



**POLLUTION PREVENTION AND CONTROL ACT 1999  
ENVIRONMENTAL PERMITTING (ENGLAND & WALES) REGULATIONS  
2016 (As Amended)**

**Permit Number: 2.1/040233/JT3  
Installation Address:  
William Cook Cast Products Ltd  
Parkway Avenue  
Sheffield  
S9 4UL**

**In accordance with Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2016, as amended, William Cook Cast Products Limited is hereby permitted to operate a scheduled activity at the address detailed above, namely the production, melting or refining of iron or steel or any ferrous alloy (other than producing pig iron or steel, including continuous casting) using induction furnaces as described in Schedule 1, Part 2, Chapter 2, Section 2.1, Part B (b) (ii) and subject to the following Permit conditions.**



**Signed**

**Dated this day: 30<sup>th</sup> November 2021**

**Commercial Team Manager  
Authorised by Sheffield City Council to sign on their behalf**

The Secretary of States Guidance Notes PG PG2/3(13) "Electrical, Crucible and Reverberatory Furnaces" and PG2/4(13) "Iron, Steel and Non-Ferrous Metal Foundry Processes" have provided the framework for the conditions in this Permit.

**Name & Address of Operator:**

William Cook Cast Products Limited  
Parkway Avenue  
Sheffield  
S9 4UL

Company registration number: 02727560

Site contact: Kevan Butcher Tel: +44 (0) 870 787 2353 Mob: 07753 832312  
Email: [kbutcher@william-cook.co.uk](mailto:kbutcher@william-cook.co.uk)

**Registered Office:**

William Cook Holdings Limited  
Parkway Avenue  
Sheffield  
S9 4UL  
Company registration number:03283010

**Address of Permitted Installation:**

William Cook Cast Products Limited  
Parkway Avenue  
Sheffield  
S9 4UL

**Holding Company:**

William Cook Holdings Limited  
Parkway Avenue  
Sheffield  
S9 4UL

**Talking to Us**

Any communication with the regulator, Sheffield City Council's Environmental Protection Service, should be made to the following address quoting the Permit number: 2.1/040233/JT3

[epsadmin@sheffield.gov.uk](mailto:epsadmin@sheffield.gov.uk) or [ippc@sheffield.gov.uk](mailto:ippc@sheffield.gov.uk)

Telephone: (0114) 273 4651

**Our Address:**

**ENVIRONMENTAL PROTECTION SERVICE  
SHEFFIELD CITY COUNCIL  
5<sup>th</sup> FLOOR (NORTH)  
HOWDEN HOUSE  
1 UNION STREET  
SHEFFIELD  
S1 2SH**

## Contents

Explanatory note	5
Definitions	9
Description of Activities	11
Section 1: Upgrading	16
Section 2: Plant and Equipment	16
Section 3: Production Capacity	16
Section 4: Emission Limits and Controls	16
Section 5: Monitoring, Sampling and Measurement of Emissions	18
Section 6: Sand Silos	20
Section 7: Maintenance of Abatement Plant	21
Section 8: Materials Handling	22
Section 9: Continuous Monitors	23
Section 10: Chimneys and Process Vents	25
Section 11: Records and Training	25
Section 12: Complaints	26
Section 13: General Conditions	26
Schedule 1: Installation Location and Boundary	29
Schedule 2: Installation Layout	30
Schedule 3: Essential Plant and Equipment	31
Schedule 4: Emission Points	33

**Explanatory Note to Pollution Prevention and Control Permit for Part B Installations**  
**(This note does not form a part of the Permit)**

The following Permit is issued under Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2016 (S.I. 2016 No.1154), as amended, (“the EP Regulations”) to operate an installation carrying out activities covered by the description in Section 2.1 Part B (b) (ii) of Schedule 1 of those Regulations, to the extent authorised by the Permit.

**Part B**

(a) Unless falling within Part A(1)(b) of this Section, producing pig iron or steel, including continuous casting, in a plant with a production capacity of 2.5 or less tonnes per hour.

(b) Unless falling within Part A(2)(a) or (d) of this Section, producing, melting or refining iron or steel or any ferrous alloy (other than producing pig iron or steel, including continuous casting) using—

(ii) a cupola, crucible, reverberatory, rotary, induction, vacuum, electro-slag or resistance furnace(s).

**Process Changes**

Under the provisions of the EP Regulations, you are required to notify the Council of any proposed change in operation at least 14 days before making the change. This must be in writing and must contain a full description of the proposed change in operation and the likely consequences. Failure to do so is an offence.

If you consider that a proposed change could result in the breach of the existing permit conditions or is likely to require the variation of permit conditions then you may apply in writing under Regulation 20(1) of the EP Regulations. Additionally, if this involves a SUBSTANTIAL CHANGE to the installation you will be required to submit an application, pay the relevant fee and advertise the application accordingly. You may serve a Notice on the Council requesting that they determine whether any change that is proposed would constitute a substantial change before you proceed with application.

**Variations to the Permit**

The Permit may be varied in the future by the Council serving a Variation Notice on the Operator. If the Operator wishes any of the Conditions of the Permit to be changed, a formal Application must be submitted.

## **Surrender of the Permit**

Where the Operator of a Part B installation or mobile plant ceases or intends to cease the operation of the activity the Operator may notify the regulator of the surrender of the whole permit, in any other case, notify the regulator of the surrender of the permit in so far as it authorises the operation of the installation or mobile plant which he/she has ceased or intends to cease operating. The notification shall contain information as described in Regulation 24 or 25 of the EP Regulations.

## **Transfer of the Permit or Part of the Permit**

Before the Permit can be wholly or partially transferred to another person, a joint application to transfer the Permit has to be made by both the existing and proposed holders, in accordance with Regulation 21 of the EP Regulations. A transfer will be allowed unless Sheffield City Council considers that the proposed holder will not be the person who will have control over the operation of the installation or will not ensure compliance with the conditions of the transferred Permit.

## **Annual Subsistence Fee**

In accordance with Regulation 65 of the EP Regulations, the operator/holder of a permit is required to pay a fee for the subsistence of the Permit. This fee is payable annually on 1<sup>st</sup> April. You are advised that under the provisions of Regulation 65 (5) of the EP Regulations, if you fail to pay the fee due promptly, the regulator, Sheffield City Council, may revoke the Permit. You will be contacted separately each year in respect to this payment.

## **Public Register**

The Council is required by Regulation 46 of the EP Regulations to maintain a Public Register containing information on all LAPPC installations and mobile plant. The register is available for inspection by the public free of charge during office hours by prior appointment (Monday to Friday 9.00 am to 5.00 pm) at the following address:

Environmental Protection Service  
Sheffield City Council  
5<sup>th</sup> Floor 5 (North)  
Howden House  
1 Union Street  
Sheffield  
S1 2SH

Tel: 0114 273 4651 or email [epsadmin@sheffield.gov.uk](mailto:epsadmin@sheffield.gov.uk)

## **Confidentiality**

Sheffield City Council has a duty to consider the question of confidentiality of information supplied to it. If any information supplied is considered confidential, a statement of which information this applies to and the reasons why it is considered confidential should be specified. The Operator is reminded that they may apply to Sheffield City Council for the exclusion of information from the public register under the provisions of the Environmental Permitting (England and Wales) Regulations 2016, as amended.

## **Appeals**

Under Regulation 31 of the EP Regulations, Operators have the right of appeal against the conditions attached to their permit. Chapter 5 of the EP Regulations sets out the detailed procedures.

Appeals against a Variation Notice do not have the effect of suspending the operation of the Notice. Appeals do not have the effect of suspending Permit conditions.

Notice of appeal against the conditions attached to the permit must be given within six months of the date of the Notice, which is the subject matter of the appeal.

## **How to Appeal**

There are no forms or charges for appealing. However, for an appeal to be valid, appellants (the person/Operator making the appeal) are legally required to provide:

- Written notice of the appeal;
- A statement of the grounds of appeal;
- A statement indicating whether the appellant wishes the appeal to be dealt with by written representations procedure or a hearing – a hearing must be held if either the appellant or enforcing authority requests this, or if the Planning Inspector or the Secretary of State decides to hold one.
- (Appellants must copy the above three items to the local authority when the appeal is made)
- A copy of any relevant application;
- A copy of any relevant permit;
- A copy of any relevant correspondence between the appellant and the regulator; and
- A copy of any decision or notice, which is the subject matter of the appeal.

## Where to Send Your Appeal Documents

Appeals should be addressed to:

**The Planning Inspectorate  
Environmental Appeals Administration  
Room 4/19 – Eagle Wing  
Temple Quay House  
2 The Square  
Temple Quay  
Bristol BS1 6PN**

In the course of an Appeal process the main parties will be informed of procedural steps by the Planning Inspectorate.

To withdraw an appeal the appellant must notify the Planning Inspectorate in writing and copy the notification to the local authority.

## Enforcement

An **Enforcement Notice** may be served if the Local Authority believes an Operator has contravened, is contravening or is likely to contravene any condition of his Permit.

A **Suspension Notice** may be served if in the opinion of the Local Authority the operation of an installation involves an imminent risk of serious pollution. This applies whether or not the Operator has breached a Permit condition.

The Local Authority can revoke a Permit by written notice at any time by serving a **Revocation Notice**. The Permit then ceases to authorise the operation of the installation.

## Offences

A limited summary of the offences is listed below:

- a) operation of an installation without a Permit
- b) failure to comply with or contravene a Permit condition
- c) failure to comply with the requirements of an enforcement or suspension notice

A full list is available under Regulation 38 of the Environmental Permitting (England & Wales) Regulations 2016 as amended.

## Penalties

The maximum penalties for the above offences are a fine not exceeding £50,000 and/or up to twelve months imprisonment per offence for a summary conviction (in a Magistrates Court); and a fine and/or up to five years imprisonment for conviction on indictment (in a Crown Court).

## Definitions

In relation to this Permit, the following expressions shall have the following meanings:

*“Application”* means the application for this Permit, together with any response to a notice served under Schedule 4 to the EPR Regulations and any operational change agreed under the conditions of this Permit.

*“EPR Regulations”* means the Environmental Permitting (England and Wales) Regulations S.I.2016 No. 1154 (as amended) and words and expressions defined in the EPR Regulations shall have the same meanings when used in this Permit save to the extent they are explicitly defined in this Permit.

*“Permitted Installation”* means the activities and the limits to those activities described in this Permit.

*“Monitoring”* includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.

*“Regulator”* means any officer of Sheffield City Council’s Environmental Protection Service who is authorised under section 108(1) of the Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in Section 108(1) of that Act.

*“BAT”* means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing in principle the bases for emission limit values designed to prevent, and where that is not practical, generally to reduce emissions and the impact on the environment as a whole. For those purposes:

“available techniques” means those techniques which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the United Kingdom, as long as they are reasonably accessible to the Operator;

“best” means, in relation to techniques, the most effective in achieving a high general level of protection of the environment as a whole; “techniques” include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned. Schedule 2 of the Regulations shall have effect in relation to the determination of best available techniques, and;

*“Fugitive Emission”* means an emission to air from the permitted installation that is not controlled by an emission limit imposed by a condition of this Permit.

Where any condition of this Permit refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the document with the most recent publication date shall be taken to be the most appropriate document to be used.

## **DESCRIPTION OF ACTIVITIES**

William Cook Cast Products Ltd is a ferrous metal engineering manufacturing company. Customers include companies from rail and air transportation sectors and the oil industry. This permit covers activities at the Parkway Avenue facility in Sheffield.

The activities are carried out within the green shaded area on the Installation Location and Boundary plan in Schedule 1. The layout of the installation is as shown in Schedule 2. The Permit covers a range of processes as described below, from receipt of raw materials through to finishing of final products.

A list of essential plant and equipment which is referred to in the permit is detailed in Schedule 3.

### **Raw Materials**

This Permit covers the unloading, storage and transfer of raw materials. Raw materials include scrap metal, alloys, additions, wax, sand, resins, binders, hardeners, paints, refractories, triethylamine, gases (argon, oxygen and nitrogen), mould coatings, fuel, blast media, and refractories. Recovered sand is used as far as possible, being mixed with fresh sand and binders as required. No-Bake moulds, shell and amine cores can be manufactured on site.

### **Pattern Shop**

Materials used are wood, metal and resin to produce new pattern equipment and repair pattern equipment for the sand and lost wax sections of the foundry. Sawdust is extracted through filters internally.

### **Sand Moulding**

Virgin sand and chromite is delivered by tankers and loaded into silos. Each silo vents through a bag filter and pressure relief valve and is fitted with a high level alarm to warn of overfilling. It is delivered to mould making areas through hoppers fed by sealed pneumatic blowing systems.

Gas is passed through a cabinet containing pre-prepared sand moulds and extracted internally.

Details of the silos are represented in the following table.

## **Silos**

<b>New ID Number</b>	<b>Location</b>	<b>Approximate Capacity</b>	<b>Contents</b>
S1	Middle Shop	40 tonnes	Chromite
S2	Middle Shop	40 tonnes	New Sand
S3	Middle Shop	35 tonnes	Reclaimed Sand
S4	Middle Shop	70 tonnes	Chromite
S5	Middle Shop	100 tonnes	Reclaimed Sand
S6	Middle Shop	65 tonnes	New Sand
S7	Middle Shop	80 tonnes	Reclaimed Sand
S8	Reclaim	80 tonnes	Sand Reclaim
S9	Top Shop (Sand Moulding)	80/100 tonnes	New Sand
S10	Top Shop (Sand Moulding)	80/100 tonnes	Reclaimed Sand
S11	Top Shop (Core Shop)	33 tonnes	New Sand
S12	Top Shop (Shell)	70 tonnes	Shell Waste

Resin is delivered by bulk tanker to banded storage tanks and transferred to mixers by enclosed pipe work using pumps.

### **Shell and Core Moulding**

Cores and moulds are produced on U190 / U200 machines by baking resin coated silica sand. Particulate matter emissions from these processes are ducted to atmosphere at emission point V1.

Triethylamine (TEA) is used during the core-moulding process in the core shooter. TEA is delivered to site in 205 litre drums and stored on a bund. This material is piped to the moulding / core making machine via a sealed system. TEA is passed through a core shooter which is served by dry bag extraction exhausting to atmosphere at emission point EX3.

### **Melting**

Metal is delivered to bays and sorted into grades and composition. As required, it is transferred to a furnace and melted in electric induction furnaces. The full list of furnaces is detailed in the following table.

## **Furnaces**

<b>New ID No.</b>	<b>Location</b>	<b>Power</b>	<b>Capacity / Type</b>
IF 1	Top Shop LW	125kw	40kg Roll over
IF 2	Top Shop LW	125kw	40kg Roll over
IF 3	Top Shop LW	225kw	180kg Tilt
IF 4	Top Shop LW	225kw	250kg Tilt
IF 5	Top Shop GF	750kw	1000kg Tilt
IF 6	Top Shop GF	750kw	1000kg Tilt
IF 7	Top Shop GF	400kw	500kg Tilt
IF 8	Top Shop GF	400kw	500kg Tilt
IF9	Top Shop GF	400kw	250kg Tilt
IF10	Middle Shop (K)	3 Mw	7500kg Tilt
IF11	Middle Shop (L)	1500kw	3500kg Tilt
IF12	Middle Shop (M)	750kw	1500kg Tilt
IF13	Middle Shop AOD	N/A	5000kg Tilt

## **Melting Shops**

The melting of scrap metal and alloys takes place in two buildings: Top Shop and Middle Shop. Electric induction furnaces are used. The general foundry furnaces are extracted via a hood through filters to emission point EX11. The Lost Wax furnace emissions are extracted via a hood through filters to emission point Ex 2.

With the exception of Lost Wax melting, molten metal is tapped into ladles and special additions are added as necessary. The metal from the ladles is then poured into the prepared moulds which are positioned in the casting areas. Fumes from the tapping and casting process are drawn through the carousel extraction canopy hoods, which are extracted, filtered and exhausted via emission point Ex 11.

For certain products, in the Middle Shop, molten metal is transferred to the AOD vessel by ladle for refinement. Oxygen, argon and nitrogen are introduced to the vessel to keep the metal molten and remove impurities. Metals are added as required for the finished product specification. Emissions from this process are extracted via a bag filter to the external air at emission point Ex 8. Once ready the metal is tapped into refractory lined ladles. Any further adjustment of the composition, such as alloying or de-gassing agents can be done using ladle additions prior to pouring. After cooling, casts are shaken out and finished prior to inspection and despatch.

Uncaptured emissions of melting and casting fumes, particulate matter and volatile compounds are emitted fugitively through openings in the factory buildings.

## **Foundry Knock Out and Reclamation**

Castings are cooled in the Knock Out areas of the Top Shop and Middle Shop. Any fumes released during this process are fugitive within the foundry. Castings are knocked out manually on the floor. Sand is recovered by a bucket loader into a vibratory attrition unit which is served by extraction and abated to Ex 7 in the Middle Shop and Ex 3 in the Top Shop.

## **Bottom Fettling & Shotblast**

Castings are fettled and finished in fettling bays using hand grinders, shotblast machines, abrasive wheels and arc air cutting. Fumes and particulate matter from these processes are extracted via Ex 9 shot blast Extraction unit and Ex 12 fettling grinding and welding extraction unit.

## **Heat Treatment**

Castings are heat treated, including water and polymer quenching in 2 water tanks and 1 polymer tank. Emissions from these ovens are fugitive and released internally.

## **Lost Wax Process**

Wax pellets are received and stored in bags before being melted and fed into a molten wax holding tank. Molten wax is then injected under pressure into a die to produce wax patterns, gates and runner systems from the injection moulding machine.

Wax fumes from the process are fugitive within the wax pattern manufacturing area and are not extracted to the external air.

The wax assemblies are cleaned prior to being coated with a series of layers of a ceramic shell, by soaking the mould in a water based ceramic slurry and coating it with a fine refractory zirconia sand upon the wet surface and then left to dry prior to re-coating. The layers become progressively coarser. Particulate matter emissions from this activity are captured by 2x Donaldson cartridge filters that discharge internally.

Powders and sands used in this process are received and stored in sealed bags. The total particulate matter emissions from the automated application of powder coatings are extracted and exhaust internally.

## **De-Waxing**

Remaining wax is removed by firing off in one of two Fire Off furnaces which are fitted with 2 gas burners each. The moulds are loaded into the fire off furnaces on a bogey. Wax is fired off at 1100°C. The furnaces are fitted with

temperature monitors with a visual display panel. The maximum capacity of the fire off furnaces is 400 kg each. Extraction of emissions to atmosphere is through ceramic filters at emission points Ex 4 fitted with a magnehelic gauge.

### **Waste**

Wastes generated by the process include; sand, slag, refractories and scrap metals. These materials are stored on site, reused and recycled as much as possible, sold for re-use or disposed of off-site using licensed waste service contractors.

## **CONDITIONS OF PERMIT**

The following conditions shall be complied with immediately unless otherwise stated.

### **Section 1 – Upgrading**

There are no conditions of upgrading.

### **Section 2 – Plant and Equipment**

- 2.1 The activities at the installation shall be carried out within the installation boundary shaded in green as indicated on the Installation Location and Boundary plan shown in Schedule 1 of this Permit.
- 2.2 Permitted activities shall only be carried on using the plant and equipment as detailed in the Description of Activities and on the Installation Layout reproduced in Schedule 2 of this Permit.
- 2.3 The Operator shall notify the Regulator (Sheffield City Council's Environmental Protection Service) of any proposed operational changes, including any alterations to the process involving the provision of new plant or equipment which may affect emissions or have consequences for the environment. The information shall be submitted at least 14 days before the changes take place.
- 2.4 No plant or equipment used for any activity shall be operated with an extraction point to atmosphere unless specifically noted within this Permit or specifically agreed in writing with the Regulator.

### **Section 3 – Production Capacity**

- 3.1 The installation shall produce less than twenty tonnes per day of finished product.
- 3.2 The Operator shall keep a record of production to check compliance with condition 3.1. The record shall include the total weight of castings and the total weight of finished product in tonnes per day. The record shall be kept in a log book or other recording system on site and be available for inspection by the Regulator. The record shall be submitted to the Regulator at least once in every twelve month period. The first record shall be submitted by 14<sup>th</sup> January 2022 and every year thereafter.

### **Section 4 – Emissions Limits and Controls**

- 4.1 No visible dust or particulate matter shall be emitted beyond the installation boundary.

- 4.2 There shall be no burning of materials, including waste, in the open air, inside buildings or in any form of incinerator in connection with the activities within the installation boundary, without permission in writing from the Regulator.
- 4.3 Emissions from combustion processes shall be free from visible smoke and in any case shall not exceed the equivalent of Ringelmann Shade 1 as described in British Standard BS 2742:2009.
- 4.4 All reasonably practicable steps shall be taken to minimise the duration and visibility of emissions during start up and shut down.
- 4.5 The best available techniques shall be used to prevent or, where that is not practicable, reduce emissions from the installation in relation to any aspect of the operation of the installation which is not regulated by any other condition of this Permit.
- 4.6 Emissions to air shall be free of offensive odour beyond the installation boundary as perceived by the Regulator.
- 4.7 Furnaces shall be operated using insulating powder covering or an argon blanket over the charge to minimise emissions during melting. Insulating powder shall be added to the ladle when it contains molten metal.
- 4.8 Except for condensed water vapour, all releases to air shall be free from persistent visible emissions.
- 4.9 In the reporting of monitoring results, all pollutant concentrations shall be expressed at reference conditions 273k, 101.3kPa, the oxygen and water references shall be that which corresponds to the normal operating conditions in the process.
- 4.10 The introduction of dilution air into duct systems in order to comply with emission limits is not permitted.
- 4.11 Emissions of total particulate matter from all emission point stacks with an airflow of 150m<sup>3</sup>/min or more shall not exceed 10mg/m<sup>3</sup>.
- 4.12 Emissions of total particulate matter from any furnace extraction stack, shall not exceed 10mg/m<sup>3</sup>.
- 4.13 Emissions of nickel and its compounds shall not exceed 0.25mg/m<sup>3</sup> from any furnace stack, including the AOD furnace, and the stacks serving the furnace hoods.
- 4.14 Emissions of chromium and its compounds shall not exceed 5mg/m<sup>3</sup>.

- 4.15 Emissions of cobalt and its compounds shall not exceed 1mg/m<sup>3</sup>.
- 4.16 Emissions of VOC's from thermal sand reclamation systems and shelling operations shall not exceed 30mg/m<sup>3</sup>.
- 4.17 Emissions shall be tested at least once in every twelve month period unless otherwise agreed in writing with the Regulator.
- 4.18 The use of resins, hardeners and catalysts shall be minimised, consistent with the correct functioning of the binder system, in order to minimise emissions of volatile organic compounds and odour. Records shall be kept of the level of necessary binder addition.
- 4.19 Emissions from mould and core production (including mixing operations) shall be discharged via a suitable arrestment plant where necessary to meet the emission limits in this Permit.
- 4.20 Emissions of fume from the electric melting furnaces shall be kept to a minimum by using only clean scrap or reworked material from previous castings produced at the installation which are not contaminated.
- 4.21 The use of odour masking agents and / or counteractants shall not be permitted.
- 4.22 The emission of organic solvents from the use of die and mould dressing material shall be minimised, for example through the use of water-borne die lubricants and low solvent mould and core coatings. Emissions from the use of propanol based mould and core coatings shall be minimised by igniting as soon as safely possible after coating.

## **5.0 Monitoring, Sampling and Measurement of Emissions**

- 5.1 At least 7 days prior to any non-continuous monitoring being carried out, the Operator shall ensure that site specific monitoring protocols are submitted to the Regulator for approval. The monitoring protocols shall include the proposed date and time of the testing, the method to be used and the pollutants to be monitored.
- 5.2 The results of annual non-continuous monitoring tests shall be forwarded to the Regulator within 8 weeks of completion of the testing.
- 5.3 The Operator shall ensure that adequate facilities for sampling are provided on vents or ducts. Sampling points on new plant shall be designed to comply with the British or equivalent standards.

- 5.4 Monitoring shall be carried out in accordance with methods described in M1 “Sampling requirements for monitoring stack emissions to air from industrial installations”<sup>1</sup> and M2 “Monitoring of stack emissions to air”<sup>2</sup>, published by the Environment Agency, or by another method agreed in writing by the Regulator.
- 5.5 Where the results of any non-continuous monitoring are adverse, the Operator shall investigate the matter as soon as possible. The investigation shall include the following steps:
- Close down the process or plant responsible for the breach;
  - Investigate and identify the cause of the breach;
  - Carry out any necessary works or repairs to ensure compliance with the emission concentration limit;
  - Re-test the plant to check compliance with the emission concentration limit specified as soon as possible;
  - Submit the re-test emissions monitoring report to the Regulator within 7 days of receipt of the results;
  - Record details of investigation and outcomes in the log book or recording system.
- 5.6 Where the results of any non-continuous monitoring exceed the emission concentration limit, or are adverse, the Operator shall inform the Regulator no later than 10:00 hours the following working day after receipt of the results of the emissions testing.
- 5.7 The Operator shall ensure that a visual assessment of fugitive fume and dust emissions from the buildings housing the melting processes is carried out at least once a day when molten metal is being cast. The duration of the assessment shall be for a minimum of five minutes. All results of observations shall be recorded in the log book or recording system kept in accordance with condition 5.10
- 5.8 The Operator shall ensure that odour assessments are conducted to determine whether emissions from activities result in offensive odours. In particular, assessments shall focus on emissions from melting and casting and the use of triethylamine. The duration of the assessment shall be for a minimum of five minutes. The assessments shall be carried out at least once per day and made at locations as agreed in writing by the Regulator. All results of assessments shall be recorded in the log book or recording system kept in accordance with condition 5.10.

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<sup>1</sup> Environment Agency, January 2017, or any re-issue or update

<sup>2</sup> Environment Agency, January 2017, or any re-issue or update

- 5.9 The Operator shall ensure that adverse results from monitoring or assessments carried out in accordance with conditions of the Permit, and alarm events, are investigated immediately to identify the cause and for corrective action to be taken. The corrective action taken shall be recorded in the log book or recording system kept in accordance with condition 5.10.
- 5.10 The Operator shall ensure that a log book or suitable recording system containing the details and results of all visual and olfactory assessments, records of all inspections, checks and assessments made in accordance with Permit conditions is kept. These records shall include the time and date of inspection, the nature, colour, persistency and intensity of any emission and the name of the person carrying out the assessment. The log book or recording system shall be kept on the premises and made available for inspection by the Regulator. Such records shall be kept for a minimum of two years and shall be furnished in writing to the Regulator on demand.
- 5.11 The Operator shall inform the Regulator within one day where:
- An emission is likely to have an effect on neighbouring premises; or
  - There is a failure of any arrestment plant.

The report to the Regulator shall include:

- The date and time of the incident;
- The cause and nature of the incident;
- Details of any abnormal emissions;
- Remedial action taken.

## **6.0 Sand Silos**

- 6.1 The Operator shall ensure that a visual assessment of emissions from the sand silos, associated bag filters and delivery pipes shall be undertaken for a period of at least the first and last five minutes during all bulk deliveries. Any adverse emissions shall be investigated immediately and rectified. The results of these visual assessments and the start and finish time of deliveries shall be recorded in the log book or recording system kept in accordance with condition 5.10.
- 6.2 The bulk sand silos shall be vented to suitable bag filters to prevent emissions of particulate matter. These bags shall be of a sufficient size and kept clean to avoid over pressurisation during delivery. Each silo shall also be fitted with a pressure relief valve, high-level indicator and audible alarm to warn of overfilling.

- 6.3 The Operator shall ensure that a visual inspection of the sand silo bag filters, high level alarms and pressure relief valves is carried out at least once a month for any signs of wear, tear or damage. Any defect shall be repaired as soon as possible and prior to another delivery taking place. All inspections including any remedial action taken shall be recorded in the log book or recording system kept in accordance with condition 5.10.
- 6.4 During pressure tanker delivery into a silo, the silos shall be charged at a rate prescribed by the filter manufacturer, and shall not be exceeded, in order to prevent causing any visible emissions of materials.
- 6.5 The seating of pressure relief valves on the silos shall be checked at least once per week or before a delivery takes place, whichever is the longer interval. A record of the checks shall be made in the log book or recording system kept in accordance with condition 5.10. If, during a delivery it appears that the valve may have become unseated, the delivery shall cease immediately and the valve examined and re-seated if necessary prior to the delivery continuing.
- 6.6 All new or replacement silo filtration plant shall be designed to operate to an emission standard of less than 10mg/m<sup>3</sup> for particulate matter.
- 6.7 The filters serving each silo shall be cleaned by reverse air jets pulsing continuously throughout each delivery of material into that silo such that the filters are kept clean with the arrested dust being blown back into the silo.

## **7.0 Maintenance of Abatement Plant**

- 7.1 The Operator shall ensure that a visual inspection of all arrestment plant ductwork is carried out at least once in every three month period under normal operating conditions, for any signs of wear, tear or damage. Any defects shall be repaired as soon as possible to ensure sound operation and prevent emissions to atmosphere. Details of the checks and any repair work shall be recorded in the log book or recording system required by condition 5.10 of this Permit.
- 7.2 The Operator shall ensure that arrestment plant serving emission points is serviced at least once in every 12 month period to ensure sound operation. Details of the servicing or maintenance shall be recorded in the log book or recording system kept in accordance with condition 5.10.

- 7.3 Effective preventative maintenance shall be employed on all plant and equipment concerned with the control of emissions to air. Essential spares and consumables such as replacement filters, shall be stored on site or be readily available in 24 hours from guaranteed suppliers, in order to rectify break downs rapidly.
- 7.4 The Operator shall keep a written maintenance programme in relation to permitted pollution control equipment. The programme shall be made available to the Regulator upon request.
- 7.5 The Operator shall maintain a list of key abatement plant and have a written procedure for dealing with its failure
- 7.6 All malfunctions or breakdowns leading to visible or odorous emissions shall be investigated and rectified immediately. Process operations shall be adjusted until normal operations are restored. Details of the malfunction shall be recorded in the log book or recording system. If an effect on the local community is likely, the Operator shall inform the Regulator within 1 working day.
- 7.7 Filtration plant shall be inspected at the frequency specified in the Table below;

**Table- Filter Plant Inspection Frequency**

<b>Filter Cleaning Method</b>	<b>Frequency of Visual Inspection</b>
Fitted with reverse jets	At least once a month
Fitted with mechanical shakers	At least once a week
Requiring manual shaking	Daily inspection or prior to any delivery being made if deliveries are not daily

- 7.8 Burners in mould and core making equipment shall be regularly inspected and maintained, to minimise methane leakage. A record of the inspection and maintenance shall be kept in the log book or recording system kept in accordance with this Permit.

## **8.0 Materials Handling**

- 8.1 Sand shall be transferred from silos to mixers using enclosed systems.
- 8.2 Stocks of dusty, or potentially dusty, materials including waste sand shall be contained in order to prevent dust emissions.

- 8.3 Waste collection skips shall be covered with tarpaulin or other suitable material in order to prevent emissions of particulate matter to the air.
- 8.4 The Operator shall ensure that any accumulation or spillage of particulate materials outside any building is cleaned up immediately by a wet method or vacuum cleaning. Dry sweeping is not permitted.
- 8.5 Arrested particulate matter from the filters serving abatement plant shall be collected into heavy duty bags or containers which shall be sealed in order to minimise emissions of particulate matter.
- 8.6 Accumulations of materials likely to generate dust are not permitted outside any building.
- 8.7 IBC's or drums containing resin and isopropanol shall be stored in a bunded covered area.
- 8.8 Incoming scrap metal shall be clean (i.e. free from significant amounts of contamination such as dirt, foreign material, oily residues, paint or other organic materials) and a system shall be employed which ensures that only clean scrap is melted.
- 8.9 All waste storage areas shall be clearly marked and waste containers shall be clearly labelled.
- 8.10 All waste liquids shall be stored in lidded or sealed containers and sited on an impervious base surrounded by an impervious bund.

## **9.0 Continuous Monitors**

- 9.1 Emission points with an airflow of 150m<sup>3</sup>/min or more shall each be fitted with an eDAS Auburn Systems 3400 or equivalent continuous indicative particulate emissions monitor which shall monitor emissions whenever the extraction system it serves is operating.
- 9.2 The particulate monitors serving emission points with an airflow of 300m<sup>3</sup>/min shall continuously record the particulate monitoring data. The dataloggers shall continuously monitor particulate emissions whenever the extraction system it serves is operating.
- 9.3 The continuous indicative particulate emissions monitors shall be fitted with a visual display and visual and audible alarms.
- 9.4 The alarms serving the continuous particulate monitors shall be set to trigger at a reference level equivalent to 75% of the emission limit value for the emission point they serve.
- 9.5 Alarm events from all continuous indicative particulate monitoring systems shall be automatically recorded.

- 9.6 Any continuous monitor used shall provide reliable data >95% of the operating time, (i.e. availability >95%). A manual or automatic procedure shall be in place to detect instrument malfunction and to monitor instrument availability.
- 9.7 All abatement plant with an airflow of less than 150m<sup>3</sup>/min shall be fitted with a pressure drop indicator to warn of arrestment plant failure.
- 9.8 Within 4 weeks of the date of issue of this Permit the Operator shall submit a list of all arrestment plant, associated airflow and continuous monitoring system provided, for approval in writing by the Regulator.
- 9.9 A reading of the magnehelic gauges or other pressure drop indicators serving filters shall be taken and recorded on every operational day. Details of the reading shall be recorded in the log book or recording system kept in accordance with condition 5.10. Where the reading falls outside the optimum parameters for the plant, the condition of the filters shall be investigated and rectified.
- 9.10 The Operator shall ensure that a visual assessment of the continuous indicative particulate monitors and associated alarms is carried out at least once in every three month period for any signs of damage. Any defects shall be repaired as soon as possible. Details of the checks and any repair work shall be recorded in the log book or recording system required by condition 5.10 of this Permit.
- 9.11 The Operator shall ensure that the continuous indicative particulate monitors are serviced and calibrated at least once in every 12 month period by a competent person. Details of the servicing or maintenance shall be recorded in the log book or recording system kept in accordance with condition 5.10 of this Permit.
- 9.12 A six monthly summary of automatically recorded data and alarm events from the continuous indicative particulate monitors shall be forwarded to the Regulator twice per year. The first summary is required to be submitted by 14<sup>th</sup> January 2022.
- 9.13 New or replacement continuous indicative monitors shall be designed for less than 5% down time over any 3 month period. Details of any proposed replacement equipment shall be submitted to the Regulator for written approval prior to installation.

## **10. Chimneys and Process Vents**

- 10.1 Stacks or process vents shall not be fitted with any restriction at the final opening such as a plate, cap or cowl, with the exception of a cone which has been fitted to increase the efflux velocity with prior written approval of the Regulator.
- 10.2 Exhaust gases discharged through a stack or vent shall achieve an exit velocity of 15m/sec or more during normal operating conditions, in order to achieve adequate dispersion. The discharge shall be vertically upwards.
- 10.3 Stack flues and duct work shall be checked and cleaned at least once every six month period in order to prevent an accumulation of materials. This shall be written into the site Maintenance Programme and a record of the check and clean made in the logbook or recording system required by condition 5.10.

## **11.0 Records and Training**

- 11.1 Staff at all levels shall receive training and instructions necessary for their duties and shall include the following:
  - Awareness of responsibilities under the Environmental Permit;
  - Minimising emissions on start-up and shut-down; and
  - Minimising emissions during abnormal conditions;
  - Minimising emissions from the storage and handling of products used in the process.
- 11.2 The Operator shall keep and maintain a statement of training requirements for each operational post and keep a record of the training received by each employee whose actions may have an impact on emissions. These documents shall be made available to the Regulator upon request.

11.3 The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the permitted process shall:-

- be made available for inspection by the Regulator at any reasonable time;
- be supplied to the Regulator on demand and without charge;
- be legible;
- be made as soon as reasonably practicable;
- indicate any amendments which have been made and shall include the original record wherever possible, and;
- be retained at the Permitted installation, or other location agreed by the Regulator in writing, for a minimum period of 2 years from the date when the records were made, unless otherwise agreed in writing.

## **12.0 Complaints**

12.1 Within 2 weeks of the date of issue of this Permit, the Operator shall submit to the Regulator a written complaints procedure to be followed by the Operator in the event of any complaint from the general public.

## **13.0 General Conditions.**

13.1 External surfaces of the process buildings, ancillary plant, open yards and storage areas shall be inspected at least annually and cleaned if necessary to prevent the accumulation of dusty material. Particular attention shall be paid to roofs, guttering, roadways, external storage areas and yards. Cleaning operations shall be carried out by wet sweeping methods or vacuuming in order to minimise emissions of particulate matter to air.

13.2 The Operator shall notify the following to the Regulator, in writing, within 14 days of their occurrence:-

- Any change in the trading name, registered name or registered office address;
- A change to any particulars of any ultimate holding company (including details of an ultimate holding company where the company has become a subsidiary);
- Any steps taken with a view to going into administration, entering into a company voluntary arrangement or being wound up.

13.3 The Operator shall notify the Regulator **without delay** of:-

- The detection of an emission of any substance, which exceeds any limit or criterion in this Permit, specified in relation to the substance;
- The detection of any fugitive emission that has caused, is causing or may cause significant pollution, unless the quantity emitted is so trivial that it would be incapable of causing significant pollution;
- The detection of any malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution;
- Any accident, which has caused, is causing or has the potential to cause significant air pollution.

13.4 The Operator shall give written notification to the Regulator in the following instances;

- Permanent cessation of the operation of any part of, or all of the permitted installation;
- Cessation of the operation of any part of, or all of the Permitted Installation for a period, likely to exceed 1 year;
- Resumption of the operation of any part of, or all of the permitted installation after a cessation notified under (b) above.

13.5 All reports and notifications required by this Permit, or under any Regulation under the Environmental Permitting Regulations 2016, as amended, shall be sent to the Regulator. Unless notified in writing, all reports, notifications and communications in respect of this Permit shall be sent to:

[epsadmin@sheffield.gov.uk](mailto:epsadmin@sheffield.gov.uk) or [ippc@sheffield.gov.uk](mailto:ippc@sheffield.gov.uk)

or

**Sheffield City Council,  
Environmental Protection Service,  
Floor 5 Howden House  
1 Union Street  
Sheffield  
S1 2SH**

- 13.6 The installation shall be supervised by suitably trained personnel that are fully conversant with the requirements of this Permit.
- 13.7 A competent person shall be nominated to act on behalf of the company, who will be responsible for ensuring that tests, emissions monitoring and maintenance measures required under this Permit are carried out. The responsible person/post holder shall be named in the logbook.
- 13.8 Complete and immediate access to the premises shall be granted to the Regulator upon request.
- 13.9 A copy of this Permit shall be kept on the premises.

## **END OF CONDITIONS**

### **Please Note**

Where complaint is attributable to the operation of the installation and is, in the opinion of the Local Authority, justified, or if new knowledge develops on the potential for harmful effects from emissions, an immediate review of the Permit shall be undertaken. The regulator shall subsequently specify any new requirements and compliance time scales.

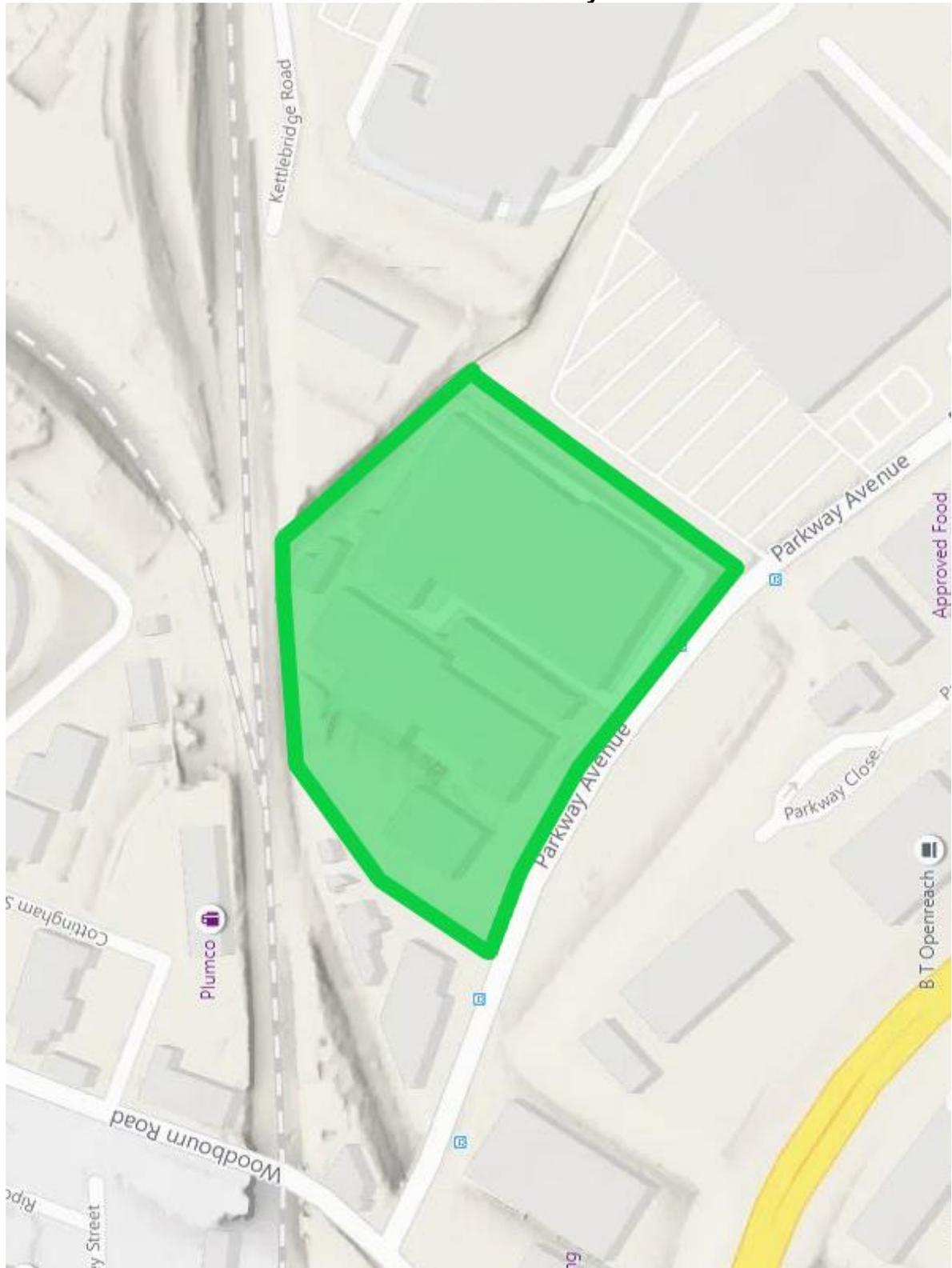
An annual subsistence fee as prescribed by the Secretary of State for the Environment shall be payable, for this Permit, by the Operator, to the regulator within 2 weeks of the 1<sup>st</sup> April of each year.

In the event that the Permit has been issued after the 1<sup>st</sup> April in the initial year then the subsistence fee shall be pro rata for the complete months remaining and shall be due within 2 weeks of the Permit issue date.

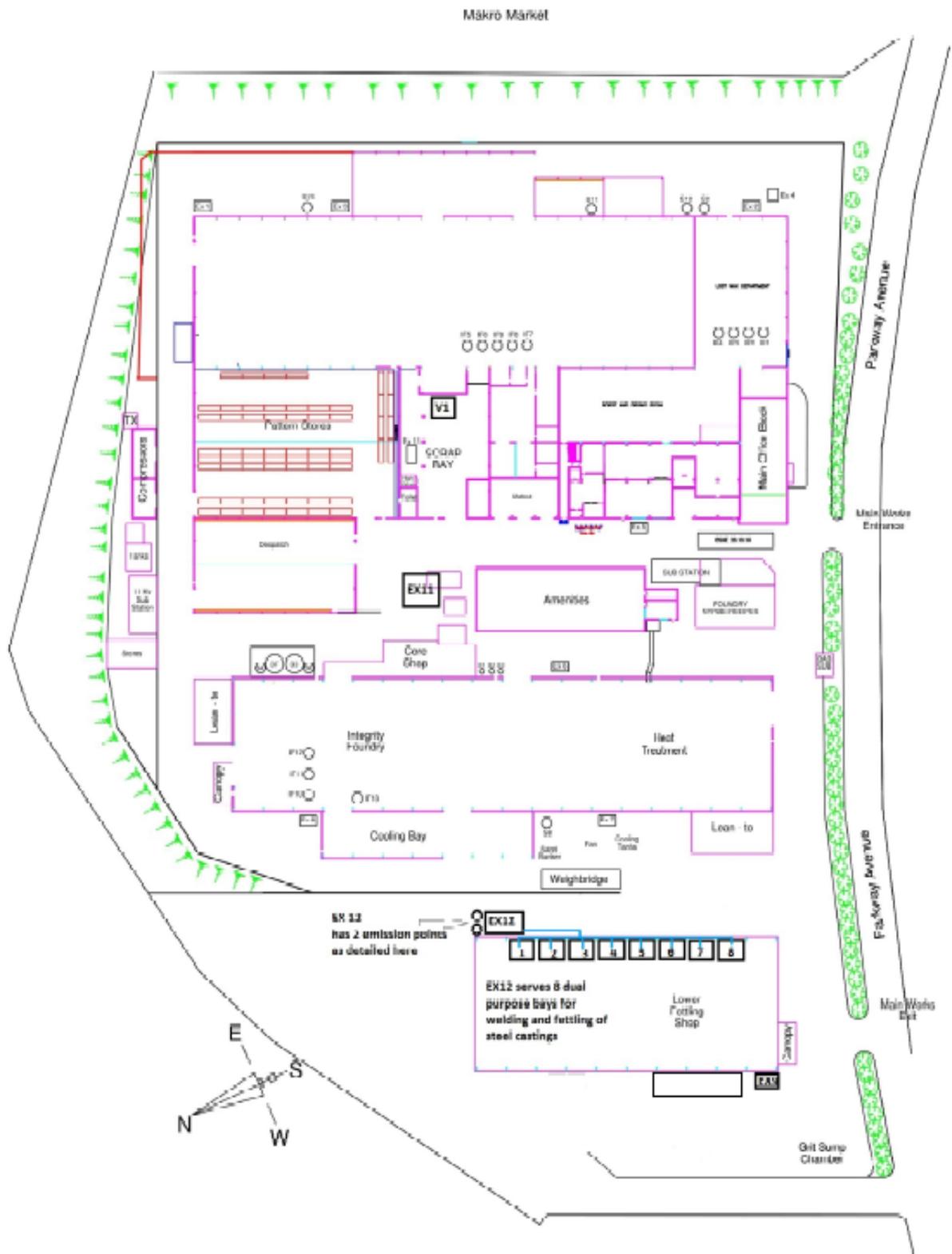
If the relevant payment is not received by the regulator, Permit revocation procedures shall be initiated in accordance with Regulation 22 of the Environmental Permitting (England & Wales) Regulations 2016, as amended or any statutory re-enactment of the same.

The requirements of this Permit are not to be taken as planning permission. Where any structural alterations are necessary to ensure compliance with this Permit then the normal planning channels should be followed.

## Schedule 1 – Installation Location and Boundary



## Schedule 2 – Installation Layout



## Schedule 3 – Essential Plant

### Extractors

ID No	Comments	Plant	Located	D1 Stack height (All covered by agreed dispersion model)	Actual Stack height	Airflow m <sup>3</sup> /min	Continuous Monitor	Emission Limit (particulates)
Ex 1	Bag Filters	Fettling Shop	Top Shop	15.1m	13m	780	Yes	10mg/m <sup>3</sup>
Ex 2	Bag Filters	Lost Wax	Top Shop	12.1m	13m	720	Yes	10mg/m <sup>3</sup>
Ex 3	Bag Filters	Knock out & Reclaim	Top Shop	15m	7.9m	450	Yes	10 mg/m <sup>3</sup>
Ex 4	Ceramic filter	Wax Ovens	Top Shop	N/A	5.85m	83	No	n/a
Ex 5	Cartridge	3D Printer	3D Room	N/A	3.4m	n/a	No	n/a
Ex 6	Bag Filters	Foundry Arc Air / Cut	Middle Shop	N/A	14m	960	Yes	10mg/m <sup>3</sup>
Ex 7	Bag Filters	Reclaim & Blast	Middle Shop	19m	14.4m	1140	Yes	10mg/m <sup>3</sup>
Ex 8	Bag Filters	AOD	Middle Shop	18m	9.1m	660	Yes	10 mg/m <sup>3</sup>
Ex 9	Cartridge	Shotblast	Bottom Shop	19m	11m	384	Yes	10 mg/m <sup>3</sup>
Ex 11	Bag Filters	Casting carousel	Top Shop	N/A	6.7m	960	No	10 mg/m <sup>3</sup>
EX 12	Cartridge	Fettling	Bottom Shop		7m	892	Yes	10 mg/m <sup>3</sup>

### Silos

New ID No	Old Integrity No	Location	Approx. Capacity	Contents
S1	Silo 3	Middle Shop	40 t	Chromite
S2	Silo 2	Middle Shop	40 t	New Sand
S3	Silo 1	Middle Shop	35 t	Reclaimed Sand
S4	Silo 6	Middle Shop	70 t	Chromite
S5	Silo 7	Middle Shop	100 t	Reclaimed Sand
S6	Silo 5	Middle Shop	65 t	New Sand
S7	Silo 4	Middle Shop	80 t	Reclaimed Sand
S8	N/A	Reclaim	80 t	Sand Reclaim
S9	New	Top Shop (Sand Moulding)	80/100	New Sand
S10	New	Top Shop (Sand Moulding)	80/100	Reclaimed Sand
S11	New	Top Shop (Core Shop)	33 t	New Sand
S12	New	Top Shop (Shell)	70T	Shell Waste

## Furnaces

New ID No	Location	Power	Capacity / Type
IF 1	Top Shop LW	125kw	40kg Roll over
IF 2	Top Shop LW	125kw	40kg Roll over
IF 3	Top Shop LW	225kw	180kg Tilt
IF 4	Top Shop LW	225kw	250kg Tilt
IF 5	Top Shop GF	750kw	1000kg Tilt
IF 6	Top Shop GF	750kw	1000kg Tilt
IF 7	Top Shop GF	400kw	500kg Tilt
IF 8	Top Shop GF	400kw	500kg Tilt
IF9	Top Shop GF	400kw	250kg Tilt
IF10	Middle Shop (K)	3 Mw	7500kg Tilt
IF11	Middle Shop (L)	1500kw	3500kg Tilt
IF12	Middle Shop (M)	750kw	1500kg Tilt
IF13	Middle Shop AOD	N/A	5000kg Tilt

## Unabated Ventilation / Extraction

New ID No	Location	Activities
V1	Shell Top Shop	Shell Machines
V2	Lost Wax	Wax assembly benches
V3	Top Shop Lost Wax	Spot Welding
V4	Top Shop Lost Wax	Boiler Clave Steam
V5	Top Shop Moulding	Moulding Dryer

## Schedule 4: Emission Points

