1. Outline of operation (appendix C1)

The installation is predominately a steel foundry producing cast steel items as specified by customers. Occasionally a small amount of nickel-base, cobalt-base and cast iron is produced. Internal controls, in addition to the customer specification, are often needed to produce certain grades of steel and control the quality of the cast product.

The installation operates mainly on the Foundry Site in Ivy House Road. Two directly related activities, in Pattern Making and occasional fettling of castings, takes place on the Jubilee Site on the opposite side of Ivy House Road.

A resin bonded sand mould is made around a pattern (usually wooden) or an iron-ware mould is set-up. The pattern is stripped before pouring. A metal charge is gathered together made up of metal calculated to give the desired metal specification and required weight of molten metal. This is melted in one or several furnaces, where specification can be adjusted by additions or dilutions of metal, and then cast via a ladle into the mould. Melting is done using a combination of electric arc furnace, induction furnaces and a refining vessel called an Argon Oxygen Decarburisation Vessel.

Moulds are broken down and castings removed. Some sand is mechanically reclaimed for re-use. Not all sand can be reclaimed for re-use as reclaimed sand is of a lesser quality than new sand and a certain quality of sand is required for mould-making. Castings are shot-blasted and then excess metal and defects are removed from the casting using thermal and mechanical methods. A thermal treatment is required for most castings to make them suitable for processing and to give them their final physical properties.

2. Releases, techniques and monitoring (appendix C2)

Processes, other than those listed below, giving rise to fume and dust are carried out under extraction to various dust abatement units. Where these abatement units vent externally they do so through stacks which are monitored to give visible and audible warning of filter failure, typically within 80% of the particulate emission limit of 20mg/m³.

Pouring of molten metal relies on general building ventilation. Sand reclamation is done under extraction to a wet dust collector which has high- and low-water level trip switches which prevent the unit and sand reclamation from operating.

Groundwater discharges (appendix C3)
No discharges to groundwater are foreseen.

4. Raw materials and water (appendix C4)

The site uses various mineral raw materials throughout the process, including sands, refractory powders, bricks and fluxes such as lime. An alkaline phenolic sand binder is used to produce the solid sand moulds. This is a low odour system best suited to the range and size of castings produce.

A wide variety of types of steel are made each of which will dictate what types of metal can be used in the charges. Which furnace is to be used will also affect the type of metal that can be melted. Scrap metal is brought to commercial grade standards or an identified analysis. Alloys can be pure or ferro-alloy and are bought against an internal specification.

Water is used to cool furnaces via cooling towers, for quench furnace tanks, the wet dust arrestment unit and for welfare facilities.

5. Waste (appendix C5)

Waste is segregated and stored so as to prevent spreading. Dusty wastes are stored internally to prevent entrainment in air. All waste is disposed of to licensed contractors under duty of care with an emphasis on finding re-use and recycling options.

6. Energy (appendix C6)

The site energy use can vary with the out put of good tonnage. Assessing energy efficiency for the site is complicated due to the jobbing nature of the site and the lack of comparability between the various contracts that will make up the load at any one time and over time. The site measures its

energy use and monitors those key over-riding factors that affects its energy efficiency. Energy efficiency itself is measures by taking the total energy delivered to site (electricity, gas, propane, diesel) and dividing by the good tonnage output from the site.

7. Noise and vibration (appendix C7)

A number of foundry operations can generate significant noise. These operations take place within substantially enclosed foundry buildings. The installation is already well established in its local area as an LA-PPC Part B permitted installation and operations managed to prevent noise nuisance. The installation of 2 off 20t induction furnaces, which triggered this Part A2 application, will not significantly add to this noise profile.

The vibratory grid used to reclaim foundry sand can cause vibratory nuisance to adjacent properties when it is over-loaded. A process instruction of not loading the grid above 15 tonnes was introduced to prevent this.

8. Site report (appendix C8)

Wardell currently undertaking desktop study to support this application. This will be updated and made available to the council upon receipt.

9. Returning installation to satisfactory state (appendix C9)

The site is owned by the installation's parent company. The installation is a wholly owned subsidiary of the parent company. In this context, an outline plan has been set out of the steps necessary to return the site to a satisfactory state which prevents harm to the environment and nuisance to the local neighbourhood.

10. Environmental Management System (E.M.S.) (appendix C10)

The installation has a well established EMS, implemented since 1999, and accredited by a third party to the standard ISO 14001. Key objectives of the EMS are the policy requirements to ensure statutory compliance and prevention of pollution. The EMS has been used to control those aspects

of the site that can affect the environment and to continually improve the site's environmental performance.

11. Impact on the environment (appendix C11)

The installation of two off 20t induction furnaces will not significantly increase the overall environmental impact on the site. The site's general environmental characteristics will not change from those that are already established as a Part B LA-PPC permitted process. It is anticipated that the installation of the two furnaces will increase the overall efficiency of the melting processes carried out as they will replace current methods which require the utilisation and holding of metal, which reduces refractory lining life and increases energy use.