



# FIRE PREVENTION AND MITIGATION PLAN

Alan Skip Hire Wales Ltd, EPR/WP3094FB

ASH Wrexham Recycling Facility, Redwither Road, Wrexham Industrial Estate, Wrexham, LL13 9RD

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## 1. INTRODUCTION

### 1.1. GENERAL

This Fire Prevention and Mitigation Plan (FPMP) considers the risks associated with fire on site at the ASH Wrexham Recycling Facility, Redwither Road, Wrexham Industrial Estate, Wrexham, LL13 9RD, which is used as a mixed waste and wood recycling facility.

The site will be operated by Alan Skip Hire Wales Ltd in accordance with an Environmental Management System (EMS) and a Bespoke Environmental Permit (Ref No. EPR/WP3094FB), as regulated by Natural Resources Wales (NRW).

The site address for Alan's Skip Hire Wales Ltd, which is the subject of this FRMP, is:

- Alan's Skip Hire Wales Ltd  
ASH Wrexham Recycling Centre  
Redwither Road  
Wrexham Industrial Estate  
Wrexham  
LL13 9RD

A copy of this FPMP and the site emergency pack (shown in Appendix E) will be left in the weighbridge office at the site entrance, and will also be provided to the Fire and Rescue Services.

### 1.2. REASON FOR IMPLEMENTATION

This FPMP document provides a structured framework and approach in effectively preventing potential fires associated with the processing and storage operations at the site.

### 1.3. OVERVIEW OF FACILITY ACTIVITIES

The ASH Wrexham Recycling Facility is an industrial, commercial and household waste transfer station with treatment and waste wood treatment operation. There are two principle operations associated with incoming waste:

- Mixed municipal general waste – this is waste collected from trade customers consisting of mixed municipal waste (predominantly black bag waste). This is tipped in the main transfer building and is shredded to produce refuse derived fuel (RDF). Prior to shredding, some recyclate is recovered including WEEE, cardboard and rigid plastic. During the shredding process an overband magnet removes ferrous metals.  
The RDF produced is loose and not baled. Some of this is then transferred to a drying floor or RORO skips which are hooked up to hot air pipes (between 60 – 80°C) and the RDF is partially dried to remove some of the moisture content. This improves the calorific value of the waste and reduces haulage costs. Other materials may also be subject to this process, including waste wood or virgin wood.
- Waste wood – the site receives Grade A and Grade B waste wood. These are sent to designated tipping areas not inside a building. Mixed loads are sorted into Grade A and Grade B stockpiles. Both stockpiles are shredded and screened to produce wood chip and transported off-site to other operators.

Other activities include the bulking of glass, plasterboard, sewage screenings and recyclable materials.

### 1.4. SITE DESCRIPTION

The site which is the subject of this FPMP consists of a main transfer station building, a drying floor located between two biomass boilers (inside a building) and external stockpiles of wastes.

The management for the site is located outside of the Permitted area, consisting of two prefabricated offices, a modern purpose-built office, two workshops and a canteen.

- The purpose-built office is of brick construction, with metal sheeting to the exterior.
- The prefabricated offices are of a wooden construction.
- The canteen and the smaller workshop are of metal construction in entirety.
- The large workshop area is constructed from a concrete frame, which is roofed with asbestos sheeting and the walls clad in the main with cement sheets.
- The transfer station building is a steel clad, metal framed structure with large open access doors.
- The biomass building, housing two boilers and a drying floor, is a metal framed structure with large access doors.

The transfer station building is manned by up to ten operators during normal hours, plus any visiting drivers. The site is not open to the general public and there are no public rights of way through the site.

#### 1.5. PLANT AND EQUIPMENT

The table below shows the typical plant on site which are available to assist with the construction of fire breaks, under the direction of the Fire and Rescue Services. Only trained operators will be permitted to undertake activities.

PLANT	FUNCTION
<b>Loading shovel x 2</b>	Movement of material for fire breaks
<b>360 excavator grab x 1</b>	Movement of material for fire breaks
<b>360 excavator bucket x 1</b>	Movement of material for fire breaks
<b>Forklift truck x 1</b>	Movement of material for fire breaks

#### 1.6. SENSITIVE RECEPTORS

A plan showing the location of sensitive receptors is shown in Appendix A.

#### 1.7. SITE ACCESS

The site is accessed via Redwither Road, as shown in Appendix A.

## 2. POTENTIAL FIRE HAZARDS ON SITE

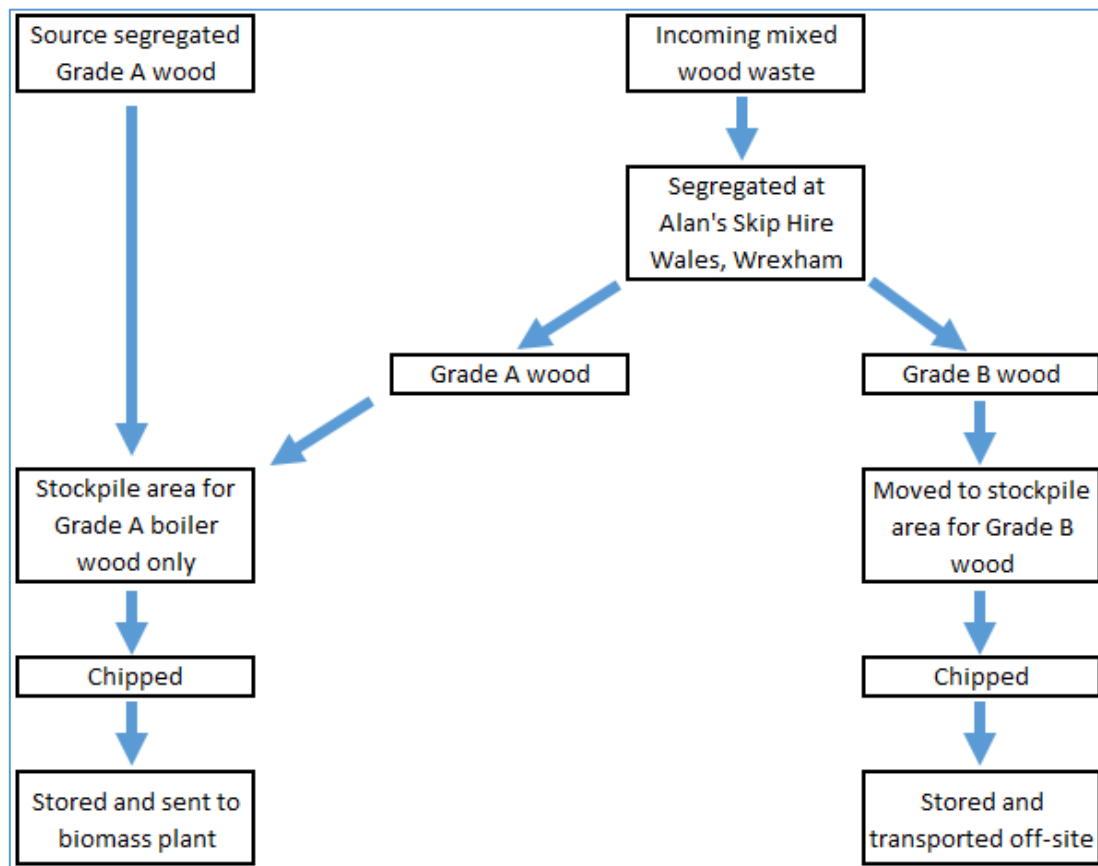
### 2.1. POTENTIALLY COMBUSTIBLE MATERIALS

The following list outlines the materials which have been identified on site as having combustible potential along with the maximum quantity of these materials stored on site at any given time. The site itself is permitted to accept and treat up to 75,000 tonnes per year of a variety of non-hazardous wastes. Locations for stockpiles of wastes are shown in Appendix B.

#### WASTE WOOD

**Quantity: 2,000 tonnes of unprocessed and processed wood waste. Maximum time stored on site – 1 calendar month.**

Waste wood accepted on site will be in the form of used pallets, domestic and commercial timber, and chipboard. Unprocessed mixed wood will be sorted and segregated into the grade of the material (split into 'A' grade, 'B' grade). This is further separated into stockpiles of unprocessed and processed wood material.



Both unprocessed and processed wood is stored in external stockpiles. The processed 'A' and 'B' grade wood will be removed from site within a week of processing.

Unprocessed wood will be stored to a maximum stockpile height of 4 metres. Processed wood chip will be stored to a maximum stockpile height of 3 metres.

#### PAL WASTE WOOD<sup>1</sup>

**Quantity: 250 tonnes. Maximum time stored on site – 1 calendar month.**

Unprocessed PAL wood waste is stored in an external stockpile to the east of the transfer building and transported inside the main transfer building for processing. PAL waste consists of a mixture of wood and metal and is refined on site to remove the ferrous and non-ferrous metals, with the remaining wood returned to the producer. The refined PAL waste is stored in a stockpile which borders the transfer building on the south-east side.

#### GREEN WASTE

**Quantity: 100 tonnes. Maximum time stored on site – 1 calendar month.**

<sup>1</sup> PAL is the name given to the material which has passed through the screening machine at the manufacturing site.

All green waste arriving on site will be stored externally in stockpiles on the concreted area, prior to processing and composting (off-site).

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#### UNPROCESSED MIXED WASTE

**Quantity: 5,000 tonnes. Maximum time stored on site – 7 working days.**

This material consists of mixed municipal waste which will be stored within the transfer building prior to processing. The unprocessed waste will be on site for a maximum of 7 working days prior to processing, though in reality it is usually processed on either the same or next working day.

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#### RECYCLABLE MATERIALS

**Quantity: 60 tonnes. Maximum time stored on site – 3 calendar months.**

The mixed municipal waste is processed by initially hand and mechanical sorting. This removes rigid plastics and suitable cardboard for baling before transportation to a reprocessor. The material is then baled and stored in bays externally. Glass is also stored on site in an external bay, but this is considered non-combustible waste.

Typically, one to two loads of both cardboard and plastic are removed from site each month.

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#### WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT (WEEE)

**Quantity: <10 tonnes. Maximum time stored on site – 1 calendar month.**

Occasionally, WEEE may be found within the incoming mixed municipal waste. This is removed by operatives for onwards transportation.

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#### PLASTERBOARD

**Quantity: 50 tonnes. Maximum time stored on site – 3 calendar months.**

Although plasterboard is not regarded by Natural Resources Wales as a combustible waste, it has been included here to give a fuller indication of the waste types on site. Plasterboard is stored in an external bay. Typically, one to two loads of plasterboard are removed from site each month.

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#### REFUSE DERIVED FUEL

**Quantity: <500 tonnes. Maximum time stored on site – 7 working days.**

Once recyclable materials have been removed, the mixed municipal waste is processed to produce refuse derived fuel (RDF). The waste is shredded and magnets are used to remove ferrous metals. On occasions where waste cannot be delivered to an energy from waste plant, mixed municipal waste may be removed from site without being processed into RDF for either disposal to landfill or processing elsewhere. All RDF and processed/unprocessed mixed municipal waste is stored within the transfer building, except where the RDF is undergoing heat treatment for the purpose of recovery in either specialised RORO containers or on the drying floor within the biomass building. Material undergoing heat treatment for the purpose of recovery will not exceed 75 tonnes per day.

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#### REJECTED WASTES

**Quantity: <5 tonnes. Maximum time stored on site – 7 working days.**

Any rejected waste will be stored in clearly labelled containers / stockpiles if it cannot be removed from the site immediately. Rejected items can sometimes contain materials which are particularly susceptible to combustion. If any such items or materials are discovered, they will be subject to individual quarantine and NRW will be contacted to agree a course of action.

### 2.2. DAILY QUANTITIES

The amount of waste received and removed from site daily varies, but is typically (based on November 2016 data):

DAY	AVERAGE INCOMING TONNES	AVERAGE OUTGOING TONNES
<b>Monday – Friday</b>	204 tonnes (range from 75 to 400 tonnes)	185 tonnes (ranges from 75 to 400 tonnes)
<b>Saturday</b>	57 tonnes (ranges from 15 to 150 tonnes)	73 tonnes (ranges from 40 to 150 tonnes)

The type of wastes received and removed from site daily varies, but is typically (based on November 2016 data)

WASTE TYPE	AVERAGE DAILY INCOMING TONNES	HOW IT IS DEALT WITH
<b>Mixed municipal waste</b>	120 tonnes (ranges from 40 to 300 tonnes)	Shredded for RDF (loose not baled) within 7 working days
<b>Plasterboard</b>	2 tonnes (ranges from 0 to 5 tonnes)	Stockpiled for onwards transportation
<b>PAL waste</b>	28 tonnes (ranges from 0 to 75 tonnes)	Processed to remove metals
<b>Sewage screening</b>	6.5 tonnes (ranges from 0 to 15 tonnes)	Stockpiled for onwards transportation
<b>Wood</b>	49 tonnes (ranges from 30 to 100 tonnes)	Chipped and screened
<b>Other<sup>2</sup></b>	2.6 tonnes (ranges from 0 to 10 tonnes)	Stockpiled for onwards transportation (can including baling)

### 2.3. MAXIMUM VOLUME AND SIZE OF EACH WASTE PILE

The table below indicates the maximum volume (in cubic metres) of the combustible wastes stored on site. For all waste piles, the maximum length or width (whichever is longest) will be 20 metres. Waste stored in containers (e.g. wheeled bins, roll-on roll-off skips etc.) are not subjected to the maximum volumes detailed in the table as they are restricted to volume by the container itself.

WASTE TYPE	TYPE OF STORAGE	MAX VOLUME PER PILE
<b>Mixed municipal waste - unprocessed</b>	Internal	750 cubic metres
<b>RDF</b>	Internal / RORO	450 cubic metres
<b>Plasterboard</b>	External bay	500 cubic metres
<b>PAL waste</b>	External bay / internal	300 cubic metres
<b>Sewage screening</b>	External bay	750 cubic metres
<b>Wood – unprocessed</b>	External stockpiles	750 cubic metres
<b>Wood – processed</b>	External stockpiles	450 cubic metres
<b>Plastic</b>	Baled in external stockpiles	750 cubic metres
<b>Cardboard</b>	Baled in external stockpiles	750 cubic metres
<b>WEEE</b>	External stockpile (or RORO)	450 cubic metres (or RORO capacity)
<b>Scrap metals</b>	External stockpile (or RORO)	750 cubic metres (or RORO capacity)

### 2.4. STORAGE LOCATIONS ON SITE

The storage locations of all wastes are shown in Appendix B.

### 2.5. POTENTIAL IGNITION SOURCES

Potential sources of ignition for the materials stored on site are:

#### ARSON OR VANDALISM

The site is fenced from all sides, making it hard for intruders to access the site unnoticed, particularly during operational hours when there are several members of management and supervisors in attendance.

The site is also covered by a monitored CCTV system meaning it is highly unlikely that an intruder could access the site without being noted.

#### SELF-COMBUSTION

Self-combustion happens when a material which can self-heat generates heat at a faster rate than it can be lost to the environment. The temperature continues to rise in the material speeding up the rate of reaction and releasing even more heat. Eventually the material reaches auto-ignition and the material then self-combusts.

<sup>2</sup> Includes materials which are brought to site infrequently, such as segregated cardboard, plastic, glass, hardcore and paper)



Self-combustion will be prevented by:

**Managing storage times:** the maximum storage times for different wastes are noted in Section 2.1. These are noticeably less than the 6 month period noted in guidance from .gov.uk.

**Controlling temperature:** routinely turning piles to ensure the waste remains cold and any localised warming is dissipated quickly, minimising stockpiles, ensuring no unauthorised wastes are accepted or placed within stockpiles, storing materials in their largest form prior to processing.

**Storing waste bales effectively:** ensuring that excessive storage of waste bales is not used, turning waste bales where necessary, minimising the storage time for baled waste.

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#### ELECTRICAL FAULTS

All electrical cables on site will be inspected and periodically maintained to ensure they are not damaged or exposed.

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#### DISCARDED SMOKING MATERIALS

Smoking is strictly prohibited on site.

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#### PLANT OR EQUIPMENT FAILURE

Any spillages of fuel will be cleared immediately by depositing sand or absorbents on the affected area. All site surfaces will be inspected daily when the site is in operation by suitable trained operatives.

Separation distances of 6m will be observed between plant and material when the site is not staffed. Plant and equipment will be subjected to separate manufacturer-specific and operator-specific preventative maintenance programmes.

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#### OPEN BURNING

No waste will be burnt on site. Firefighting equipment will be kept close to the areas of waste storage should accidental burning of waste occur. In addition, fire extinguishers will be located across the entire site (externally and internally) to aid the quick suppression of a fire once detected.

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#### NEIGHBOURING SITE ACTIVITIES

Directly adjacent to the site are two small biomass boilers (each 999kW output). The boilers, under the control of another operator, are fully enclosed and are fed by an auger. The wood to be burnt (Grade A) will be monitored to ensure that it is suitable. The boilers do not produce an electricity output and the heat produced is not at temperatures significant enough to facilitate combustion of the wastes stored on site. The boilers will be covered by a CCTV feed to allow 24/7 monitoring. Therefore, in the event of a fire or serious malfunction, Alan's Skip Hire Wales will be notified immediately.

### 3. FIRE PREVENTION AND CONTAINMENT MEASURES

#### 3.1. FIRE PREVENTION

The following measures will be implemented on site to reduce to likelihood of fires on site:

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##### SITE SECURITY

The site has 11 CCTV cameras (3 mobile, 8 static) which can be viewed remotely by various members of staff. The CCTV system is monitored remotely during non-operational hours. Therefore, the site is well guarded against the threat of intruders and in turn, vandalism and arson. The site also benefits from secure fencing.

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##### STOCKPILES

The stockpiles of waste will be kept within the limits specified in Section 2. Stockpiles of waste will be inspected daily and observed for any signs of fire, e.g. smouldering, excessive steam, odours, heat etc. Records of site inspections shall be maintained in the site diary. Firewalls will be used to keep waste stockpiles separate, otherwise a minimum separation distance of 6 metres for combustible wastes will be used.

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##### MAINTENANCE OF SITE INFRASTRUCTURE

The building, concrete bays and other infrastructure will be inspected daily and will be repaired or replaced if required.

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##### MAINTENANCE OF PLANT

All plant will be regularly maintained to reduce the risk of plant fire.

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##### ELECTRICITY TESTING

Electricity infrastructure shall be tested and certified safe by a qualified electrician.

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##### HOT WORKS

Ensuring that any hot work or electrical work is carried out under a permit to work system which identifies the risk of fire and takes measures to mitigate this risk.

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##### HOUSEKEEPING

Maintaining good housekeeping at all times to ensure that waste materials are not windblown or otherwise spread, and to ensure that there are no accumulations of wastes which could breach firebreaks or cause stockpiles to exceed their specified dimensions.

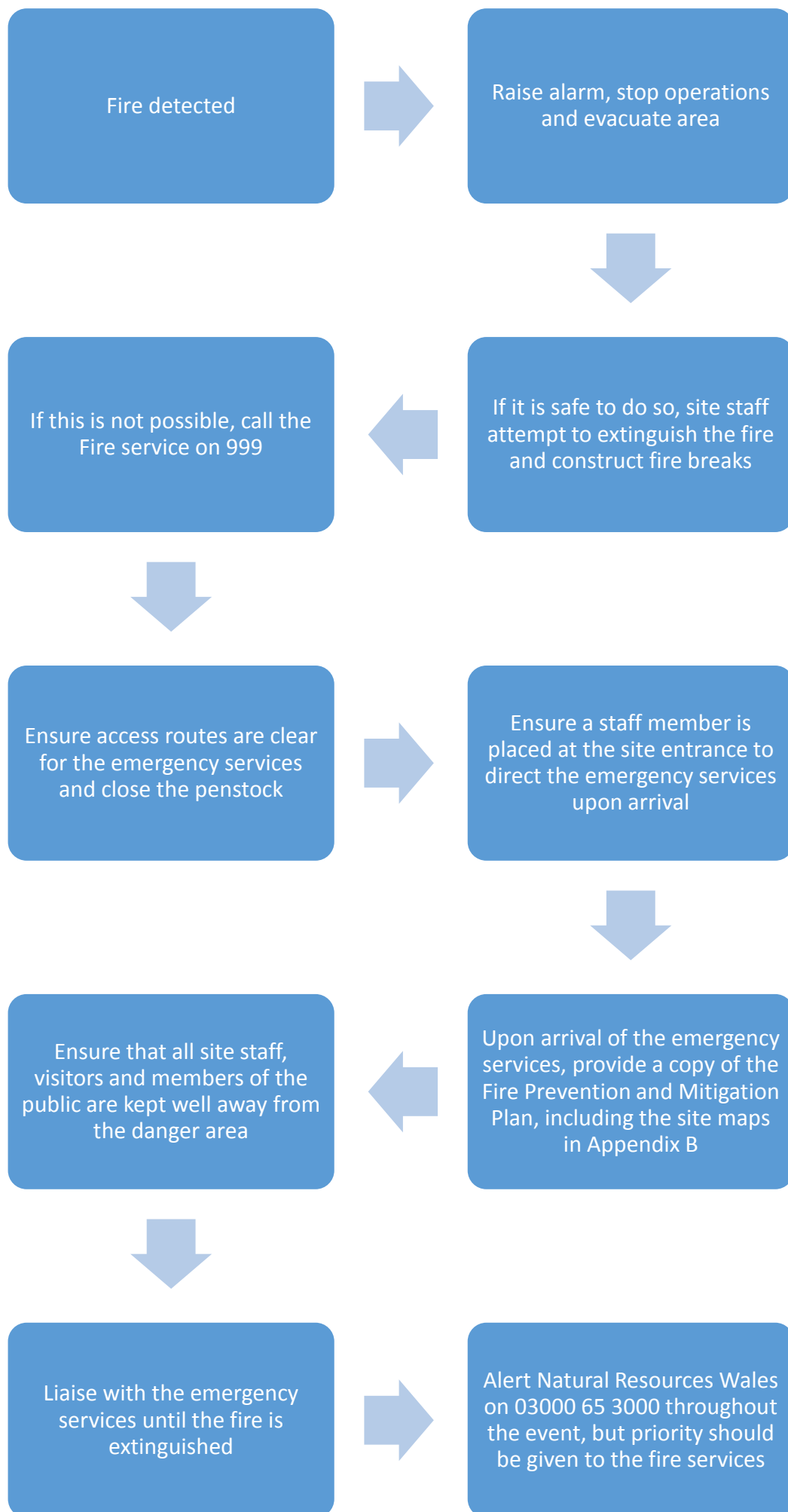
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##### FIRE DRILLS

The site carries out a fire drill every 6 months, or more frequently if required, to test the emergency preparedness.

#### 3.2. FIRE FIGHTING TECHNIQUES

ASH staff should follow the flow diagram below in the event of a fire. All site staff will be trained to understand the principle that no-one should put themselves at risk to fight a fire. ASH staff should only attempt to extinguish the fire if it is safe to do so. The locations of fire extinguishers on site is shown in Appendix C.



### 3.3. FIRE CONTAINMENT

In the unlikely event that a fire was to break out on site, the site has a number of measures in place, in addition to a number of existing characteristics of the site, which would limit the size, duration and impact of a fire on site. These are listed below:

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#### FIRE BREAKS

Combustible waste will be stored within bays or designated areas and the height of stockpiles will not exceed the height of the bay walls or 4 metres for waste stored externally and outside of bays, to create significant permanent fire breaks between combustible materials and limit the spread of fire. By restricting the height of the stockpiles to the height of the containment bays in which they are stored, fire will not be blown over the walls of one bay and onto the material located in an adjoining bay. Furthermore, the containment bays will provide a wind break surrounding stockpiles of material, which will impede the acceleration of a fire through the increased oxygen supply provided by wind gusts.

In addition, upon the discovery of a fire, site operatives will create fire breaks on site if required, under the direction of the Fire and Rescue Services.

Site surfaces which are not used for plant or stockpiles, and are therefore providing a fire break, will be cleared using a road sweeper as required, to ensure that any potentially combustible material between stockpiles, which would undermine the effectiveness of fire breaks, is removed.

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#### CONTROLLED BURN

In some instances, a plan for a controlled burn might be beneficial on waste sites in the event of a significant fire, to reduce the amount of flammable material surrounding the fire, thereby impeding the spread of fire across the site.

However, it has been decided that the initiation of controlled fires on site by site operatives would not be the safest method of tackling a fire, as this technique has inherent risk associated with it and, if not conducted properly, could actually accelerate a fire on site. If it is deemed absolutely necessary that a controlled fire is initiated on site, it will be conducted under the control and direction of the Fire and Rescue Service (FRS), who have significantly more training with regard to fire management and equipment available to them than site operatives.

In the majority of situations, separation distances and containment bays will provide sufficient isolation of a fire prior to the FRS arriving and assessing the situation. If it is deemed that further isolation is required, operatives will be instructed to move flammable materials away from the fire and instructed to place inflammable material in the path of the fire, to impede the spread of fire across the site.

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#### DRAINAGE

A drainage plan for the site is shown in Appendix D. All waste within the transfer building is stored on a surface of impermeable concrete within a sealed drainage system. The surface water from the external areas flows to a number of drains and an interceptor on site, as described below.

Discharge to controlled waters (i.e. Redwither Brook) is permitted under the Consent to Discharge Trade Effluent (Consent Number CG0402201) issued and regulated by Natural Resources Wales.

The concreted surface is laid at a fall towards the surface water drain and catchpits. Therefore, surface water on site will flow towards the drainage system.

The water then subsequently drains to an interceptor tank, which removes contaminants, and egresses into a settlement chamber prior to discharging into the nearby Redwither Brook. There is a penstock prior to discharging into the Redwither Brook to close off the supply, i.e. in the event of a fire, the penstock can be closed to prevent firewater or contaminated water entering the Redwither Brook.

Following a fire, if firewater has been contaminated through extinguishing wood fire only, it may be stored on site, as mentioned above, and used to dampen down wood stockpiles, once site operations have commenced. This contaminated water would only be used to dampen lower grade B wood stockpiles. As the water would only be contaminated with carbon from the wood fire, it is deemed safe and appropriate to use it for dust suppression on lower grade stockpiles, as this material would not be adversely affected by the contaminated water.

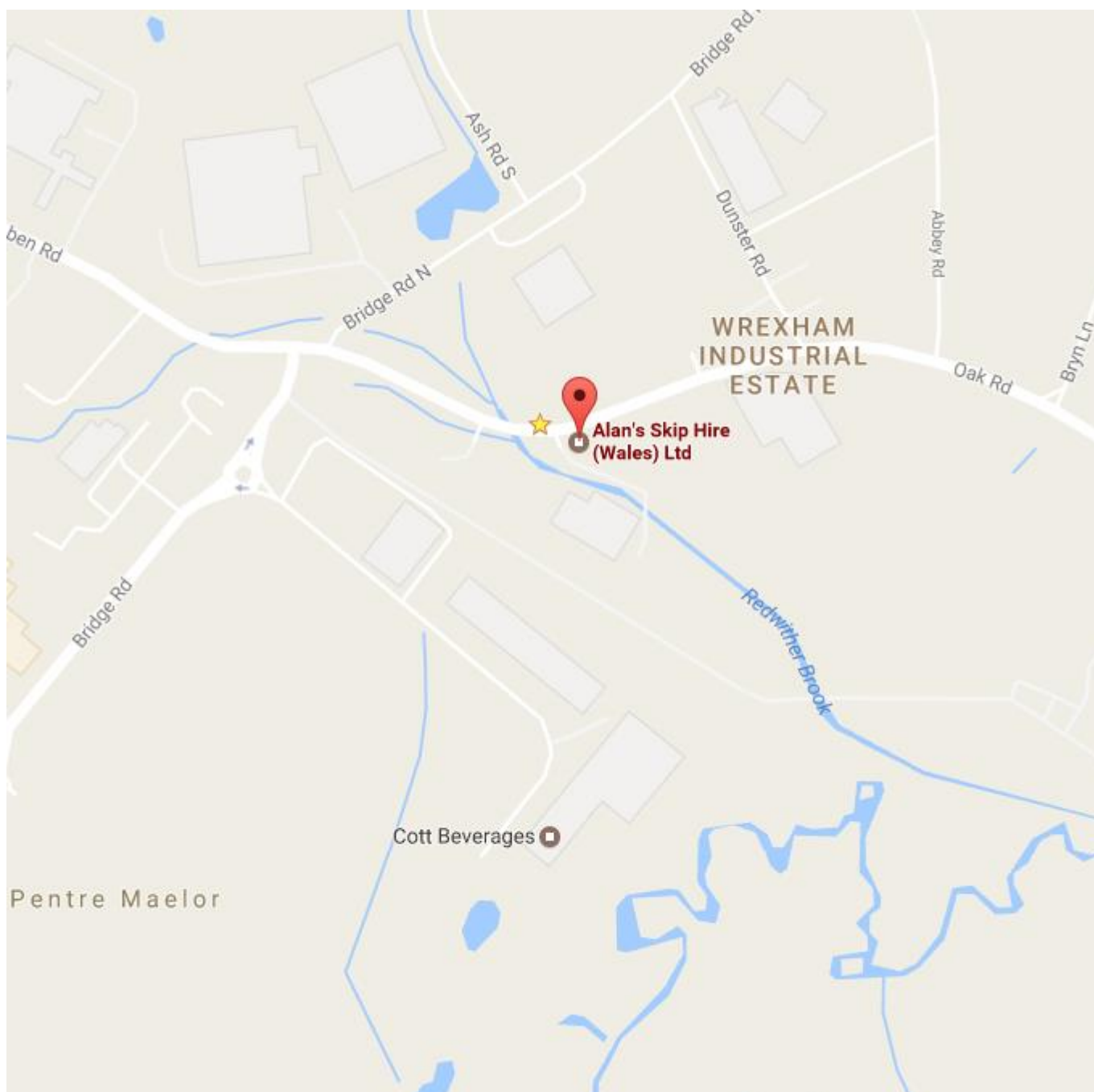
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## WATER SUPPLY

The site is well serviced by mains water that is available for firefighting activities. There are two fire hydrants located within the site boundaries, as shown in Appendix D, located to the east and south-west of the site. The hydrants form part of the hydrant supply to the Wrexham Industrial Estate to ensure that the required water supply is made available to the Industrial Estate if required.

## APPENDIX A – LOCATION MAPS AND SENSITIVE RECEPTORS

**MAP: LOCATION OF ALAN'S SKIP HIRE WALES, REDWITHER ROAD, WREXHAM INDUSTRIAL ESTATE, WREXHAM, LL13 9RD**



MAP: ACCESS ROUTES TO SITE FROM REDWITHER ROAD



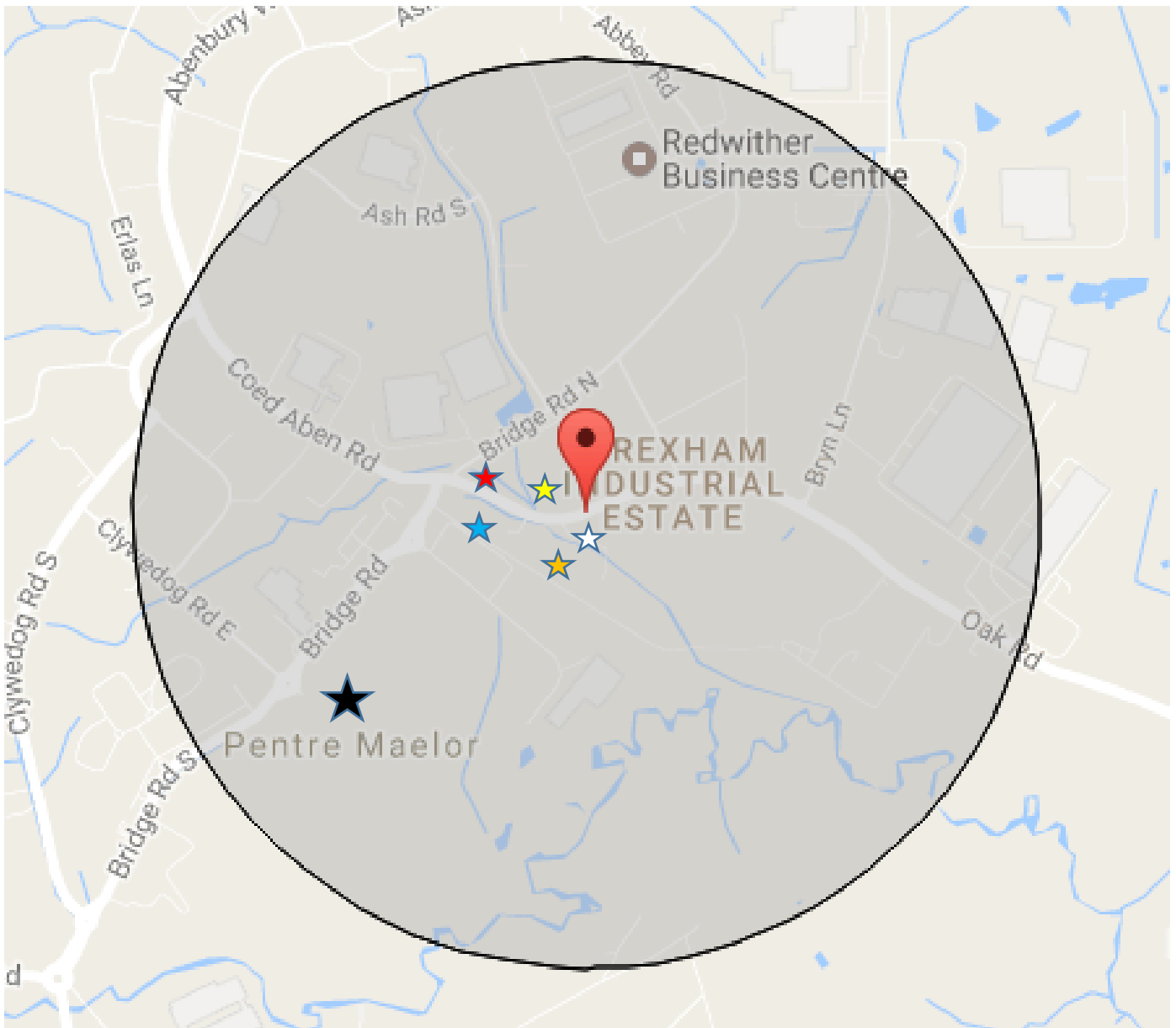
PRIMARY ACCESS ROUE



SECONDARY ACCESS ROUTE



### MAP: 1KM RADIUS OF SITE

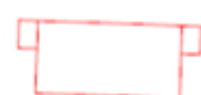
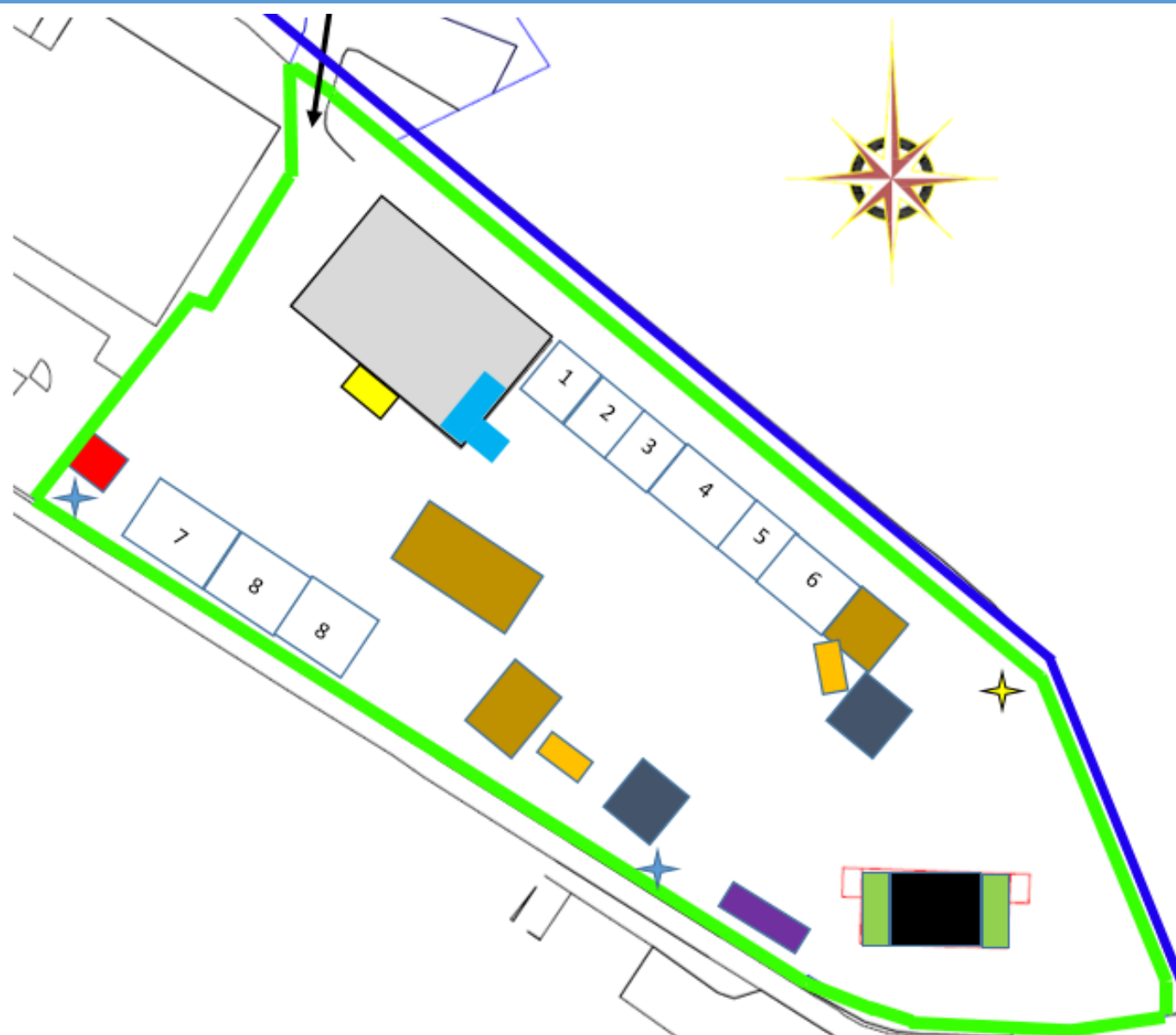


The site is located within an industrial estate. There are many receptors within a 1km radius, principally from commercial and industrial waste sectors. The main receptors are shown in the diagram above. The circle represents a 1km radius.

- ★ Residents
- ★ ASH Heat and Power: Biomass boilers (2 x 999kWh)
- ★ Wrexham Prison: HM Prison Berwyn (~2,100 inmate capacity)
- ★ Multi-Packaging Solutions
- ★ Enviroclear (tanker services)
- ★ Entrec (metal scrap yard)

Redwither Brook also flows adjacent to the site boundary, from north-west to south-east, as shown in Appendix B. There are no schools or hospitals located within the 1km radius.





Biomass building



Stockpile / Bay



Main transfer building



Boiler (under Part B Permit)



Processed wood chip



Wood shredding



Redwither Brook



Drying floor (covered)



PAL wood treatment (inside building / cover)



Scrap metal / WEEE



Unprocessed wood



Quarantine area



Fire hydrant



Penstock



Permit Boundary



Drying skips

1. Wood chip fuel
2. PAL wood
3. Nails (scrap)
4. Plasterboard

5. Glass
6. Sewage screening
7. Card / plastic bales
8. Wood dust

<u>Fire Extinguisher Locations</u>	
<b>Weighbridge office</b>	
1	6L Foam
2	2kg CO2
<b>Sales Office (disused)</b>	
3	9L Foam
4	6Kg D Powder
<b>Garage</b>	
5	9kg D Powder
6	5kg CO2
7	9kg D Powder
<b>Tyre Bay</b>	
8	9kg D Powder
9	6kg D Powder
10	2kg CO2
<b>Transfer shed</b>	
11	9kg D Powder-Main ent
12	9L Foam- back door
13	9L Foam- pick line
14	5Kg CO2- pick line
15	9L Foam- pick line
16	5Kg CO2- pick line
17	9L Foam- pick line
18	9L Foam- pick line
19	5Kg CO2- pick line
20	
<b>Outside at machines</b>	
21	9kg D Powder-Shredder m/c
22	9kg Foam
23	9kg D Powder-Eddy Current
<b>Canteen</b>	
24	2kg D Powder

17, 18	19
Picking line	
13, 14	15, 16



## APPENDIX D – DRAINAGE SYSTEM

