



**EUROPEAN METAL RECYCLING LTD**

**UNITS 2 - 10, DUDDESTON MILL TRADING ESTATE**

**NON-TECHNICAL SUMMARY**

**MARCH 2023**

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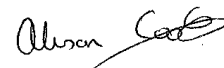


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LANBL2029/04/22	Site Layout	1:500
ST19256-002	Site Location Plan	1:2,000

## 1 INTRODUCTION

- 1.1 Wardell Armstrong have been commissioned by European Metal Recycling Limited (EMR) to prepare a bespoke permit application for an Electric Vehicle (EV) battery recycling and research facility at a site on Duddeston Mill Trading Estate, Birmingham, B8 1AP.
- 1.2 The site will accommodate two main elements, a research facility assessing how best to treat metals, batteries and vehicle components and other wastes and an EV battery recycling facility.
- 1.3 The proposed facility will treat up to 2,000 tonnes per annum of non-hazardous waste, a small quantity of hazardous waste and up to 250 vehicles a year. Activities may include dismantling, sorting and size reduction for further recycling and recovery operations by third parties.
- 1.4 A small number of end of life vehicles may be accepted on site in order to assess the best method of removing EV batteries.
- 1.5 The site has been designed and will be constructed to provide comprehensive environmental protection. The site will be operated under an Environmental Management System, and in accordance with relevant Environment Agency guidance.
- 1.6 The documents that comprise the permit application are detailed in Section 2.
- 1.7 The site is located on an industrial estate approximately 2.38km to the east of Birmingham city centre. Further details are provided in Section 3.
- 1.8 Non-hazardous waste accepted into the research facility at the site may undergo treatment within a shredder and/or granulator and through various sorting techniques. Sorting can be performed by diameter, weight, density, and colour. From there it will be stored in stillages awaiting removal from the site. Further details are provided in Section 4.
- 1.9 Waste EV batteries will be manually dismantled into separate components. The battery modules are then shredded and the electrolyte is removed by heating at approximately 100°C, before the components are sorted to separate out the black mass from non-hazardous waste. The black mass is then stored in containers awaiting transfer to a third party for further refinement. The non-hazardous waste is sorted and stored along with the other non-hazardous waste stream pending recycling elsewhere. The electrolyte, which comprises an organic solvent, will be collected in a condenser and will be stored in a bunded IBC pending disposal as hazardous waste.

## **2 ENVIRONMENTAL PERMIT APPLICATION**

2.1 This application comprises the following:

- Application forms;
  - Part A1
  - Part B1
  - Part B4
  - Part F
- Non-Technical Summary;
- Operating Techniques;
- Environmental Risk Assessment;
- Site Condition Report;
- Dust Management Plan;
- Fire Prevention Plan; and
- Drawings.

2.2 These documents demonstrate that operations at the facility will not pose an adverse risk to the environment. The site will be operated in accordance with an Environmental Management System (EMS), and comprehensive management procedure is in place to ensure that any risks are managed.

## **3 SITE SETTING**

3.1 The site is located approximately 2.38km to the east of Birmingham City Centre at National Grid Reference (NGR) SP 09308 87462.

3.2 The site is located in an industrial estate, and currently comprises an area of hardstanding and three Waste treatment buildings, one of which currently operates as a research facility for waste recovery operations. The area operates under 3 exemptions (reference WEX207760); S2 (storing waste in a secure place), T4 (preparatory treatments (baling, sorting, shredding etc)) and T9 (recovering scrap metal).

3.3 The site sits within an area of industrial and commercial use with other waste activities, including metal recycling sites and a waste transfer station nearby. To the west of the site, beyond the railway line, is the River Rea, which is classified as a Local Wildlife Site. The Grand Union Canal lies to the east of the site.

- 3.4 The site is accessed via an access road to the south of the Duddeston Mill Road.
- 3.1 The permitted site boundary is shown on drawing ST19256-002. The proposed site layout is shown on drawing LANBL2023/03/23.

#### **4 PROPOSED ACTIVITIES**

- 4.1 The site will accept non-hazardous waste including EV batteries, though some components of the EV batteries will be hazardous waste once they are extracted from the batteries and bulked up. The site will also accept a small number of end of life vehicles and a small quantity of hazardous waste. No more than 5 end of life vehicles will be on site at any one time.
- 4.2 The total quantity of hazardous waste stored on site or accepted and processed on any one day will be less than 10 tonnes.
- 4.3 Delivery vehicles will unload the waste within the yard area, and it will be immediately transferred inside the buildings, for storage and treatment, ensuring there are no emissions to ground or surface water.
- 4.4 Waste EV batteries will be subject to manual dismantling onsite. Coolant will be removed and stored in suitable bunded containers awaiting safe disposal. Plastic or metal casing and wiring will be collected in a suitable container and sent off site for recycling at a permitted site. The battery modules will pass through an enclosed shredder.
- 4.5 Following shredding the electrolyte will be driven off by gentle heating under vacuum conditions and collected in a condenser and stored in a sealed container. The air will then pass via a wet scrubber to remove particulates and a carbon filter to remove residual volatile organic compounds before emission to atmosphere.
- 4.6 The remaining material is then processed. Finer material is screened out of the waste stream. This allows the separation of metal foils, any remaining plastics and the black mass. Black mass is the material from the anode and cathode within the battery and contains carbon along with nickel, cobalt and lithium. This material will be sent for further refining elsewhere to recover and recycle the metal.
- 4.7 Other materials will be treated within the research facility. Treatment is undertaken within a building on impermeable pavement. Each waste type will be subject to a specific trial which has been outlined in advance, to set out the purpose of the trial,

the exact treatment method, the inputs and the expected outputs. Trials may include shredding/granulation and sorting of waste using one or a combination of sorting techniques. The facility conducts screening (to sort by diameter), air separation (to sort by weight), water table operations (to sort by density), and optical sorting (to sort by colour). The waste may be dried on drying tables where necessary and will be stored within suitable containers.

## **5 ENVIRONMENTAL RISK AND MITIGATION**

- 5.1 The design, operation and subsequent decommissioning of the site will be undertaken in accordance with regulatory requirements and best practice guidance. This will minimise the potential for any uncontrolled emissions to air, water or land.
- 5.2 Procedures within the site EMS will ensure that inspections and maintenance of environmental protection infrastructure are completed in accordance with a required schedule.
- 5.3 Staff will be provided with regular training on the environmental protection requirements for the site.

### **Control of Emissions to Air**

- 5.4 There will be 3 point source emissions to air. These are the baghouse from size reduction operations in unit 4 (battery treatment) baghouse from size reduction in units 5-7 (research facility) and the vent from the condenser, wet scrubber and carbon filter which treats exhaust air from solvent processing.
- 5.5 For size reduction activities there is extraction via an air handling system, with local extraction immediately over the shredding and granulating operations. Air is directed via bag filters, which will reduce output of dust to  $<5\text{mg}/\text{m}^3$ . Air is then vented outside.
- 5.6 Air flow from the solvent evaporation process passes through a condenser to collect the solvent, a wet scrubber, and an activated carbon filter, to reduce the emissions to air.

### **Control of Emissions to Water**

- 5.7 There are no point source emissions to water from the facility. No water will be generated from waste handling and all waste handling will take place inside the site

buildings. Recyclate will be stored in stillages and any liquid wastes will be stored in a suitable container with bunding, so that there are no emissions to water.

- 5.8 Surface water runoff from the site yard drains to foul sewer.
- 5.9 In the event of a fire on site fire water will be managed as described in the Fire Prevention Plan to minimise the risks to the environment.

### **Amenity**

- 5.10 Activities will take place inside a building with active air extraction above all shredders and granulators. Air is directed via a baghouse to prevent emissions of dust.
- 5.11 Storage times will be minimised and checks will be made to ensure that batteries are fully discharged prior to treatment to minimise the risk of fire.
- 5.12 The waste accepted on site is not expected to generate strong odour or attract pests.
- 5.13 All plant will be properly maintained to minimise noise emissions, with the site buildings providing a degree of noise attenuation. As the site is in an industrial area noise is not expected to be a concern.

## **6 ENVIRONMENTAL MANAGEMENT SYSTEMS**

- 6.1 EMR's head office and multiple sites across the UK are formally certified with ISO14001. EMR will operate the site in compliance with their ISO formatted EMS. The Company will have complete control over site operations, maintenance, competence and training, prevention of accidents, organisation and document management and records.
- 6.2 Adherence to the management system will ensure that regular training, monitoring and preventative maintenance are carried out at the facility, along with promoting an ethos of continuous improvement to site operations.
- 6.3 The site will be under the control of a Technically Competent Manager who holds the appropriate qualifications. The TCM will ensure that their site attend will comply with Environment Agency requirements.



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