Environmental Risk Assessment

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For: ENVA Battery Recycling Ltd

Site: Immingham Materials Recycling Facility, Immingham

Date: 11/09/2025

Document Ref: 317213-ERA

Issue-01

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Quality Assurance

Issue Record

Revision	Description	Date	Author	Reviewer	Approver
1.0	Issue	11/09/2025	RM	KB	KB

Staff Detail

Initials	Name	Position
RM	Rowena Maitland	Senior Environmental Consultant
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1. Introduction

1.1 Brief

ENVA Battery Recycling Ltd (ENVA) (the Operator) run a battery recycling facility at Immingham Materials Recycling Facility, Unit 1-5 Pelham Industrial Estate, Manby Road, Immingham, Lincolnshire, DN40 2LF (the Site).

The proposed variation is to allow for the extension of the current permit boundary, to extend into the land adjacent to the site currently operated as a catalytic converter recycling facility operated by S.A.R. Metals. The boundary extension will allow installation of a new battery recycling plant, so that the recycling activities can run concurrently, without interruption. It is proposed that the existing recycling plant will be decommissioned, following successful commissioning of the new plant. The variation will also increase throughputs through the site and authorise the storage (and not treatment) of lithium-ion batteries.

1.2 Site Location

The Site is located at National Grid reference TA 18613 15507, within an industrial estate, located to the northeast of Immingham town centre. The A1173 runs parallel to the southern boundary and an industrial estate bounds the north, east and west boundary of the Site.

1.3 Methodology

This report has been prepared following the Environment Agency's Risk Assessment guidance; Risk assessments for your environmental permit - GOV.UK. Specifically relating to the potential risks associated with odour, noise and vibration, fugitive emissions and accidents and incidents.

The risk assessment addresses the above risks and is based on the following methodology:

1. Identify and consider risks at the site, and the sources of the risks.
2. Identify the receptors at risk from the site.
3. Identify the possible pathways from the sources of the risks to the receptors.
4. Assess risks relevant to the activities on site and check they are acceptable and can be screened out.
5. State control risks if they are too high.

The Environmental Risk Assessment assesses the risks to the environment and human health from activities carried out by ENVA's Battery recycling facility and identifies the pollutant linkage i.e. source – pathway – receptor for each risk type.

2. Control of Wastes

2.1 Permitted activities

- AR1 – battery shredding
- AR2 – battery cutting
- AR3 – battery repackaging
- AR4 – plastic shredding
- AR5 – hazardous waste storage
- AR7 - battery sorting (addition of AR7 to installation permit as proposed variation).

2.2 Directed associated activities

- AR6 - physical treatment for batteries for the purpose of the recycling
- AR7 – physical treatment of WEEE waste for the purpose of recycling
- AR8 – storage of non-hazardous waste
- AR9 – washing of plastics from the shredding process
- AR10 – storage of acid
- AR11 – testing of batteries unsuitable for treatment
- AR13 – physical treatment of non-hazardous waste (addition of AR13 to installation permit)

2.3 Permitted waste types

A list of waste codes is provided below. Codes highlighted in green are already accepted at the installation for treatment.

Table 2-1 Permitted Waste Types and Quantities for Activity AR2 - Battery Cutting

Maximum Quantity	The annual throughput of all combined activities shall not exceed 40,000 tonnes (60,000 tonnes post variation). Hazardous properties HP8.
Waste Code	**Description**
16	Wastes not otherwise specified in the list
16 06	Batteries and accumulators
16 06 01*	Lead batteries
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 35*	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components

Table 2-2 Permitted waste types and quantities for activity AR4 and AR5 – lead and plastic from lead acid battery processing only

Maximum Quantity	The annual throughput of all combined activities shall not exceed 40,000 tonnes (60,000 tonnes post variation). Hazardous properties HP8.
Waste Code	**Description**
19	
19 12	
19 12 11*	Other waste (including mixtures of materials) from mechanical treatment of waste containing hazardous substances (consisting only of lead and plastic from lead acid battery processing)

Table 2-3 Permitted waste types and quantities for activity AR1, AR3 and AR5 – battery shredding and storage

Maximum quantity	The annual throughput of all combined activities shall not exceed 40,000 tonnes (60,000 tonnes post variation). Hazardous properties HP8.
Waste Code	**Description**
16	Wastes not otherwise specified in the list
16 06	Batteries and accumulators
16 06 01*	Lead batteries
16 06 02*	Nickel-Cadmium batteries – for sorting and transfer
16 06 03*	Mercury-containing batteries – for sorting and transfer
16 06 04*	Alkaline batteries (except 16 06 03) – for sorting and transfer
16 06 05*	Other batteries and accumulators – for sorting and transfer
16 06 06*	Separately collected electrolyte from batteries and accumulators – for sorting and transfer
19	
19 12	
19 12 11*	Other waste (including mixtures of materials) from mechanical treatment of waste containing hazardous substances (consisting only of lead and plastic from lead acid battery processing)
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, as well as unsorted batteries and accumulators containing these batteries.
20 01 34*	Batteries and accumulators other than those mentioned in 20 01 33
20 01 35*	Discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components

20 01 36*	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35

Table 2-4 Permitted waste types and quantities for activity AR6 – bulking, storage and transfer of non-hazardous waste

Maximum Quantity	The annual throughput of all combined activities shall not exceed 40,000 tonnes (60,000 tonnes post variation). Hazardous properties HP8.
Waste Code	**Description**
16	Wastes not otherwise specified in the list
16 06	Batteries and accumulators
16 06 04	Alkaline batteries (except 16 06 03) – for sorting and transfer
16 06 05	Other batteries and accumulators – for sorting and transfer
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 34	Batteries and accumulators other than those mentioned in 20 01 33
20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35

3. Potential Hazards

The potential hazards resulting from the activities carried out at the ENVA battery recycling facility have been considered, and are summarised below:

- Odour:
    - Waste materials
- Noise and vibration:
    - Use of battery treatment plant
    - Use of plant and machinery
    - Use of reverse vehicle warnings
    - Engine noise from vehicles
- Fugitive emissions:
    - Particulate matter i.e. dust
    - Scavenging birds, pests and vermin
    - Mud and litter
- Accidents:
    - Fire
    - Leaks and spillages
    - Flooding
    - Unauthorised access

4. Pathways

The pathway identified for each risk type are shown in Table 4-1.

Table 4-1 Potential pathways

Risk Type	Pathways
Odour	Air
Particulate matter (dust) – point source	Air (point source)
Fugitive emissions (dust)	Air
Noise and Vibration	Air
Accidents / Incidents	Surface water run-off
	Infiltration
	Percolation
	Air

5. Receptors

5.1 Sensitive Receptors

Receptors within 1km of the site have been identified are shown in Table 5-1. See Drawing Sensitive Receptors.

Table 5-1 Location of potential receptors

Receptor	Distance from site (m)	Direction
Residential		
Residential area north of Immingham	80m	South
Protected habitats		
Chalk rivers (protected habitats)	180	North
Homestead Park Pond (LWS)	550	West
Humber Estuary RAMSAR site	1500	Northeast
Sensitive Land uses		
Supermarket	500m	South
Primary School	600m	South
School and Leisure Centre	800m	South
Industrial/Commercial		
Business units on Pelham Ind. Estate	20m	West
Industrial units N. of Hall Park Road	20m	North
Industrial units E. of Hall Park Rd	20m	East
Manby Hall Business Park	20m	Southeast
Business units SW. of Manby Rd	100m	West
Petrol Station	100m	South
Immingham Dock	250m	North
Infrastructure/utilities		
Hall Park Road	0m (adjacent)	North
Hall Park Road	0m (adjacent)	East
A1173 Manby Road	0m (adjacent)	South
Railway passing west to east	250m	North
Railway passing northwest to southeast	500m	East
Controlled waters		
Zone 3 – total catchment	0m	Onsite
Zone 2 – outer protection zone	0m	Onsite
Zone 1 – inner protection zone	220m	East

5.2 Sites of Environmental Importance

As part of the pre-application advice, a Nature and Heritage Conservation Screening report was carried out and identified nature and heritage conservation sites, protected species and habitats and other features of significance. Table 5-2 identifies sites of environmental significance which were identified in the Nature and Heritage Conservation Screening report and will be considered within the risk assessment.

Table 5-2 Sites of environmental importance

Sites and Features within screening distance	Name	Screening distance (km)	Source
Special Areas of Conservation (cSAC or SAC)	Humber Estuary	10	Joint Nature Conservation Committee and Magic map
Special Protection Area (pSPA or SPA)	Humber Estuary	10	Joint Nature Conservation Committee and Magic map
Ramsar	Humber Estuary	10	Joint Nature Conservation Committee and Magic map
Sites of Special Scientific Interest (SSSI)	Humber Estuary	2	Natural England and Magic map
Local Wildlife Sites (LWS)	Homestead Park Pond Rosper Road Pools	2	Appropriate Local Record Centre (LRC)
Protected Habitat	Chalk rivers	2	Natural England

6. Risk Assessment

6.1 Risk Assessment

The Environmental Risk Assessment, Table 6-2, looks at each specific hazard identified and assesses the likelihood of those hazards impacting on nearby receptors. This is achieved by fulfilling the following objectives:

- Identify the location and nature of each hazard
- Identify the specific receptors potentially at risk and assess the sensitivity of each receptor
- Provide an assessment of the risk posed to each sensitive receptor
- Identify management and monitoring techniques to remove or mitigate the risk
- Provide recommendations for more detailed assessments where necessary.

The risk rating is worked out by combining the Likehood of exposure with the magnitude of the potential consequences. Categorised as high, medium or low as shown in Table 6-1.

Table 6-1 Key for magnitude of the risk

High
Medium
Low

Table 6-2 Environmental Risk Assessment

Risk				Judgement				Action	
Receptor	**Source**	**Harm**	**Pathway**	**Probability of exposure**	**Consequence**	**Magnitude of risk**	**Judgement for Magnitude**	**Risk Management**	**Residual risk**
Protect from risk	Agent or process with potential to cause harm	Harmful consequences if things go wrong	How receptor comes into contact with the source	Contact likelihood	Consequence severity	Risk magnitude	Judgement basis	Risk management	Risk following risk management
Local human population	Release of particulate matters (dusts)	Harm to human health – respiratory irritation and illness. Nuisance – dust on cars, clothing etc.	Air transport then inhalation	Low	Medium	Low	Permitted waste types do not include dusts, powders or loose fibres. Treatment activities include transfer, sorting, separating, shredding/	Refer to the Dust Emissions Management Plan. All waste accepted at the site will be treated in an enclosed building and include abatement of emissions to air. The whole Site, including operational areas, is maintained in an orderly and tidy state.	Low
Local human population	Waste, litter and mud on local roads	Nuisance, loss of amenity, road traffic accidents	Vehicles entering and leaving the site	Low	Medium	Low	Road safety, local residents often sensitive to mud on roads	The whole Site, including operational areas, is maintained in an orderly and tidy state. Wastes accepted pose low risk of litter or mud. All waste is handled and treated indoors.	Low
Local human population	Odour	Nuisance, loss of amenity	Air transport then inhalation	Low	Medium	Low	Local residents often sensitive to odour, however, permitted waste	Permitted wastes pose very low risk of odour. Treatment of waste within an enclosed building. Emissions	Low

Risk				Judgement				Action	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Judgement for Magnitude	Risk Management	Residual risk
							types have low odour potential	shall be free from odour at levels likely to cause pollution.	
Local human population	Noise and vibration	Nuisance, loss of amenity, loss of sleep	Noise through the air and vibration through the ground	Medium	Medium	Medium	Local residents often sensitive to noise and vibration	The battery recycling plant is fully enclosed. Plant and equipment serviced and maintained regularly. No complaints from existing treatment activities.	Low
Local human population	Scavenging animals and birds, pests (e.g. flies).	Harm to human health from waste carried off site. Nuisance and loss of amenity	Air transport and over land	Low	Low	Low	Permitted wastes unlikely to attract scavenging animals and birds or pests.	The whole Site, including operational areas, is maintained in an orderly and tidy state. All waste handled and stored indoors.	Low
Local human population and local environment	Flooding off site	If waste is washed off site may contaminate building / gardens / natural habitats downstream	Flood waters	Medium	Medium	Medium	Medium risk of flooding from rivers, and very low risk of surface water flooding. However, waste is either stored within an enclosed building or stored in appropriate weatherproof containers, or in appropriate cover containers.	The accident management covers: • Assessing the risk of flooding and measures to prevent or reduce risk • Contingency plans for diversion of waste, if required • Emergency procedures which are clearly communication to	Low

Risk				Judgement				Action	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Judgement for Magnitude	Risk Management	Residual risk
								all site operatives	
Local human population and local environment	Fire from arson and, or vandalism or spontaneous combustion	Respiration irritation, illness and nuisance to the local population. Injury to staff, firefighters or arsonists and vandals Air, water or land pollution	Polluting materials (smoke or fumes) to travel through air, water or over land Spillages and contaminated firewater – direct runoff, surface water drains and ditches	High	High	High	Combustible wastes (including lithium-ion batteries) accepted at the site.	A site-specific fire prevention plan has been prepared for the site. Storage of waste in accordance with Fire Prevention Plan. Written management system identifies and minimises risk or pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, therefore included measures to prevent and control fires. Robust waste acceptance procedure. No burning of wastes.	Medium
Local human population and local environment	Arson and / or vandalism causing the release of polluting materials to air (smoke or fumes), water or land	Respiratory irritation, illness and nuisance to local population. Injury to staff, firefighter or arsonists / vandals. Pollution of water or land.	Air transport of smoke. Spillages and contaminated firewater by district run-off from site.	Low	Medium	Medium	Site security measures at the facility to prevent theft.	Activities managed and operated in accordance with the management system, including site security to prevent unauthorised access. Site secured overnight. CCTV surveillance in operation.	Low
Local human population,	Gaining unauthorised access to site	Injury to humans or livestock	Direct physical contact	Low	Low	Low	Management system includes procedures for	Activities are managed and operated in accordance with all appropriate measures and a	Low

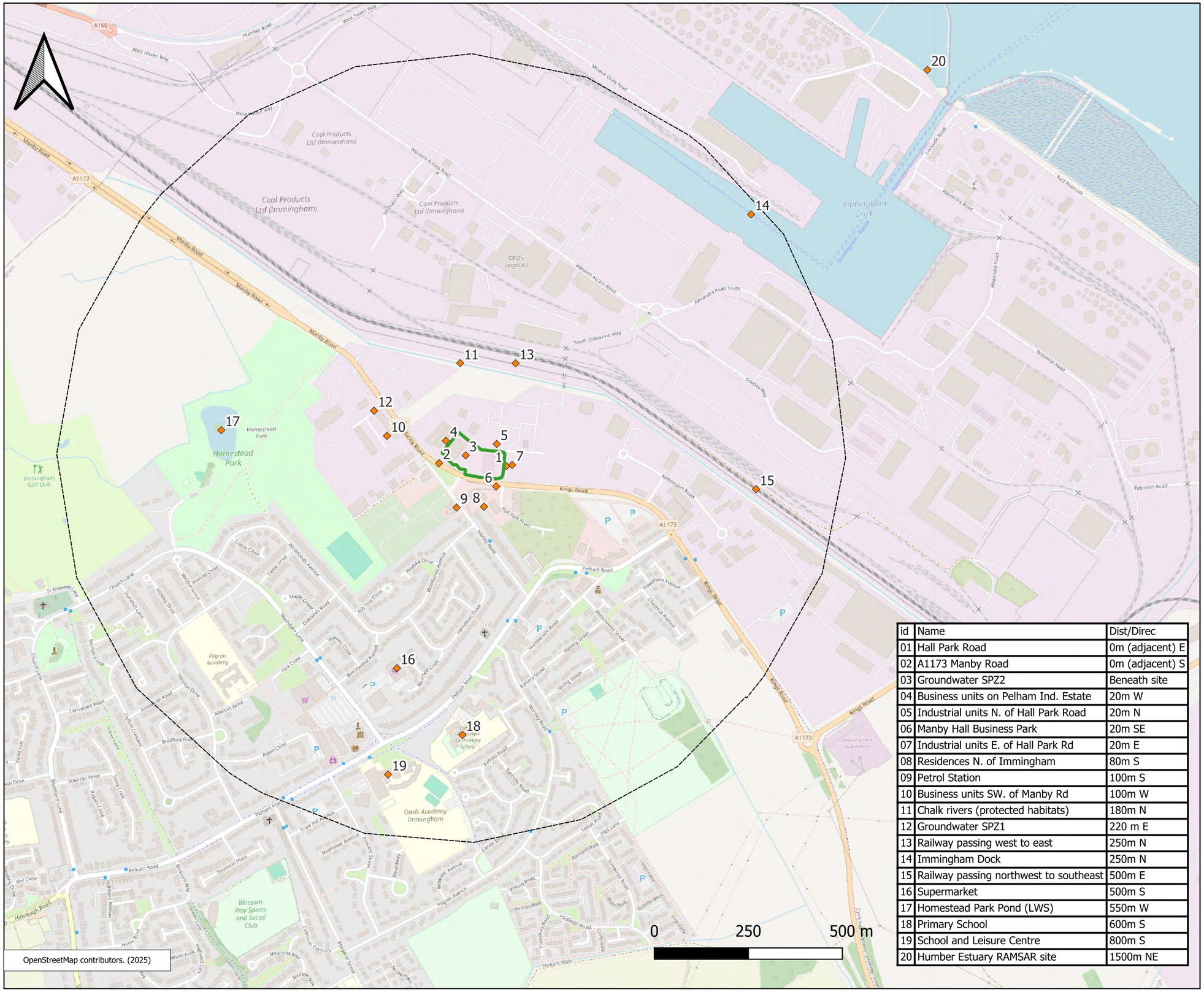
Risk				Judgement				Action	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Judgement for Magnitude	Risk Management	Residual risk
livestock and wildlife							worker and visitor safety	management system stipulates all appropriate measures and emergency responses should accidents occur. Emergency contact details displayed at site entrance. CCTV and gated site.	
Local human population and local environment	Storage of Lead Acid Batteries	Harm to health from spillage or leakage from batteries stored	Direct physical contact	Low	Medium	Low	All batteries are stored on an impermeable surface with sealed drainage.	Management system (will include storage of materials)	Low
Local human population and local environment	Storage of acid from treated batteries.	Harm to health from spillage or leakage of acid stored	Direct physical contact	Low	Medium	Low	Acid from the batteries is collected in the tank – loading point is within bunded area.	Management system (will include storage of materials)	Low
Surface water close to and downstream of site	Spillages of liquids, leachate from waste, contaminated rainwater	Acute effects: oxygen depletion, fish kill, algal blooms	Direct run-off from site over land, surface water drains and ditches	Low	Medium	Low	Lead battery treatment is within an enclosed building. Storage of all hazardous waste will be on impermeable surface with sealed drainage.	Battery treatment is with an enclosed building with impermeable pavement and sealed drainage. Chemical and spillages incident procedure to be followed. All effluent storage containers are fully bunded. Storage either within an enclosed building or stored on an impermeable surface with	Low

Risk				Judgement				Action	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Judgement for Magnitude	Risk Management	Residual risk
								sealed drainage system to prevent contaminated run-off. Appropriate measures are followed. Flood risk contingency plan for diversion of waste can be activated. Emergency procedures and contingency plans clearly communicated to all site operatives.	
Surface water close to and downstream of site.	Spillage of liquids, leachate from waste, contaminated rainwater run-off from waste contamination	Chronic effects: deterioration of water quality	Direct run-off over land, through surface water drains and ditches and indirect run-off through soil	Low	Medium	Low	Pollution likely to be detected quickly and effects are temporary and reversible	Chemical and spillages incident procedure to be followed. All liquids are in containers with secondary containment. Run-off is restricted to within the buildings which is sealed. All effluent storage containers are fully bunded. Storage either within an enclosed building or stored on an impermeable surface with sealed drainage system to prevent contaminated run-off.	Low
Groundwater	Liquid spills, leachate from waste, contaminated rainwater run-off from waste	Chronic effects resulting in the groundwater requiring treatment or causing closure of a borehole	Soil and groundwater – then abstracted from a borehole	Low	Low	Low	No potential for contaminated rainwater runoff or leachate from operations, as all waste treated indoors.	Chemical and spillages incident procedure to be followed. Site is not within a groundwater SPZ1. Secondary containment meets CIRIA 736 standards.	Low

Risk				Judgement				Action	
Receptor	Source	Harm	Pathway	Probability of exposure	Consequence	Magnitude of risk	Judgement for Magnitude	Risk Management	Residual risk
								All effluent storage containers are fully bunded. Storage either within an enclosed building or stored on an impermeable surface with sealed drainage system to prevent contaminated run-off.	
Protected sites - European sites and SSSIs including SAC, SPA and Ramsar	Any	Harm to protected site through toxic contamination, disturbance, predation etc.	Any	Low	High	Medium	The site is within 10km of SAC, SPA, Ramsar and within 2km of SSSI and two LWS. See Table 5-2 for further details and Appendix A	All waste is stored and treated indoors. All effluent storage containers are fully bunded.	Low

Drawings

Sensitive Receptors Plan	317213 DW03
Sensitive Receptors Plan (Habitats)	317213 DW03b



id	Name	Dist/Direc
01	Hall Park Road	0m (adjacent) E
02	A1173 Manby Road	0m (adjacent) S
03	Groundwater SPZ2	Beneath site
04	Business units on Pelham Ind. Estate	20m W
05	Industrial units N. of Hall Park Road	20m N
06	Manby Hall Business Park	20m SE
07	Industrial units E. of Hall Park Rd	20m E
08	Residences N. of Immingham	80m S
09	Petrol Station	100m S
10	Business units SW. of Manby Rd	100m W
11	Chalk rivers (protected habitats)	180m N
12	Groundwater SPZ1	220 m E
13	Railway passing west to east	250m N
14	Immingham Dock	250m N
15	Railway passing northwest to southeast	500m E
16	Supermarket	500m S
17	Homestead Park Pond (LWS)	550m W
18	Primary School	600m S
19	School and Leisure Centre	800m S
20	Humber Estuary RAMSAR site	1500m NE

Legend:

Sensitive Receptors

1km Buffer

Consultant:

Arthain Ltd

Client:

Enva Battery Recycling Ltd

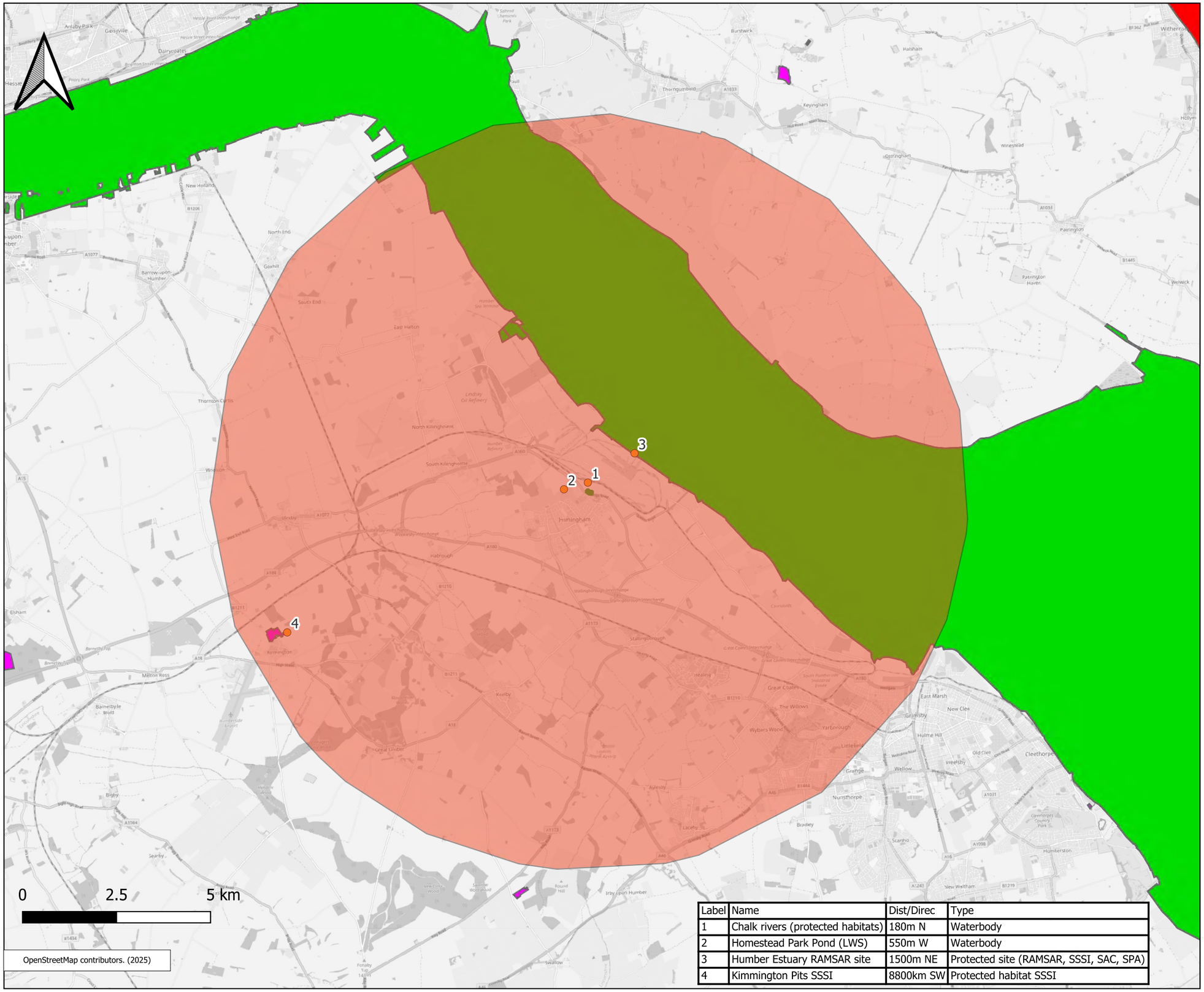
Site: Pelham Industrial Estate, Manby Road, Immingham, Lincolnshire, DN40 2LF

Drawing title: Sensitive Recpetors Plan

Date:	Scale:	Paper size:
16/09/25	1:10,000	A3 (420×297mm)

Drawn by:	Checked by:	Status:	FInal revision
RM	KB	Final	-

Drawing Ref:	Drawing No:
317213 DW03	DW03



Label	Name	Dist/Direc	Type
1	Chalk rivers (protected habitats)	180m N	Waterbody
2	Homestead Park Pond (LWS)	550m W	Waterbody
3	Humber Estuary RAMSAR site	1500m NE	Protected site (RAMSAR, SSSI, SAC, SPA)
4	Kimmington Pits SSSI	8800km SW	Protected habitat SSSI

Legend:

10km buffer

Permit Boundary (v3 proposed)

Habitat receptors 10km

Ramsar_England

Sites_of_Special_Scientific_Interest_England

Special_Protection_Areas_England

Special_Areas_of_Conservation_England

Consultant:

Arthain Ltd

Client:

Enva Battery Recycling Ltd

Site: Pelham Industrial Estate, Manby Road, Immingham, Lincolnshire, DN40 2LF

Drawing title:

Sensitive Recpetors Plan (habitats)

Date:	Scale:	Paper size:
16/09/25	1:100,000	A3 (420×297mm)

Drawn by:	Checked by:	Status:	FInal revision
RM	KB	Final	-

Drawing Ref:	Drawing No:
317213 DW03b	DW03b

Appendices

Appendix A Pre-application Conservation Screening Report

Nature and Heritage Conservation

Screening Report: Bespoke installation

Reference	**EPR/CP3294LE/P001**
NGR	**TA 18650 15466**
Buffer (m)	**200**
Date report produced	**06/05/25**
Number of maps enclosed	**2**

This nature and heritage conservation report

The nature and heritage conservation sites, protected species and habitats, and other features identified in the table below **must be considered in your application**.

In the further information column, there are links which give more information about the site or feature type and indicate where you are able to self-serve to get the most accurate site boundaries or feature locations.

Most designated site boundaries are available on Magic map. Using Magic map allows you to zoom in and see the site boundary or feature location in detail, Magic map also allows you to measure the distance from these sites and features to your proposed boundary. Help videos are available on Magic map to guide you through.

Where information is not publicly available, or is only available to those with GIS access, we have provided a map at the end of this report.

Sites and Features within screening distance	Screening distance (km)	Further Information
Special Areas of Conservation (cSAC or SAC)	10	Joint Nature Conservation Committee and Magic map
Humber Estuary		
Special Protection Area (pSPA or SPA)	10	Joint Nature Conservation Committee and Magic map
Humber Estuary		

Ramsar **Humber Estuary**	10	Joint Nature Conservation Committee and Magic map
Sites of Special Scientific Interest (SSSI) **Humber Estuary**	2	Natural England and Magic map
Local Wildlife Sites (LWS) (see map below) **Homestead Park Pond** **Rosper Road Pools**	2	Appropriate Local Record Centre (LRC)

Protected Habitats within screening distance	Screening distance (km)	Further Information
Chalk rivers (see map below)	up to 2	Natural England

Where protected species are present, a licence may be required from Natural England to handle the species or undertake the proposed works.

The relevant Local Records Centre must be contacted for information on the features within local wildlife sites. A small administration charge may also be incurred for this service.

The following nature and heritage conservation sites, protected species and habitats, and other features have been checked for, where they are relevant for the permit type requested, but have not been found within screening distance of your site unless included in the list above.

Special Areas of Conservation (cSAC or SAC), Special Protection Area (pSPA or SPA), Marine Conservation Zone (MCZ), Ramsar, Sites of Special Scientific Interest (SSSI), National Nature Reserve (NNR), Local Nature Reserve (LNR), Local Wildlife Sites (LWS), Ancient Woodland, relevant species and habitats.

Please note we have screened this application for features for which we have information. It is however your responsibility to comply with all environmental and planning legislation, this information does not imply that no other checks or permissions will be required.

The nature and heritage screening we have conducted as part of this report is subject to change as it is based on data we hold at the time it is generated. We cannot guarantee there will be no changes to our screening data between the

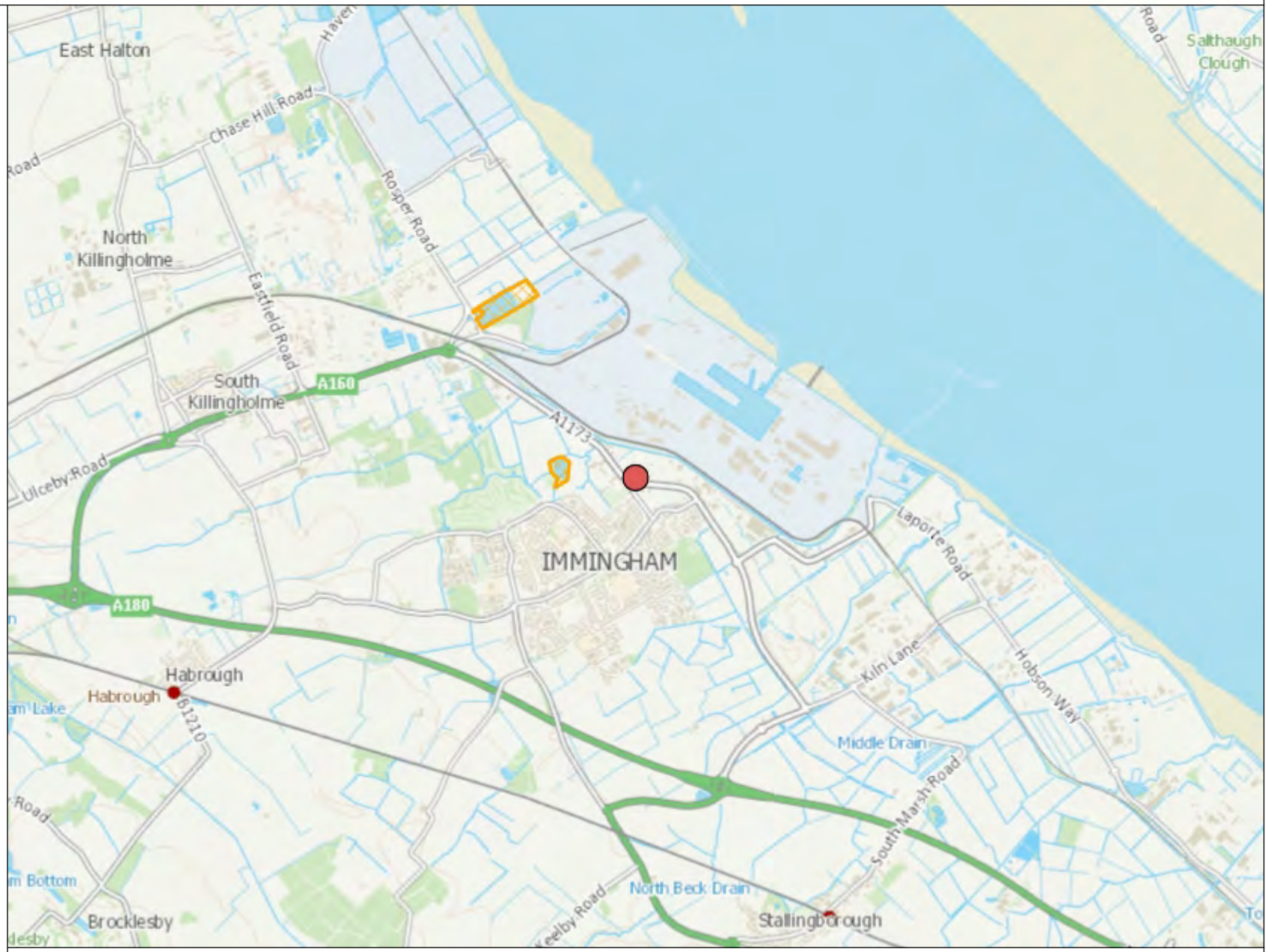
date of this report and the submission of the permit application, which could result in the return of an application or requesting further information.

Local Wildlife Sites

Environment Agency

Legend

Local Wildlife Sites



1: 50,000

0 1,250

Metres

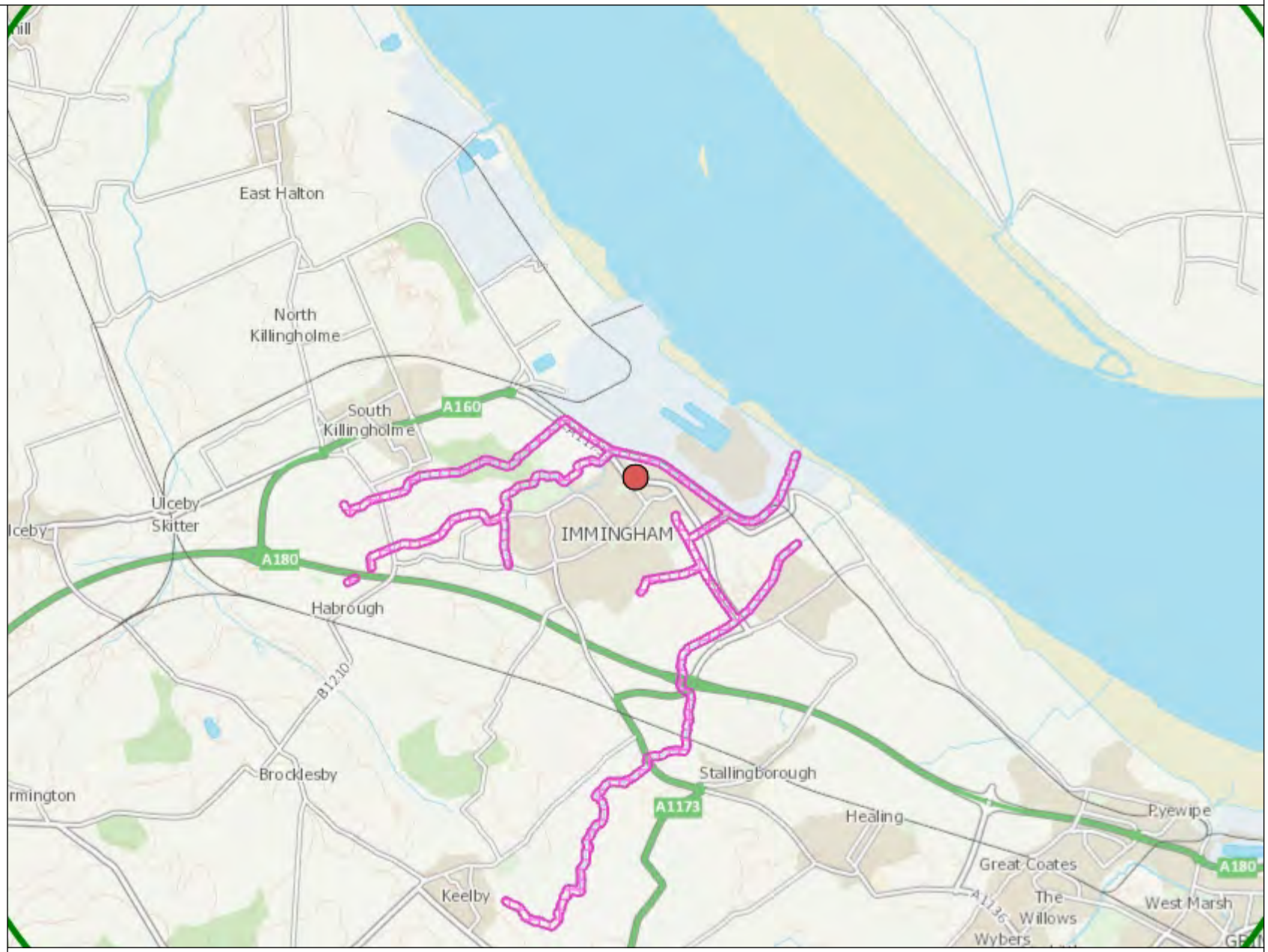
N W E S

Protected Habitats

Environment Agency

Legend

Protected Habitats screened for Env Permits



1: 75,000

0 1,875

Metres

N W E S