



**POLLUTION PREVENTION AND CONTROL ACT 1999
ENVIRONMENTAL PERMITTING (ENGLAND & WALES) REGULATIONS 2010 as
amended**

**Permit Number: 2.3/066133/JT2
Installation Address:
Orchid Orthopedic Solutions Sheffield Ltd
Parkway Close
Sheffield
S9 4WH**

In accordance with Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2010 as amended Orchid Orthopedic Solutions Sheffield Limited is hereby permitted to operate a scheduled activity at the address detailed above, namely the surface treatment of metals which is likely to result in the release of acid-forming oxides of nitrogen into the air as described in Schedule 1, Part 2, Chapter 2, Section 2.3, Part B sub section (a) and subject to the following Permit conditions.

Signed _____

A handwritten signature in black ink, appearing to be "A. O'H.", written over a horizontal line.

~~Dated this day: 29th January 2013~~

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

The Secretary of States Guidance PG 4/1(04) for the Surface Treatment of Metal Processes has provided the framework for the conditions in this Permit.

Name & Address of Operator:

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

Company Registration Number: 07947477

Contact Name: Mike Ford (0114) 2942365 07894 599964
Mike.ford@orchid-ortho.com

Registered Office:

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

Address of Permitted Installation:

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

Holding Company

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

Talking to Us

Any communication with Sheffield City Council should be made to the following address quoting the Permit Number:

**ENVIRONMENTAL PROTECTION SERVICE
SHEFFIELD CITY COUNCIL
2-10 CARBROOK HALL ROAD
CARBROOK
SHEFFIELD
S9 2DB**

Alternatively Email: epsadmin@sheffield.gov.uk or ippc@sheffield.gov.uk

Telephone: (0114) 273 4651

Fax: (0114) 273 6464

Contents

	page
Explanatory Note	5
Description of Activities	8
Section 1 Upgrading	10
Section 2 Plant and Equipment	10
Section 3 Emission Limits and Controls	10
Section 4 Monitoring, Sampling and Measurement of Emissions	11
Section 5 Control Techniques	14
Section 6 General Conditions	16
Schedule 1 Installation Location and Boundary	18
Schedule 2 Installation Boundary and Layout	19
Schedule 3 Flow Diagram of Etching Process	20

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 2010 (S.I. 2010 No.675), as amended, (“the EP Regulations”) to operate an installation carrying out activities covered by the description in Part 1, Chapter 2, Section 2.3, Part B sub section (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
2-10 Carbrook Hall Road
Carbrook
Sheffield
S9 2DB

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 2010 as amended.

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.

DESCRIPTION OF ACTIVITIES.

This Permit covers the removal of alpha case from titanium forgings involving the use of hydrofluoric acid and ferric sulphate. It also covers the use of hydrofluoric acid and nitric acid in the cleaning of titanium, stainless steel and cobalt chrome forgings at Orchid Orthopedic Solutions Ltd.

The pieces treated are for use mainly in the medical industry.

A schematic of the acid etching process is shown in Schedule 2 of this Permit. The process is operated at the location shown by shading on the plan in Schedule 1 of this Permit.

The surface treatment plant is one process line made up of various dip tanks held at specified temperatures containing different acid mixtures. The aggregated volume of the treatment tanks is 3,968 litres.

The first treatment tank contains 40% concentration hydrofluoric acid (13% of volume), 40% concentration ferric sulphate (43% of the volume) and water. The tank is heated to 40° C +/- 2 °C. Metal components are treated in this tank for approximately between 5 and 20 minutes. Emissions from this tank are extracted via lip extraction to the scrubbing unit. In the event of the temperature increasing above the 42 °C tolerance limit the barrel is automatically removed by the robot arm and the chillers will start.

Following this the components are rinsed in a rinse tank served by mains water at ambient temperature. Residence time approximately 2 minutes.

After rinsing the components are subject to de-smutting in a tank of 40% concentration hydrofluoric acid (12% of the volume) and 70% concentration nitric acid (31% of the volume) and water at ambient temperature. Residence time is less than 1 minute.

Following this the components are rinsed in a rinse tank served by mains water at ambient temperature, a further recirculation rinse, then a hot water rinse at 60°C+.

Heater controls for the tanks are wired back to a control cabinet. The temperature of solutions in the heated tanks is continuously monitored and logged. An alarm is triggered if the temperature of solutions in the heated tanks strays outside of pre-set limits. The temperature will then be manually adjusted by the operator.

The etching line is located over a polypropylene bund.

The composition and flow of work through the line is determined by product and customer specification. The majority of pieces to be treated are placed in a rotating barrel automatically controlled. 1 part will be static etched in a basket.

Emissions from the treatment tanks are pulled via lip extraction to the caustic soda scrubbing unit, which then exhausts the scrubbed air to atmosphere through a 9 metre stack with an efflux velocity of 15m/s. The process tanks, scrubber unit and stack are detailed on Schedule 2. A flow diagram detailing the steps in the process is provided in Schedule 3.

Fresh acids are delivered in Intermediate Bulk Containers (IBC) and stored in appropriately bunded areas.

Waste acids and other liquids from the treatment tanks are drained into a 10,000 litre double skinned polypropylene acid resistant waste tank which is twice the volume of the total system and linked to the line control panel which monitors the waste level through ultrasonic sensors once it reaches 50% of capacity. As required the waste is pumped out through a cam lock connection to a licensed carrier's tanker for disposal.

Permit Conditions.

Section 1 – Upgrading Conditions

- 1.1 There are no works of upgrading required by this Permit.

Section 2 – Plant and Equipment

- 2.1 The permitted activities shall be carried out at the location detailed on the site 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 as shown on the Installation Boundary and Layout reproduced in Schedule 2 of this Permit.
- 2.3 Sheffield City Council's Environmental Protection Service shall be notified by the operator of any proposed operational changes, including any alterations to the process involving the provision of new plant or equipment, removal of plant, or alteration of substances used which may affect emissions. The information shall be submitted at least 14 days before the changes take place.

Section 3 - Emission Limits and Controls

- 3.1 All emissions to air other than steam or condensed water vapour shall be colourless and free from persistent mist and persistent fume.
- 3.2 All emissions to air shall be free from droplets in excess of 20 µm aerodynamic diameter.

- 3.3 The following emission limits shall apply to emissions from the stack serving the process line after they have passed through the caustic soda scrubbing plant, as indicated on the plan in Schedule 2 of this Permit:

Pollutant	Limit	Parameter
Oxides of Nitrogen (expressed as nitrogen dioxide equivalent) Note: oxides of nitrogen include nitric acid vapour	200 mg/m ³	1 hour mean concentration
Fluoride (expressed as hydrogen fluoride)	5 mg/m ³	Expressed as hydrogen fluoride

- 3.4 The reference conditions for the emission limits shall be 273K, 101.3kPa, the oxygen and water references shall be that which corresponds to the normal operating conditions in the process concerned.
- 3.5 Emissions to air shall be free of offensive odour beyond the boundary as perceived by an Authorised Officer from Sheffield City Council's Environmental Protection Service. The boundary is indicated by the green dashed line on the plan shown in Schedule 1 of this Permit,
- 3.6 There shall be no burning in the open air in connection with the activities within the installation boundary.

Section 4 - Monitoring, Sampling and Measurement of Emissions

- 4.1 Manual extractive emissions monitoring tests for aerodynamic diameter, Oxides of Nitrogen and Hydrogen Fluoride shall be carried out at 12 month intervals from the stack serving the process line, unless otherwise agreed in writing by Sheffield City Council's Environmental Protection Service. The first monitoring is required to be completed by 1st June 2012.
- 4.2 The appropriate test method for aerodynamic diameter, Oxides of Nitrogen and Hydrogen Fluoride shall be agreed in writing by Sheffield City Council's Environmental Protection Service prior to the test being carried out.
- 4.3 Sampling ports shall be provided to the stack to be tested in accordance with the appropriate monitoring standard.

- 4.4 The introduction of dilution air into duct systems in order to comply with emissions limits shall not be permitted.
- 4.5 The Permit holder shall notify Sheffield City Council's Environmental Protection Service at least 7 days prior to any periodic monitoring exercise to determine compliance with emission limit values of the provisional dates and times of the tests, pollutants to be tested, stacks to be tested, methods to be used and provide the accreditation details of the stack monitoring consultants.
- 4.6 The results of non-continuous monitoring tests shall be forwarded to Sheffield City Council's Environmental Protection Service, within 8 weeks of completion of the testing.
- 4.7 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 Sheffield City Council's Environmental Protection Service.
- 4.8 In any case of abnormal emissions whether or not related to a monitoring result, the operator shall:
- Identify the cause of the emissions and take corrective action immediately;
 - Adjust the process or activity to minimise the emissions;
 - Retest to demonstrate compliance as appropriate after consulting Sheffield City Council's Environmental Protection Service;
 - Notify Sheffield City Council's Environmental Protection Service within 1 day of the incident (or in the case of adverse periodic monitoring, within 1 day of receipt of the results);
 - Record details of the incident describing the nature and extent of the problems, and the remedial actions taken in the log book or recording system kept in accordance with this Permit.

¹ Environment Agency, January 2010

² Environment Agency, December 2011

4.9 The Permit holder shall inform Sheffield City Council's Environmental Protection Service within 1 working day in cases where:

- An emission is likely to have an effect on neighbouring premises; or
- There is a failure of arrestment plant.

The report to Sheffield City Council's Environmental Protection Service shall include:

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

The operator shall record the details of the incident describing the nature and extent of the problems and the remedial actions taken in the log book or recording system.

4.10 Where the results of a monitoring exercise demonstrate a breach of Permit condition such as a breach of the emission limit or a persistent visible emission, the operator shall investigate the adverse results on the day the monitoring data is obtained. The operator shall:

- Close down the line responsible for the adverse result;
- Identify the cause and take corrective action;
- Record as much detail as possible regarding the cause and extent of the problem and the action taken by the operator to rectify the situation in the site log book or recording system;
- Re-test to demonstrate compliance as soon as possible;
- Not use the emission point or line until the problem has been rectified and tested to demonstrate it is emitting below the emission limit value or in compliance with Permit conditions;
- Notify Sheffield City Council's Environmental Protection Service within one day of knowledge of the adverse result.

4.11 Visual and olfactory assessments of emissions shall be made by the operator at least once per day when surface treatment is being undertaken. If coloured or odorous emissions are detected, remedial actions shall be taken immediately. Results of these assessments and details of any remedial actions shall be recorded, including their dates, times and locations. The results shall be made available to Sheffield City Council's Environmental Protection Service upon request.

- 4.12 The Permit holder shall ensure that records of all inspections, tests and assessments are kept in accordance with Permit conditions. The records shall include the date and time of inspection, the nature, colour, persistency and intensity of any emission, details of any repair or maintenance work carried out and the name of the person carrying out the inspection. The records shall be kept on the premises available for inspection by authorised officers of Sheffield City Council's Environmental Protection Service. Such records shall be kept for a minimum of two years and shall be furnished in writing to Sheffield City Council's Environmental Protection Service upon request.

Section 5 - Control Techniques

- 5.1 Stacks and ductwork shall be maintained in a leak proof condition and shall be adequately insulated to prevent exhaust gas temperature falling below the dew point.
- 5.2 The accumulation of materials in flues and ductwork shall not be permitted. Flues and ductwork shall be subject to a preventative maintenance programme.
- 5.3 Stacks shall not be fitted with any restriction at the termination point, with the exception of an accelerator cone which increases the exit velocity.
- 5.4 Spares and consumables for abatement plant subject to continual wear such as parts for the scrubber system, temperature monitors and alarms shall be held on site and stored appropriately or shall be available within 24 hours from guaranteed suppliers.
- 5.5 Lip extraction systems shall be fitted to the heated tanks. The extracted emissions shall be exhausted through the stack as indicated on the plan in Schedule 2 of this Permit.
- 5.6 All potentially dusty materials shall be stored in covered containers or under cover.
- 5.7 All spillages of acids and other substances shall be cleared as soon as possible after they occur in accordance with a written Spill Procedure.
- 5.8 Spillages of dusty materials shall be cleared by vacuum, wet or other methods that do not give rise to particulates to the atmosphere, in accordance with a written Spill Procedure.
- 5.9 A supply of suitable Spill Kits shall be located in the vicinity of the installation and staff shall be trained on their use.

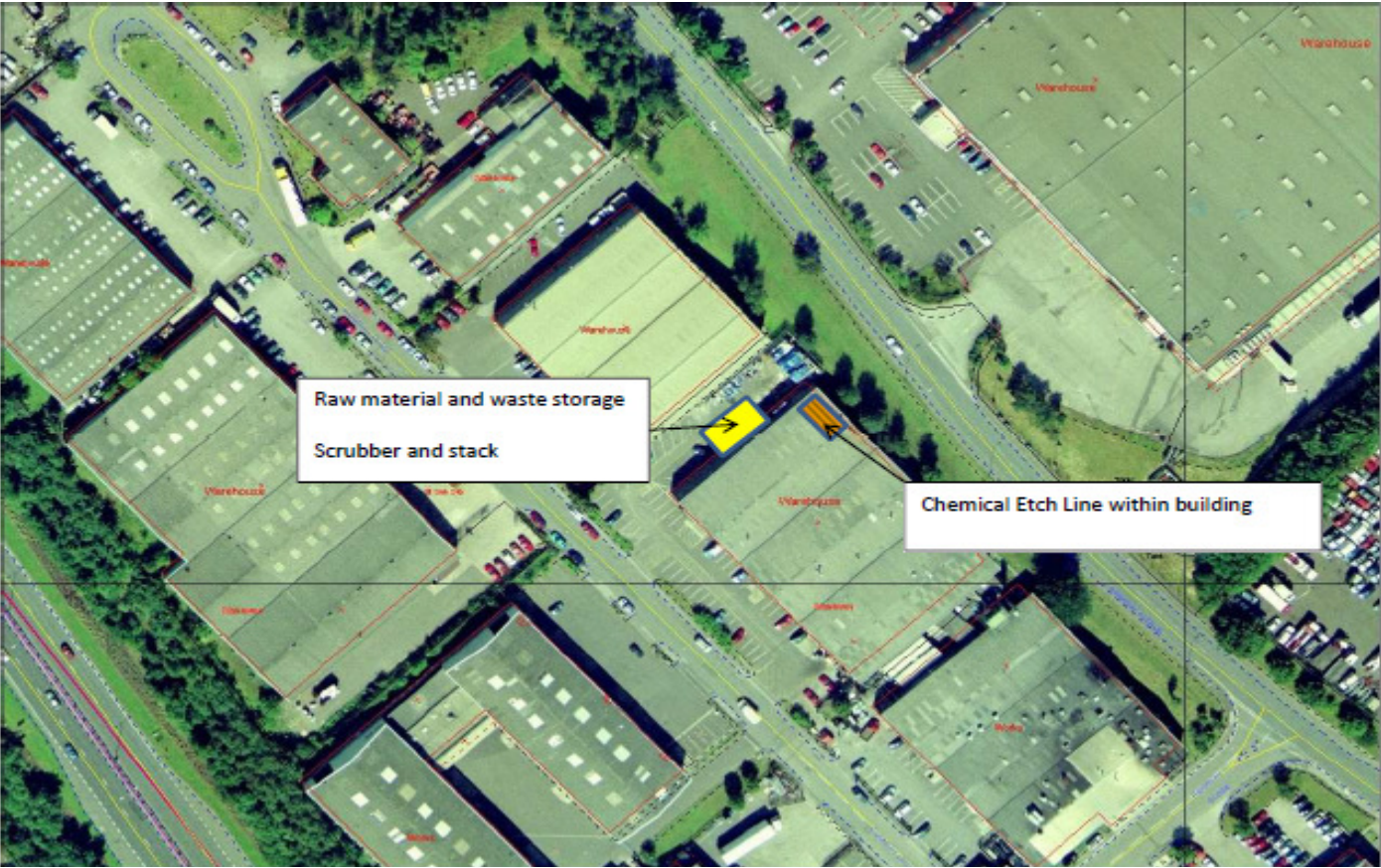
- 5.10 Areas where fresh and waste acid, ferric sulphate or other substances are stored shall be bunded. Bunding shall be impervious and resistant to the substances in storage. Bunds shall have a capacity of 110% of the capacity of the largest storage tank within them.
- 5.11 Bunds shall be kept free of rain water or other substances, shall be checked after rainfall and pumped out if necessary.
- 5.11 The height of the stack serving the process line and scrubber unit as indicated on the plan in Schedule 2 of this Permit shall be 9 metres.
- 5.12 Waste gases emitted from the stack serving the extraction system shall have a minimum exit velocity of 15 m/s.
- 5.13 Tanks containing acid shall be kept lidded when not in use.
- 5.14 The temperature of acids in process tanks shall be continuously monitored and automatically maintained at 40°C +/- 2 °C, that is, between 38 to 42 °C.
- 5.15 The acid tanks temperature monitors shall be fitted with audible and visual alarms to indicate when the tolerance 40 +/- 2 °C is breached.
- 5.16 All alarm events shall trigger the automatic shut-down of the heaters to the heated tanks. Reset of the alarms following an alarm event shall be automatic.
- 5.17 All alarm events shall be automatically recorded whether genuine or false.
- 5.18 The temperature monitors serving the acid tanks shall be calibrated at an appropriate time interval as recommended by the manufacturer such as once in every 12 month period. Details of the calibration shall be recorded in the log book or recording system, kept on site for a minimum of 2 years and be available for inspection by an authorised officer of Sheffield City Council's Environmental Protection Service on demand.
- 5.19 The alarms serving the temperature monitors shall be fitted with a test button and tested once per day to ensure they are in working order. Any repairs necessary shall be carried out promptly and within 5 working days.
- 5.20 A record of the results of the daily alarm test and any repairs necessary shall be recorded in the log book or recording system, kept on site for a minimum of 2 years and be available for inspection by an authorised officer of Sheffield City Council's Environmental Protection Service on demand.

Section 6 – General Conditions

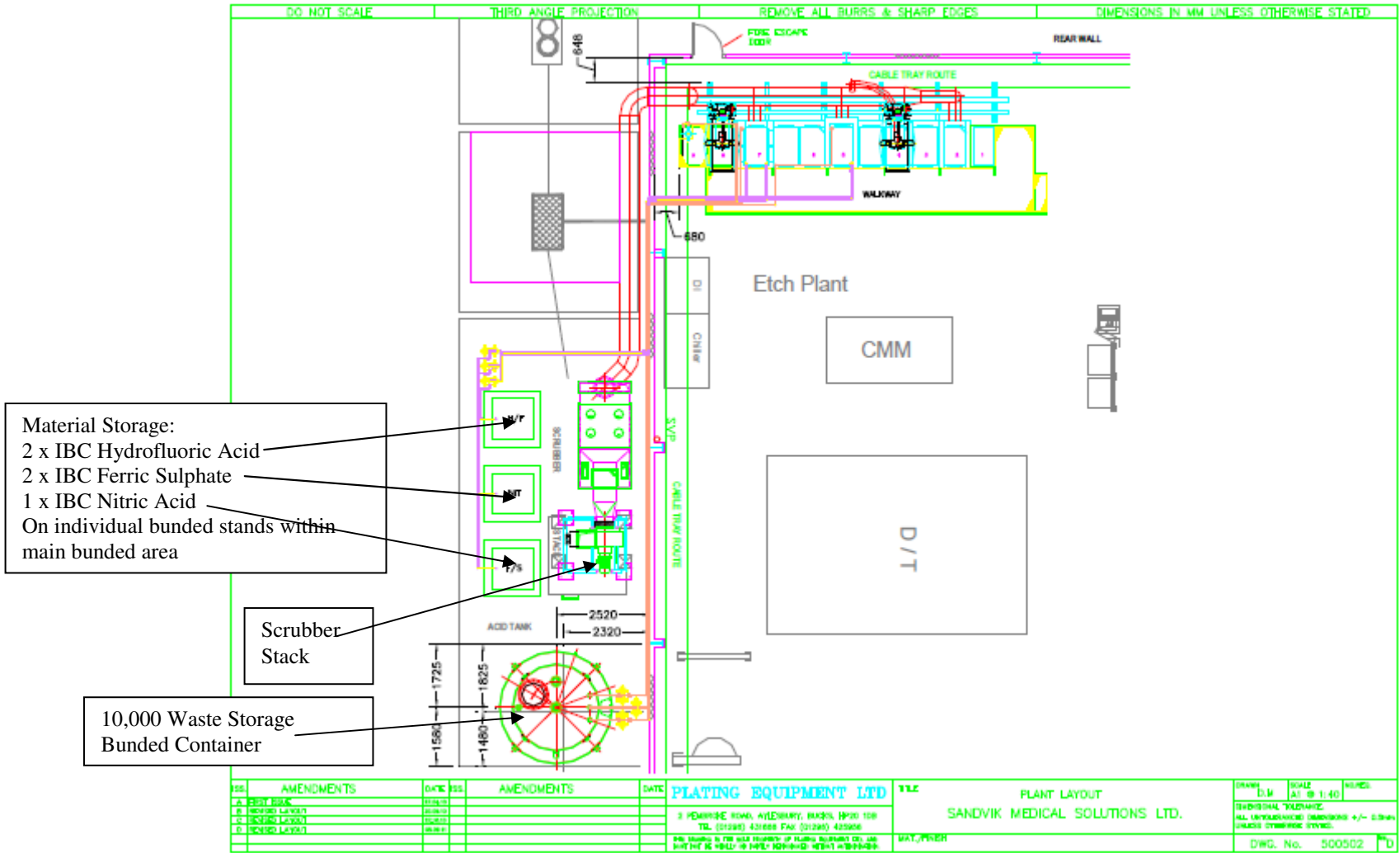
- 6.1 The Permit holder shall carry out preventative maintenance on all plant and equipment concerning the control of emissions to air in accordance with a written preventative maintenance programme. The maintenance programme shall be made available to Sheffield City Council's Environmental Protection Service upon request.
- 6.2 The Permit holder shall compile a list of arrestment plant or equipment necessary for controlling emissions from the installation, extraction systems, temperature monitors and alarms. The list shall identify all such plant and equipment that is critical to prevent, reduce or control emissions from the installation and a preventative maintenance schedule shall be produced for all critical plant. A copy of the list and maintenance schedule shall be available to Sheffield City Council's Environmental Protection Service on demand.
- 6.3 Details of all maintenance, whether planned or unplanned, shall be recorded in the log book or recording system kept in accordance with this Permit.
- 6.4 Staff at all levels shall receive training and instructions necessary for their duties and shall include the following:
- Effective management, supervision and operation of processes;
 - Responsibilities under the Permit;
 - Preventative maintenance system;
 - Minimisation of emissions at start up and shut down;
 - Actions during abnormal emissions including minimisation of emissions.
- 6.5 The Permit holder 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 Sheffield City Council's Environmental Protection Service upon request.
- 6.6 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.

- 6.7 The Permit holder shall give written notification to Sheffield City Council 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) Any proposed change in the operation of the installation; and
 - d) Resumption of the operation of any part of, or all of the Permitted installation after a cessation notified under (b) above.
- 6.8 The Permit holder shall notify the following matters to Sheffield City Council's Environmental Protection Service, in writing, within 14 days of their occurrence:
- Any change in the trading name of Orchid Orthopedic Solutions Sheffield Limited registered name or registered office address;
 - A change to any particulars of any ultimate holding company of Orchid Orthopedic Solutions Sheffield Limited, including details of an ultimate holding company where Orchid Orthopedic Solutions Sheffield Limited has become a subsidiary;
 - Any steps taken with a view to Orchid Orthopedic Solutions Sheffield Limited going into administration, entering into a company voluntary arrangement or being wound up.

Schedule 1 Installation Location and Boundary



Schedule 2 – Installation Boundary and Layout



Flow Diagram of Installation - Schedule 3

Doc AE#2

Friday, October 07, 2011

