





Fenix Battery Recycling Ltd

Fire Prevention Plan



Report produced for Fenix Battery Recycling Ltd

Provided by Walker Resource Management Ltd (WRM)

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1.0 SITE DETAILS

1.1 Premises Particulars									
<p>Premises Name:</p> <p>Fenix Battery Recycling Ltd ('Fenix')</p> <p>Address:</p> <p>Fenix Battery Recycling Ltd Field Street Wilenhall West Midlands WV13 2PN</p> <p>Tel no:</p> <p>0121 820 6440 (Office)</p> <p>07725 950205 (Mobile)</p> <p>Site Opening Times:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">Monday to Friday</td> <td>07:00 – 20:00</td> </tr> <tr> <td>Saturday</td> <td>07:00 – 20:00</td> </tr> <tr> <td>Sunday</td> <td>Closed</td> </tr> <tr> <td>Bank Holidays</td> <td>Closed</td> </tr> </table>	Monday to Friday	07:00 – 20:00	Saturday	07:00 – 20:00	Sunday	Closed	Bank Holidays	Closed	<p>Use of Premises:</p> <p>Battery recycling facility (22,000 tonnes per annum)</p> <hr/> <p>Owner/Employer/Person in control of the workplace:</p> <p>Director/General Manager – Miles Freeman</p> <p>Director/Technical Manager/Site Manager – Damian Lambkin</p>
Monday to Friday	07:00 – 20:00								
Saturday	07:00 – 20:00								
Sunday	Closed								
Bank Holidays	Closed								
<p>Date of Risk Assessment:</p> <p>TBC</p>	<p>Date of Review:</p> <p>TBC</p>								
<p>Name & relevant details of the person who carried out the Fire Risk Assessment:</p> <p>TBC</p>									

1.2 General Statement of Policy for Preventing Fires

Fenix will do everything possible to prevent fire:

- Provide regular training on fire safety to all employees and new starters;
- Conduct annual drills;
- Control sources of ignition, such as heating pipes, naked flames, light bulbs, space heaters, furnaces and incinerators;
- Keep sources of ignition at least 6m away from piles of combustible and flammable materials;
- Reinforce fire prevention messages using signs;
- Ensure staff and contractors follow safe working practices when undertaking hot working, such as cutting
- Ensure all visitors follow the correct safety and fire prevention procedures;
- Implement a no smoking policy or continue to ensure designated smoking areas are situated away from combustible materials;

- Maintain a regular maintenance and inspection programme for all site areas (including site machinery) and minimise fibre and paper in buildings around the site;
- Maintain the site security measures already in place at the site to prevent incidences of arson;
- Ensure that fire extinguishers are placed strategically around the site;
- Make sure separation distances are observed between plant and material when the site is not staffed; and,
- Provide a dedicated emergency or quarantine area big enough to cope with a major incident (this is available at all times and identified on the site plan) and,
- Ensure that all site operatives follow the arrangements detailed in the general method statement (Annex A) and Battery Customer Guidance (Annex B) pertaining to the storage of batteries at site.

1.3 General Description

The site is situated off the A454 in the town of Wilenhall, approximately 4.1km east of Wolverhampton, 2km north-west of the town of Darlaston and approximately 2km south of the town of Wednesfield. Access to the site is via Field Street. The site measures approximately 65 metres by 70 metres.

The battery recycling facility will consist of a site office, three separate buildings, associated processing plant and a dust extraction system, in which the sorting of different batteries by category/chemistry and the subsequent processing of alkaline and lead-acid batteries will take place.

The site is situated within a mixed-use industrial area, with some residential. Immediately east of the site are several industrial units. To the immediate south of the site is a public house. To the west and north of the site are residential areas, with the nearest residential property approximately 10m north north-west of the site boundary. There are a number of sensitive receptors within 1km of the site boundary.

Fenix are permitted to process up to 22,000 tonnes of hazardous and non-hazardous and non-hazardous waste per year. The waste will consist of alkaline and lead-acid batteries, together with the repackaging and consolidation of other batteries as necessary. Treatment will consist of a combination of sorting, shredding, and various methods of processing or repackaging, dependent on the type of waste that is being treated – before the waste is removed from site for onward use, recycling or disposal.

National Grid Reference: SO 96030 98584

2.0 MANAGEMENT SYSTEM & WASTE PILES

For information on site layout, please see Annex C – Site Layout Plan

2.1 Waste Types

Table 1 - Waste Type and Throughput

Process Type	Stage	Annual Receipt
Alkaline Battery Processing	Alkaline Battery Processing Line	7,800 tonnes per annum
Lead-Acid Battery Processing	Battery Drainage and Lead Separation Processing Line	7,800 tonnes per annum
	Plastics Granulation Processing Line	
Battery Sorting	Battery Sorting and Component Storage	7,800 tonnes per annum
Total		23,400 tonnes per annum (Overlapped capacity)

For storage durations please see Section 3.1.1 – Preventing Self-Combustion. All wastes are managed in accordance with the Environmental Management System.

2.2 Waste Acceptance

The site has in place a Waste Acceptance Procedure (OP02) for the acceptance of waste onto site. All incoming loads are inspected for signs of excess heat, such as smoke or previously burnt material. With reference to the signs of excess heat mentioned above, if a load is deemed to be an immediate risk, then it will be rejected. If a load or container requires cooling, it will be segregated within the quarantine area demarcated in the associated reception area until it reaches atmospheric temperature. The Site Manager will call the company in question and arrange for them to come back to site and collect the affected material as soon as possible or arrangements will be made to transport the material to an alternative facility in accordance with the site's waste rejection procedure (see OP02 – Waste Rejection Procedure).

2.3 Regular Exercises

Exercises to test the effectiveness of the Fire Prevention Plan will be undertaken annually to ensure staff are adequately prepared in case a real scenario ever occurs. These exercises include a range of site checks including access and egress of escape routes, testing of alarm system and inspection of firefighting equipment. Furthermore, site operatives will practice utilising the fire alarm that they would use in the event of a real fire, to notify other operatives of a fire event and to initiate the response to a fire. The evacuation procedure relating to the drill is fully documented and lists the participants and the area where the evacuation drill took place. The evacuation response time is recorded. As part of these drills, staff will practise how to use the quarantine area during a fire.

Furthermore, an annual fire drill response test will be conducted to ensure site operatives can move a proportion of the material pile to the quarantine area, as soon as possible, to combat the spread of fire. The results will be analysed to see if any efficiencies in the fire quarantine process can be achieved. To start, a portion of material will be designated as 'burnt'. A site operative will separate the 'unburnt' material from the 'burnt' material and transfer the 'unburnt' material

into the demarcated quarantine area. Once the drill has been completed, the material will be returned to its applicable storage area. Post drill, the response will be evaluated by the Site Manager. Where the response has been judged to have been inadequate, further training will be provided to staff.

2.4 Battery Recycling Facility Activities

Fenix operate a battery processing and recycling facility, with the treatment options to be conducted at site comprising the following:

- the processing of alkaline batteries;
- the processing of lead-acid batteries; and,
- the sorting, repackaging and consolidation of other batteries.

A description of the waste treatment arrangements for each battery processing and recycling activity is provided in the sections below. It should be noted that once a battery waste load is accepted onto site and offloaded, it is immediately taken to the relevant processing area, to be processed, thereby minimising the storage time of prior to processing.

2.4.1 Alkaline Battery Processing

Once accepted onto site, the material is directed to the designated Alkaline battery reception area to await processing. Once ready for processing, the whole alkaline batteries shall be fed by a Site Operative into an enclosed conveyor system ready for input into an enclosed shredding unit, with the whole batteries subsequently broken down into a mixture of ferrous and non-ferrous metal.

Following the shredding process, the shredded material is transferred up an inclined conveyor to a vibratory dual screen sieve. The dual screen sieve shall separate off the coarse and fine fractions of the material (black mass). The separated coarse and fine fractions of the black mass is dampened down by a Site Operative, if necessary, prior to discharge to dedicated containers. The residual fraction that remains in the process following the removal of the black mass is then conveyed under an electromagnet. The magnet removes the ferrous fraction from the residual fraction. The ferrous fraction is then removed from the processing line and stored in a dedicated container to await dispatch to a suitably licensed recycling facility.

The remaining fraction of the material, which are non-magnetic in nature, and include aluminium caps, paper, and plastic, are fed through an air separator to remove the aluminium caps. The remaining plastic/papers are collected as a light fraction and stored ahead of transfer to a third-party company for recycling.

2.4.2 Lead-Acid Battery Treatment

The lead-acid batteries received at the Fenix site are processed according to their composition (ie. wet-filled or dry-filled). The following sections provide a summary of the treatment procedure to be employed at site for the processing of each type of battery.

Wet-Filled Lead Acid Battery Treatment

Once accepted onto site, the material is taken to the designated Lead-acid Reception Area to await processing. Once ready for processing, the lead-acid batteries shall be moved from the Lead-acid Reception Area to the Lead-acid Preparation Area. The batteries then have their

outer cases and ancillary connectors removed. The removed cables/connectors and outer casings are taken off the processing line and stored appropriately prior to removal from site by a licensed third party.

Following the removal of cables/connectors and outer casings, the batteries have their caps removed and are drained of the sulphuric acid that is contained within them. The collected acid drains to the intermediate holding tank and be transferred via a shrouded pipe system to an external acid storage tank to await removal via tanker by an appropriately licensed third-party.

Following the draining of acid from the batteries, each battery, in sequence, is manually, or mechanically handled by crane, onto the saw table. The top of the battery is aligned with the saw plane. Once the material is held in place, the rotary saw is activated by a suitably trained Site Operative which will cut through the battery. The battery contents from within the casings – with the exception of the lead plates – are stored within a sealed plastic container. The plastic carcasses are also be removed from the processing line and will be deposited within a storage skip.

The lead plates extracted from the battery casing as a result of the cutting process are removed from the process line and stacked in polypropylene weave bulk bag on pallets. The pallets are weighed, covered with a polythene shroud, and wrapped ahead of despatch to a final recycler.

Following removal of the lead parts as detailed above, the polypropylene plastic carcasses that remain are transferred to the granulator by forklift. The material is fed into the hopper at the front-end of the granulator and the material undergoes shredding in pre-determined batch quantities. Once shredded, the polypropylene plastic fragments are dunked in water to remove any trace quantities of acid that may have remained from processing. The clean plastic fragments are stored in IBC bulk bags to await dispatch to a plastics recycling plant for further cleaning and recycling.

Dry-Filled Lead Acid Battery Treatment

Following the transfer of the dry filled lead-acid batteries from the Lead-acid Reception Area to the Lead-acid Storage/Preparation Area, the batteries have their outer cases and ancillary connectors removed. The removed cables/connectors and outer casings shall be taken off the processing line and stored within an enclosed container prior to removal from site by a licensed third party.

Following the removal of the outer casings and ancillary connectors, the sealed batteries have their vents drilled by operatives to release the hydrogen gas contained within the batteries. It must be noted that for safety purposes, the battery must be free of hydrogen gas prior to processing. The batteries have their vent caps drilled to facilitate the removal of hydrogen gas at least half an hour prior to processing.

Following the venting of hydrogen from the batteries, the batteries are transferred to the lead-acid processing area to have their caps removed. Due to the high impact resistant nature of the Acrylonitrile Butadiene Styrene (ABS) plastic casing, the top of each dry-filled lead-acid battery is removed by a guillotine, with the cutting process performed by a competent Site Operative. Following cutting, the battery is transferred to a second Site Operative. The second Site Operative tips the battery contents from the casings and store them within a sealed plastic container (with the exception of the lead plates). The plastic carcasses shall also be removed from the processing line and will be deposited within a storage skip.

The lead plates extracted from the battery casing as a result of the cutting process are removed from the process line and stacked in polypropylene weave bulk bag on pallets. The pallets are weighed, covered with a polythene shroud, and wrapped ahead of despatch to a final recycler.

Following removal of the lead parts as detailed above, the ABS plastic carcasses that remain are transferred to the granulator by forklift. The material is then fed into the hopper at the front-end of the granulator and the material undergoes shredding in pre-determined batch quantities.

Once shredded, the ABS plastic fragments are dunked in water to remove any trace quantities of acid that may have remained from processing. The clean plastic fragments are stored in IBC bulk bags to await dispatch to a plastics recycling plant for further cleaning and recycling.

Battery Sorting

Once the waste load has been received at site, in line with the site's Waste Acceptance Procedure, if the load is classified as mixed or industrial, then the load is directed to the Mixed Load Reception area or the Industrial Battery Reception Area.

Mixed loads received at site are transferred into the Mixed Battery Sorting Area to be further sorted by category and chemistry. Industrial batteries are transferred to the Industrial Battery Sorting Area to undergo further sorting. Once the batteries have been sorted, they are repackaged according to their chemistry within sealed containers and are stored in the Battery Storage Area located in Unit 3 to await dispatch to appropriate third-party facilities for final recycling.

2.5 Waste Reception Storage

Whilst material streams are simultaneously treated on site at any one time, each site building is equipped with an ancillary storage area to temporarily store material awaiting processing. The maximum storage volume for each sorting area is provided in Table 2.

It is important to note that due to the varying size of batteries to be received onto site, a nominal waste density factor of 0.5 has been applied to each waste stream to calculate maximum storage pile volumes presented in sections 2.5 and 2.6

Table 2 - Unprocessed Material Storage Parameters

Waste Reception Storage		
Storage	Max Volume (m ³)	Minimum Separation Distance (m)
Mixed Sorting Area	48	Stored in sealed containers
Industrial Battery Sorting Area	70	Stored in sealed containers
Akaline Battery Pre-process Storage	500	Stored in sealed containers
Lead Acid Storage/preparation Area	100	Stored in sealed containers

2.6 Waste Post-Processing Storage

Following treatment, material is stored on site prior to dispatch to the relevant facility. A summary of storage volumes for post-processed material is provided in in Table 3.

Table 3 - Post-Processing Storage Parameters

Post-Processing/Sorting Storage		
Storage	Max Volume (m ³)	Minimum Separation Distance (m)
Component Storage Area (Alkaline battery)	100	Stored in sealed containers to await dispatch
Component Storage Area (Lead-acid battery)	100	Stored in sealed containers to await dispatch
'Other' Battery Storage Area	200	Stored in sealed containers to await dispatch

2.7 Quarantine Area

A dedicated Quarantine Area is located in each of the dedicated process buildings. The quarantine area is large enough to store any waste pile from the treatment process. The quarantine areas will always be kept free of material, except in emergency situations. The quarantine areas located around site are clearly marked with the aid of a mobile sign. Each processing building is equipped with fire curtains in order to contain the spread of a fire should one break out. The position of these fire curtains is presented in Annex C – Site Layout Plan.

2.7.1 Quarantine Area Management

Temporary storage of material in quarantine areas will not form part of the standard operating practise. Temporary storage of material in the quarantine area will purely be used in emergency situations, such as under the waste rejection procedure or in the event of a hot load. If an emergency situation does arise the material will be moved as soon as possible once the situation has been dealt with but within a maximum period of 24 hours. If the quarantine area is being used for an emergency situation when a fire occurs the material shall be cleared from the area immediately if practicably possible to do so and deposited within a spare container. As previously stated, a mobile sign will ensure the quarantine area can be easily identified.

The segregation of material within the quarantine area will be dependent on the nature of the material. In the event a small amount of batteries are deemed hot they shall be moved to the quarantine area to be dealt with. Where a small amount of batteries are on fire, the affected material will be moved and deposited within a 40-foot skip stored externally, if it is safe to do so. Here, the material would be covered with a fire blanket to suppress the fire and doused with water to prevent the fire reigniting.

In the event of a large fire, the quarantine area would be used to store unburnt material situated in close proximity to the fire.

2.8 Comments

The site has records of all waste materials and output fractions processed on site and departing offsite. All documentation is stored in the site office.

The site will minimise the risk of fire spreading by controlling the flammable material on an ongoing basis. Fenix operates using a materials risk matrix (Annex D) which gives due consideration to the risks posed by each type of battery to be accepted onto site.

If a fire occurs on site the operatives will call 999 if deemed necessary and sound the fire alarm horn, all staff will proceed to the emergency point. If the fire is containable, for instance, within a specific waste storage area, an operative will douse the bay with fire extinguishers.

The site will also consider:

- Recycling firewater if it's non-hazardous and it's possible to use;
- Applying water to cool unburned material and other hazards, taking care to prevent this water causing or adding to water pollution and/or increasing air pollution;
- Separating unburned material from the fire using heavy plant; and,
- Segregating the burnt material and utilising a fire blanket to suppress the fire and contain its spread if necessary.

3.0 SOURCES OF IGNITION

The main sources of ignition have been identified and mitigated in the following section. It is worth noting that not all sources can be practically identified.

Main Sources of Ignition on Site

- Self-combustion
- On-site machinery
- Fuel tanks
- Extreme weather – lightning
- Smoking
- Arson
- Site Infrastructure electrical faults
- Hot works
- Reactions between incompatible or unstable waste
- Naked lights
- Industrial heaters
- Open burning
- Hot loads
- Leaks and spillages of oils and fuels

3.1 Self-Combustion

Waste materials that are at risk of self-combustion if stored incorrectly include:

- Paper/Plastics from the processing of batteries;
- Wood, in the form of pallets or packaging that are scrapped or broken during handling;
- Plastics and paper rubbish from battery sorting (classified as contamination); and,
- Separated recoverable materials

Other combustible materials that are at risk of self-combustion if stored incorrectly include:

- Spent packaging from materials, plant, and equipment utilised at site (e.g. machine spares packaging or office furniture packaging); and,
- Wood, in the form of pallets or packaging security for containerised wastes.

3.1.1 Preventing Self-Combustion

- Daily checks, via a visual inspection, are made to identify any hot spots within each container. Each pile is closely inspected by a competent person (suitably trained staff member) to identify signs of excess heat such as excessive steam or smoke. If containers are identified to be at risk of combustion, then appropriate action will take place – for example the isolation of the affected container with the quarantine area.
- A fire watch shall be undertaken by a site operative at the start and end of each working day, and after cutting operations have been undertaken. Fire watches will be conducted following cutting operations and once at the end of the day. The fire visual checks for dust build up shall also be performed during this time.
- Fenix shall ensure that material is stored in an appropriate form prior to processing.

- Fenix employs an active working practise to ensure waste materials are processed at the earliest opportunity and subsequently transferred from site, negating the risk of material being stored on site for extended periods of time.
- Heating during hot weather has been taken into account within this Fire Prevention Plan and it has been decided that shading of material is not seen to be required on site due to the processing and storage of batteries within dedicated buildings and the minimisation of processing times.
- All wastes will be stored within the guidelines of the Fire Prevention Plan.

3.2 Plant/Machinery

Plant has the potential to become a fire risk if there is a malfunction or if it is not maintained correctly. Mobile plant is stored in the appropriate building when not in use and overnight. See Annex C – Site Layout Plan. Fenix is committed to reducing these risks by performing visual checks and maintenance activities in line with OP04 – Maintenance Schedule. An inventory of mobile and fixed plant held on site is presented in 4.

Table 4 - Inventory of Major Mobile and Fixed Plant on Site

Plant	Number	Function	Fire Extinguisher (Y/N)
Forklift Truck	3 (2 electric, 1 diesel)	Loading and transferring material	In proximity to fire extinguisher
Inclined Conveyor System	3	Material transfer system during process phase	In proximity to fire extinguisher
Enclosed Hopper Units	1	Shredding waste materials	In proximity to fire extinguisher
Shredding Unit	1	Vessel to facilitate shredding of waste materials	In proximity to fire extinguisher
Sieve Separator Unit (Vibrating Sieve)	1	Separation of coarse and light fraction materials	In proximity to fire extinguisher
Air-flow Separator Unit	1	Light fraction material separation	In proximity to fire extinguisher
Dust Extraction System	1	Emissions abatement technology	In proximity to fire extinguisher
Rotary Saw Stations	2	Cutting of battery	In proximity to fire extinguisher
Guillotine Station	1	Cutting of battery	In proximity to fire extinguisher
Jib Crane	1	Transfer of material	In proximity to fire extinguisher
5-tonne Crane	1	Transfer of material	In proximity to fire extinguisher
200 Amp. 3 Phase Granulator	1	Shredding of plastic fraction	In proximity to fire extinguisher

3.2.1 Plant Maintenance

All plant is checked daily by a competent member of staff. Faults or anomalies are recorded in on the maintenance log sheets and dependent upon the severity acted upon immediately. If faults or anomalies are identified, then operations for the plant in question will be ceased until rectified.

Daily checks are made on all machinery for dust. If high levels are detected, then the machine must be shut down and cleaned. Machinery is wiped down at least once a week or as required by the outcome of the daily checks.

A planned preventative maintenance regime is operated on site and is presented in OP04 – Maintenance Procedure. As part of this regime a strict inspection is carried out on each item of fixed and mobile plant in line with manufacturer’s recommendations.

3.2.2 Preventing Sparks from On-site Plant

Sparks caused by on-site plant are rare due to the training of the operatives. If sparks do ignite waste material, operatives are trained to use fire extinguishers to stop the fire from spreading. If this is unsuccessful then the member of staff must follow emergency procedures. Further prevention measures would include dousing the material or segregating it if required to reduce risk.

3.2.3 Mitigating Risk from Hot Exhausts

Exhausts have the potential to become hot and therefore present a risk to surrounding material on site.

- All exhausts on plant or vehicles are designed to reduce risk to the surrounding environment by being placed in isolated locations.
- There are designated traffic routes across the site to minimise unnecessary contact between plant and material.
- Vehicles or Plant are not run continuously for more than 3 hours at a time and are cooled for a minimum of 15 minutes.
- Operators are instructed to carry out a visual check of the machine after stopping and before leaving site for hot spots/smouldering dust in the immediate area surrounding the exhaust.

3.3 Fuel Tanks

There is one fuel tank located on site (see Table 5 for details). The tank is clearly marked and carries signage showing the material contained within it and the tank’s maximum capacity. The tank is double-bunded and is capable of containing a minimum of 100% of the volume of fuel stored in the tank in line with the requirements of Section 2.2.5 of SGN S5.06 The tank is protected by traffic barriers to prevent accidental collision. All pipework and associated infrastructure is enclosed within the bund. A lock is fitted to the tank valve to prevent unauthorised operation. All valves and gauges on the bund are constructed to prevent frost damage. Material is not stored nor transported within 6m of the fuel tank.

Table 5 - Fuel tank details

Storage	Capacity	Contents	Location	Bunding
Fuel Tank	2,000 litres	Diesel	North of Unit 1 building (from true north)	Double Bunded

3.4 Extreme Weather

On the rare occasion that extreme weather such as lightning occurs, the following procedures

are taken:

- All mobile plant is transported to its designated indoor storage area.
- Once machinery is moved operators will seek shelter.

3.5 Smoking

The site has a strict no smoking policy on areas of operation and storage, and smoking is only permitted in the designated area.

3.6 Arson

The facility lies within a gated site situated within a mixed-use industrial area, with some residential. The perimeter of the site is secured by 2.4m high anti-vandal steel palisade fencing. The site is monitoring 24/7 by 14 camera CCTV surveillance system with an in-built intruder detection system with notification feature.

Additionally, the site is equipped with 24-hour security patrols. Consequently, in the event of a fire being discovered during out of hours, the security team can alert the emergency services as well as the directors/site manager. Upon being alerted the directors/ site manager will arrive straight to site to aid in the extinguishing of the fire where required. Furthermore, all buildings on site are equipped with a fire detection/ smoke detection system, and internal CCTV is augmented with infrared detectors to detect any heat sources that are 5°C above the ambient temperature.

The site entrance gate and all site buildings are locked during non-working hours. The site buildings are equipped with intruder alarms and will alert site personnel of an intruder via a notification through the HIK Connect Remote surveillance application. The boundary fences to the site and the main access gate are checked on a daily basis for damage or signs of attempted entry. Any defects noted in the security of the site will be rectified within a reasonable time period following their discovery.

Site staff will be briefed that in the event of evidence suggesting unauthorised access or vandalism being found, the matter must be reported to the police. If the incident involved unauthorised tipping or spillage of any waste, the Environment Agency will be informed.

All visitors to the permitted area will be required to sign in at reception on arrival and exiting the site. Site visits are by appointment only.

3.7 Site Infrastructure Electrical Faults

The electrical system is maintained to a safe and correct standard. Certification and maintenance are undertaken by a qualified electrician. Annual checks shall be made on site electrical infrastructure and if a fault is found a qualified electrician attends site and fixes the fault.

Regular PAT testing is undertaken on electrical equipment and the records are kept on site as evidence.

In the event of an electrical fault causing a fire, a fire extinguisher will be used if safe to do so, If it is deemed unsafe to do so, staff will evacuate the building and the emergency services will be called.

3.8 Hot Works

Where hot works practices, such as the cutting of batteries, or refurbishment of fixed or mobile plant need to be carried out on site, staff will follow the site's working practices. Fenix employ a system of work permits for hot works carried out on site. After completion, the hot works are checked before the permit is signed off as complete. These checks at the end of the hot works ensure signs of the start of a fire are not missed.

3.9 Build-up of loose combustible waste, dust, and fluff

To prevent the build-up of loose combustible waste, dust and fluff on site, an operative shall carry out a daily patrol around the site looking for any loose waste or fluff. If any is observed it shall be cleared. The daily patrol shall be recorded in the site diary.

3.10 Reactions between incompatible or unstable waste

Upon arrival at site all waste loads shall undergo visual inspections by a trained operative. If an operative notices any signs of incompatible or unstable waste the load shall be taken to the quarantine area for further inspection. If incompatible or unstable waste is found it shall be removed from load if safe to do so. If this is not possible the waste load shall be rejected and stored in the quarantine area for removal from site in line with *OP02 – Waste Acceptance*.

3.11 Naked lights

No naked lights are in use on site.

3.12 Industrial heaters

There are no industrial heaters used on site.

3.13 Open burning

No open burning activities are conducted on site.

3.14 Hot loads

If any waste accepted at site passes the initial visual inspection procedure but on movement of the load is subsequently identified to be hot, e.g. the presence of smoke, the contrary material or the whole load will be moved to the quarantine area, segregated from other wastes and a water hose will be used to douse the load until it is suitably cooled.

3.15 Leaks and spillages of oils and fuels

All spillages that occur on site will be dealt with immediately. Spillage kits are available on-site for rapid clean-up and amelioration of spills. The absorbents will then be suitably contained prior to being transferred to a suitably permitted facility.

4.0 DETECTING AND MANAGING FIRES

4.1 Daily Checks

Daily checks are made across the site, which seek to identify and mitigate potential hazards. If a hazard is identified from the daily checks then it is recorded in the site diary and acted upon immediately with appropriate action. Daily checks take place on:

- Site Infrastructure: Senior staff check for damage or abnormalities in the site infrastructure.
- Plant – All plant is checked before use (see section 3.2 - Plant Maintenance).
- Stored Wastes – Trained staff assess all wastes manually through observation for excessive heat.

4.2 Training

All staff will be trained on this new FPP once it has been approved. Any new staff will be required to read the FPP and receive training on their expected roles/responsibilities in line with the FPP. All staff will be required to review the FPP on an annual basis and at any point if the FPP is updated or adjusted.

All new employees will be subject to an induction programme which will include familiarisation with the EMS and this FPP. This will also include training of how to identify 'hot loads' when accepting waste on site and 'hot spots' within waste material stored and processed on site. A copy of the site-specific employee induction checklist is presented in Annex F.

All staff will be trained to be vigilant and identify any incompatible non-conforming waste such as bottles, drums, organic waste, containers with non-conforming substances contained within.

Regular toolbox talks will be held with employees and documented accordingly, in order to communicate any updates / changes made to the Fire Prevention Plan.

This FPP will be stored in the Site Office so that it can be referenced for induction, on-going training, testing and other management review purposes. Training records are kept within the training file.

4.3 Emergency Action Plan

All employee's and visitors sign in when they arrive on site and then out again once they leave. In the event of a fire, the employee and visitor book is collected by the site manager/supervisor or fire marshall and taken to the assembly point.

In the event of a fire, the alarm will be raised verbally by shouting FIRE, FIRE, FIRE and sounding the nearest fire alarm. Immediately personnel will leave their work area and proceed to the fire assembly point (see site plan). Upon hearing the fire alarm, the fire and rescue service will be called by the site management or supervisor available.

The specific arrangements for fire are as follows:

- A. Fire extinguishers are provided around the premises and are marked by signage;

- B. Fire escape routes are provided out of the main door of the Site office. Exits and routes are marked;
- C. If an employee discovers a fire, the alarm should be raised. Competent individuals will be trained to use fire extinguishers; other employees should not tackle a fire but proceed safely to the assembly point located in the north east corner of the site via the escape routes if applicable.

The site manager will be responsible to see the premises are clear and account for everyone at the assembly point.

4.4 Fire Infrastructure on Site

- **Fire Warning System** – Fire Alarm is activated if an incidence of a fire is discovered;
- **Emergency Lighting** – There are lights installed above doors in the buildings;
- **Fire Detection System** – Smoke alarms are installed in the following areas around site, as marked on the Site Layout Plan:
 - Unit 1 Building, and,
 - Site Office (from true north).
- **Fire Safety Signs and Notices** – The office door is equipped with a sign stating the location of the fire assembly point and fire escape routes are marked around site.
- **Firefighting Equipment** – There are seven fire extinguishers located across the site and all are marked by signage. An approved external contractor shall be engaged to perform an annual service.
- **Fire Suppression System** - The battery recycling facility is not fitted with a fire suppression system as the infrastructure cost of providing sufficient firefighting water and suitable containment of fire water is seen to be hugely disproportionate to the fire risk presented by the batteries stored there. As outlined earlier in the document, all batteries shall be processed as soon as reasonably practical following receipt onto site, and all material shall be stored in accordance with good industry practice.
- **Fire Blankets** – Where required, Fenix employ the use of fire blankets to isolate fire, smoke and toxic fumes in the event of a small fire.
- **CCTV** – The site is equipped with a CCTV system which provides full coverage around site. The internal cameras are augmented with infrared detectors to detect any heat sources that are 5°C above the ambient temperature. The camera system is fitted with an intruder alert system and is monitored by the 24-hour security. If a fire is observed during working hours, the security will alert the Fenix team and appropriate action shall be taken. If a fire is observed outside of working hours, security will alert the fire brigade (if required) and the Fenix team, who will attend site to assist with combatting the fire.
- **Access to mains water** – Access to mains water is available via two fire hydrants within the local area (please see Map 2 for location of fire hydrants), but applicable flow rates have not been sourced. The fire hydrants shall be the primary source of the water in the event of a fire. Water from the 100,000-litre rainwater capture tank shall be utilised as additional to combat a fire where required.

4.5 Firefighting Strategy and Suppressing Fires

The site has an active firefighting strategy in place and will seek to extinguish fires as quickly as possible, either through on-site fire equipment or through supporting emergency services. In the event of a fire, sufficient staff and plant resources shall be provided to assist the Fire and Rescue Service in tackling a fire, if deemed safe to do so.

For small fires, fire extinguishers and fire blankets are available. All operatives will be trained to use this equipment.

For a large fire arising in unprocessed material, the fire shall be managed in situ and combated by the Fire and Rescue Service via water from the nearby fire hydrants. The operator shall support the Fire and Rescue Service where directed and safe to do so, such as the movement of unaffected material to another area of the site where possible. All fire water generated from the firefighting process shall be contained within the fully bunded site boundary and is removed off site once the fire has been dealt with.

When a large fire arising in the separated recoverable component piles, the fire shall be managed by the Fire and Rescue Service via water from the nearby fire hydrants. The operator shall support the Fire and Rescue Service where directed and safe to do so, such as the movement of unaffected material to another area of the site where possible.

4.6 Fire Water Containment

The entire operational site is covered by an impermeable concrete layer with a depth of 200mm. Surfaces for containment or drainage facilities are designed as appropriate for the specific operational areas. The site yard surface is bunded around all sides up to 20cm depth at its minimum. The curtilage of each building located on site is bunded to 10cm.

All surface waters generated within the northern portion of the site are captured via three surface drains located northern edge of the site. The concrete pad has been installed within an elevation to enable any surface waters to flow to these three points. The surface water generated on the southern portion of the site shall flow to the grated drains as depicted on Annex C – Site Layout Plan. The grated drains located within the northern portion of the site can be overlain by a magnetic drain cover and further secured by a composite sealed rubber drain cover in the event of a fire. During non-operational hours, the drainage covers are applied.

Direct precipitation that lands on the roofs of the site office and warehouse unit roofs is collected via gullies, spouting and downpipes. The rainwater is then captured in the rainwater tank, which has a capacity of 100,000 litres, and is then recirculated for use on site. Any clean excess rainwater is discharged directly to the local sewer network.

In the event of a fire, drain covers will be placed on all drains which would prevent fire water runoff from the site. Furthermore, it is judged that the bunding around the perimeter of the site would be sufficient for containing all fire water on the concrete pad area, thereby preventing potential damage to the local environment and/or local sewer network.

All foul water from operative facilities, such as toilets, drains directly from a foul water only drain into the sewer and does not come into contact with the surface water drainage system.

4.6.1 Storage Tanks

There is one rainwater tank, an intermediary acid storage tank and one main acid storage tank located on site. All three tanks are checked on a weekly basis for signs of damage or failure.

4.7 Fire Water Capacity

The Fire Prevention Plan V4 states that 'A 300m³ pile of combustible material will normally require a water supply of at least 2,000 litres a minute for a minimum of 3 hours'. A calculation

has been provided below which shows the water supply required to combat a fire in relation to the largest waste pile to be stored on site at any one time.

4.7.1 Fire Water Capacity

- Volume of Waste 200m³
- Water required per minute – 1,333/1.3m³
- Duration – 180 minutes

Water required per minute (1.3m³) * Duration (180 min) = 234m³ of required capacity.

The 234m³ of water required for extinguishing a fire at the battery recycling facility shall be supplied by the nearest fire hydrants, and water from the 100,000 litre on-site rainwater tank where required.

4.8 Contingency Plan

If a major fire occurs, then the site will put the following procedures in place:

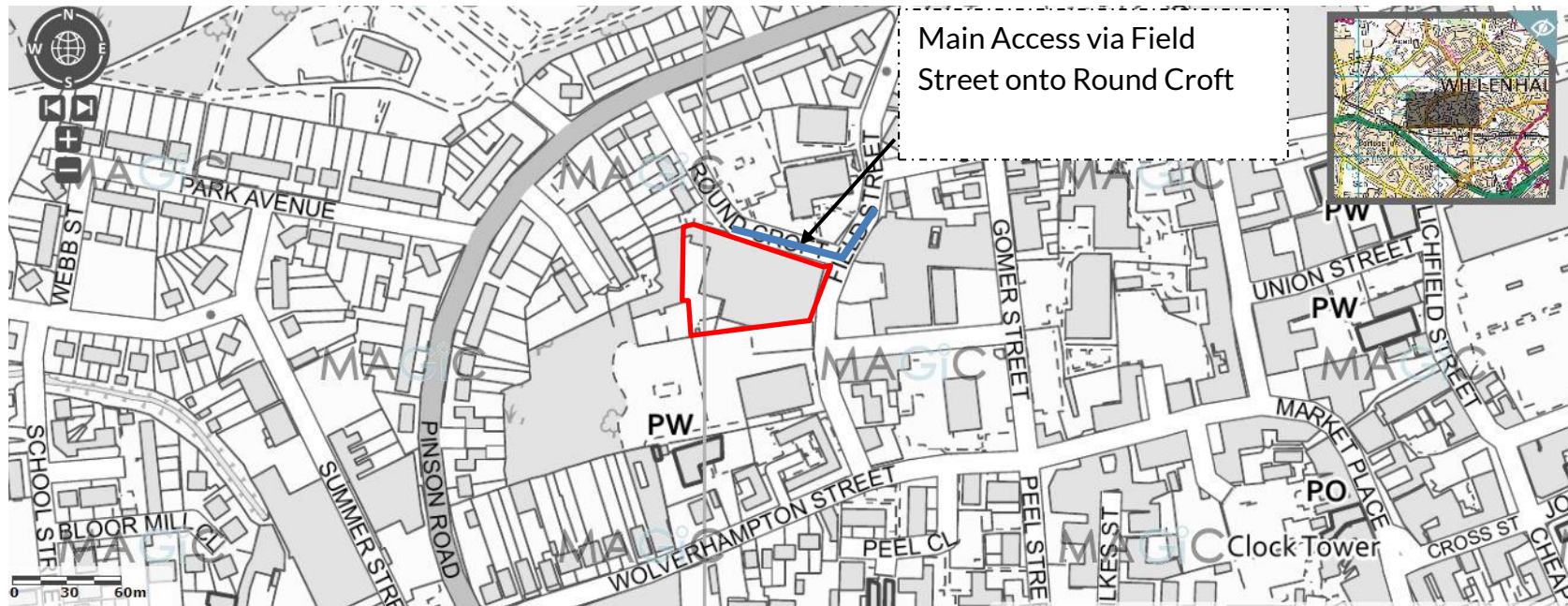
- The delivery of all incoming loads will be rescheduled, and the site will be closed to new waste until implications from the fire have been resolved;
- All waste remnants left by a fire shall be inspected and potentially processed onsite or transferred to a suitable permitted facility. If necessary, a specialist contractor will be engaged to assist;
- If material cannot be processed within 4 weeks, then it must be removed off site to a suitably permitted facility, unless otherwise agreed with the Environment Agency;
- All the sensitive receptors identified in this fire prevention plan shall be contacted, where practically possible, via door to door visits/phoned and the situation explained or via a leaflet drop providing information and a contact number. Fenix will also provide a helpline for any sensitive receptors to contact the site.

5.0 SITE LOCATION

5.1 Fire Service Access Route

The main route to site for the Fire and Rescue Service will be via Field Street onto Round Croft (See Map 1).

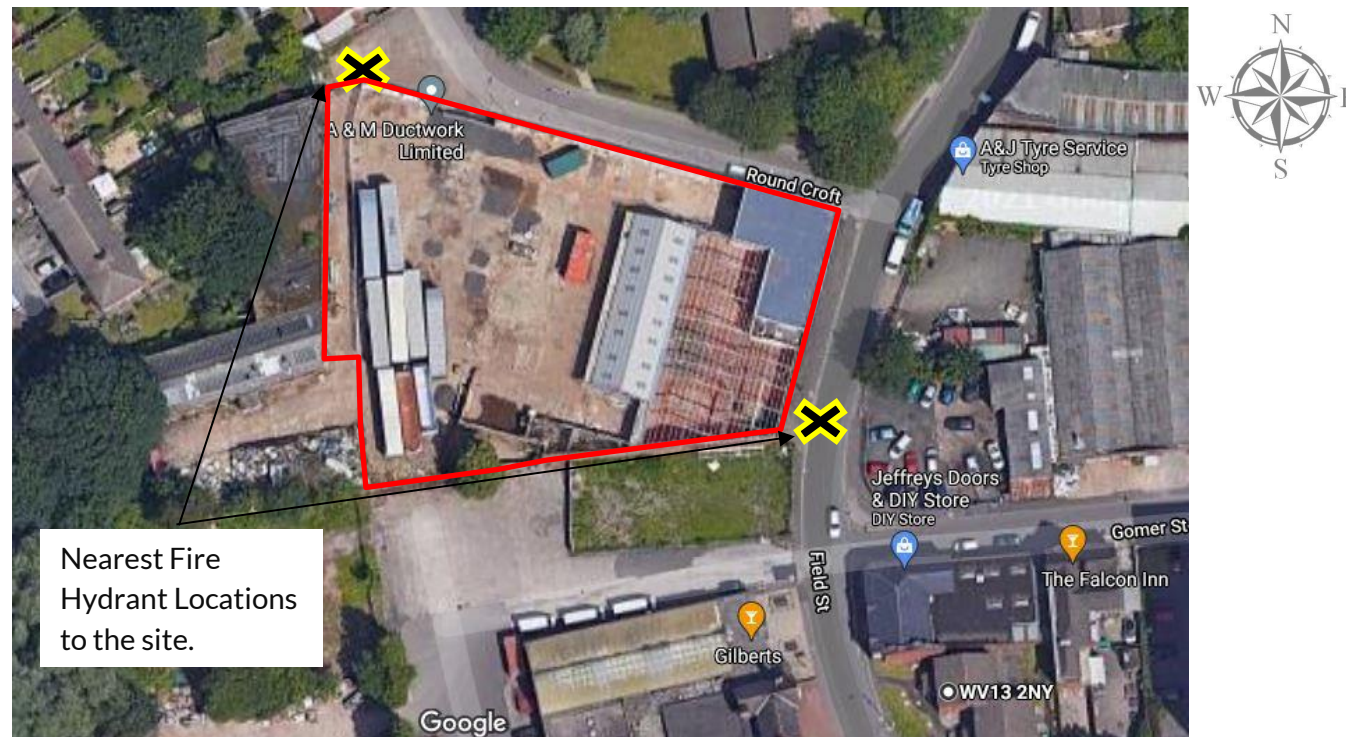
Map 1 – Willenhall Battery Treatment Facility Site Access



5.2 Fire Hydrant Location

Map 2 shows the nearest approximate fire hydrant locations relative to the Fenix Battery Recycling Facility. They are also presented in Annex C – Site Layout Plan.

Map 2 – Nearest Fire Hydrant Locations



5.3 Sensitive Receptors

Please see Map 3 and Map 4 for sensitive receptors and borehole locations within a 1km radius of the site. Please see Map 5 for a location of the site in relation to source protection zones. Table 6 - Sensitive Receptors with a 1km radius of site details the sensitive receptors within 1km of the site.

Table 6 - Sensitive Receptors with a 1km radius of site

Reference	Receptor	Distance to site
1	A & J Tyre Shop	15m
2	LoveMoneyVehicles Used Car Dealer	20m
3	Residential Cluster (Round Croft)	20m
4	Jeffreys Doors & DIY Store	25m
5	Gilberts Public House	30m
6	"The Keys" GP Surgery	40m
7	The Falcon Inn Public House	50m
8	Residential Cluster (Croft Street)	50m
9	Salvation Army Church	60m
10	"Tiny Talents" Pre-School& Nursery	65m
11	Residential Cluster (North of Wolverhampton Street)	65m
12	Unnamed Industrial Unit	80m
13	St Stephen's Church	95m
14	Residential Block (Gomer Street)	80m
15	Residential Cluster (South of Wolverhampton Street)	135m
16	Bhandal Dental Practice	190m
17	5 Star Support Services	195m
18	Residential Cluster (South of New Road)	210m
19	Angling Direct Fishing Tackle	240m

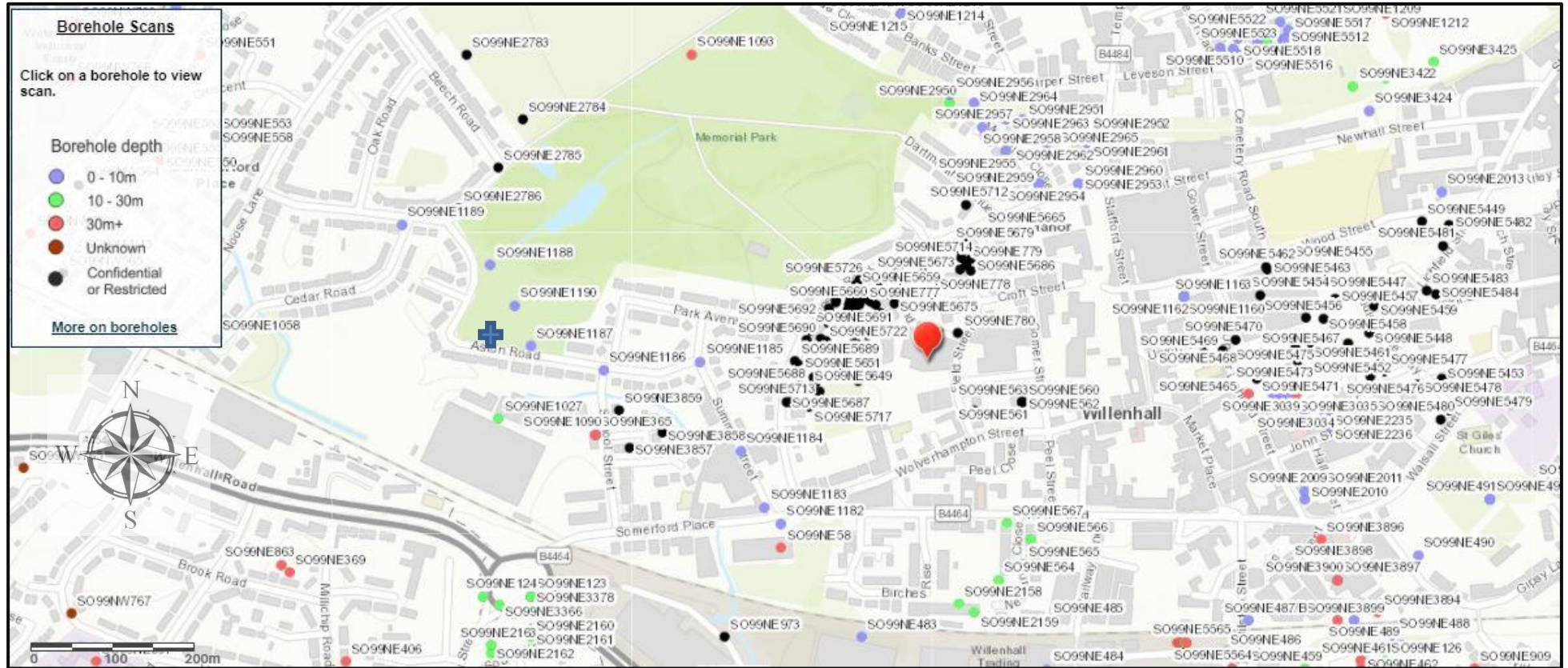
Reference	Receptor	Distance to site
20	Vantage Pharmacy	180m
21	Pirate Pizza	185m
22	Colossus Gym & Fitness Centre	230m
23	Retail Cluster (Wolverhampton Street)	215m
24	Willenhall Chart Community Centre	180m
25	Croft Pharmacy	180m
26	Croft Surgery	195m
27	Residential Cluster (Gomer Street)	150m
28	Wedge Group Offices	240m
29	Willenhall War Memorial Garden	245m
30	Residential Cluster (South of Pinson Road)	105m
31	Residential Cluster (North of Pinson Road)	100m
32	Willenhall Memorial Park	170m
33	Residential Cluster (Park Avenue)	180m
34	Pinson Convenience Store	195m
35	Residential Cluster (St Stephen's Avenue)	80m
36	Residential Cluster (East of Pinson Street)	130m
37	Residential Cluster (Pinson Street/Wolverhampton Street)	165m
38	The Garage Willenhall	185m
39	The Locksmith House Museum	205m
40	Residential Cluster (Dartmouth Avenue)	265m
41	Residential Cluster (Memorial Close)	270m
42	Moat Street Garage/ Adesso Workwear and PPE	300
43	BE Wedge	270m

Reference	Receptor	Distance to site
44	Heron Foods/ The Market Place Fish Bar/Visioncare Direct Opticians/ Wilenhall Job Centre	265m
45	Morrisons Supermarket	375m
46	Crazy Cards/The Workers Rest/Compton Care Shop	330m
47	Railway Track	380m
48	Industrial Trading Estate	500m
49	The Keyway Arterial Route	630m
50 and 51	Large Residential Area (Portobello)	800m
52	Willenhall Memorial Park	325m
53	Fibbersley Park Primary Academy	835m
54	Large Residential Area (Shortheath)	780m
55	Large Residential Area (Chapel Green)	900m
56	St. Giles Church of England Primary School	680m
57	Residential Area (SSW of site)	900m

Map 3 - Sensitive Receptors Map

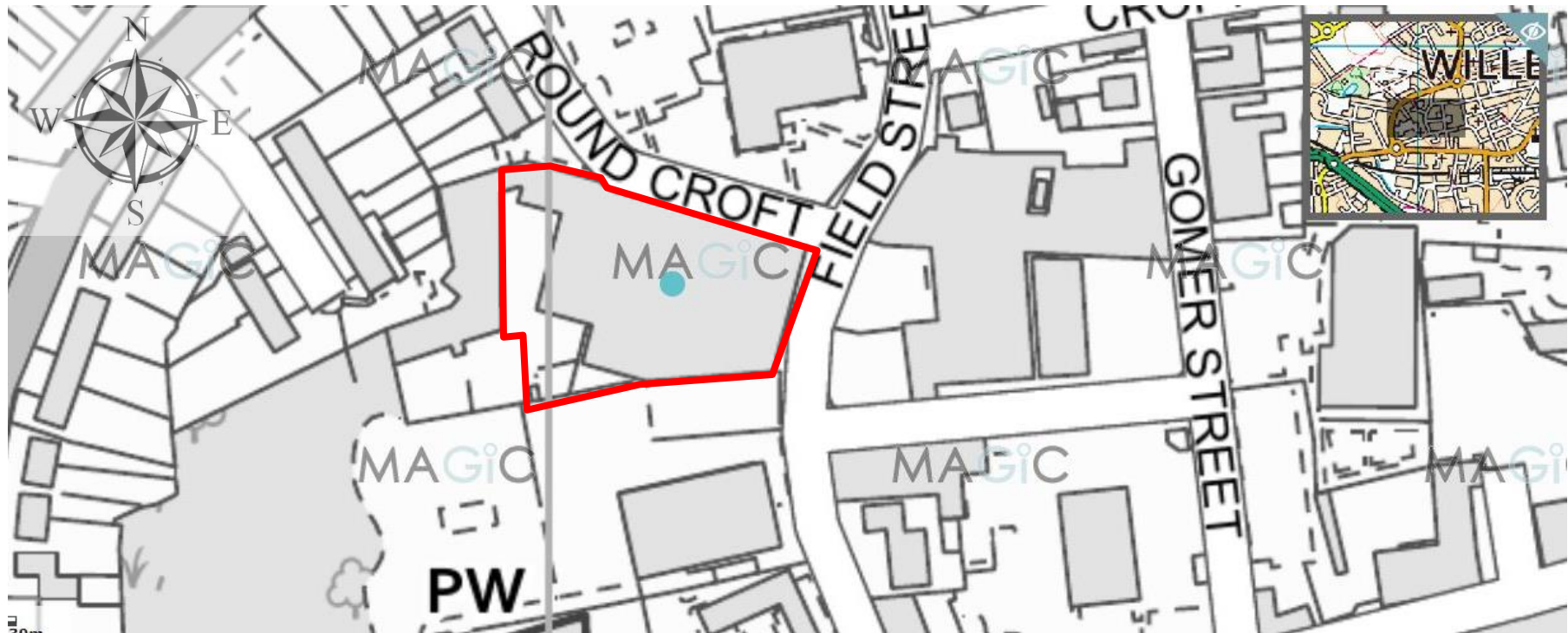


Map 4 - Local Borehole Receptors



As shown in Map 5 , the site nor the surrounding area does not reside with a Groundwater Source Protection Zone.

Map 5 - Groundwater Source Protection Zone Map



5.4 Neighbouring Facilities

All facilities within 0.5km of the site will be informed immediately if a fire occurs on site.

5.5 Historic Wind Direction

Information on wind direction has been derived from Birmingham Airport Meteorological Station, over a 30-year average. Birmingham Airport meteorological station is located approximately 25km south east of the battery recycling facility. This data is illustrated by the wind rose in Figure 1.

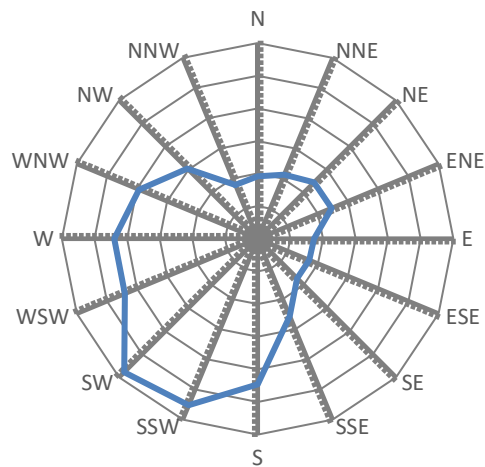


Figure 1 - Wind Direction Rose

6.0 FIRE SAFETY DEFICIENCIES TO BE RECTIFIED

Deficiency/Rectification	Priority	Date to be rectified	Date rectified

6.1 Significant Findings

Significant Finding	Control Measures/Action

ANNEX A – GENERAL METHOD STATEMENT

ANNEX B - CUSTOMER GUIDANCE

ANNEX C- SITE LAYOUT PLAN

ANNEX D – MATERIALS RISK MATRIX

ANNEXE – FIRE SAFETY MANAGEMENT PLAN

FIRE SAFETY MANAGEMENT PLAN

<u>Fire Safety</u> Person with Overall Responsibility for Fire Safety	<u>Miles Freeman</u>
<u>Fire Risk Assessment</u> Person responsible for commissioning & review	<u>Miles Freeman</u>
<u>Maintenance Programme</u> Person Responsible for: <ul style="list-style-type: none">• Maintenance of fire safety provisions• Fire alarm• Emergency lighting• Firefighting equipment• Escape routes• Fire safety signs/notices	<u>Damian Lambkin</u>
<u>Emergency Action Plan</u> Person responsible for production & review	<u>Damian Lambkin</u>

Fenix Battery Recycling Ltd

Fire Emergency Procedure

Assembly Point – Next to Site Entrance at North East Corner of the Site

If you discover a fire:

1. Raise the alarm immediately. Shout FIRE, FIRE and press the fire alarm.
2. Tackle the fire using the appropriate firefighting equipment (only if you feel safe and are trained to do so).
3. Leave the premises by the nearest safest available exit.
4. Report to the assembly point.
5. Call 999 for the fire brigade by mobile phone, if not already done.
6. Do not re-enter until cleared to do so by the fire and rescue service.
7. Do not put yourself at risk.

If you hear the alarm:

1. Leave the premises by the nearest safest route.
2. Do not stop to collect personal belongings.
3. Ensure any one you meet on the way out is aware of the fire.
4. Report to the assembly point.
5. Call 999 for the fire brigade by mobile phone, if not already done.
6. Do not re-enter until cleared to do so by the Fire and Rescue Service.

Machine / Mobile Plant Operators:

1. Clear area of vehicles if safe to do so.
2. If possible and safe to do so, commence active firefighting measures such as moving unburning waste material to the quarantine area.
3. Remove mobile plant from site to facilitate access for the Fire and Rescue Service, save for any equipment that is deemed safe and appropriate to be used in tackling any fire, e.g. shovels and excavators.
4. Report location of relevant vehicles remaining on site to the Fire and Rescue Service at the assembly point.

Site Management:

1. Site manager, site supervisor or delegated person to collect visitor book and take to fire assembly point.
2. Site manager or site supervisor to supervise the evacuation of all persons on site.
3. Site manager to report to the scene of the fire.
4. Site manager, site supervisor or delegated person to carry out roll call at assembly point.
5. Liaise with Fire and Rescue Service upon arrival.
6. Brief Fire and Rescue Service of any danger areas on site.
7. Do not allow anyone to re-enter any building until advised that it is safe to do so, by the Fire and Rescue Service.

ANNEX F - SITE-SPECIFIC EMPLOYEE INDUCTION CHECKLIST



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