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

Permit Number: 2.2/048243/JT4

Installation Address:
Orchid Orthopedic Solutions Sheffield Ltd
Parkway Close
Parkway Industrial Estate
SHEFFIELD
S9 4WH

In accordance with Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2016, Orchid Orthopedic Solutions Sheffield Limited is hereby permitted to operate a scheduled activity at the address detailed above, namely the melting and making of non-ferrous metals in plant with a melting capacity of less than 20 tonnes per day, as described in Schedule 1, Part 2, Chapter 2, Section 2, Part B, a) and subject to the following Permit conditions.

Signed _____ **Dated this day: May 4th 2017**

Assistant Manager
Authorised by Sheffield City Council to sign on their behalf

The Secretary of States Guidance PG 2/3 and PG 2/4 (13) have provided the framework for the conditions in this Permit.

Name & Address of Operator:

Orchid Orthopedic Solutions Sheffield Ltd
Parkway Close
Parkway Industrial Estate
Sheffield
S9 4WH

Contact: Paul Dodgson Tel: 0114 2677800
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Registered Office:

Orchid Orthopedic Solutions Sheffield Ltd
Parkway Close
Parkway Industrial Estate
Sheffield
S9 4WH

Company Registration number: 1090667

Address of Permitted Installation:

Orchid Orthopedic Solutions Sheffield Ltd
Parkway Close
Parkway Industrial Estate
Sheffield
S9 4WH

Holding Company:

Orchid Orthopedic Solutions Limited
Units 1 and 2 Parkway Close
Parkway Industrial Close
Sheffield
S9 4WH

Talking to Us

Any communication with Sheffield City Council should be made to the following address quoting the Permit Number: **2.2/048243/JT4**

ENVIRONMENTAL PROTECTION SERVICE
FLOOR 5 NORTH HOWDEN HOUSE
1 UNION STREET
SHEFFIELD
S1 2SH

Alternatively Email: epsadmin@sheffield.gov.uk or ippc@sheffield.gov.uk
Telephone: (0114) 273 4651
Fax: (0114) 273 6464

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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 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 2.2 Part B (a) of Schedule 1 of those Regulations, to the extent authorised by the Permit:

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 holder of a permit is required to pay a fee for the subsistence of the Permit. This fee is payable annually on 1st 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, 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 (Monday to Friday 9.00 am to 5.00 pm) at the following address:

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

Tel: 0114 273 4651 or email 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 he 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.

Appeals

Under Regulation 31 of the EP Regulations Operators have the right of appeal against the conditions attached to their permit. Schedule 6 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.

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 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 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

Orchid Orthopedic Solutions Sheffield Limited is an investment casting foundry that produces specialist castings such as medical components, parts for the aerospace industry and turbo wheels.

The activities in the installation are as follows:

Wax Pattern Manufacturing

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.

Shell/Mould Manufacture

The wax assemblies are cleaned and etched with Trisol 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 using molochite refractory sands to produce a ceramic shell. The shelling process is either manually or robotically applied in a temperature and humidity controlled environment.

Powders and sands used in this process are received and stored in sealed bags.

There are 3 automated rainsanders, the particulate matter emissions from which are extracted to Dust Environmental (Engineering) Limited bag filters in 3 banks which are exhausted externally to atmosphere. The stack is located as indicated by SVK2 on the Installation Layout Plan in Schedule 2 of this Permit.

A pressure drop indicator monitors the performance of the bag filters which is manually checked and recorded by personnel. The manual rainsander and hand grinders for shell removal are vented to an Airmaster bag filter, the emissions from which discharge internally.

De-Waxing

The wax inside the ceramic shell is removed using high pressure steam in an autoclave operating at 180°C. Steam from this process is exhausted to atmosphere. There are 3 stacks serving the autoclave, 2 of which emit residual steam, and one steam at high pressure.

Traces of wax remaining after autoclaving are removed by firing off in a fire off de-wax furnace which is fitted with an afterburner. Emissions to atmosphere are through the stack located at S2 as indicated on the Installation Layout on Schedule 2 of this Permit.

The moulds are loaded into the first chamber of the fire off furnace which operates at 900°C. Wax is fired off and travels to the secondary chamber where it is subjected to heat from the afterburner that operates at 950°C. The furnace and afterburner are fitted with a temperature monitor with a visual display panel and staff are trained in the written procedure as to when the moulds can be loaded.

There is a limitation set on the de-wax furnace such that the appliance can not be overloaded. This limitation equates to 2kg of wax per batch, which corresponds to 4 turbo moulds and 12 medical moulds.

The afterburner stack is fitted with a Codel opacity meter which activates an alarm when the obscuration level achieves 20% or more. These alarm events are automatically recorded on the computer system. The airflow through this stack is less than 150 m^3/min and therefore not required to be stack tested.

Pre-Heat

Moulds are pre-heated in one of three gas-fired pre-heat ovens prior to pouring. Products of combustion emissions from this are exhausted directly to atmosphere.

Melting and Casting

The production of non-ferrous alloy cast moulds using both air melt and vacuum electric induction furnaces as listed below;

1 x Leybold-Heraeus Vacuum Induction Furnace with a 25kg capacity with dry pump.
1 x General Vacuum Equipment Induction Furnace with a 25kg capacity with oil pump.
2 Inductotherm Electric Induction Furnaces (air melt) with a capacity of 30kg each (rollover).

Casts are produced from, nickel, cobalt and chromium plus feeder compounds to produce specialist superalloys. Emissions from the air melt melting and casting process are not served with extraction, fumes from this process being fugitive within the foundry. Air melting is undertaken infrequently.

Emissions from the vacuum induction furnaces are extracted through the furnace extraction with no abatement through the stack(s) labelled S3 & S4a, S4b and S4c on the Installation Layout in Schedule 2.

Knock out and Cleaning

The ceramic shell is removed from the castings by hand and by knock out, shotblast and grit blast. Cleaning works such as the removal of runners from the castings are carried out in a number of cutting, grinding and shotblasting machines. These operations are carried out in sealed cabinets which are served by individual extraction systems. These vent to the external air via a stack labelled Dry Scrubber Stack on the Installation Layout in Schedule 2, after being filtered through a Dust Air cartridge filter system containing 102 cartridges with reverse jets. The unit is rated to handle a volume of 19,000 cfm. The filter cartridges give an overall filtration surface area of 459 metres square.

The filter system has a capacity airflow of 538m^3/min. The total particulate matter emissions are required to be continuously indicatively monitored and logged.

Finishing Operations

Castings are then straightened and measured and have minor casting defects removed by hand held grinders. Dust is collected from these operations by individual extraction systems which do not vent to the external air, with collected dust being removed on a regular basis.

Some castings may be further machined in the Knee Machining Cell and then ground or polished to give required surface finishes. The machines used in the polishing operations are linked to a new Wet Extraction LEV system located externally. The system deposits sludge into hoppers and vent to the external air via 2 stacks shown as LEV 149 and LEV 150 on the Installation Layout in Schedule 2. If technically feasible, these emissions shall be continuously indicatively monitored and logged.

Core Leach

Castings which contain ceramic cores are subject to chemical leach treatment in baths of potassium hydroxide with steam agitation to remove the core from the castings. Potassium hydroxide vapours are extracted directly to atmosphere unabated via stack CL1 as detailed on Schedule 2.

Non Destructive Testing

Castings are immersed in a bath of fluorescent penetrant dye which is then drained and washed off. A small number of castings are etched with nitric and hydrochloric acid to enhance this process. These activities take place in the laboratory fume cupboard. Trivial concentrations of nitric acid and other emissions are extracted directly to atmosphere with no abatement.

Castings are x-rayed and inspected and any defects found will be removed by fettling or blasting.

Some castings may be subjected to a passivation process or a degreasing operation undertaken on the Automated Passivation Line. This utilises citric acid and a detergent. Vapours are emitted to atmosphere unabated via stack PAL1 as shown on Schedule 2.

Finished castings are then despatched.

This Permit covers the receipt, storage, handling and transporting of raw materials and the treatment and storage of waste materials on site.

CONDITIONS OF PERMIT.

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

Section 1 – Upgrading.

1.1 A continuous indicative particulate monitor shall be provided to monitor the emissions from the dry filter serving the knock out and cleaning operations labelled Dry Scrubber Stack on Schedule 2, and the wet extractors labelled LEV 149 and LEV 150, within 12 weeks of issue of this Permit.

1.2 Prior to the installation of the continuous indicative particulate monitor required by condition 1.1, the Operator shall submit details of the system to the Regulator for approval in writing.

Section 2 – Production Capacity.

2.1 The installation shall have a melting capacity of less than twenty tonnes per day.

2.2 Daily melting records shall be kept on site for a period of at least 2 years, and shall be made available to the Regulator upon request.

Section 3 – Plant and Equipment.

3.1 The activities at the installation shall be carried out within the boundary outlined in red as indicated on the Installation Location and Boundary plan in Schedule 1 of this Permit.

3.2 Permitted activities shall only be carried on using the plant and equipment as detailed in the Description of Activities and on the Installation Layout in Schedule 2 of this Permit.

3.3 The Operator shall ensure that the Regulator is notified of any proposed operational changes including any alterations to the process involving the provision of new plant, equipment, substances or processes which may affect emissions. The information shall be submitted at least 14 days before the changes take place.

3.4 No plant or equipment used for any activity shall be operated with an extraction point direct to atmosphere unless specifically noted within this Permit or specifically agreed in writing with the Regulator.

Section 4 – Emission Limits and Controls.

4.1 All emissions to air, other than steam or condensed water vapour shall be free from persistent visible emissions and free from droplets.

4.2 Emissions to air shall be free from offensive odour beyond the installation boundary as perceived by the Regulator.

4.3 All emissions to air, including fugitive emissions, arising in normal operating conditions, including charging and pouring, shall be free from persistent visible emissions.

4.4 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.

4.5 The efflux velocity of emissions from the final point of discharge to atmosphere serving the emission points from the installation shall not be less than 15m/s. The discharge shall be vertically upwards.

4.6 Emissions from combustion processes, including the de-wax fire-off furnace 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.

4.7 All reasonably practicable steps shall be taken to minimise the duration and visibility of emissions during start up and shut down.

4.8 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.

Section 5 – Monitoring, Sampling and Measurement of Emissions.

5.1 The Operator shall ensure that a visual assessment of fugitive fume from the building housing the melting process is carried out at least once a day when molten metal is being cast from the air melt induction furnaces. The duration of the assessment shall be for a minimum of one minute. All results of observations shall be recorded in accordance with condition 5.18 of this Permit.

5.2 The Operator shall ensure that a visual assessment of emissions from the stack(s) serving the pumps to the vacuum induction furnaces is carried out when pumping down to vacuum. The duration of the assessment shall be for a minimum of one minute and shall coincide with the vacuum formation process. Details of the observations shall be recorded in accordance with condition 5.18 of this Permit.

5.3 Emissions of total particulate matter from the stack serving the Shell Extraction shall be tested at least once in every 2 year period in order to determine compliance with the emission limit of 20mg/m^3.

5.4 Emissions of total particulate matter from the Knock Out & Finishing stack and the 2 stacks serving the wet arresters (LEV 159 and LEV 150) shall be tested at least once in every twelve month period in order to determine compliance with the emission limit of 20mg/m^3.

5.5 Emissions of total particulate matter from any stack with an airflow of 150m^3/min or more of air shall be tested at least once in every twelve month period in order to determine compliance with the emission limit of 20mg/m^3.

5.6 The introduction of dilution air into duct systems in order to comply with emission limits shall not be permitted.

5.7 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.

5.8 Prior to undertaking any emissions monitoring the Operator shall submit an emissions site monitoring protocol detailing the pollutants to be tested, stacks to be tested, the methods to be used and the proposed date of testing, at least 7 days before the testing is to take place to the Regulator for approval in writing.

5.9 The results of annual non-continuous monitoring tests shall be forwarded to the Regulator within 8 weeks of completion of the testing.

5.10 Where the results of any non-continuous monitoring are adverse, or exceed the emission concentration limit, 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.

5.11 Stack emissions monitoring shall be carried out in accordance with methods described in M1 “Sampling requirements for monitoring stack emissions to air from industrial installations”[1] and M2 “Monitoring of stack emissions to air”[2], or by another method agreed in writing by the Regulator.

5.12 Non-continuous emissions monitoring of particulate matter shall be carried out in accordance with the main procedural requirements of BS EN 13284:Part 1 with averages taken over operating periods excluding start up and shut down. Sampling equipment should be capable of collecting particulate matter of 0.1 microns diameter or less, with an efficiency of at least 75%.

5.13 Results of non-continuous monitoring shall include details of process conditions at the time of monitoring, monitoring uncertainty and any deviations from the procedural requirements of standard reference methods and any error invoked from such deviations.

5.14 The monitoring reports shall record all pollutant concentrations expressed at reference conditions, 273K, 101.3kPa, the oxygen and water references shall be that which correspond to the normal operating conditions in the process concerned

5.15 Emissions of total particulate matter from the stack serving the fire off furnace shall be continuously indicatively monitored and shall trigger an audible and visible alarm when the emissions reach the equivalent reference level of 20% obscuration.

5.16 The Operator shall inform the Regulator immediately in cases 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;
- Details of remedial action taken.

[1] Environment Agency, January 2016, or any re-issue or update
[2] Environment Agency, January 2014, or any re-issue or update

5.17 In the event of results from any monitoring activity demonstrating an adverse emission or a breach of emissions limit, the Operator shall undertake the following actions:

- Cease the activity or process causing the adverse emission immediately;
- Investigate the cause immediately;
- Carry out corrective action as soon as is practicably possible;
- Record in the recording system required by condition 5.18 as much detail as possible regarding the cause and extent of the problem and the action taken to rectify the situation;
- Undertake emissions re-testing to demonstrate compliance as soon as possible;
- Only re-start the activity in question when it is compliant with emission limits and Permit requirements;
- Notify the Regulator within one day of becoming aware of the results.

5.18 The Operator shall ensure that records containing the details and results of all visual assessments and records of all inspections, observations and maintenance made in accordance with Permit conditions are 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 records shall be kept on the permitted premises and made available for inspection by the Regulator. Such records shall be kept for a minimum of two years and shall be submitted in writing to the Regulator on demand.

Section 6 – Continuous Monitors.

6.1 Emission points with a capacity airflow of 150m^3/min or more shall each be fitted with a continuous indicative particulate emissions monitor which shall monitor emissions whenever the extraction system it serves is operating.

6.2 Emissions points with a capacity airflow of 300m^3/min or more shall each be fitted with a continuous indicative particulate emissions monitor and datalogger which shall continuously record the particulate emissions. The dataloggers shall continuously monitor particulate emissions whenever the extraction system it serves is operating.

6.3 The continuous indicative particulate emissions monitors shall be fitted with a visual display and visual and audible alarms.

6.4 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.

6.5 Alarm events from all continuous indicative particulate monitoring systems shall be automatically recorded.

6.6 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.

6.7 All abatement plant with an airflow of less than 150m^3/min shall be fitted with a pressure drop indicator to warn of arrestment plant failure.

6.8 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 Sheffield City Council's Environmental Protection Service.

6.9 The Operator shall ensure that a visual assessment of the continuous indicative 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 5.18 of this Permit.

6.10 The Operator shall ensure that the continuous indicative 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 5.18 of this Permit.

6.11 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.

6.12 An annual summary of readings from the continuous monitor serving the stack to the fire off furnace S2 shall be submitted to the Regulator once in every twelve month period. The next data shall be submitted by 14th January 2018 for the period 1st January to 31st December 2017 and shall include a record of alarm events, the duration of alarm events and actions taken to remedy the alarm condition.

6.13 Once fitted, six monthly summaries of readings from the continuous indicative particulate monitor serving the Knockout & Polishing filter, and the 2 wet arrester monitors at LEV 149 and LEV 150, shall be submitted to the Regulator once in every six month period. The next data shall be submitted by 14th January 2018 and every six months afterwards, and shall include a record of alarm events, the duration of alarm events and actions taken to remedy the alarm condition.

Section 7 – Maintenance.

7.1 A written audit of items of plant and equipment shall be undertaken. The audit shall identify all plant and equipment that is critical to prevent, reduce or control emissions to air from the installation, including but not limited to the bag filters, after burner, wet arresters, alarms, detection systems and continuous monitors. A copy of the audit shall be submitted to the Regulator for written approval within 8 weeks of the date of this Permit.

7.2 A written preventative maintenance schedule shall be produced for all critical plant and equipment identified from the audit required by condition 7.1. A copy of the maintenance schedule shall be submitted to the Regulator for written approval within 8 weeks of the date of this Permit. The maintenance schedule shall be revised and updated upon provision or removal of plant or equipment.

7.3 The Operator shall ensure that all abatement plant such as filters, wet arresters and afterburners are operated and maintained in accordance with manufacturer's recommendations and serviced at least once in every 12 month period. Details of the maintenance and servicing shall be recorded and made available for inspection by the Regulator on demand.

7.4 The Operator shall ensure that pollution abatement plant such as filters, associated monitors, magnehelic gauges, alarms, data loggers and control systems shall be checked and maintained in good working order as part of an ongoing written planned preventative maintenance programme, to ensure sound operation. Details of these checks shall be recorded and made available for inspection by the Regulator on demand.

7.5 Filtration plant shall be inspected at the frequency specified in the Table below, unless otherwise agreed in writing with the Regulator;

Table- Filter Plant Inspection Frequency

Filter Cleaning Method	Frequency of Visual Inspection
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

7.6 The Operator shall ensure that all magnehelic gauges on filter plant are checked every 2 days against a known safe operating parameter. Details of the reading shall be recorded in the log book or recording system kept in accordance with condition 5.18. Where the reading falls outside the optimum parameters for the plant, the condition of the filters shall be investigated and rectified.

7.7 The Operator shall ensure that a visual inspection of all abatement plant such as filters and afterburners and associated ductwork is carried out at least once in every 6 month period under normal operating conditions for any signs of wear, tear or damage. Any damage or defects shall be repaired as soon as possible. Details of inspections including any remedial action shall be recorded and made available for inspection by the Regulator on demand.

7.8 The Operator shall ensure that the opacity meter and associated alarm serving the afterburner stack on the de-wax furnace S2 is checked daily to ensure sound operation. Details of these checks shall be recorded and made available for inspection by the Regulator on demand.

7.9 Once fitted, the Operator shall ensure that the continuous indicative particulate monitor, associated alarm and datalogger serving the knockout and polishing stack is checked daily to ensure sound operation. Details of these checks shall be recorded and made available for inspection by the Regulator on demand.

7.10 Once fitted, the Operator shall ensure that the continuous indicative particulate monitor and datalogger serving the knockout and polishing stack is serviced and calibrated annually. Service reports and calibration checks shall be made available for inspection by the Regulator on demand.

7.11 All continuous monitoring readings shall be on display to operating staff.

7.12 The two wet scrubber systems shall be adequately maintained. Action shall be taken to deal with any blockages that occur due to accumulation of solids, for example, adding flocculating agents to the liquor to settle the solids out. Flocculants will cause deposition which may result in blockages.

7.13 An adequate supply of spares and consumables shall be kept on site or made available within 1 day from guaranteed suppliers for all items of plant and equipment identified as being critical as a result of the audit carried out in compliance with condition 7.1.

7.14 Records of breakdowns and plant failure shall be kept and analysed in order to eliminate common failures. The records shall be made available for inspection by the Regulator on demand.

7.15 For plant and equipment identified in the audit required by condition 7.1, alarms or other warning systems shall be provided as appropriate to indicate equipment malfunction or breakdown by a date agreed with the Regulator.

7.16 The alarms or warning systems required by condition 7.15 for plant and equipment shall be checked as part of a preventative maintenance schedule and maintained in accordance with manufacturer's instructions. A record of such checks and maintenance shall be noted. Details shall be made available for inspection by the Regulator on demand.

7.17 Buildings, housings and structures including roofs and guttering shall be inspected at least once per year for any signs of accumulations of dusty material that may become wind-whipped. Repairs and cleaning shall be carried out immediately and details of inspections shall be recorded and made available for inspection by the Regulator on demand.

7.18 Roadways, storage areas and yards shall be inspected at least once per month for any signs of accumulations of dusty material that may become wind-whipped. Cleaning shall be carried out immediately and details of inspections shall be recorded and made available for inspection by the Regulator on demand.

Section 8 – Materials Handling.

8.1 Arrested dust from the installation bag filters shall be collected directly into heavy duty bags lining the receptacles under the arrestment plant to prevent double handling of fines.

8.2 When full, the bags in the receptacles under all bag filter arrestment plant shall be tied or fastened securely and placed in a waste container in order to prevent emissions to atmosphere. Any split bags shall be double bagged.

8.3 Storage and handling of particulate matter including wastes shall be carried out in a manner so as to prevent or minimise dust emissions.

8.4 Spillages of potentially dusty or odorous materials shall be dealt with in accordance with a written Spill Procedure which is approved in writing by the Regulator.

8.5 Cleaning operations shall be carried out by wet sweeping methods or vacuuming in order to minimise emissions of particulate matter to air.

8.6 Waste collection skips shall be covered with tarpaulin or other suitable material or their contents shall be treated with water in order to prevent emissions of particulate matter to the air.

Section 9 – General Conditions.

9.1 The stack serving the fire off de-wax furnace shall be adequately insulated to minimise cooling of waste gases and steam to prevent liquid condensation. Stacks and ductwork shall be leak proof.

9.2 Stacks or vents shall not be fitted with any restriction at the final opening to exit velocity such as a plate, cap or cowl other than an accelerator cone or low resistance cowl.

9.3 Staff at all levels shall receive training and instructions necessary for their duties and shall include the following:

- Responsibilities under the Permit;
- Minimisation of emissions at start up and shut down;
- Actions during abnormal emissions including minimisation of emissions.

9.4 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 to atmosphere. These documents shall be made available to the Regulator upon request.

9.5 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:-

a) be made available for inspection by the Regulator at any reasonable time;
b) be supplied to the Regulator on demand and without charge;
c) be legible;
d) be made as soon as reasonably practicable;
e) indicate any amendments which have been made and shall include the original record wherever possible, and;
f) 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.

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

a) The detection of an emission of any substance, which exceeds any limit or criterion in this Permit, specified in relation to the substance;
b) 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;
c) 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;
d) Any accident, which has caused, is causing or has the potential to cause significant air pollution.

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

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

9.8 All reports and notifications required by this Permit, or under any Regulation under the Environmental Permitting (England and Wales) 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 or ippc@sheffield.gov.uk
or

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

END OF PERMIT CONDITIONS

Please Note.

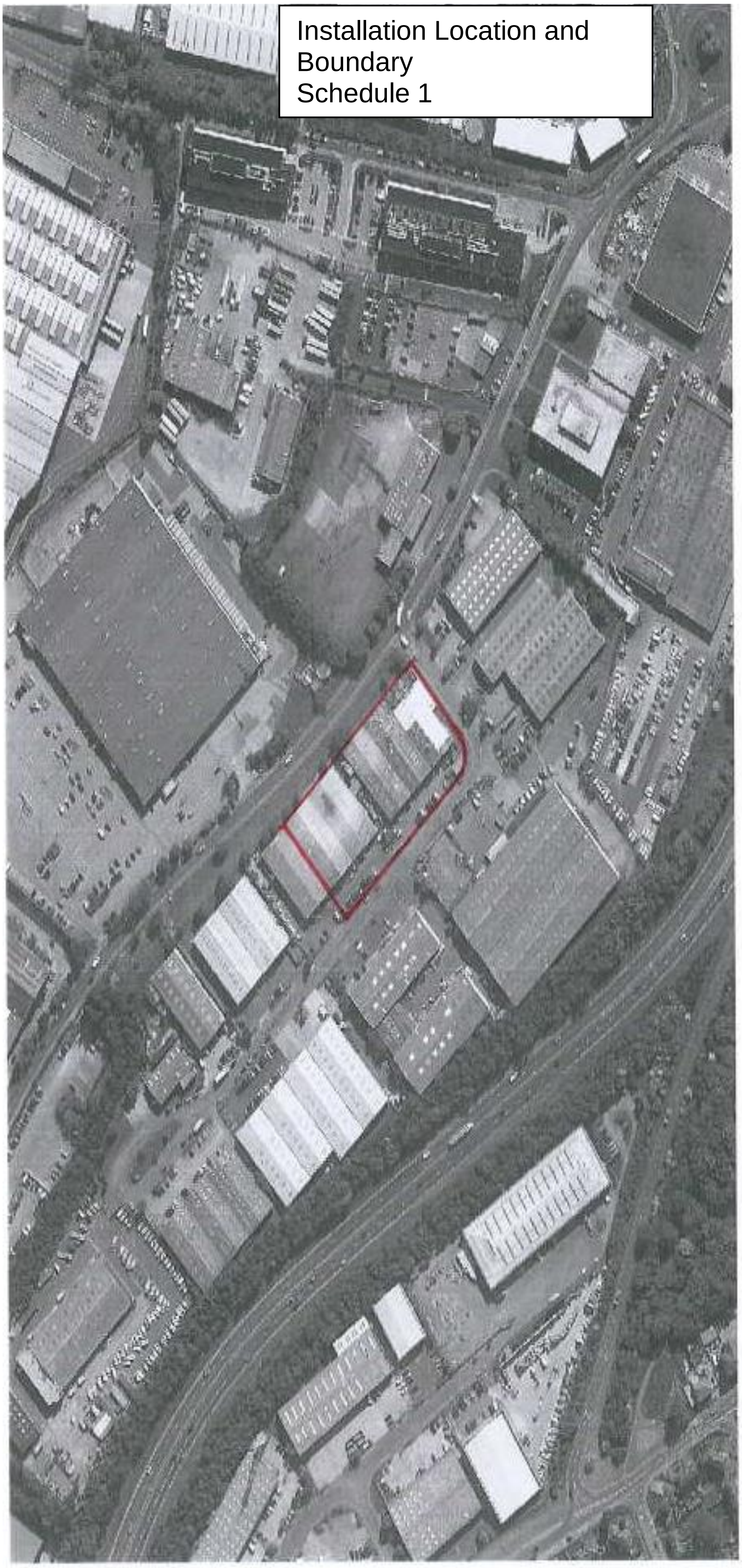
Where complaint is attributable to the operation of the installation and is, in the opinion of the Local Authority, justified, or if new knowledge develops on the potential for harmful effects from emissions, an immediate review of the Permit shall be undertaken. The Local Authority shall subsequently 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 process Operator, to this Authority within 2 weeks of the 1st April of each year.

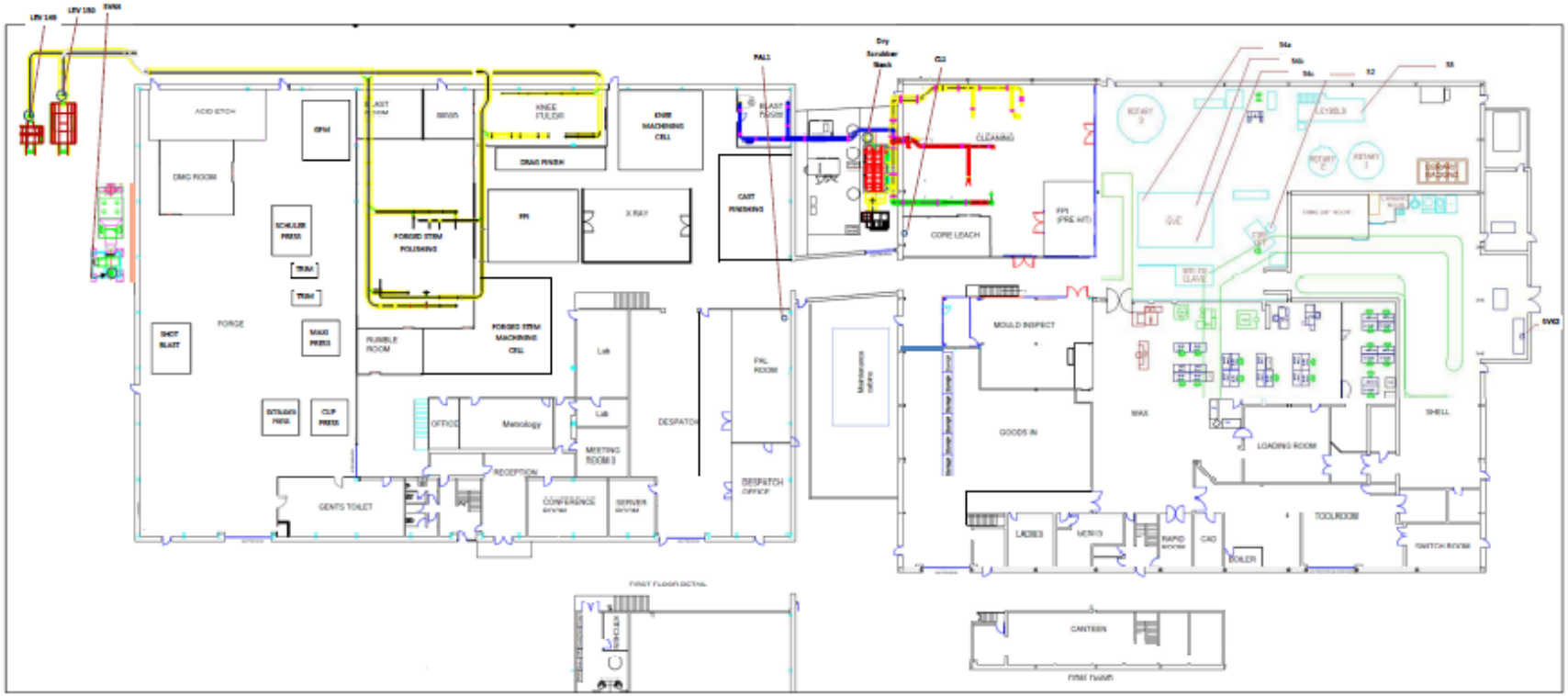
In the event that the Permit has been issued after the 1st April in the initial year then the subsistence fee shall be pro rata for the complete months remaining and shall be due within 2 weeks of the Permit issue date.

If the relevant payment is not received by Sheffield City Council's Environmental Protection Service then Permit revocation procedures shall be initiated in accordance with Section 22 of the Environmental Permitting (England & Wales) Regulations 2016 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.

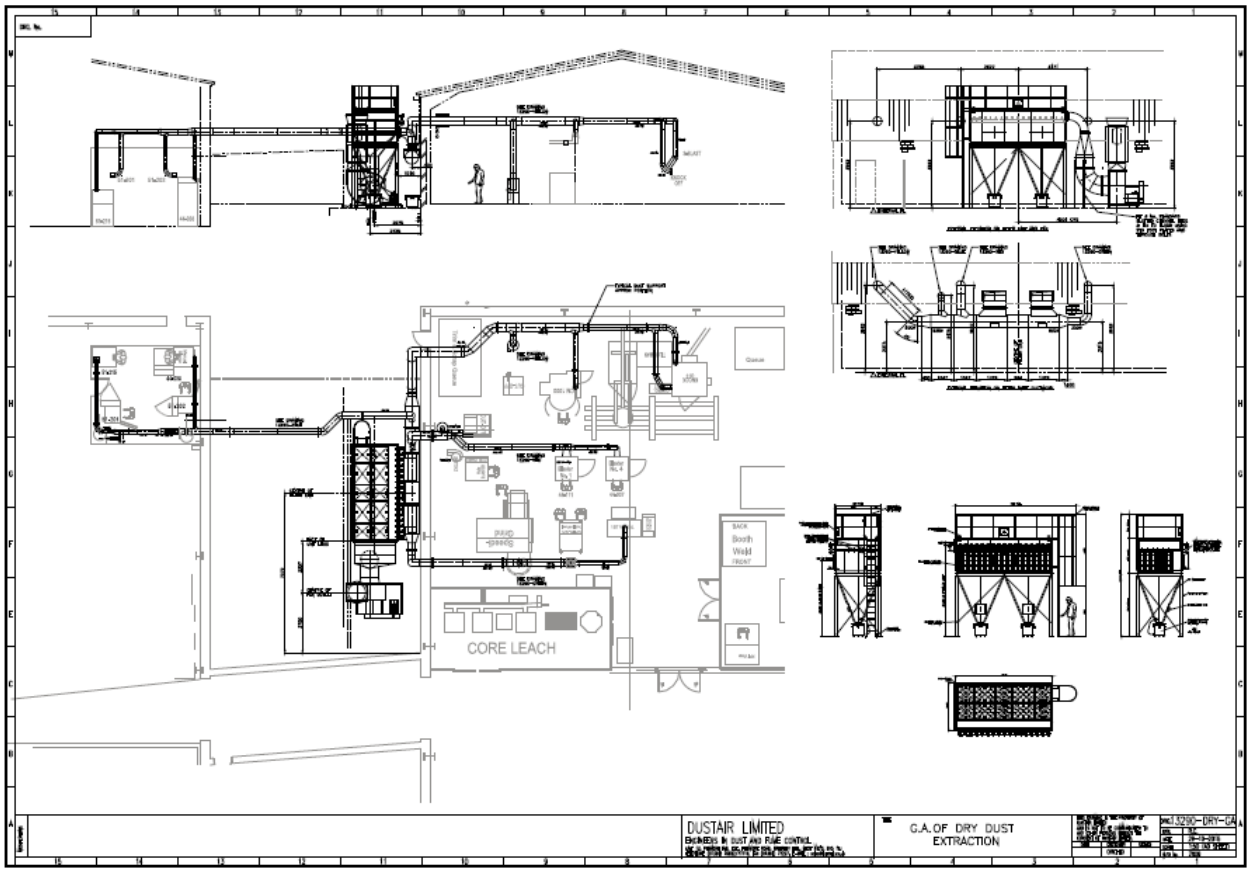

Installation Location and
Boundary
Schedule 1

Parkway Units 1 and 2 Installation and Activity Layout Plan



Change to Permit 2.1/D48243/IT3 Additional Document 2.3.2

Schedule 2 Installation Layout



Plan of Knock Out & Cleaning Filter