



Environmental Management System (EMS)

EV Recycling Ltd.

September 2023

Site Location:

**EV Recycling,
Unit 12, Llanelli Gate,
Dafen, Llanelli,
Carmarthenshire,
United Kingdom,
SA14 8LQ**

Overview

This document follows the guidelines of Natural Resources Wales on the **Environmental Management System (EMS)** for small and medium sized businesses. Its intended use is to assist with the management of the operations of EV Recycling Ltd. to **reduce the risk of harming the environment** and continuously improving our environmental credentials.

In summary, this document helps EV Recycling demonstrate the following:

- Show that activities that could harm the environment are under control
- Develop an environmental management system for site activities
- Be less likely to breach our permit or cause pollution and, therefore, avoid enforcement action
- Avoid having to pay higher charges for non-compliance
- Helps the business to satisfy our environmental policy

As a result of this document, benefits to EV Recycling also include:

- Improved resource efficiency and productivity, which helps to build a sustainable business
- Reduce risks and potential loss
- Reduced operating costs, including costs associated with environmental regulations
- More likely to obtain business from companies that require environmental impacts from other businesses to be managed effectively
- Improved reputation amongst staff, customers and the public
- Increased chance of funding for our business by demonstrating responsible environmental management
- Improved legal compliance, avoid prosecution, receive fewer visits from environmental regulators (Natural Resources Wales).

Document Revision History			
Date	Author	Version	Notes
05/07/2019	Sam Joseph	1	Report - Version 1
23/08/2019	Sam Joseph	2	Procedures added and a general review of the document
03/09/2019	Sam Joseph	3	Page numbers added, spelling checks and adjustments to content
01/11/2019	Sam Joseph	4	Section 1; Table 1; Summary Updated Section 2.4; Text amendments
15/01/2020	George Chamberlain	5	Address Change
05/02/2020	Sam Joseph	6	Address Updated; New Site Maps added; Waste Codes Checked
11/02/2020	Sam Joseph	7	Storage Map and Drainage Plan
16/03/2020	Sam Joseph	8	Confidentiality Justification Review
18/08/2020	George Chamberlain	9	Schedule 5 Responses added
26/08/2020	George Chamberlain	10	Removed non necessary confidential information for the Schedule 5 response. Removed Confidential Markings
23/09/2020	George Chamberlain	11	Schedule 5 Response
21/10/2020	George Chamberlain	12	Schedule 5 Response
10/11/2020	George Chamberlain	13	Added table 2E
26/09/2023	Sam Joseph	14	Text amendments, site map updates, process definition additions to include hazardous waste battery manufacturing scraps materials

Contents

1. Introduction. Table 1	6
1.1. Non-Technical Summary	7
Table 2A. Emissions to Air	8
Table 2B. Energy Usage	9
Table 2C. Waste Disposal	10
Table 2D. Land Contamination	11
Table 2E. Noise	12
Table 3. General Waste Management	13
Table 4. List of Procedures	14
2. Accident / Pollution Incident Management Plan	15
2.1. Site Plan	16
2.1.2. Storage Quantities, Area Sizes, Site Entrances, Exits and Recycling & Storage areas	17
2.1.3. Drainage Plan	19
2.1.4. Local or Nearby Receptors	21
2.2. Key Site & Emergency Contacts	25
2.3. List of Substances and Storage Facilities	26
2.4. Accident / Incident Prevention and Mitigation	27
2.4.1. Spillages	27
2.4.2. Failure or Damage to Plant or Equipment	28
2.4.3. Fire	28
2.4.5. Flood	29
2.4.6. Failure of Services	29
2.4.7. Failure of Containment	30
2.4.8. Vandalism	30
3. Maintenance Checklist	31
4. Training Checklist	32
5. Procedures	33
5.1. Spill Response Procedure	33
5.2. Flood Procedure	34
5.3. Fire Procedure	35
5.4. Utility Failure Procedure	36
5.5. Pre-Acceptance Procedure	37
5.6. Acceptance Procedure	38

5.6.1.	Unexpected Waste	40
5.6.2.	Hot Loads	40
5.7.	Waste Storage Procedure	41
5.8.	Catch Trays	41
5.9.	Treatment Procedure	42
5.10.	Fire Watch Procedure – Hot Works	43
5.11.	End of Waste Procedure.....	44
5.12.	Flapstopper.....	45
6.	General Incident Procedure	46



1. Introduction. Table 1

The key pieces of environmental legislation affecting this sector are:

Note: Ensure this list is kept up to date for the recycling site and covers all applicable legislation.

- The Environmental Permitting Regulations 2010
- Environmental Protection Act 1990, section 33 & 34
- Duty of Care
- Recovery & Disposal Codes
- European Waste Code (EWC)
- Hazardous Waste Regulations

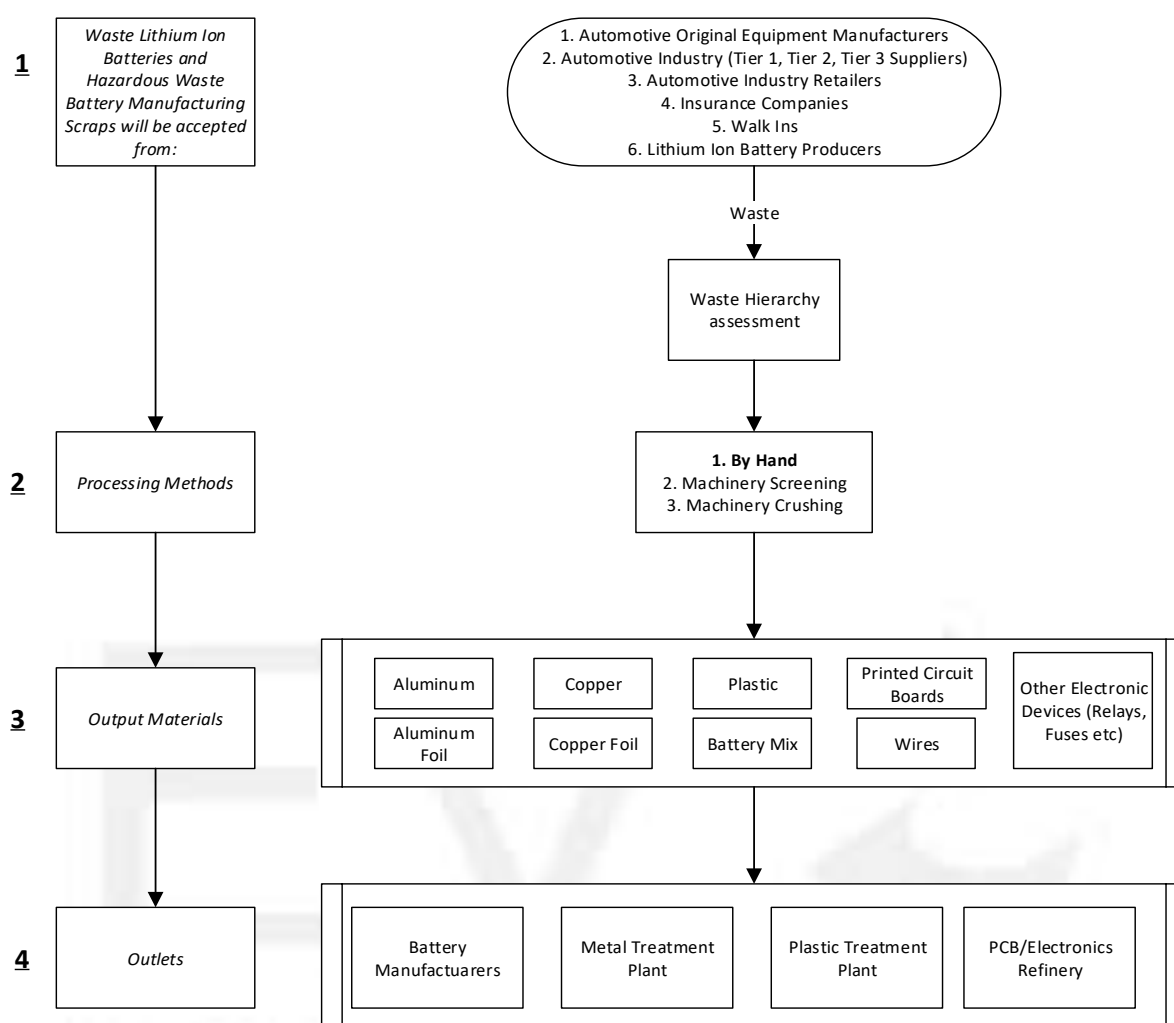
Processes / Activities / Equipment at recycling site:

(insert H, M or L where applicable)
List all the processes / activities / equipment at your site in these columns.

A - Emissions to Air (including dust)
W - Emissions to Water
E - Energy Usage (Electricity, gas, oil)
D - Waste Disposal
L - Land Contamination
N - Nuisance (i.e. noise or odour)
R - Resource Consumption (e.g. water)

Process / Activity / Equipment	A	W	E	D	L	N	R
Arrival of batteries on site	-	-	-	L	-	-	-
Storage	-	-	-	-	L	-	-
Visual Assessment	-	-	-	-	-	-	-
Electrical Assessment	-	-	M	-	-	-	-
Dismantling by hand	-	-	-	-	-	L	-
Separating by hand	-	-	-	L	-	L	-
Machine Crushing	L	-	M	-	-	M	-
Machine Separating/Screening	L	-	M	-	-	M	-
Materials handling	-	-	-	-	-	-	-

1.1. Non-Technical Summary



EV Recycling requires an Environmental Permit in order to carry out the planned recycling activities for electric vehicle lithium ion batteries & hazardous waste battery manufacturing scraps materials.

1. Batteries / materials are sourced from the industry. This includes OEM's, producers, insurers and walk-ins. The size of the batteries can vary (e.g. packs, modules, cells and anode/cathode materials).

2. The packs, modules and cells are initially inspected, tested and categorised. The waste batteries enter a process of discharging and dismantling, prior to being crushed and separated. This process will be part-automated and part-manual; a study is on-going to determine the most efficient and cost-effective methods for dismantling and screening. Cathode/anode scraps are stored in sealed containers and do not require any discharging or dismantling. They are crushed and separated. For the purpose of the environmental permit, it is essential to state that these activities will be using a 'dry-process'. A dry-process does not use pyro-metallurgical or hydrometallurgical processes to recycle the waste battery materials. Under normal operating conditions, the dry-process reduces the risk of potential environmental impacts through emissions to water, air and land. The Environmental Management System details these risks and associated response procedures in the following tables.

3. Information removed from Schedule 5 response. Will still be in the final document for use.

4. Information removed from Schedule 5 response. Will still be in the final document for use.

Table 2A. Emissions to Air

Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Dust from crushing processes	Local air quality / flora & fauna	Yes - air filtration system. In addition, activities are carried out indoors	Yes – visually check air filtration system for signs blockages or damage	Yes - reduce dust through “Materials Handling Procedure” and any relevant machinery operations	Yes	Dust levels are minimal
Recycled materials handling (product) – weighing and storage	Local air quality / flora & fauna	Yes - air filtration system. In addition, activities are carried out indoors	Yes – visually check air filtration system for signs blockages or damage	Yes - reduce dust through “Materials Handling Procedure” and any relevant machinery operations	Yes	Dust levels are minimal

Table 2B. Energy Usage

Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Electrical Assessment	General impacts of electricity production	No	Yes – Quarterly	Yes – Battery assessment procedure (IP)	Yes	Efficient use of machinery required to reduce the impact. Note: Machinery is not in use every day
Electricity usage for separating machinery	General impacts of electricity production	No	Yes – Quarterly	Yes – machinery operating guidance for each piece of equipment (IP)	Yes	Efficient use of machinery required to reduce the impact. Note: Machinery is not in use every day
Electricity usage for crushing machinery	General impacts of electricity production	No	Yes – Quarterly	Yes – machinery operating guidance for each piece of equipment (IP)	Yes	Efficient use of machinery required to reduce the impact. Note: Machinery is not in use every day

Table 2C. Waste Disposal

Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Batteries and battery material deliveries on site may be accompanied by unrecyclable materials from packaging (e.g. polystyrene, film plastics, etc.)	Non-biodegradable waste materials can cause harm to local flora/fauna if escapes to the environment	Fencing around the site helps to catch any material that escapes	Yes – weekly general site integrity checks (visual)	Suitable materials handling - All non-recyclable waste to be disposed of correctly	Yes	Local company to collect unrecyclable waste from site to be dealt with appropriately
Separating by hand	Non-biodegradable waste materials can cause harm to local flora/fauna if escapes to the environment	No	No	All non-recyclable waste to be disposed of correctly	Yes – Non recyclable materials to be put into an appropriate bin	Local company to collect unrecyclable waste from site to be dealt with appropriately

Table 2D. Land Contamination

Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Arrival of batteries and battery materials on-site could be accompanied with unrecyclable materials from packaging (e.g. polystyrene, film plastics, etc.)	Non-biodegradable waste materials can cause harm to local flora/fauna if escapes to the environment	Fencing around the site helps to catch any material that escapes	Yes – weekly general site integrity checks (visual)	Suitable materials handling - all non-recyclable waste to be disposed of correctly	Yes	Local company to collect unrecyclable waste from site to be dealt with appropriately

Table 2E. Noise

Process / Activity / Equipment on Site	Potential Impact	Is impact controlled by equipment?	Is equipment included on maintenance checklist?	Is impact controlled by a procedure?	Person using the procedure received training?	Comments
Noise from site activities (crushing machinery)	Local offices and nearby people could be affected by a lot of frequent noise / vibrations	Activity is carried out indoors, and proper maintenance of equipment and machinery helps to limit any noise	Yes – Monthly checks (recorded during activities)	Yes – machinery operating guidance for each piece of equipment (IP)	Yes	Crushing machinery is not in use during sensitive times of the day (night time) and not every day of the week
Noise from site activities (Separating machinery)	Local offices and nearby people could be affected by a lot of frequent noise / vibrations	Activity is carried out indoors, and proper maintenance of equipment and machinery helps to limit any noise	Yes – Monthly checks (recorded during activities)	Yes – machinery operating guidance for each piece of equipment (IP)	Yes	Crushing machinery is not in use during sensitive times of the day (night time) and not every day of the week
Noise from site activities Dismantling manually	Local offices nearby people could be affected by a lot of frequent noise / vibrations	Activity is carried out indoors	N/A	No	Yes	Battery dismantling guidance (IP)
Noise from site activities Separating by hand	Local offices and nearby people could be affected by a lot of frequent noise / vibrations	Activity is carried out indoors	N/A	No	Yes	Manual materials separation guidance (IP)

Table 3. General Waste Management

Process / Activity / Equipment on Site	Where does the waste go?	Can it go to recovery / recycling?	Can it be stored correctly on site?	Are Duty of Care requirements being met?	Comments
General waste sent for disposal	Non-recyclable or non-recoverable materials are collected from site by local company to be dealt with appropriately	No	Yes – however the waste in question must comply with the permit and not an imminent environmental hazard	Yes	Ensure that the local company collecting the waste has the required certification, to ensure that the waste will be dealt with appropriately

Table 4. List of Procedures

Procedure Name	What process / activity / equipment does it relate to?	Where is the procedure kept?	Version Number	Date of previous review?	Comments
Spill Response Procedure	Any activity which could cause a spill (materials handling, crushing, storage etc.)	Section 5.1 of the EMS	2	02/02/2022	
Flood Procedure	Generic	Section 5.2 of the EMS	2	02/02/2022	
Fire Procedure	Generic	Section 5.3 of the EMS	2	02/02/2022	
Utility Fail Procedure	Generic	Section 5.4 of the EMS	2	02/02/2022	
Pre-Acceptance Procedure	Initial customer discussions	Section 5.5 of the EMS	2	02/02/2022	
Acceptance Procedure	Delivery on-site	Section 5.6 of the EMS	2	02/02/2022	
Categorisation & Storage Procedure	Storage of battery cells & materials	Section 5.7 of the EMS	2	02/02/2022	
Treatment Procedure	Crushing & separating	Section 5.8 of the EMS	2	02/02/2022	
General Incident Procedure	Delivery on-site	Section 5.9 of the EMS	2	02/02/2022	

2. Accident / Pollution Incident Management Plan

The contents of this section of the Environmental Management System (EMS) include information on the following topics:

- Site Plan, including; entrances / exits, buildings, drainage plan, vulnerable receptors, recycling activities areas and materials/goods storage areas including hazardous waste (if applicable)
- Key Site & Emergency Contacts (Including site managers, emergency services, utility services and regulators)
- List of Substances and Storage Facilities
- Accident / Incident prevention and mitigation measures



2.1. Site Plan

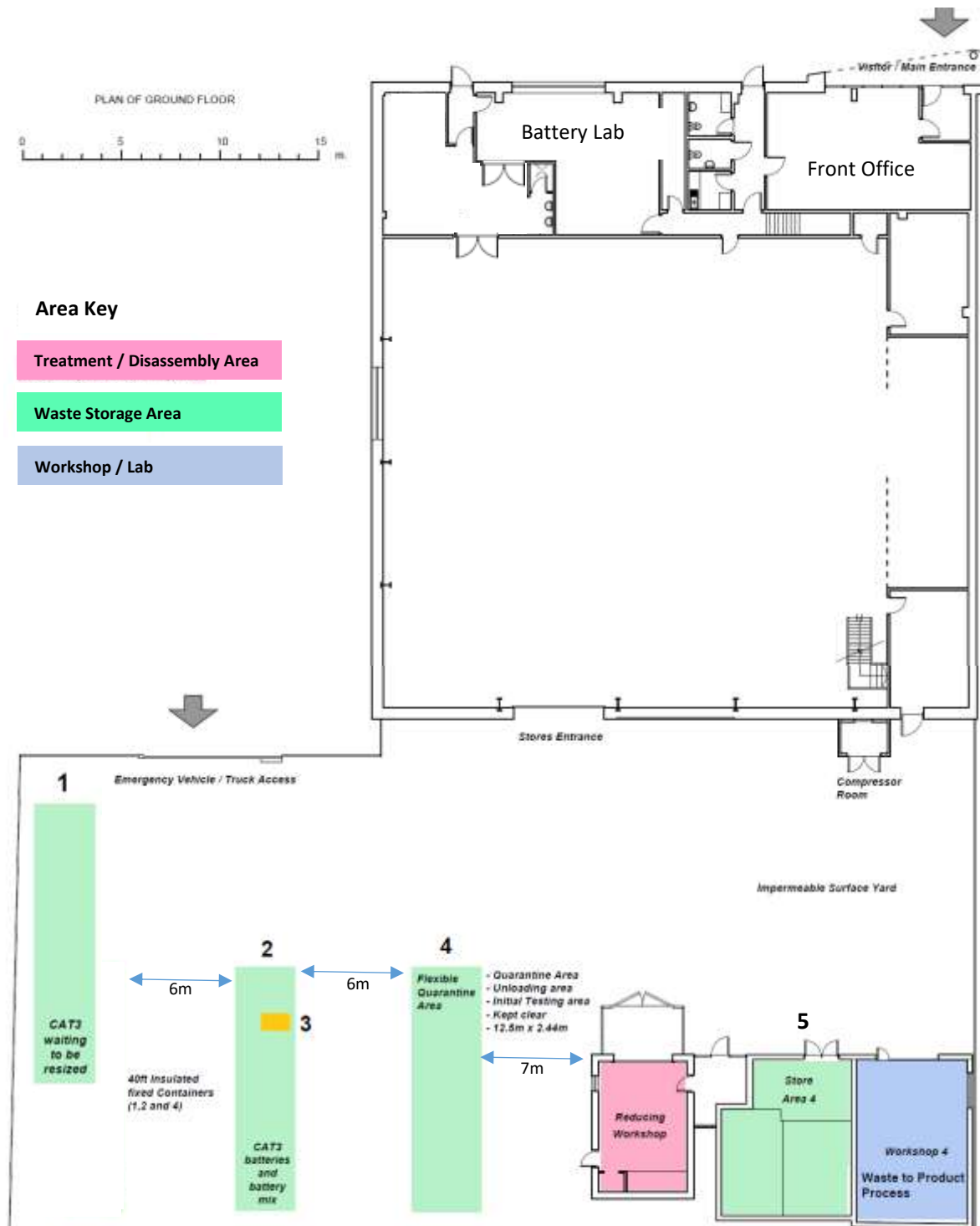
Site Address:

EV Recycling, Unit 12, Llanelli Gate, Dafen, Llanelli, Carmarthenshire, United Kingdom, SA14 8LQ



2.1.2. Storage Quantities, Area Sizes, Site Entrances, Exits and Recycling & Storage areas

The image below is a general overview of the site, pinpointing the key areas.
This will be provided to the fire brigade in case of an emergency.

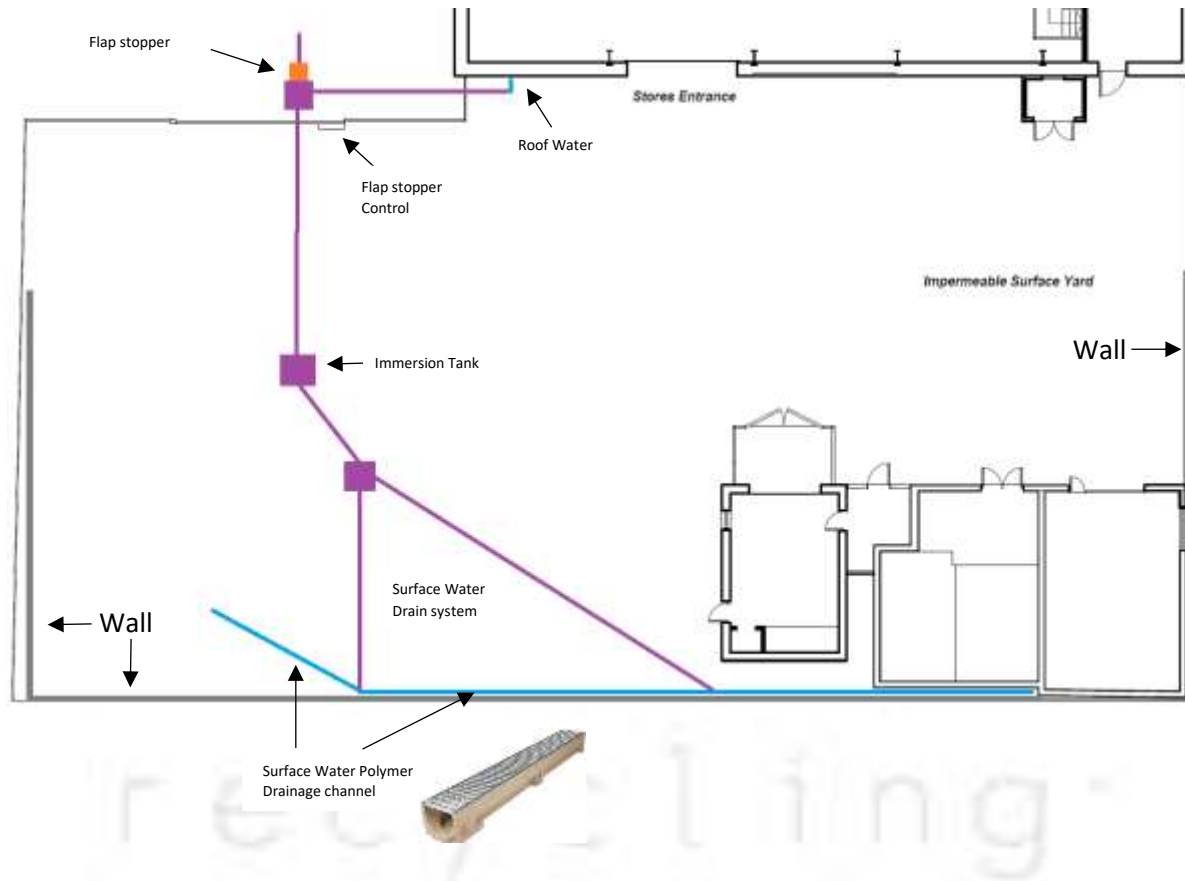


Area	Type	Details and Waste Types	Size of Area (metres)	Maximum Height of Stack?	Maximum Capacity (Quantity) ?	Maximum Weight (kg) - Rounded Up	Storage time
1	Potential for Hazardous (including Mirror Hazardous and mirror non-hazardous)	Processed and Unprocessed – CAT 3 – Inside plastic containers (50L Plastic) or racks. Manufacturing scraps consisting of anode and cathode materials (stored in separate containers to each other).	12 x 2.4	2.59 m	12 Packs / 10000 Cells / 500 Modules / 24 tonnes of battery anode and cathode scrap materials	24,000	Up to 6 Months
2	Potential for Hazardous (including Mirror Hazardous and mirror non-hazardous)	Processed and Unprocessed – CAT 3. Inside plastic containers (50L Plastic) or racks. Manufacturing scraps consisting of anode and cathode materials (stored in separate containers to each other).	12 x 2.4	2.59 m	12 Packs / 10000 Cells / 500 Modules / 24 tonnes of battery anode and cathode scrap materials	24,000	Up to 6 Months
3	HAZARDOUS	Processed - Electrolyte 'Slurry' - Plastic 50L barrel (this is a by-product of treatment processes).	2.5 x 1.5	2 metres	N/A	3,000	Up to 6 Months
4	Potential for Hazardous (including Mirror Hazardous and mirror non-hazardous)	Processed and Unprocessed - Flexible Quarantine Area – 40ft insulated container - CAT1/CAT2/CAT3	9 x 6	N/A	9 Packs / 400 Modules / 3888 Cells	23,000	Daily Rotation or 48hrs for quarantine
5	Non-Hazardous	Processed and Unprocessed Batteries – CAT2	5 x 4	2 metres	12 Packs / 500 Modules / 6000 Cells	20,000	Up to 6 Months
Total Storage Capacity						94,000	
Total Storage Capacity (Hazardous & Mirror-Hazardous Waste)						50,000	

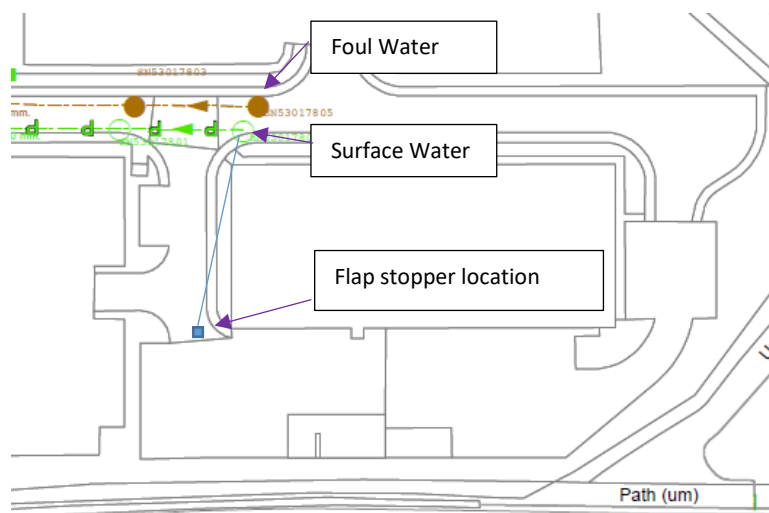
2.1.3. Drainage Plan

Below is a screenshot of the drainage plan. Please see the separate drainage plan documents for further detail. **See Document 22. Drainage system documents V1**

See Document 22. Drainage system documents V1



All the surface water is captured on site and directed through the immersion tank outside the main gate. This is still in our property. The surface water is then connected onto the main surface water drain which is in front of the property as you can see in the image below.



We haven't got permission to discharge any water in the foul sewerage system (i.e. fire water). **The foul water doesn't merge into the surface water within our site. Therefore the following measures are being implemented.**

The immediate plan is to build a wall with waterproof paint around the perimeter of the site up to 500mm high. This along with a drain blocking flap (Flap-stopper) at the front of the main gate will be able to hold the fire water onsite in case of a fire.

This means that the fire water and any contaminants will be entering the onsite surface water system but never exiting the site.

The fire water and any contaminants entering the surface water drain system can be removed from the immersion tank access point. The immersion tank will be inspected on a regular basis (monthly) and cleared once a year (if needed) unless an emergency occurs sooner.

The use of a foldable flood water gate at the back of the site will not be necessary as there will be a 500mm wall starting at the back of the site and tailing off towards the front of the site. See section 6.12.

A metallic electro-pneumatically controlled flap will be operated remotely in the surface water drain which will block all fire water or any other accidental spills on site until pumped out. Initially this will be operated from a controller. There is capability to automate the operation of it by installing certain fluid sensors in the surface water drains and also linking it to the fire alarm panel. These measures can be implemented at a later point.

The closest container to the control panel is ~9m.

These measures will ensure that in case of an emergency, fire water, and any accidental spillages don't go to the nearby receptors.

It is the responsibility of the fire marshal to activate the flap drain blocker. The fire brigade will have access to this item if needed as well. **See Document 22. Drainage system documents V1**

Worth noting that the site at the bottom and on the left hand side has a 12cm high kerb. This will be increased to 500mm wall as detailed in section 6.12

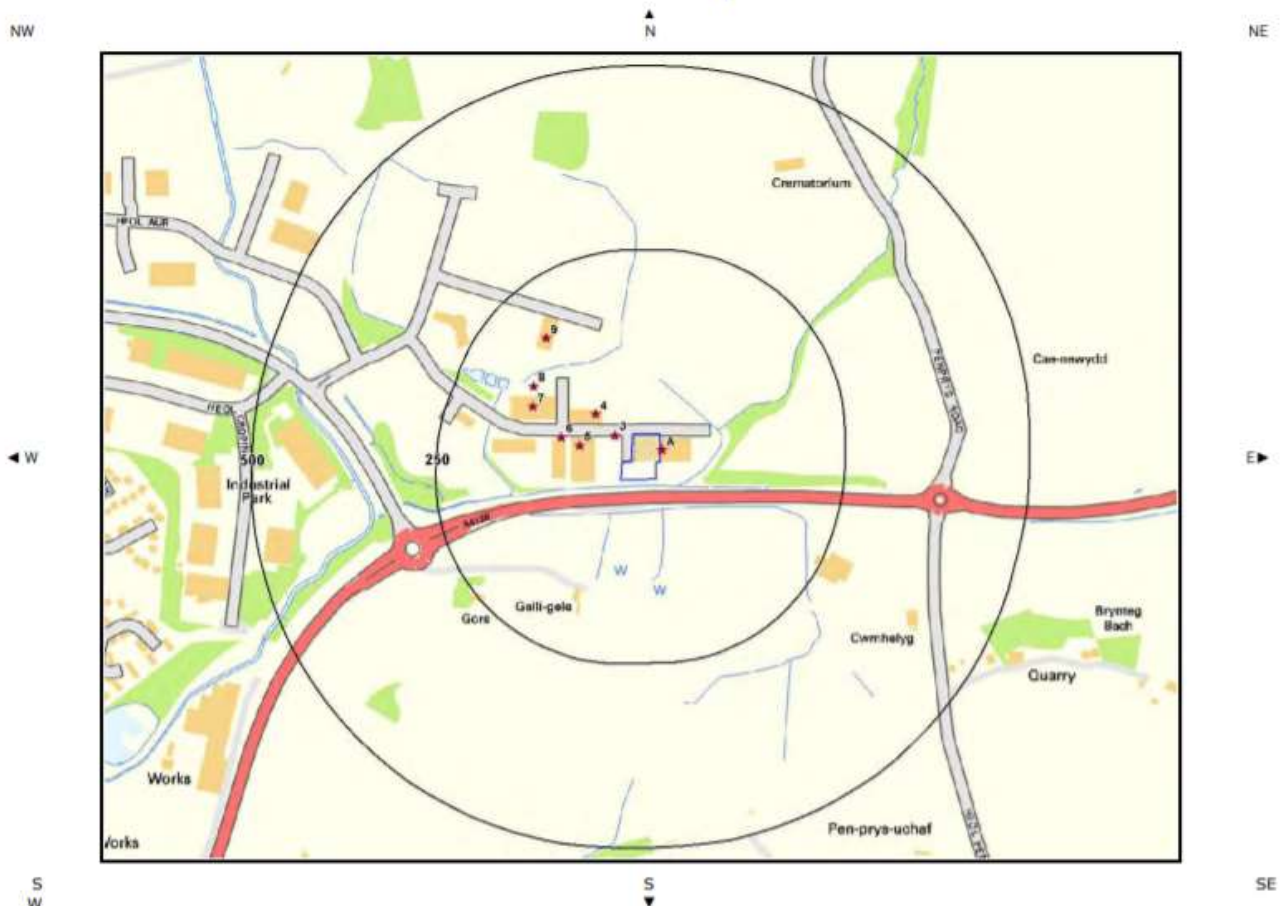
Examples of a Spill kit and the considered flap we are installing.



2.1.4. Local or Nearby Receptors



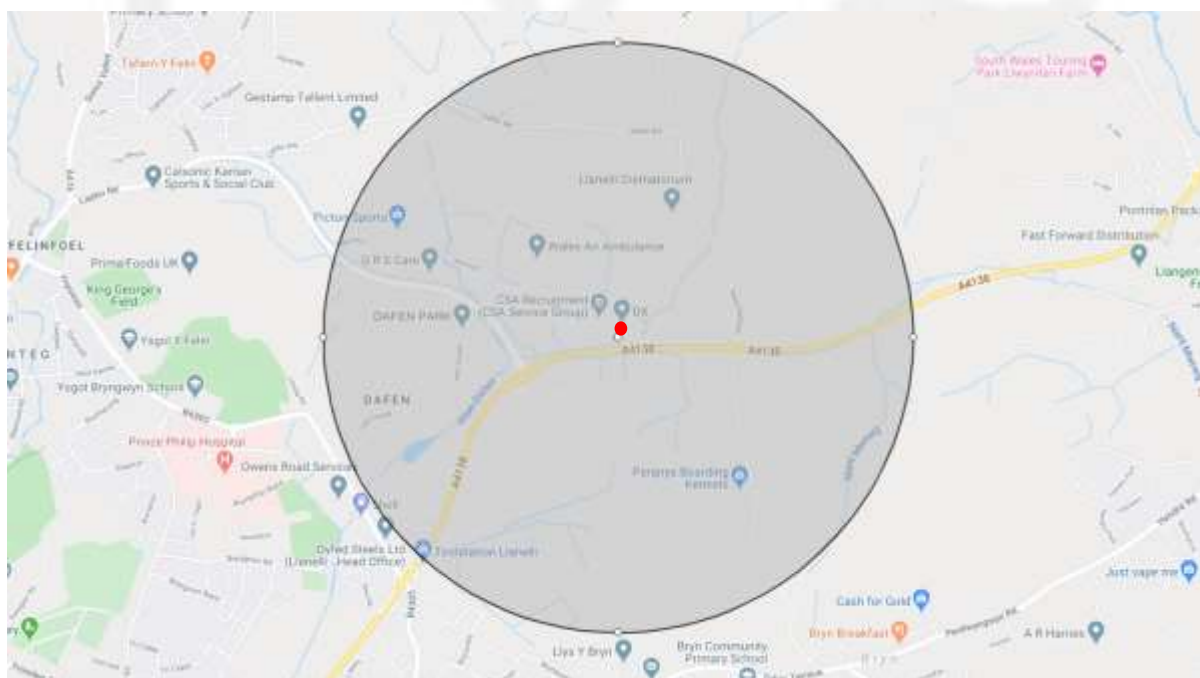
4 Current Land Use Map



Current Land Use Legend

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100035207.

- | | | |
|--------------------|-------------------------------|--|
| Site Outline | Petrol & Fuel Sites | Current Industrial Sites |
| Search Buffers (m) | Dangerous Substances (List 1) | Part A(1) Authorised Processes and Historic IPC Authorisations |
| | Dangerous Substances (List 2) | Part A(2) and Part B Authorised Processes |
| | Red List Discharge Consents | |



Immediate receptors - SA14 8LQ Dafen		
Name	Address	Contact phone number
DX	Unit 13 Llanelli Gate	0843 509 2465
Caravan Storage Wales	Llanelli Gate Ind Est	01554 749991
Atcost Windows	Llanelli Gate Ind Est	01554 750031
Capital Plastics	Unit E1 Llanelli Gate	01554 778400
Storage Giant Llanelli	Unit 11 Llanelli Gate	01554 755799
Treharne Automotive Engineering Ltd	Llanelli Gate	01554 775938

Rest of the industrial estate - SA14 8LQ Dafen		
Name	Address	Contact phone number
Evans Safety Ltd	Unit C3, Llanelli Gate	0845 408 2354
CSA Recruitment	Llanelli Gate Business Park	01554 746746
Outsource IT Support	Technium Centre	0845 402 5340
Sonex3 Ltd	The Beacon	0330 100 3667
Toppers Wales Lts	Unit D1 Llanelli Gate	01554 777501
Classic PVC	Unit5 Llanelli Gate	01554 777158
Cymru Autoglazing	Llanelli Gate Ind Est	01554 759041
GMF Motor Factors	Unit 4 Llanelli Gate	01554 775772
High Street Specs	Unit C3 Llanelli Gate	0845 408 2354
Wales Air Ambulance	Llanelli Gate Ty Elusen	0300 015 2999
Dividers Modernfold Ltd	Llanelli Gate Ind Est	01554 754510
Morganstone Ltd	Llanelli Gate Ind Est	01554 779126
Total Financial Solutions	4 Beacon Centre	0330 000 7309

Nearby Industrial estate - SA14 8NA Dafen		
Name	Address	Contact phone number
PLUMB HUT LIMITED	Unit 1 Dafen Trade Park	01554 784912
British Red Cross Mobility Aids Service	Unit 2 Heol Aur	01554 749374
Crest Trade Frames Ltd	Unit 1 Dafen Ind Est	01554 774571
Total Doors	Unit 5 Heol Aur	01792 399735
Powell Mail Order Ltd	Unit 1 Heol Aur	01554 741222
Newgistics Freight Solutions Ltd	Unit 2 Heol Aur	01554 740800
GEO Site & Testing Services Ltd	Unit 3 Heol Aur	01554 784040
Picton Sports	3a Heol Aur	01554 754662
GRS Care Ltd	Scarlet Court Heol Aur	01792 776238

SA14 8QG Dafen		
Name	Address	Contact phone number
Vaughan Sounds	3/4 Heol Rhosyn	01554 740500
Amiad Water Systems Ltd	Unit 1 Heol Rhosyn	01792 277290
Cwtchy Canines	Llethri Road Llanelli	07712 517417

SA14 8QW Dafen		
Name	Address	Contact phone number
Yodel	Unt 10 Heol Cropin	0344 7550117
Teddingtons NDT	Unit 1 Heol Cropin	01554 744500
Play King	Unit 6 Heol Cropin	01554 757808
Ambassador Windows Ltd	Unit 8 Heol Cropin	01554 752144
Aim Aviation Henshalls	3a Heol Cropin	01554 772655
Robert Davies Health & Fitness Centre	Heol Cropin Dafen Ind Est	01554 754222
AIM Altitude	3 Heol Cropin Dafen Ind Est	01932 351011

SA14 8NS Dafen		
Name	Address	Contact phone number
J & A Construction	Gors Works Dafen Ind Est	01554 758767
Radnedge Reclaim Flooring	Dafen Inn Row	01554 755790
Dyfed Steels Ltd	Tube works Ind Est	01554 772255
Dafen Diner	Dafen Road	01554 277063

In a case of an emergency, the fire marshal will be responsible for contacting the immediate receptors and then the rest of the industrial estate and receptors within 1Km.

2.2. Key Site & Emergency Contacts

SITE DETAILS			
Location: EV Recycling, Unit 12, Llanelli Gate, Dafen, Llanelli, SA14 8LQ			
Post Code: SA14 8LQ			
Site Access Grid Reference: 253813, 201833			
SITE CONTACTS	Name	Office Hours	Out of hours
Owner:	Jason Treharne	01554 775938	07773291424
General Manager:	Clare Treharne	01554 775938	07773291424
Site Manager:	Clare Treharne	01554 775938	07773291424
Site Supervisor:	Clare Treharne	01554 775938	07773291424
Security Contact:	Clare Treharne	01554 775938	07773291424
Landowner / Agent:	Treharne Holdings Ltd	01554 775938	07773291424
EMERGENCY SERVICES		Office Hours	Out of hours
Emergency		999	999
Medical: Welsh Ambulance Services NHS Trust		01792 562900	999
Police: Felinfoel, Dafen and Swiss Valley		101	101
Fire: Llanelli Fire Station		0370 6060699	999
REGULATORS		Office Hours	Out of hours
Health and Safety Executive (HSE)		01554 775938	07773291424
Local Authority: Carmarthenshire County Council		01267 234567	01267 234567
Natural Resources Wales (Local)		0300 065 3000	0300 065 3000
EA (24 hour emergency hotline)		0800 80 70 60	0800 80 70 60
UTILITY SERVICES	Name	Office Hours	Out of hours
Water undertaker:	Welsh Water	0800 052 0130	0800 052 0130
Sewerage undertaker:	Welsh Water	0800 085 3968	0800 085 3968
Gas supplier:	SSE	01256 304244	n/a
Electricity supplier:	Haven Power	0800 052 0400	0800 052 0400

2.3. List of Substances and Storage Facilities

The following is a list of materials that are stored on site and could have the potential to cause harm to the environment if they escape. This should be used as a guide to show how much of each substance could theoretically be stored on site at a given point in time.

- Total daily process/treatment capacity: **20 tonnes**. Daily process/treatment capacity for **hazardous** & **mirror-hazardous** waste: **10 tonnes**. The annual treatment capability: **1000 tonnes**.
- The total waste storage capacity: **94 tonnes**. The storage capacity for **hazardous** and **mirror-hazardous** waste: **50 tonnes**.

List of Substances / Materials & Storage Facilities

Material	EWK Classification	European Waste Code (EWK)	Accepted On-Site?	Stored On-Site? (Post-Process)	Max. Quantity (tonnes) Stored On-Site	Type & Size of Storage	Type & Size of Secondary Containment
BEV Battery Packs	AN (Absolutely Non-Hazardous)	16 06 05 20 01 34	✓	✓	28	Raised Shelving and/or on Pallets	Impermeable Surface & Bunded Area
Lithium Ion Battery Cells & Modules	AN (Absolutely Non-Hazardous)	16 06 05 20 01 34	✓	✓	24	Raised Shelving and/or on Pallets	Impermeable Surface & Bunded Area
Manufacturing Scraps (Cathode)	MH (Mirror Hazardous)	16 03 03	✓	✓	47	Sealed Container on shelving and/or pallets	Impermeable Surface & Bunded Area
Manufacturing Scraps (Anode)	MN (Mirror Non-Hazardous)	16 03 04	✓	✓	48	Sealed Container on shelving and/or pallets	Impermeable Surface & Bunded Area
Battery Miscellaneous (Busbars, Circuit Boards, etc.)	AN (Absolutely Non-Hazardous)	16 01 17 16 01 18 16 01 19	✗	✓	15	Sealed Container	Impermeable Surface & Bunded Area
'Battery Mix', including the following:	MN (Mirror Non-Hazardous)	17 04 07	✗	✓	24	Sealed Container	Impermeable Surface & Bunded Area
Graphite Powder	MN (Mirror Non-Hazardous)	17 04 07 17 04 09	✗	✓	Part of the 'Battery Mix' Composition	Sealed Container	Impermeable Surface & Bunded Area
Crushed Copper / Aluminium	MN (Mirror Non-Hazardous)	17 04 01 17 04 02 17 04 09	✗	✓	Part of the 'Battery Mix' Composition	Sealed Container	Impermeable Surface & Bunded Area
Nickel	MN (Mirror Non-Hazardous)	17 04 07 17 04 09	✗	✓	Part of the 'Battery Mix' Composition	Sealed Container	Impermeable Surface & Bunded Area
Lithium Battery Powder	MN (Mirror Non-Hazardous)	17 04 07 17 04 09	✗	✓	Part of the 'Battery Mix' Composition	Sealed Container	Impermeable Surface & Bunded Area
Separately Collected Electrolyte 'Slurry'	AH (Absolutely Hazardous) **	16 06 06	✗	✓	3	Sealed Container	Impermeable Surface & Bunded Area

Note: The table above demonstrates that EV Recycling's activities and storage complies with **Annex III, Part A of Directive 2006/66/EC of the European Parliament and of the Council**.

2.4. Accident / Incident Prevention and Mitigation

Possible Accident / Incident	What would the harm be?	How do we reduce the chances of it happening?	What to do if it happens?
2.4.1. Spillages			
Accidental spillage of material or slurry electrolyte solution during transfer, sorting, crushing and separation of waste material	Contamination of land and watercourses if able to reach these receptors	Verify all deliveries upon arrival to the site, to ensure they comply and satisfy the agreement with the customer Inspect the condition of the delivery for any leaks or unknown fluids. Train the staff to handle material in a suitable manner in order to reduce the risk of any potential spills during activities	Follow the spill response procedure in section 5.1. It describes what to do in the event of a spill
Slow seepage of liquids from contaminated materials (such as battery coolant). Slow seepage can be less noticeable than 'spills'		Verify all deliveries upon arrival to the site, to ensure they comply and satisfy the agreement with the customer (for example, battery coolant is drained prior to delivery on site). Inspect the condition of the delivery for any leaks or unknown fluids. Store material on an impermeable surface, bunded off from the surroundings.	

Possible Accident / Incident	What would the harm be?	How do we reduce the chances of it happening?	What to do if it happens?
2.4.2. Failure or Damage to Plant or Equipment			
Damage to plant or equipment due to corrosion, ground movements and impacts with other machinery; such as a forklift	Contamination of land and watercourses if able to reach these receptors	Pre-use inspections and completion of weekly inspection checklist record Preventative maintenance regime	Follow the spill response procedure in section 5.1. It describes what to do in the event of a spill

Possible Accident / Incident	What would the harm be?	How do we reduce the chances of it happening?	What to do if it happens?
2.4.3. Fire			
Fire	Smoke and air pollution Fire has potential to cause contamination of land and watercourses if able to reach these receptors	Separation of incompatible materials and of combustible materials and ignition sources Incorporation of fire breaks into site layout and containment of fire water on impermeable surface within a bunded area. No smoking policy. Maintain a tidy site and minimise stockpile of combustible materials. Fire training and emergency drills.	Fire procedure in section 5.3 describing what to do in the event of a fire, including details about fire alarms, exit routes and muster points, responsible personnel such as a fire warden and the location and use of emergency fire equipment such as extinguishers, hoses, sand bags and drain covers.

Possible Accident / Incident	What would the harm be?	How do we reduce the chances of it happening?	What to do if it happens?
2.4.5. Flood			
Flooding of the site, which in the worst case could be caused by overflowing of watercourses, blocked drains, burst water main or use of fire water	Contamination of raw materials, buildings, land, drainage system, groundwater and watercourses	Maintenance of drains. Safe location for storage of all materials - particularly if there are any hazardous materials. Use air-tight sealed containers for processed materials (powdered lithium cobalt oxide, for example)	Flood procedure in section 5.2 describing what to do in the event of a flood warning such as installation of barge boards, use of sand bags, movement or special protection of sensitive materials

Possible Accident / Incident	What would the harm be?	How do we reduce the chances of it happening?	What to do if it happens?
2.4.6. Failure of Services			
Services failure; water, electricity, gas supply and of sewerage system. Could also be caused by a utility supply being struck by moving object and broken / cut	Crushing and separating equipment not completing a process, which may lead to extra processing and therefore increase in dust / air pollution (although this is likely to be minimal)	Maintenance of up to date plans showing location of utility services	Utility supply failure procedure in section 5.4 describing what to do in the event of services supply failure, such as manual shut down of processing plant / equipment. Contact local authorities if necessary. Fire procedure if required

Possible Accident / Incident	What would the harm be?	How do we reduce the chances of it happening?	What to do if it happens?
2.4.7. Failure of Containment			
Failure of containment facilities due to land movement, impact, corrosion, etc.	Contamination of land, drains, groundwater and watercourses if able to reach these receptors	<p>Provision of secondary containment for hazardous substances.</p> <p>Inspection of primary and secondary containment facilities.</p> <p>Regular integrity testing and visual checks on site</p>	Spill response procedure as described in section 4.1 .

Possible Accident / Incident	What would the harm be?	How do we reduce the chances of it happening?	What to do if it happens?
2.4.8. Vandalism			
Unauthorised entry and tampering or malicious damage to property, plant and equipment	Contamination of land, drains, groundwater and watercourses	<p>Secure gate and perimeter fence.</p> <p>Site locked when unmanned and out-of-hours.</p> <p>Plant and equipment locked in secure storage out of hours.</p> <p>Consider Security system including camera and recording facilities</p>	<p>Spill response procedure as described in Section 5.1</p> <p>Contact local authorities.</p> <p>Inspect all equipment for damage.</p> <p>Inspect all materials on site for damage and/or contamination</p>

3. Maintenance Checklist

Item requiring maintenance	How Often? (tick the appropriate box)					Where are maintenance instructions?	Notes:
	Day	Week	Month	Year	Years		
Crushing & Separating Machinery	✓	✓	✓	✓		Hard copy kept with machine from supplier, Electronic copies	Daily, Weekly & monthly visual checks, annual service
Materials Storage Containers & Storage Area	✓	✓				Electronic copies	Weekly visual check for damage, any potential breaches of the containment and that storage methods satisfy the Environmental Risk Assessment
PPE (Personal Protective Equipment)	✓	✓	✓	✓	✓	Electronic copies	Every time before and after use
General Site Integrity		✓				Electronic copies & hard copy	Weekly visual checks for signs of damage
Containers Integrity	✓					Electronic copies & hard copy	Daily visual checks for signs of damage
Flapstopper Control Panel	✓					Electronic copies & hard copy	Daily visual checks for any faults on the LEDs of the panel.
Immersion tank			✓	✓		Electronic copies & hard copy	Yearly clearing if needed

All the checks are recorded through the Electronic version or the hard copy version. The operator will complete the check list and save the copy on the server or in a checklist file.

4. Training Checklist

Job	Training Required (tick boxes to show who needs which training)												Comments
	Environmental Awareness				Maintenance / Operations				Accidents and Emergency (Health & Safety)				
	EPOC	General Awareness	EMS	FPMP	HV Training	ISO 14001	Machinery Training	Flapstopper	First Aid	Spillage Training	General Awareness	Fire Marshal	
George Chamberlain	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	
Sam Joseph	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Employees on site	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Whenever the EMS or the FPMP are being altered, the employees need to be updated with the changes. As part of the ISO 14001, 6 month audits are conducted internally to make sure the personnel has a good understanding of the EMS and the FPFM.

5. Procedures

The relevant procedures are listed below.

5.1. Spill Response Procedure

Spill Response Procedure	
Step	What to do if it happens?
1	Ensure that the spill is contained to prevent escape into the environment
2	Identify the source of the spill and, if possible, the type of spill
3	Isolate the spillage using a spill kit, and contain the source within an impermeable container on a bunded, impermeable surface
4	Clean up the spill using the clean-up kit
5	Re-use or re-cycle the containment. If this is not possible, ensure it is disposed of responsibly - adhering to 'Duty of Care'
6	If the spill liquid/material is unknown, (for example, an unknown leak from a potentially contaminated delivery), follow steps 1-3 and contact the customer to identify spill and, if in breach of permit, have it removed from the site
7	If situation cannot be resolved, close the sewer flap (flapstopper) and organise an authorised contractor to remove the contamination from the site.
8	If situation cannot be resolved, contact Natural Resources Wales at the earliest opportunity
9	Fill out the 'Spill Response Record' after a spill incident

5.2. Flood Procedure

Flood Procedure	
Step	What to do if it happens?
1	In the event of a flood warning, prepare the site with defence measures; installation of sand bags, movement or extra protection of sensitive materials, and check that the drains are not blocked
2	In the event that the defence measures are overcome, ensure machinery is shut down and sensitive materials are correctly stored
3	Depending on the cause of the flood, contact the relevant authorities
4	If sensitive material escapes to the environment, inform Natural Resources Wales
5	Fill out the Accident & Incident Record report

5.3. Fire Procedure

Fire Procedure	
Step	What to do if it happens?
1	Follow measures to prevent fires, described in the Fire Prevention and Mitigation Plan
2	In the event of a fire occurring, the fire alarms will sound and personnel will exit the site and gather at the muster points. All personnel will be accounted for by the Fire Officer.
3	Activate the Flapstopper valve located by the site entrance gate
3	Contact fire emergency services and then immediate receptors.
4	If possible, use emergency fire equipment such as extinguishers, hoses and sand bags.
5	Contact Natural Resources Wales to inform them of the incident and confirm where fire water is going according to the site drainage plan.
6	After the fire has been extinguished, fill out the accident and incident report.

5.4. Utility Failure Procedure

Utility Failure Procedure	
Step	What to do if it happens?
1	In the event of services supply failure, manually shut down the equipment to ensure it is 'off' (no power supply)
2	Secure the area to ensure no escape of materials to the environment (for example, if half way through a process, there could be potential for dust escaping if normal process is not followed)
3	Contact utility supplier to inform them of the issue. Investigate when normal operations can resume
4	Monitor the battery status of the flapstopper and replace if necessary.
4	Fill out the Accident & Incident Record report

5.5. Pre-Acceptance Procedure

Pre-Acceptance Procedure	
Step	In compliance with the Standard Technical Guidance (SGN) 5.06
1	During the initial customer communications, the specific composition and quantity of waste is discussed prior to acceptance and delivery. This involves a Dangerous Goods Risk Assessment being sent to the customer in order to obtain all the required information and to ensure that the waste is permitted to be accepted by EV Recycling.
2	If a new or unfamiliar variant of the waste is being discussed (for example, a new form of lithium ion battery with different compositions), a sample of the waste in question should be taken to assess its suitability prior to acceptance. For new customers, a site visit may also be required to ensure that the incoming waste is being handled properly and stored appropriately (for example, hazardous materials such as manufacturing scraps should be stored in sealed containers with the anode and cathode materials separated from each other).
3	If all requirements are met, arrangements are made with the customer for delivery of the consignment of waste to the site. EV Recycling is able to offer assistance with logistics and packaging where required.
4	The pre-acceptance discussions are recorded and used for the waste tracking system and to assist with the acceptance of the consignment onto the site upon delivery.

5.6. Acceptance Procedure

Acceptance Procedure	
Step	In compliance with the Standard Technical Guidance (SGN) 5.06
1	<p>Upon delivery of the consignment to the site, the waste is inspected to confirm its characteristics, expected quantity and waste type (including the EWC). Whilst the consignment is in front of the gate (before entering the facility) and still on the delivery lorry, the operator must check if the vehicle is a hot load by answering the following question:</p> <p>Are there any active emissions of smoke or electric sparks/arcs from the area where the batteries or hazardous waste is being stored/transported?</p> <p>If yes, inform the occupants of the vehicle and inform the emergency services immediately, and inform the fire marshal on site.</p> <p>If the answer is no, follow step 2</p>
2	<p>Visual inspection:</p> <p>If there are indications on the batteries or hazardous waste battery manufacturing scrap materials of the following then they must enter quarantine for 48 hours.</p> <ul style="list-style-type: none"> - Indications of explosion or fire taken place - Indication of loose components - Signs of leaked electrolyte - Cracks on the casing - Holes on the casing - Dents or scratches more than 4mm deep - High Voltage connections damaged - Insulated conductors exposed - Coolant leakage - Structural damage to sealed containers containing hazardous waste (e.g. battery manufacturing scraps).

3	<p>After the batteries are unloaded with a forklift, they are then Categorised into 3 categories. CAT1, CAT2, CAT3.</p> <p>CAT1: Safe battery, in good working order. Battery is suitable for reuse or repurpose as a product, adhering to the Waste Hierarchy.</p> <p>CAT2: Some rework would be required for the battery to be in good working order, but otherwise the battery is safe for storage. Battery is classed as waste until rework is carried out to make the battery CAT 1. Waste batteries are not permitted in the main building and therefore CAT 2 batteries are stored in the waste storage areas.</p> <p>CAT3: Signs of significant damage. Not safe to be put inside the main facility. Must be stored in the outside containers.</p> <p>Batteries are categorised inside one of the workshops outside and then moved to the appropriate storage areas depending on their category.</p> <p>CAT2 and CAT3 batteries will never go into the main building unless their status changes to CAT1. This can happen after rework or further testing/analysis.</p> <p>Prior to categorising and testing the batteries, they will be stored inside the flexible quarantine area / storage containers for at least 24hrs after arrival on the site. Once categorised, the CAT number will be indicated on the battery by means of a sticker.</p> <p>All hazardous manufacturing scraps are classed and labelled as waste scraps and stored in the waste storage areas until they are treated and processed.</p>
4	<p>If the waste arrives without any documentation explaining what it is, or if the consignment includes waste that was not agreed on during the pre-acceptance procedure, then it will not be accepted on to the site. This satisfies the Duty of Care, waste regulations and environmental permit. Under these circumstances, EV Recycling has a duty to decline entry to the delivery vehicle and inform the customer that there was a discrepancy between the pre-acceptance criteria and the acceptance of the waste.</p>
5	<p>After the waste has been verified and accepted onto the site, it will enter the internal tracking system and be processed through the stages of storage, treatment and material separation according their categorisation. All documentation must be kept for records and audit.</p> <p>Hazardous waste battery manufacturing scrap materials will be sampled periodically using XRF analysing equipment to ensure the composition of the material meets the agreed pre-acceptance criteria.</p>

5.6.1. Unexpected Waste

For whatever reason, if unexpected waste has entered the site, they will be put into the quarantine area inside a sealed container where possible (5L/10L/25L/50L barrels) and in one of the 2 x 40 ft containers. An authorised contractor will be called onsite to remove the unexpected waste. Typically (depending what waste they are) unexpected waste should not stay on site for more than 1 week.

5.6.2. Hot Loads

Hot Loads pose a risk when receiving waste. A Visual inspection will be carried out to confirm that there are no indications or signs of the following

- Active emissions of smoke or electric sparks/arcs from where the batteries are.

If the transportation vehicle is located outside of the site, then inform the occupants and inform the emergency services immediately then inform the fire marshal on site.

If the transportation vehicle is onsite and then noted that there are signs which makes it a hot load, then ask the driver to put it into the quarantine area if they can or leave it where it is.

Inform the emergency services, raise the alarm, and inform the onsite fire marshal. It is the responsibility of the fire marshal to notify close by receptors.

5.7. Waste Storage Procedure

Waste Storage Procedure	
Step	In compliance with the Standard Technical Guidance (SGN) 5.06
1	<p>Upon delivery and acceptance onto the site, the waste batteries and hazardous waste battery manufacturing scrap materials should be transferred to the appropriate storage area without delay. The incoming waste should be weighed using weighing scales to confirm the expected quantities with the waste transfer note, and then recorded in the waste tracking system. The internal waste tracking system and waste transfer note tracking system is updated for each delivery, in order to determine how much of each type of waste is being accepted onto the site. This ensures that EV Recycling complies with the permitted capacity and treatment quantities stated in the permit for both hazardous and non-hazardous waste.</p> <p>The anode and cathode materials must be stored separately in sealed containers to reduce the risk of fire.</p>
2	<p>Ensure that the waste storage method satisfies the Environmental Risk Assessment of the site. (For example, segregation of waste to control fire risk).</p>
3	<p>In the event that the waste is not able to be transferred to the normal storage area (due to unforeseen circumstances), then it should be contained in the most appropriate and suitable manner whilst satisfying the Environmental Risk Assessment and EMS. At the earliest opportunity, it should be moved to the correct storage area.</p>
4	<p>Regular, weekly inspections of the waste storage area are carried out and recorded (for example, temperature monitoring for “hot spots” and visual inspections).</p>

5.8. Catch Trays

Any catch trays which are used onsite to capture spillages, must be emptied in plastic containers (do not mix if different fluids) stored in the 40ft container for up to a month maximum and contact an authorised contractor to take the containers away.

5.9. Treatment Procedure

Treatment Procedure	
Step	In compliance with the Standard Technical Guidance (SGN) 5.06
1	The treatment process commences when waste batteries or hazardous waste battery manufacturing scraps materials are removed from the storage area to the treatment area / workshop. Visual inspection takes place to ensure that there is no contamination prior to treatment and that any sealed containers have not been punctured / structurally damaged.
2	<p>All battery waste (including hazardous waste battery manufacturing scraps materials) is treated mechanically through a dry recycling process, using a crusher and separator. The equipment is designed to handle a mix of cathode and anode materials safely and therefore it is not a requirement for them to be separated from this point onwards.</p> <p>NO Pyro metallurgical or Hydro metallurgical methods are used during the process in order to reduce the materials.</p>
3	The dry recycling machinery is designed to separate the various components of the inputted materials into outputs which are then sieved and analysed in order to become products which can be re-used within the industry.
4	<p>Regular inspections of the treatment equipment (crushing & separating machinery) should be carried out and recorded.</p> <p>Regular inspections of the outputted materials are conducted using XRF sampling equipment in order to ensure the outputted product is consistent and meets the expectations of EV Recycling and the customers.</p> <p>The internal waste tracking system is updated to reflect waste that has been removed from storage and treated. This ensures that EV Recycling complies with the permitted waste storage capacities.</p>

5.10. Fire Watch Procedure – Hot Works

Fire Watch Procedure – Hot Works	
Step	In compliance with the Standard Technical Guidance (SGN) 5.06
1	After any hot works have been carried out, confirm the cancelation of the work document. (if relevant)
2	Inspect the area for potential signs of fire, smoke or evidence of fire.
3	If the area is clear, then this procedure is complete. If any evidence from point 3 are spotted act accordingly.
4	At the end of the day, another inspection must be completed at the area that the hot works have been carried out.

5.11. End of Waste Procedure

End of Waste Procedure	
Step	In compliance with the Standard Technical Guidance (SGN) 5.06
1	After the Acceptance procedure, batteries are moved using a forklift into Workshop 4 (an outbuilding located in the yard).
2	The appropriate electrical and integrity tests are being carried out in accordance with our quality procedures in order to comply with the End of Waste regulations.
3	If the battery passed the test then it can be moved as a product into the main building, if it failed the test it will be moved into one of the 40ft insulated waste storing containers. As soon as a number of these accumulated they will be moved into the reducing workshop for further processing and back into the 40ft container. The main building is used to store product and no waste will be stored in the main building. The waste is to be stored in the waste storing shipping containers. Please see the plan for this on page 9 of the FPMP
4	Move another battery into workshop 4 (follow step 1) .

Note: The main building is used to store product and no waste will be stored in the main building. The waste is to be stored in the shipping containers and out buildings. Please see the plan for this on page 9 of the FPMP.

Note: Hazardous Waste Battery Manufacturing Scrap Materials are always classified as waste and will never enter the main building. They cease being waste when they are treated (crushed and separated).

5.12. Flapstopper

Flapstopper Procedure	
Step	In compliance with the Standard Technical Guidance (SGN) 5.06
1	In case of a fire emergency or an accidental spill, actuate the Flapstopper from the control panel located near the gate.
2	After the site has been decontaminated and all the liquid has been removed from the site and after coordinating with the fire marshal and the site EPOC - Open the flap stopper.

On activation, OP1, the air compressor will start in order to close the valve; this will be audible for approximately 5 seconds. In addition the strobe beacon will also activate, and remain in its 'alarm' state until OP2 is carried out.

When activating the open sequence, OP2, again, the air compressor will run for approximately 5 seconds. There will be some air which exhausts; again, this will be audible. The strobe beacon will de-activate after the cycle is complete.



OP1 – Push and hold Red button to close valve(s)

OP2 – Push and Hold Green button to open valve(s)

OP3 – Turn (removable) Door Keys to open door

6. General Incident Procedure

In the event of an emergency:

DO NOT put yourself at risk;

- Raise the alarm;
- Inform management of the incident;
- Summon immediate and appropriate assistance

In the event of a Fire or emergency, dial **999** and give the following information:

- Address: **EV Recycling, Unit 12, Llanelli Gate, Dafen, Llanelli, United Kingdom, SA14 8LQ**
- Contact name(s): **Jason / Clare Treharne or George Chamberlain**
- Telephone number: **01554 775938**
- Ordnance Survey grid reference: **SN 53663 02001**
- Drainage board phone number: **0800 0520130**
- **Provide the Site plan with the storage location to the fire brigade when on site. (This is located next to the main entrance in the reception area)**

When calling for emergency support, describe the nature of the incident and provide clear directions to the site.

Always agree a suitable meeting point with the Emergency Services

Move any staff, machinery or livestock etc. away from danger area **WITHOUT** endangering anyone.

Provide the Fire and Rescue Service with details of the location of any hazardous materials and any other information which will assist them in dealing with the incident (see below). If possible, provide a copy of the site plan:

- Fire extinguishers located:

Entrance	type: Foam	Conference Room	type: CO2
Front Fire Exit	type: CO2/Foam	Kitchens	type: Fire Blanket
Electrical cupboard	type: CO2	Mezzanine Floor	type: CO2/Powder
Back Fire Exit	type: CO2/Foam	First Floor Landing	type: Water/CO2
Warehouse/testing bays type: Powder/CO2/Lithium Ion Battery Extinguishers			

- Electricity isolation point(s) located: **Electrical Cupboard**

- Gas isolation point(s) located: **Externally within the gas meter housing**
- Water isolation point(s) located: **Stop-cock is located in front of the building on the pavement**

If you believe there is a pollution risk as a result of a spillage then the following procedure should be followed:

- Stop any further spillage and contain spillages whenever possible;
- Install the drain covers (if relevant)
- Call the relevant Environment Agency (EA/NIEA/SEPA/NRW) Emergency Helpline on **0800 80 70 60** and pass on information regarding type of spillage. They will require the same contact information as previously recorded.

In the event of a severe accident dial 999 and request an ambulance. Again, they will require the same contact information as previously recorded.

- For other accidents on site, the following persons have attended a first aid course:
Jamie McBride
Leighton Davies
Sam Joseph
Michael Williams
- First-aid facilities are located:
Staff Kitchens; Workshop 1; Workshop 4
- Defibrillators Located
Main Workshop; Battery Lab

The nearest minor casualty department is located: **Prince Philip Hospital, Llanelli** Tel: 01554 756567

The nearest major casualty department is located: **Morriston Hospital, Swansea** Tel: 01792 702222

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