manager
Mobile plant	Team Leader/Supervisor	Site Manager
Monitoring		
Managing surface water	Team Leader/Supervisor	Site Manager
Amenity Checks		
Amenity checks	Team Leader/Supervisor	Site Manager
Reporting		
Waste returns	Site Manager	Regional Manager
Energy efficiency/efficient use of raw materials/avoidance, recovery and disposal of wastes produced by the activities Report	Site Manager	Regional Manager
Reportable breaches	Site Manager	Environment & Industrial Risk Manager / Regional Manager
Submission of annual reports	Site Manager	Regional Manager

5.2.3 Records of the Technically Competent Manager (TCM) attendance for the site are located within the site's sign in book.

5.2.4 The procedures used to ensure appropriate training (initial and refresher) and/or qualifications and associated records of training staff and contractors are detailed within the following sections of the IMS:

- Training, Awareness and Competence

6 RESIDUES MANAGEMENT

6.1 Summary

6.1.1 The residues management plan aims to:

- Minimise the generation of residues
- Optimises the reuse, regeneration, recycling, or energy recovery of residues, including packaging
- Ensures the proper disposal of residues where recovery is technically or economically impractical

6.1.2 All wastes generated by the site are managed in line with the waste hierarchy.

6.1.3 SUEZ look to move materials up the waste hierarchy wherever possible and have processes on site to facilitate this (waste sorting, other treatment etc).

6.1.4 SUEZ look to ensure that waste generated by ancillary activities (office etc) is reduced as much as possible. Where this is produced, it is managed in line with the waste hierarchy.

7 DECOMMISSIONING PLAN

7.1 Plant & Equipment Decommissioning

7.1.1 There are currently no identified long term non-productive or redundant items on site that require decommissioning or removal.

7.1.2 During the operational life of the facility, equipment may no longer be required or will reach the end of its useful life. Any such equipment will be deinstalled (as necessary) by suitably qualified personnel and disposed of appropriately. Where possible equipment will be repaired or reused.

7.2 Site Decommissioning

7.2.1 The actions detailed in Table 4 will be undertaken on cessation of waste processing activities prior to the surrender of the Environmental Permit:

Table 4: Actions to be taken to decommission the site

Item	Action
Waste materials	All waste materials will be removed from site. Any hazardous wastes will be suitably consigned.
Drains / Gullies	All drains will be checked to ensure that they are clear and free flowing. Any blockages will be removed.
Interceptors	Interceptors will be cleaned and all silt removed for suitable processing / disposal off site.
Plant and Equipment	All waste processing related plant and equipment will be removed. Any items suitable for repair or reuse will be identified as part of this process. Electricity supplies will be made safe.
Weighbridge	The weighbridge pits will be cleaned and all debris removed from site.
Mobile Plant	All mobile plant will be removed from site.
Building	The inside of the building will be cleaned to remove any remaining waste. High level areas will be cleared of any accumulated dust.
Outside areas / perimeter fencing	Any wastes stored externally, as well as redundant equipment and storage containers will be removed from site. The impermeable surface will be swept with a mechanical sweeper and any debris along the site boundary cleared.

7.2.2 The existing site condition report will be updated to support any application to surrender the Environmental Permit. This will contain a written description of the activities that have been undertaken along with photographs to show that the actions detailed in Table 4 have been completed to the necessary standard.

APPENDICES

Appendix A – Permitted Waste Types

Sidegate Lane Battery Recycling Facility

Permitted Waste Types

Wastes Accepted for Treatment

WASTE CODE	DESCRIPTION
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 01	End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)
16 01 21*	Hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 14 (limited to li-ion packs, modules, cells, dry cells, anode foils, cathode foils)
16 01 22	Components not otherwise specified (limited to lithium-ion Batteries or component parts)
16 03	Off-specification batches and unused products
16 03 03*	Inorganic wastes containing hazardous substances (limited to li-ion packs, modules, cells, dry cells, anode foils, cathode foils)
16 03 04	Inorganic wastes other than those mentioned in 16 03 03 (limited to li-ion packs, modules, cells, dry cells, anode foils, cathode foils)
16 06	Batteries and accumulators
16 06 05	Other batteries and accumulators (Limited to Lithium-ion Batteries or components parts)
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 10	Wastes from shredding of metal-containing wastes
19 10 05*	Other fractions containing dangerous substances (code used as battery shred)
19 10 06	Other fractions other than those mentioned in 19 10 05 (code used as battery shred)
19 12	Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 11*	Other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances (code used as battery shred)
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 (code used as battery shred)
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	Separately collected fractions (except 15 01)
20 01 33*	Batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries (limited to lithium-ion Batteries or components parts)
20 01 34	batteries and accumulators other than those mentioned in 20 01 33 (limited to Lithium-ion Batteries or components parts)

WASTE CODE	DESCRIPTION
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components (limited to equipment containing Lithium-ion Batteries or components parts)
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35 (limited to equipment containing Lithium-ion Batteries or components parts)

Wastes Accepted for Transfer only

WASTE CODE	DESCRIPTION
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 06	Batteries and accumulators
16 06 01*	Lead batteries
16 06 02*	Ni-Cd batteries
16 06 03*	Mercury-containing batteries
16 06 04	Alkaline batteries (except 16 06 03)
20	MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS
20 01	Separately collected fractions (except 15 01)
20 01 21	Fluorescent tubes and other mercury containing wastes

Note: List includes permitted waste types for battery treatment activity only. For full list of wastes, see Environmental Permit (reference: EPR/XP3092NX) and details in Non-Technical Summary

Appendix B – Waste Storage Details

Sidegate Lane Battery Recycling Facility – Waste Storage Plan

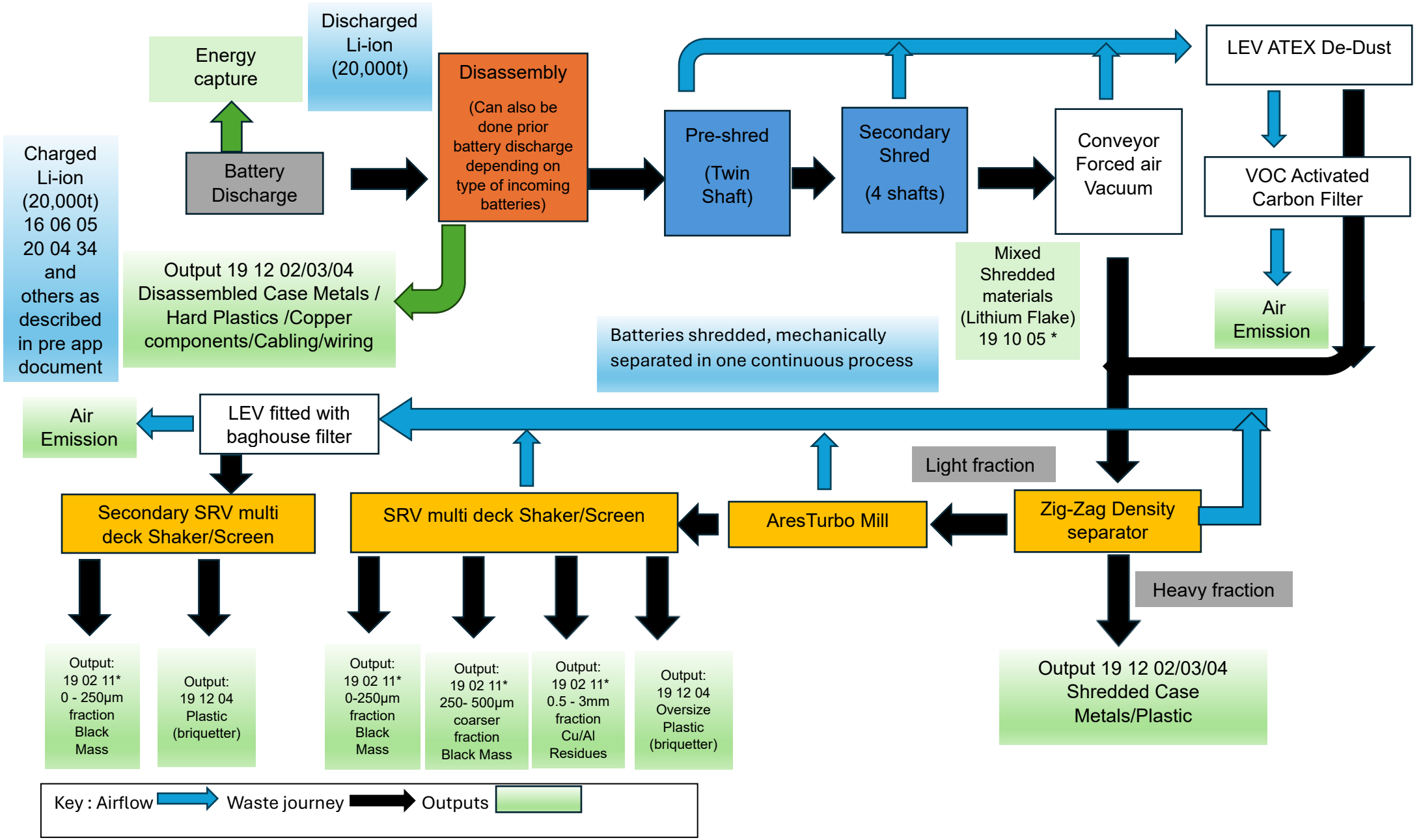
APPENDIX B – WASTE STORAGE DETAILS

Waste Type	Location within Site	Storage Detail	Bay or Container Dimensions	Approximate Volume of Waste (m3)	Maximum Storage Time on Site
External Storage (Northern External Yard)					
Lithium-ion batteries	ISO Container Storage Area (1-6)	Stored in UN approved packaging within 40ft ISO Containers	**Container size:** 12.2m (L) x 2.4m (W) x 2.4m (H) (66m^3 internal volume)	33m^3 (Maximum half full)	6 months
Lithium-ion battery material	ISO Container Storage Area (1-6)	Stored in UN approved packaging within 40ft ISO Containers	**Container size:** 12.2m (L) x 2.4m (W) x 2.4m (H) (66m^3 internal volume)	33m^3 (Maximum half full)	6 months
Pre-shredded lithium-ion battery	ISO Container Storage Area (1-6)	Sealed FIBCs within 40ft ISO Containers	**Container size:** 12.2m (L) x 2.4m (W) x 2.4m (H) (66m^3 internal volume)	33m^3 (Maximum half full)	6 months
Aluminium (disassembled case metals)	External yard (Area 9)	40yd RORO Skip	**Container size:** 5.8m (L) x 2.4m (W) x 2.7m (H) 30m^3 approximate volume	30m^3	6 months
Hard plastics	IBC Container Storage area (Area 10)	Stored in Covered IBC	**Container size:** 1m (L) x 1m (W) x 1m (H)	1m^3 x 12	6 months
Copper bus bars	IBC Container Storage area (Area 10)	Stored in Covered IBCs	**Container size:** 1m (L) x 1m (W) x 1m (H)	1m^3 x 12	6 months
Cables/wiring	IBC Container Storage area (Area10)	Stored in Covered IBCs	**Container size:** 1m (L) x 1m (W) x 1m (H)	1m^3 x 12	6 months
Shredded Case metal and plastics (output from density separator)	ISO Container Storage Area (7and 8)	Stored in 1m^3 FIBCs within 40ft ISO Containers	**Container size:** 12.2m (L) x 2.4m (W) x 2.4m (H) (66m^3 internal volume)	33m^3 (Maximum half full)	6 months
Black mass (0- 250µm fraction)	ISO Container Storage Area (7 and 8)	Stored in UN approved packaging (205l drums) within 40ft ISO Containers	**Container size:** 12.2m (L) x 2.4m (W) x 2.6m (H) (66m^3 internal volume)	33m^3 (Maximum half full)	6 months
Black mass (250 - 500µm fraction)	ISO Container Storage Area (7 and 8)	Stored in UN approved packaging (205l drums) within 40ft ISO Containers	**Container size:** 12.2m (L) x 2.4m (W) x 2.6m (H) (66m^3 internal volume)	33m^3 (Maximum half full)	6 months

Waste Type	Location within Site	Storage Detail	Bay or Container Dimensions	Approximate Volume of Waste (m3)	Maximum Storage Time on Site
Copper and aluminium (0.5 - 3mm fraction)	ISO Container Storage Area (7 and 8)	Stored in UN approved packaging (205l drums) within 40ft ISO Containers	**Container size:** 12.2m (L) x 2.4m (W) x 2.6m (H) (66m^3 internal volume)	33m^3 (Maximum half full)	6 months
Compacted plastic outputs	ISO Container Storage Area (7 and 8)	Stored in FIBCs within 40ft ISO Containers	**Container size:** 12.2m (L) x 2.4m (W) x 2.6m (H) (66m^3 internal volume)	33m^3 (Maximum half full)	6 months
Batteries (non lithium-ion)	External yard (Area 11)	Stored in battery container within 20ft ISO container	**Container size**: 5.9m (L) x 2.4m (W) x 2.6m (H) (33m^3 internal volume)	Maximum 5m^3	6 months
Fluorescent tubes	External yard (Area 12)	Specialised container	**Container size**: 2.5m (L) x 1.2m (W) x 1.2m (H)	3.6m^3	6 Months
Internal Storage (Site Building)					
Hard plastics	Dismantling stations (Area 13)	Stored in IBCs	1m (L) x 1m (W) x 1m (H)	1m^3 x 5	6 months
Copper bus bars	Dismantling stations (Area 13)	Stored in IBCs	1m (L) x 1m (W) x 1m (H)	1m^3 x 5	6 months
Cables	Dismantling stations (Area 13)	Stored in IBCs	1m (L) x 1m (W) x 1m (H)	1m^3 x 5	6 months
Case metal and plastics	Density separator output area (Area 14)	Stored in FIBCs	1m (L) x 1m (W) x 1m (H)	1m^3	6 months
Black mass (0 - 250µm fraction)	Shaker/screen output area (Area 15 & 16)	Stored in 205l drum	0.6m (L) x 0.6m (W) x 0.9m (H)	205l (0.2m^3)	6 months
Black mass (250 - 500µm fraction)	Shaker/screen output area (Area 15)	Stored in 205l drum	0.6m (L) x 0.6m (W) x 0.9m (H)	205l (0.2m^3)	6 months
Copper and aluminium (0.5 -3mm fraction)	Shaker/screen output area (Area 15)	Stored in 205l drum	0.6m (L) x 0.6m (W) x 0.9m (H)	205l (0.2m^3)	6 months
Compacted plastic outputs	Shaker/screen output area (Area 15 & 16)	Stored in 205l drum	0.6m (L) x 0.6m (W) x 0.9m (H)	205l (0.2m^3)	6 months

Appendix C – Battery Treatment Process Flow Diagram

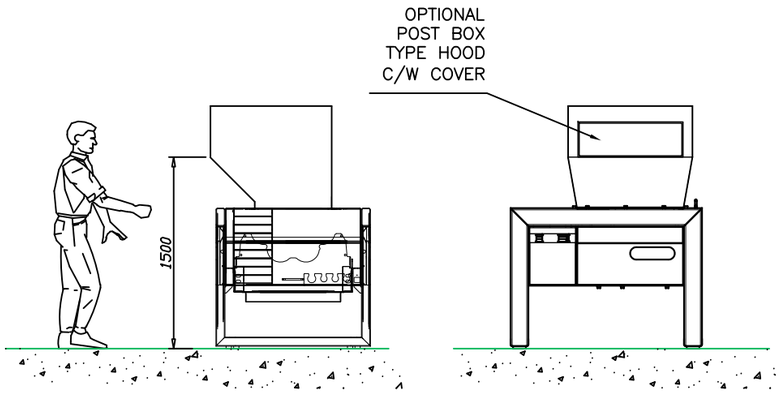
Appendix B Lithium Battery Recycling Process

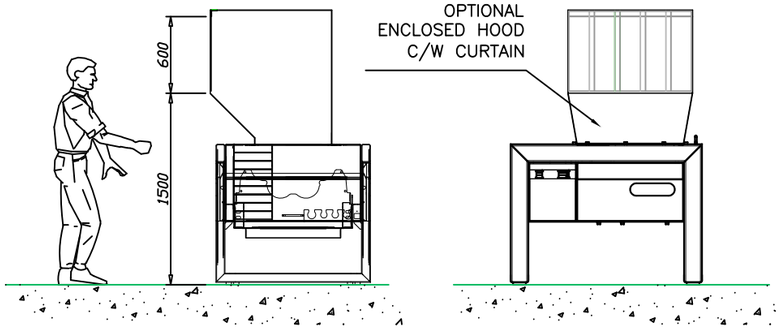


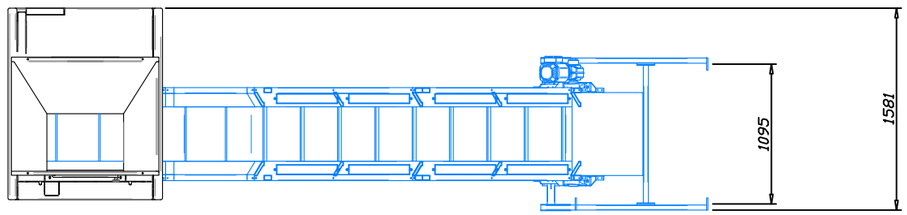
Appendix D – Battery Treatment Plant Design Drawings

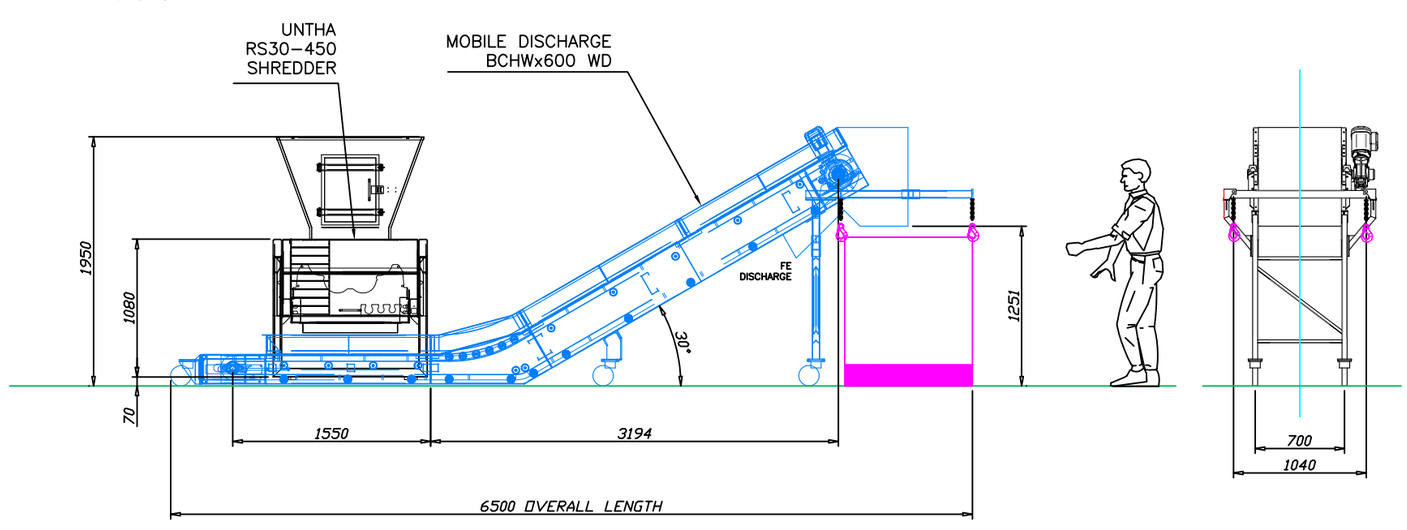
A3

DO NOT SCALE – IF IN DOUBT ASK









SHEET 1 OF 1

No	By	Change	Grid	Date
A	CB	FIRST ISSUE		12/01/21

GENERAL TOLERANCES WHERE NO LIMITS ARE SHOWN

	UN M/C	M/C
0 TO 100	±0.75	±0.25
OVER 100 TO 300	±1.5	±0.5
OVER 300 TO 1000	±2.0	±0.8
OVER 1000 TO 2000	±2.25	±1.2
OVER 2000 TO 4000	±3.0	±1.6
OVER 4000	±3.5	±2.3

Drn by CB
Date 12/1/21
Issue A
Ch'k'd
By –
Scale nts

Projection

UNTHA UK
Excel House, Becklands Close
Boroughbridge, York. YO51 9NR.
UK *Tel. 0845 450 5388*

UNTHA shredding technology

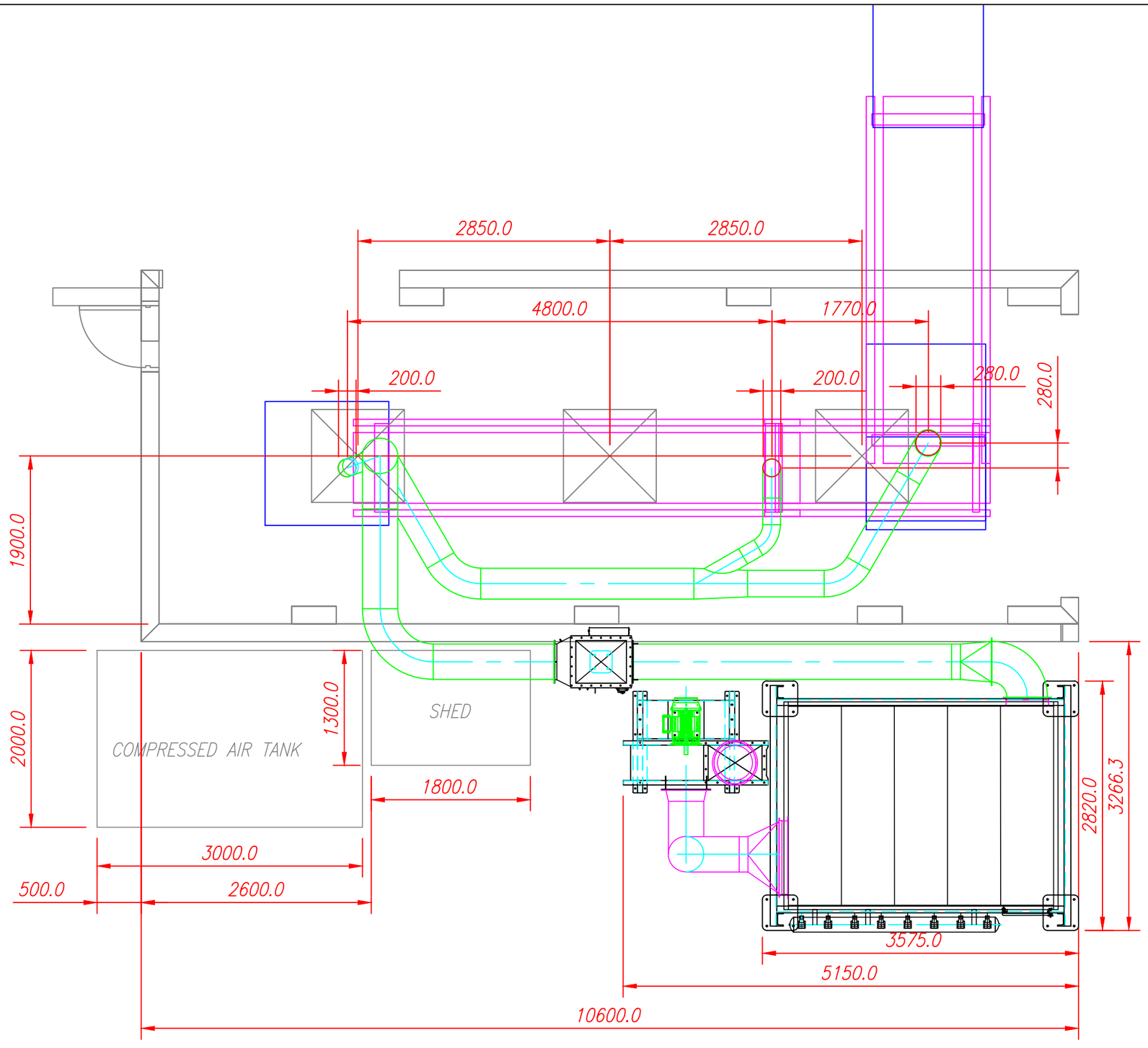
TITLE
RS30 DISCHARGE CONVEYOR

PROJECT Q25378
CUSTOMER

DRAWING NUMBER
25378

DRG. No. 11692-1/B

A3



Air Plants
DUST EXTRACTION LTD
295 Aylestone Rd
Leicester LE2 7PB
Tel – 0116 283 3581
Fax – 0116 283 7311

REVISIONS		
C		
B	15/06/22	STEELWORK ADJUSTED SPIGOTS AND DUCT LAYOUT ADDED

TITLE: PLANT AND FILTER PLAN LAYOUT	ENGINEER: A.J.Sharpe	DRAWN BY: J.Woodhead	CUSTOMER: PORTABLE CONVEYORS Cawleys, Covent Garden Cl, Maidenhall, Luton, LU4 8QB
	APPROVED:	DATE: 26/05/22	
	SCALE: 1:50 on A3	DRG. No.: 11692-1/B	
	CONTRACT No.: 11190		

24-40788_V2-1_Layout - 01.collaboration.png