



**APPLICATION FOR ENVIRONMENTAL
PERMIT TO OPERATE A PAINT
SPRAYING AND ASSOCIATED GRIT
BLASTING PROCESS UNDER THE
ENVIRONMENTAL PERMITTING
(ENGLAND AND WALES) REGULATIONS
2016 (AS AMENDED)**

**ENVIRONMENTAL PERMIT TECHNICAL
REQUIREMENTS**

BLACKROW
group

**BLACKROW ENGINEERING CO. LIMITED,
ESTATE ROAD 7,
SOUTH HUMBERSIDE INDUSTRIAL
ESTATE, GRIMSBY,
NORTH EAST LINCOLNSHIRE,
DN31 2TP**

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ACCRONYMS / TERMS USED IN THIS REPORT

BAT	Best Available Techniques
BLACKROW	Blackrow Group
CO	Carbon Monoxide
DAA	Directly Associated Activity
ECL	Environmental Compliance Limited
EMS	Environmental Management System
EP Regulations	Environmental Permitting (England and Wales) Regulations 2016
EPTR	Environmental Permitting Technical Requirements
Ha	Hectares
IED	Industrial Emissions Directive
IPPC	Integrated Pollution Prevention & Control
LAPC	Local Authority Pollution Control
LEV	Local Exhaust Ventilation
LPG	Liquid Petroleum Gas
MEK	Methyl Ethyl Keytone
mg/Nm³	Milligrams per Normalised Cubic Metre
NOx	Oxides of Nitrogen
OS	Ordnance Survey
PPM	Planned Preventative Maintenance
RAMSAR	Ramsar Wetland of International Importance
SMP	Solvent Management Plan
SSSI	Site of Special Scientific Interest
The Installation	Blackrow Engineering Site
TVOC	Total Volatile Organic Compounds
VOCs	Volatile Organic Compounds

1. INTRODUCTION

1.1. Overview

- 1.1.1. This Environmental Permitting Technical Requirements (“EPTR”) document has been prepared on behalf of Blackrow Engineering Co. Limited (“Blackrow”), part of the Blackrow Group, by Environmental Compliance Limited (“ECL”). This EPTR relates to the paint spraying activities that will be performed at the Blackrow Engineering site located at Estate Road 7, South Humberside Industrial Estate, Grimsby, North East Lincolnshire, hereafter referred to as “the Installation”.
- 1.1.2. The paint spraying activity, and associated grit blasting activity, will be new processes undertaken at the site. Although it is noted there is an existing sheet metal grit blasting activity. Blackrow’s South Humberside Installation has been undertaking engineering activities for around 30 years and provides services for various sectors, on both a local and national scale.
- 1.1.3. Recent expansion of the business has seen increased clients and projects, along with an increased number of employees. Additionally, the range of projects has diversified and Blackrow are therefore now proposing to undertake on-site painting and grit blasting. The paint spraying activity is deemed as a prescribed activity and therefore requires an environmental permit in accordance with the Environmental Permitting (England and Wales) Regulations 2016 (as amended) (“EP Regulations”).
- 1.1.4. The specific process activity of paint spraying using volatile organic substances falls under Schedule 14 – Solvent Emission Activities of the EP Regulations. Schedule 14 refers back to the Industrial Emissions Directive (“IED”), and specifically Annex VII, Part 2. The activity is described in Row 8 of the table provided in Part 2 which states “Other coating, including metal, plastic, textile, fabric, film, and paper coating”, where the solvent consumption threshold is > 5 tonnes per year.
- 1.1.5. The grit blasting activities are not a listed activity within the regulations however, the activity has the potential to release dust to the atmosphere if not appropriately controlled. They are therefore deemed a Directly Associated Activity (“DAA”).
- 1.1.6. The paint materials which will be applied by spraying techniques contain solvent substances. The cleaning materials which will be used for cleaning of the spray guns and surface preparation also contain solvents.
- 1.1.7. None of the paint and solvent products used on site are identified with the relevant hazard statements that are listed in the IED to which Schedule 14 of the EP Regulations make direct reference to, specifically Article 58.
- 1.1.8. One of the paint products (Hardener) used on site will contain Isocyanates. Other paint products will contain xylene, toluene, and low concentration styrene.
- 1.1.9. The paint spraying activities will only be undertaken within a specially designed and constructed spray booth operating under negative pressure and fitted with appropriate filtration abatement.

1.2. Installation Location

- 1.2.1. The Installation is located on Estate Road 7, South Humberside Industrial Estate, Grimsby, North East Lincolnshire, DN31 2TP. The Installation occupies an area of approximately 0.33 Hectares (“Ha”) (3,300m²), and is centred on Ordnance Survey (“OS”) National Grid Reference TA2443 1031. The wider Blackrow site occupies an area of approximately 1.78Ha (17,800m²).
- 1.2.2. The exact location of the Installation is indicated on the Installation Location Map provided in Appendix I of this document. The Installation boundary is indicated on the Installation Boundary Map, which is provided in Appendix II of this document.
- 1.2.3. The closest residential properties are approximately 60m to the south and west of the Installation along Cromwell Road. To the north and east, the Installation is surrounded by other commercial and industrial units within the wider South Humberside Industrial Estate.

2. LISTED ACTIVITIES

2.1. Installation Activities

2.1.1. As noted in Section 1.1.4., the activities proposed to be undertaken at the Installation are covered by the description provided in Schedule 14 of the EP Regulations, namely; Solvent Emission Activity. For completeness, the IED reference for the activity is contained within Row 8 of the table in Part 2 of Annex VII as follows:

- Other coating, including metal, plastic, textile, fabric, film, and paper coating; where the solvent consumption is greater than 5 tonnes in a year.
- Grit blasting is a directly associated activity.

2.2. Existing Authorisations

2.2.1. Section A 1.3 of the Application Form requests details of any existing Local Authority Pollution Control (“LAPC”) or Integrated Pollution Prevention & Control (“IPPC”) authorisations for the installation, or any waste management licenses or water discharge consents. Blackrow do not hold any such authorisations, licenses, or consents.

3. OPERATING TECHNIQUES

3.1. Overview of the Painting and Blasting Processes

- 3.1.1. Blackrow have recently undergone expansion with increased clients, an increasing workforce, and diversified projects. Such diversification of projects has led to the proposal for Blackrow to undertake on-site painting and grit blasting. These activities require an environmental permit hence, submission of this application.
- 3.1.2. The painting process will be undertaken within a dedicated spray paint booth with integrated drying oven. The spray booth additionally benefits from an inbuilt extractor chest which produces a flowing tunnel of air, removing overspray and fumes. Volatile organic compounds (“VOC”) released from the curing and drying of paint is extracted via local exhaust ventilation (“LEV”). Extracted air from both painting and drying / curing is exhausted to atmosphere via duplex filters incorporating a 50mm green EU2 paint stop filter and EU3 blue pre-filter. There will also be some minimal fugitive releases from cleaning and handling of solvents.
- 3.1.3. The spray booth is fitted with a direct fired Liquid Petroleum Gas (“LPG”) burner with a 170kW output. This allows input air to be rapidly heated to the pre-set temperature for optimum drying and curing of paints.
- 3.1.4. Design and Construction of the spray booth will conform to:
- Defra Process Guidance Note 6/34(11) – Statutory guidance for re-spraying of road vehicles;
 - Health and Safety Executive guidance notes:
 - HSG178 which recommends on design and construction of vehicle spray booths;
 - EH9 and EH16 which cover the spraying of highly flammable liquids and isocyanates;
 - HSG258 which provides advice on local exhaust ventilation to control airborne contaminants;
 - CoSHH Regulations (2002): Regulation 9;
 - BS7671: Requirements for electrical installations (17th Edition);
 - The Gas Safety Regulations (1998); and
 - Electricity at Work Regulations: Hazardous Environments (ATEX Zone 1).
- 3.1.5. The grit blasting process will take place within a dedicated insulated blast room. The pressure and abrasive content can be set to determined limits at the blast machine. The abrasive grit is delivered under pressure through a 12-bar blast hose and in turn the blast nozzle. This is only possible provided safety interlocks are closed on all doors and the operator has closed the dead-man handle.
- 3.1.6. Abrasive grit and substrate coating break down into good abrasive, spent abrasive, large contaminants, and dust. Good abrasive, spent abrasive, and any large contaminants fall onto the recovery floor, while airborne dust particles are carried by the flow of air generated by the dust collector which then filters collected air into an enclosed waste collection hopper.
- 3.1.7. Additional activities relate to the storage of raw materials, handling, and storage of waste materials, along with the disposal of wastes.

3.1.8. Waste solvent containing materials (such as paint mixing cups) will be segregated and stored in a lidded 205l container. Empty paint tins will be crushed and stored in a lidded 205l container. Once a sufficient volume of waste solvent materials or empty tins has been generated, it will be collected under contract by Safety Kleen who will undertake the recovery and disposal of the wastes.

3.2. Substances to be used in the Process

3.2.1. The proposed chemicals to be used at the Installation are as follows:

- Hardener HMS9000;
- Hardener HIS9000;
- Thinner DS9000;
- Safety Kleen Standard Thinner;
- Safety Kleen Resolve Thinner;
- McCloskey Yellow paint TRS1200;
- McCloskey Green paint TRS1200;
- McCloskey Black paint TRS1200;
- Topcoat Slate Grey TRS1200;
- Topcoat Rock Yellow TRS1200;
- Primer PXS1211 Buff;
- PU Cure Promoter ZYS9000; and
- Solvent Based Fast Drying Degreaser.

3.2.2. The Safety Data Sheets (“SDS”) for all of the above can be provided on request.

3.3. Isocyanates

3.3.1. As identified in 1.1.8. above, one of the chemical products used in the proposed activities contain isocyanates.

3.4. Hours of Operation

3.4.1. The painting and grit blasting activities are proposed to operate as follows:

- Monday to Friday – 06.00h to 18.00h
- Occasional weekend working (Saturday and Sunday)

3.5. Maintenance

3.5.1. Blackrow will undertake Planned Preventative Maintenance (“PPM”). A maintenance manual will be compiled and will serve as a reference guide to the assets in use associated with the proposed activities with the aim of providing Blackrow with information on the fundamental criteria and instructions to follow during the maintenance programme. The key aspects of the PPM manual will be:

- the information contained in the manual is essential for the correct operation and maintenance of the equipment associated with the proposed activities;

- the manual shall be read by all persons directly involved in the start up, maintenance, and repair operations of the Installation;
- the document shall be the foundation of a planned preventative maintenance programme and a platform from which a positive safety culture will be launched; and
- the baseline for the maintenance intervals shall be the individual assets operating and maintenance instructions.

3.6. Training

- 3.6.1. Employees will undergo appropriate training to ensure the proposed activities are undertaken safely and employees are competent to perform their assigned tasks. Such training will cover aspects including the operation of equipment, handling of chemicals, and the personal protective equipment (“PPE”) which must be worn.
- 3.6.2. Management will ensure that training is provided to address identified needs and the effectiveness of the training is evaluated and documented.

3.7. Record Keeping

- 3.7.1. Records of all chemicals associated with the proposed activities will be maintained at all times. A copy will be made available to emergency services in the event of an accident, spillage, or fire.

3.8. Regulatory Standards

- 3.8.1. Activities described under Section 6.4 of the EP Regulations are covered by the Process Guidance Note PG6/23 (11) (revised June 2014) for coating of metal and plastic processes which details the control measures that should be applied to minimise the impact on the environment from such activities undertaken within this industry sector.
- 3.8.2. Due regard to the Process Guidance Note has been taken to inform the control measures implemented by Blackrow to control emissions from the proposed activities and in line with Best Available Techniques (“BAT”).

4. MANAGEMENT TECHNIQUES

4.1. Overview of Environmental Management System

4.1.1. Blackrow will operate an in-house Environmental Management System (“EMS”) at the Installation which will address the environmental aspects of the proposed activities. The EMS will be written in accordance with the Environment Agency’s online guidance ‘Develop a management system: environmental permits’ (February 2016, updated August 2022) and will adopt the Plan, Do, Check, Act approach.

4.1.2. The Board of Directors will have overall responsibility for the Installation. Responsibility for environmental matters at the Installation rests with the Health, Safety & Environment Manager.

4.1.3. Blackrow will establish a documented EMS which will:

- ensure compliance with all relevant legislation;
- ensure compliance with the conditions of the Installation's environmental permit;
- identify, assess, and minimise the risks of pollution arising from the Installation's activities;
- comprise a range of written procedures that cover all aspects of the Installation's activities;
- identify, set, monitor, and review environmental objectives and key performance indicators; and
- include a requirement to report annually on environmental performance, objectives, targets, and future planned improvements.

4.2. Details of the Environmental Management System

Plan

4.2.1. The planning element of the EMS will include:

- identification of environmental impacts and aspects associated with the Installation's activities and assessing their significance; this will include an assessment of the potential environmental risks posed by the work of contractors;
- identification and evaluation of relevant legal and other relevant requirements;
- identification of environmental objectives and targets that will be focussed on reducing the impact of the identified significant environmental aspects;
- completion of a series of risk assessments to cover a range of issues, including site operations, maintenance, accidents, training, and records; and
- details of how Blackrow intends to ensure that any relevant standards, guidance, and codes of practice will be met on an ongoing basis.

4.2.2. The outcomes of the above will be:

- a comprehensive understanding of the potential and actual impacts of the permitted activities on the surrounding environment and people's health;
- the correct appropriate measures will be selected to manage environmental risks and prevent or minimise their effects so as not to cause pollution;

- a series of documented procedures covering key aspects of the Installation's activities; and
- a series of documented environmental objectives and targets, together with an action plan/development programme to ensure that these will be met.

Implementation and Operation (DO)

4.2.3. This element will include:

- ensuring that EMS roles and responsibilities are clearly defined and documented, and that site staff are made aware of these;
- ensuring that the Installation is operated by suitably competent staff who have received the necessary training in all aspects of the plant's operation, including where contractors are used, ensuring that they are suitably competent;
- the skills and competencies necessary for key posts will be documented;
- these key posts will include contractors, those responsible for liaising with contractors and those purchasing equipment and materials;
- training requirements will be identified by means of a documented training need analysis;
- documented training records will be kept and updated as required;
- training will specifically address environmental awareness and environmental permit requirements;
- the requirement for ongoing/refresher training will be identified;
- ensuring that there are site layout plans - including drainage plans - and that they are revised as required to reflect any changes at the Installation;
- ensuring that there are documented procedures covering internal and external communications;
- ensuring that there are procedures in place for staff and contractors to have access to the Installation's permit and management system requirements; regarding contractors, ensuring that suitable instructions are provided with regard to protecting the environment whilst working on site;
- the establishment of a documented planned preventative maintenance ("PPM") programme to ensure that all plant and site infrastructure are kept in suitable condition and operating effectively; this will detail what maintenance, tests and inspections are needed to be done and when; this will also detail the measures required to ensure continuing compliance with the permit conditions during maintenance/shutdown. The PPM Programme will also include:
 - having a defined procedure for identifying, reviewing, and prioritising items of plant for which a preventative regime is appropriate;
 - include a "Critical Equipment List" i.e., equipment or plant whose failure could directly or indirectly lead to an impact on the environment;
 - specific maintenance checks related to the process plant and equipment, particularly in relation to storage vessels and overfill protection, temperature probes, alarm systems, motors, and fans;
 - physical inspection of storage tanks and containment areas, including leakage tests and integrity surveys of infrastructure that could contribute to leakage,
 - physical inspection of pipework, pumps, process (or parts of process) equipment subject to wear;

- include a record of spare parts held, or details on where they can be sourced from, together with an assessment of how long they would take to obtain; and
- ensure the necessary spare parts, tools, and competent staff are available prior to commencing maintenance.
- ensuring that there are documented procedures covering document control;
- ensuring that there are suitable documented record-keeping arrangements in place;
- ensuring that there are documented operational procedures and work instructions covering all aspects of the Installation's operation;
- ensuring that there are documented procedures that incorporate environmental issues into the control of process/equipment change, capital approval and purchasing policy;
- ensuring that there are documented procedures to address non-conformities/non-compliances and the associated corrective and preventative action; these will detail how any such non-conformities/non-compliances are reported to management and how they are reported to the North East Lincolnshire Council;
- ensuring that there is a documented procedure for dealing with complaints; this will include requirements to ensure that:
 - an appropriate person deals with the complaint;
 - the complaint is properly recorded;
 - the complaint is properly investigated;
 - any action necessary to deal with the cause of the complaint is recorded;
 - the impact of the activity causing the problem is minimised;
 - steps are taken to ensure that the problem is not repeated;
 - details of any justified complaints are reported to senior management;
 - that the complainant (or North East Lincolnshire Council, as appropriate) is responded to in writing;
 - if the complaint came via North East Lincolnshire Council, a suitable documented response is provided to North East Lincolnshire Council;
 - if the complaint has come from a neighbour or a member of the public, a suitable documented response is provided to the complainant, and, if the complaint is substantiated, a report is provided to North East Lincolnshire Council; and
 - the EMS is amended accordingly to reflect any changes.
- ensuring that there are documented procedures covering emergency preparedness and response; these will cover such incidents as major plant failures, significant spillages of potentially polluting substances, loss of mains electrical power etc.; these will be incorporated into an Accident Management Plan; Blackrow will ensure that suitable measures are in place to communicate the Plan to all employees, management and contractors who work at the site; the Plan will detail:
 - the arrangements for response to an emergency, including defining specific responsibilities;
 - the measures for dealing with the consequences of an incident;
 - communicating with North East Lincolnshire Council and other relevant regulatory bodies;
 - communicating with the Installation's neighbours and the local community;
 - the measures for investigating incidents (and near-misses), including identifying suitable corrective action and following up implementation of that action;
 - the measures for recording incidents (and near-misses);
 - the measures for reporting incidents (and near misses) to Senior Management; and

- the measures for reporting incidents to North East Lincolnshire Council.
 - ensuring that there are documented procedures for carrying out internal audits; these will describe how to schedule, conduct, report and manage internal audits; and
 - ensuring that there is a documented contingency plan in place that ensures permitted limits are not exceeded.
- 4.2.4. The outcome of the above will be evidence that day-to-day activities are taking place in accordance with the requirements of the EMS and the Installation's permit, specifically:
- that control measures and procedures are an integral part of the business operation;
 - that the EMS is easy for staff to access, understand and use;
 - that staff are suitably trained and competent to carry out procedures and control measures; and
 - that the requirements of the EMS are effectively communicated to management, staff, and contractors.

Check

- 4.2.5. This element will include:
- ensuring that all regulatory requirements in relation to monitoring and measurement are complied with, specifically:
 - the requirements relating to inspection and testing required under the applicable environmental legislation and the installation permit (including a list of the scheduled monitoring programmes) and the associated procedures and work instructions;
 - the requirements relating to inspection and testing required under the applicable health and safety legislation and the associated procedures and work instructions; and
 - the requirements relating to the control of all inspection, measuring and test equipment relating to environmental requirements, including leakage tests and integrity surveys of infrastructure that could contribute to leakage.
 - ongoing evaluation of compliance with environmental legal requirements, policy requirements and objectives and targets; this will include:
 - an annual review of Blackrow's environmental legal register;
 - regular plant inspections; and
 - internal audit procedures (as detailed below).
 - ensuring that non-conformities/non-compliances are properly recorded, investigated and that the appropriate corrective action is taken by the due date;
 - ensuring that the necessary reporting and record-keeping required under the various permits are complied with;
 - ensuring that internal audits are carried out in accordance with the documented procedures and that any audit actions are followed up; and
 - ensuring that the results of all audits are made available to Senior Management on a regular basis.

- 4.2.6. The outcomes of the above will be:
- that checks are carried out to ensure that the EMS is being implemented as intended, i.e. as documented; and
 - the necessary preventative and corrective actions are undertaken to minimise non-compliances.

Review (Act)

- 4.2.7. This element will include:
- an annual management review of the EMS to ensure that it is appropriate, being implemented and kept up to date, e.g., that any supplementary plans have been included into the EMS;
 - A management review of the EMS when:
 - there are changes on site (in activities and/or plant/equipment); and
 - an annual review of both individual and organisational training needs.
 - ensuring that all changes to the EMS are properly recorded, and, if there are any major changes, North East Lincolnshire Council is informed;
 - an assessment of whether the Installation's objectives, and any targets, have been met and reported; and
 - a review of the Installation's objectives and targets, and, where appropriate, any revisions to these so as to effect continual improvement.
- 4.2.8. The outcomes of the above will be:
- the EMS will be kept up to date; and
 - the EMS is continually improved.

5. EMISSIONS

5.1. Overview

- 5.1.1. The key emissions that can be released from the activities to the environment are:
- particulate (from combustion processes, as part of VOC release from the process, and as part of the grit blasting process);
 - VOC (from paint mixing, drying and curing, surface cleaning, storage, handling, waste and spillage);
 - Isocyanate from one of the paint products;
 - oxides of nitrogen (“NO_x”) and carbon monoxide (“CO”) (from combustion processes for curing / drying); and
 - odour.
- 5.1.2. There may be some fugitive emissions and / or low-level VOC emissions from on-site activities such as spray gun cleaning or component cleaning however these will be prevented through extraction of the paint mix room, and component cleaning within the spray booth only.
- 5.1.3. As the paint spraying activities are new to the Installation, no emissions monitoring has been undertaken at this stage.

Control Measures

5.2. NO_x and CO

- 5.2.1. The point source emissions of NO_x and CO will originate from the direct fired LPG burner (179Kw output) within the spray booth and associated with the drying and curing process. There is a relatively low potential for significant pollution from the combustion processes. The burner will be maintained and serviced regularly to ensure it operates as efficiently as possible.
- 5.2.2. The emissions will be discharged to the atmosphere from the spray booth flue. This emission point is denoted Stack location A1 in the Blackrow Spray Booth Location Plan contained within Appendix III.
- 5.2.3. There will be no offensive odours beyond the Installation boundary as defined in the Blackrow Boundary Map (See Appendix II). All releases to air from the proposed activities, other than condensed water vapour, will be free from persistent visible emissions. All emissions of water vapour will be free from droplet fallout.

5.3. Particulates

- 5.3.1. There are several process stages where the potential exists for the release of particulates to the environment. These stages and the strict control measures which will be implemented to minimise the risk of particulate emission are detailed below.

5.4. Grit storage

- 5.4.1. Grit for use in the grit blasting process will be delivered to the Installation within the bulk storage tank that attaches to the blasting equipment. There will be no grit stored on site that is not within the blasting process equipment directly attached to the facility.
- 5.4.2. When the grit storage tank requires refilling, it will be removed from the blasting machine and taken off-site, refilled, then returned back to site and attached back to the machine ready for use.

5.5. Grit Blasting, Recovery and Disposal

- 5.5.1. Grit blasting will be undertaken within the dedicated insulated grit blasting room. The grit blasting room benefits from safety features whereby the grit blasting machine will not operate until the provided safety interlocks have been closed on all doors, preventing the escape of grit particulates.
- 5.5.2. During grit blasting, the abrasive and substrate coating break down into good abrasive, spent abrasive, large contaminants and dust. The good abrasive, spent abrasive and any large contaminants fall onto the recovery floor, while the airborne dust particles are carried by the flow of air generated by the dust collector which then filters collected air into an enclosed waste collection hopper.
- 5.5.3. The enclosed waste collection hopper benefits from a 100 litre hook on waste collection bin on casters. Emptying of the waste collection hopper will take place when required following grit blasting. The dust collected is transferred to a 205L lidded drum that will be collected under contract by Safety Kleen, for appropriate disposal.
- 5.5.4. The remaining good abrasive is re-used within the grit blasting process, whilst spent abrasive and large contaminants which fall to the recovery floor will be segregated and stored in 205L lidded containers until collected for disposal.
- 5.5.5. Provision will be made for the containment of any spillages of dry and dusty materials. All spillages will be cleared as quickly as possible. This will be achieved by the use of vacuum cleaning, wet methods or other appropriate techniques. The dry sweeping of dusty spillages will not be permitted.

5.6. LPG Burner

- 5.6.1. The LPG burner which provides heat for the paint curing / drying processes will generate minimal particulate. Additionally, as outlined in Section 5.2 above, the burner will be maintained and serviced to ensure its efficient operation.
- 5.6.2. Whilst there is the potential for small quantities of particulate to be released from the proposed activities, the Installation will adhere to the strict storage and handling techniques and control measures detailed above to help minimise any spillages or loss of containment. In view of the measures in place at the Installation, it is considered that the potential particulate emission from these site activities will be minimal.

5.7. VOCs

- 5.7.1. There are various stages of the activities where there is a potential for VOC emissions to be released to the environment. These are discussed below.

5.8. Paint and Chemical Storage

- 5.8.1. VOCs will be present in the various paint products, as a solvent thinner and as a solvent cleaner (Methyl Ethyl Keytone (“MEK”). The VOC containing products will be delivered in various size sealed containers. All VOC containing raw materials will be handled and stored in such ways to minimise the chances of accidental release and to prevent damage to containers. Lids will remain on containers until the point of use.
- 5.8.2. Storage areas will have secondary containment in place for any potential spillage / leakage. Where required container bunds will be:
- impervious and resistant to the substances in storage; and
 - capable of holding 110% of the capacity of the largest storage tank.
- 5.8.3. Containers storing paint and other VOC containing chemicals will undergo regular visual inspection for damage or leaks and to ensure the continued integrity of the containers used. In the event of a leak or spillage, spill kits will be strategically placed at the Installation to ensure they can be retrieved and deployed as soon as possible. Employees will be trained in the location and use of spill kits.

5.9. Paint Preparation and Spray Painting

- 5.9.1. Paint preparation and mixing may give rise to the release of VOCs and will be performed in the paint preparation room. This area will be serviced by the same extraction equipment serving the spray booth that vents to the outside of the building. Paint will be prepared under clean conditions and stir sticks and mixing cups will be disposed of by placing in lidded 205L containers that will be collected under contract by Safety Kleen.
- 5.9.2. Components that have been grit blasted will require surface cleaning prior to painting to ensure good adhesion and surface finish. This is achieved by using Scotch Brite cleaning pads that have been sprayed with MEK dispensed from an atomisation spray bottle. This is undertaken within the spray booth to minimise fugitive emissions.
- 5.9.3. Spray painting will be undertaken in the self-contained spray booth with LEV system. The following control measures will be in place for spray painting:
- the paint spray booth shall be kept clean and properly ventilated and equipped with forced or induced ventilation systems capable of preventing the build-up of explosive vapours and mists; and
 - air incoming to the spray booth shall be filtered, filters will be inspected on monthly intervals and replaced accordingly. A record of such inspections will be documented.

5.10. Drying and Curing of Paint

- 5.10.1. Painting and drying / curing operations are also conducted within the spray booth. Elevated temperatures during this process will generate VOC which are extracted and exhausted to atmosphere via the paint booth stack having first passed through the two stage filters. This emission point is denoted Stack Location A1 in the Blackrow Spray Booth Location Plan contained within Appendix III.

5.11. Waste Containing VOC

- 5.11.1. Containers which have held solvent material will be emptied as far as reasonably practicable before being crushed and placed into 205l lidded containers. These will be collected under contract by Safety Kleen. Containers and waste materials containing solvents will be kept separately and will remain lidded to prevent fugitive emissions of VOC, also placed in 205l lidded container, until ready for collection by Safety Kleen who will arrange recovery / disposal at an appropriately licenced facility or installation.

5.12. Equipment Cleaning

- 5.12.1. Equipment cleaning using VOC containing materials will also give rise to the emission of VOC. Such cleaning activities relate to the cleaning of spray guns and associated painting equipment. This will be undertaken within the spray booth paint preparation room which benefits from an integrated LEV system. Cleaning of finished paint surfaces, if required, will be undertaken within the spray booth.

5.13. Solvent Management Plan ("SMP")

- 5.13.1. As part of working towards the submission of a permit application, Blackrow have set up a solvent management plan to record solvent purchase, use, and wastes generated. The ongoing development of the SMP will identify areas of the process where interventions and modifications could be undertaken to reduce the use of solvent on site. An example of the SMP is included separately as Addendum 1 to this report.

5.14. Odour

- 5.14.1. Due to the use of VOCs at the Installation, particularly with respect to styrene containing materials, there is the potential for the generation of odour emissions from the Installation. It is noted that residential receptors are in close proximity to the Installation (less than 100m, see Section 1.2.3.) and as such strict control measures will be in place to ensure that there will be no offensive odours beyond the permitted boundary.
- 5.14.2. The use of a spray booth at the Installation for painting activities will ensure that odours can be effectively contained, and fugitive emissions managed. Extracted air from the spray booth will be managed via a 15m high stack, as ascertained through a stack height screening assessment detailed in Section 6.3 below.
- 5.14.3. In order to control fugitive odour emissions at the Installation the following general

management techniques will be employed:

- good housekeeping regimes are implemented throughout the site buildings and storage areas. This includes regular inspection and cleaning of all paint preparation and storage areas, equipment, and waste containers;
- regular maintenance and cleaning of machinery and plant including paint spray guns and the spray booth air extraction system;
- staff will be suitably trained in the conditions of the Environmental Permit and EMS;
- all containers holding VOCs will be lidded when not in use and regularly inspected to ensure their continued integrity;
- any leaks and spillages will be dealt with immediately in accordance with the Installations spill procedure;
- VOC containing waste will be appropriately stored in lidded containers; and
- the Installation is managed and operated in accordance with an EMS which is reviewed regularly to ensure it remains appropriate and up to date.

5.15. Start Up and Shut Down

5.15.1. A written procedure will be implemented to ensure that:

- the number of start ups and shut downs are minimised; and
- emissions during any start ups and shut downs are minimised.

5.15.2. The start-up and the shut-down of the painting booth and grit blast booth is dependent on a number of factors such as material to be coated, quality checks and break downs. Painting and blasting activities are planned for efficiency thereby reducing the number of start-ups, however, as the finished painted product is quality critical, there will be requirement for regular cleaning of paint spray guns and blasting equipment for optimum quality. Breakdowns are minimised through PPM and routine servicing of equipment.

5.16. Emission Limit Values

5.16.1. No emissions monitoring from the process activities has been undertaken as the proposed processes are new activities.

5.16.2. In accordance with Process Guidance Note 6/23(11), the current non-VOC emission limits associated with the activities are detailed in Table 1 below.

Table 1: Emission Limits, Monitoring and Other Provisions for Non-VOC releases

Substance	Source	Emission limits / Provisions	Type of Monitoring	Monitoring Frequency
Carbon Monoxide	Oxidation plant ¹	100mg/Nm ³ as a 30 minute mean for contained sources	Catalytic oxidiser Monitoring and recording Plus Manual extractive testing	Continuous Annual
	From turbines, reciprocating engines or boilers used as VOC abatement equipment ¹	500mg/Nm ³ at 5% oxygen dry gas as a 300 minute mean for contained sources	All other types of abatement Manual extractive testing	Annual
Particulate Matter	New spray booths	50mg/Nm ³ as 30 minute mean for contained sources	By guarantee supplied by the spray booth constructor	
	All other processes	50mg/Nm ³ as 30 minute mean for contained sources	Or Manual extractive testing	Annual
Oxides of Nitrogen (measured as nitrogen dioxide)	Oxidation plant ¹	100mg/Nm ³ as 30 minute mean for contained sources	Manual extractive testing	Annual
	From turbines, reciprocating engines or boilers used as VOC abatement equipment ¹	500mg/Nm ³ as 30 minute mean for contained sources		
Isocyanates	All processes / activities using isocyanates	0.1mg/Nm ³ as 30 minute mean for contained sources excluding particulate and expressed as NCO	Manual extractive testing	Annual
Sulphur dioxide	All activities using heavy fuel oil or other residual type / comparable quality protocol processed fuel oil ¹	1% wt/wt sulphur in fuel	Sulphur fuel content is regulated under the Sulphur Content of Liquid Fuels Regulations	
	All activities using gas oil / comparable quality protocol processed fuel oil ¹	0.1% wt/wt sulphur in fuel		

Note to Table 1

1: Not applicable to Blackrow

5.16.3. Table 2 provides the thresholds and emission limit values for solvent emission activities as provided in the table contained within Part 2 of Annex VII of the Industrial Emissions Directive.

Table 2: Solvent Thresholds and Emission Limit Values

Activity (solvent consumption threshold in tonnes / year)	Threshold (solvent consumption threshold in tonnes / year)	Emission limit values in waste gases (mgC/Nm ³)*	Fugitive emission limit values (percentage of solvent input)
Other coating, including metal, plastic, textile, fabric, film and paper coating (>5)	5-15	100 ⁽¹⁾	25
	>15	50/75 ⁽²⁾	20

Notes to Table 2

1: Emission limit value applies to coating application and drying processes operated under contained conditions.

2: the first emission limit value applies to drying processes, the second to coating processes.

*The emission limit values in waste gases shall be calculated at a temperature of 273,15 K, and a pressure of 101,3 kPa.

5.17. Proposed Emissions Monitoring

- 5.17.1. Stack discharge emissions will be monitored by an approved testing contractor.
- 5.17.2. The monitoring will be undertaken annually or sooner should there be a significant change to the process, such as change of the chemical types or processes.

6. IMPACT ON THE ENVIRONMENT

6.1. Foreseeable Emissions

6.1.1. As detailed in Sections 3. and 4. above, the main foreseeable emissions are particulates, VOC, Isocyanate, NO_x, CO, and odour. It is considered that the majority of the emissions would come from point sources, i.e. stacks, and therefore deemed as contained sources. There will be some fugitive emissions from the activities, such as odour, however these are managed and minimised wherever possible. It is not considered the activities will have the potential to generate nuisance or have a significant negative impact on the local environment.

6.2. Potentially Significant Local Environment Designations

6.2.1. Searches conducted on the Multi-Agency Geographic Information for the Countryside ("MAGIC") online mapping tool identified one Ramsar Wetland of International importance ("RAMSAR") and one Site of Special Scientific Interest ("SSSI") associated with the Humber Estuary within 2km of the Installation. The Humber Estuary is additionally designated as a Natura 2000 site, also known as the Humber Estuary European Marine Site, as detailed in Table 2 below.

Table 3: Ecological Designations within 2km of the Installation

Name	Designation	Distance from the Installation (km)	Direction
Humber Estuary	Ramsar	1.6	NE
Humber Estuary	Natura 2000	1.6	NE
Humber Estuary	SSSI	1.6	NE

6.2.2. It is noted that the SSSI's are recorded to be in an unfavourable although recovering condition.

6.2.3. Due to the distance of the Installation from the ecological sites and the control measures in place for the foreseeable emissions, it is not considered that the activities will have a significant negative impact on the local environment. No environmental impact assessment has therefore been carried out for the Installation.

6.3. Stack Height Screening Assessment

6.3.1. A stack height screening assessment has been undertaken which has identified that, based on emission limit concentrations from the relevant regulations and guidance, an appropriate stack height of 15m is required to ensure that all pollutants of relevance screen out as not significant.

6.3.2. The data calculations illustrating the screening assessment are shown in Appendix IV.

7. Declarations

7.1. Offences

- 7.1.1. Blackrow have no prosecutions against them relating to the prescribed activities being undertaken at the Installation.

APPENDIX I
BLACKROW SITE LOCATION MAP

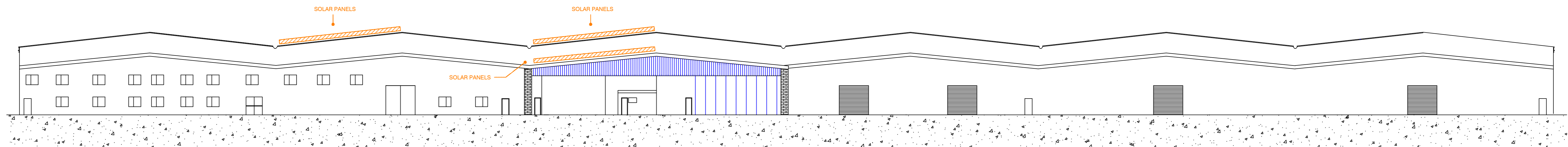
Site Location Map – Blackrow Engineering



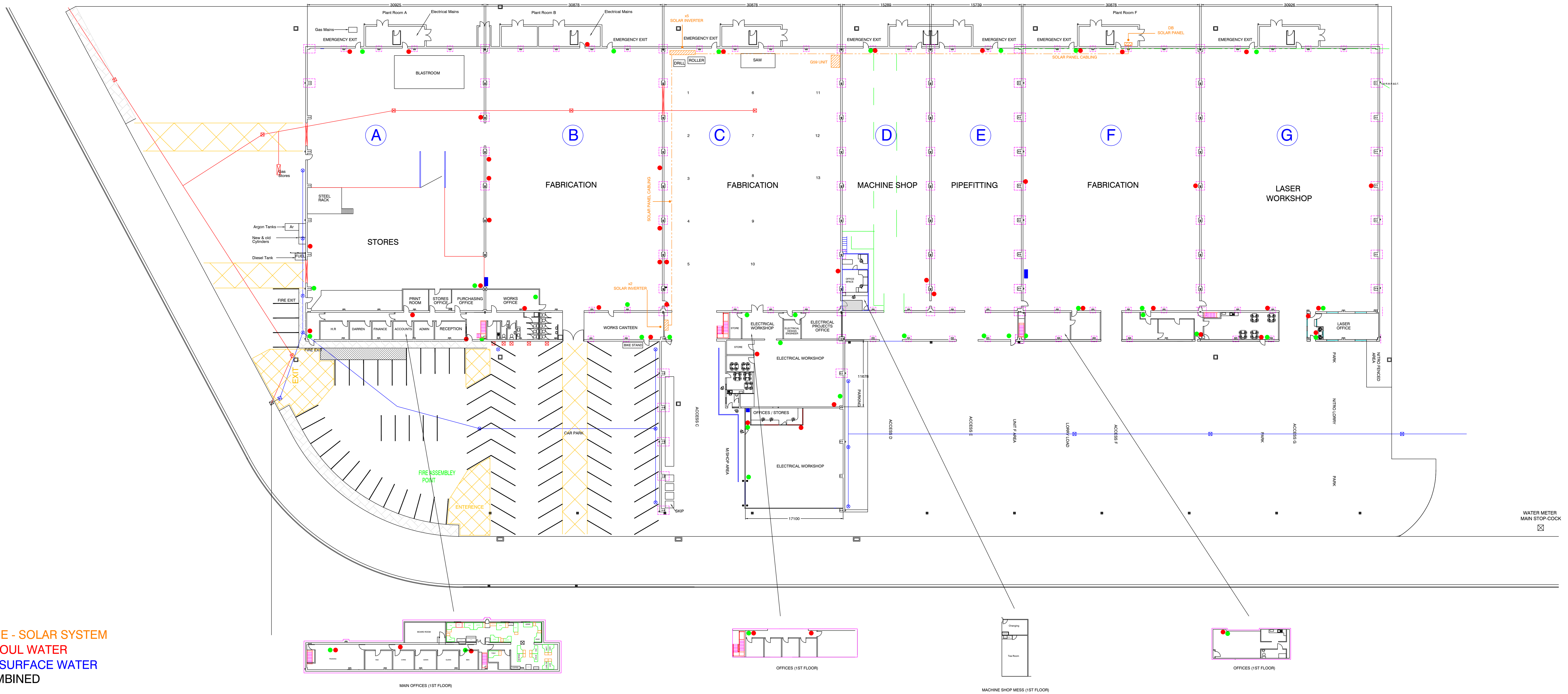
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Map produced by MAGIC on 24 January, 2023.
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APPENDIX II
BLACKROW SITE BOUNDARY MAP



● FIRE EXTINGUISHER
● CALL POINT



ORANGE - SOLAR SYSTEM
RED - FOUL WATER
BLUE - SURFACE WATER
C - COMBINED

REV	INITIAL	REVISION	DATE
A	JH	CALL POINTS & FIRE EXTINGUISHER LOCATIONS UPDATED	15/03/19

SPECIAL INSTRUCTIONS:
DO NOT SCALE: IF IN DOUBT ASK

THIS DRAWING IS LOANED WITHOUT OTHER CONSIDERATION THAN THE AGREEMENT AND CONDITION THAT IT IS NOT TO BE REPRODUCED, COPIED OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY AND IS NOT TO BE USED IN WHOLE OR IN PART TO ASSIST IN MAKING OR TO FURNISH ANY INFORMATION FOR THE MAKING OF DRAWINGS, PRINTS, APPARATUS OR PARTS THEREOF.

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REV	INITIAL	REVISION	DATE
A	JH	CALL POINTS & FIRE EXTINGUISHER LOCATIONS UPDATED	15/03/19

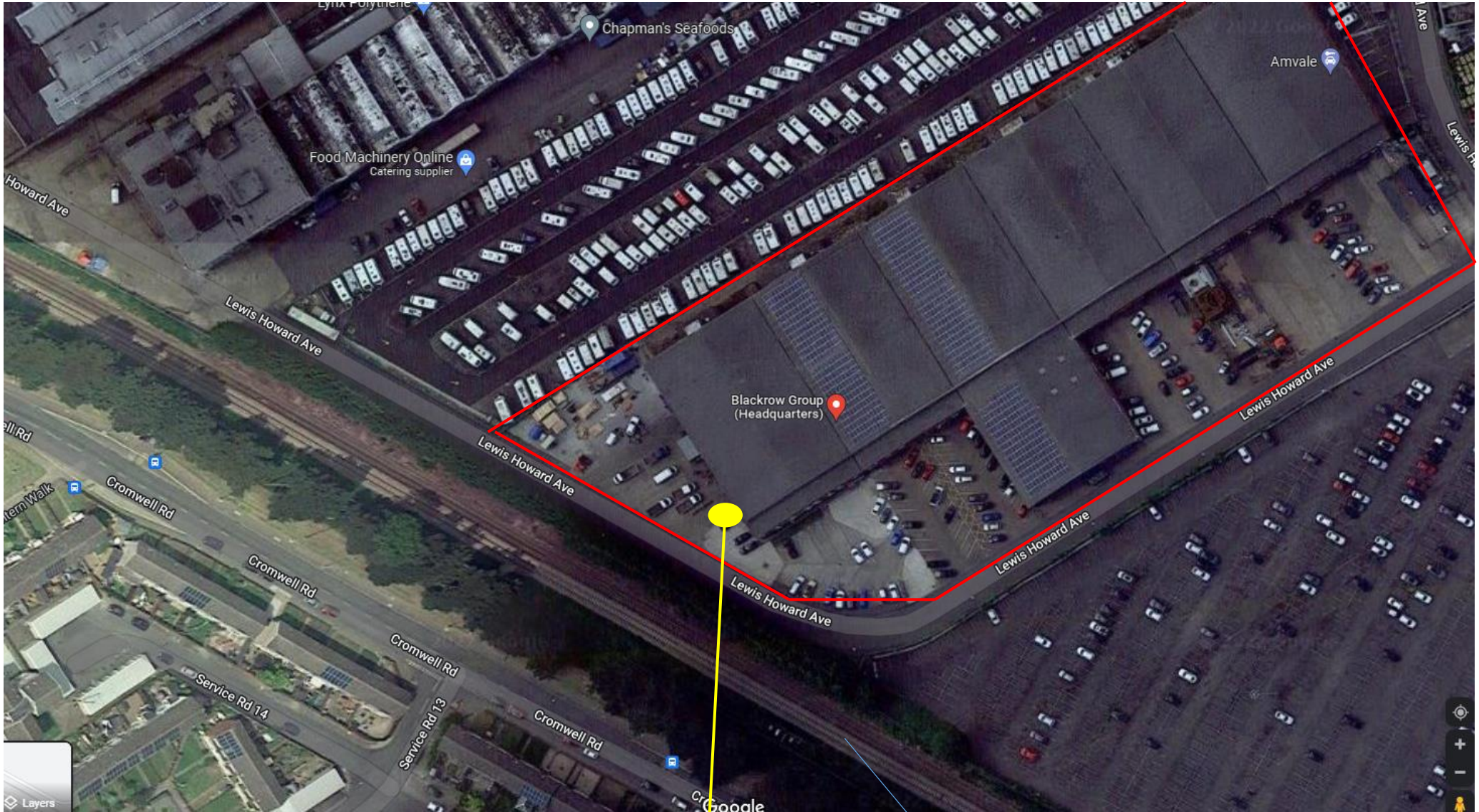
FOR INFORMATION ONLY

THIRD ANGLE PROJECTION	REMOVE ALL BURRS & SHARP EDGES	PROTECTIVE FINISH
	MATERIAL	SURFACE FINISH UNLESS STATED
TOLERANCE UNLESS STATED OTHERWISE		
MACHINING GENERAL	0.2	FABRICATION 0 TO 300 ± 0.5
	0.0 ± 0.1	300 TO 1000 ± 1
	0.00 ± 0.05	1000 TO 3000 ± 2
ANGULAR	± 0.25°	ANGULAR ± 0.5°

BLACKROW group

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PROJECT	BLACKROW ENGINEERING SITE LAYOUT
CUSTOMER	BLACKROW ENGINEERING
TITLE	BLACKROW ENGINEERING SITE LAYOUT
DRAWN BY	S. Mc.
CHECKED BY	
APPROVED BY	
SCALE	1:250
DATE	09.03.2020
REVISION	B

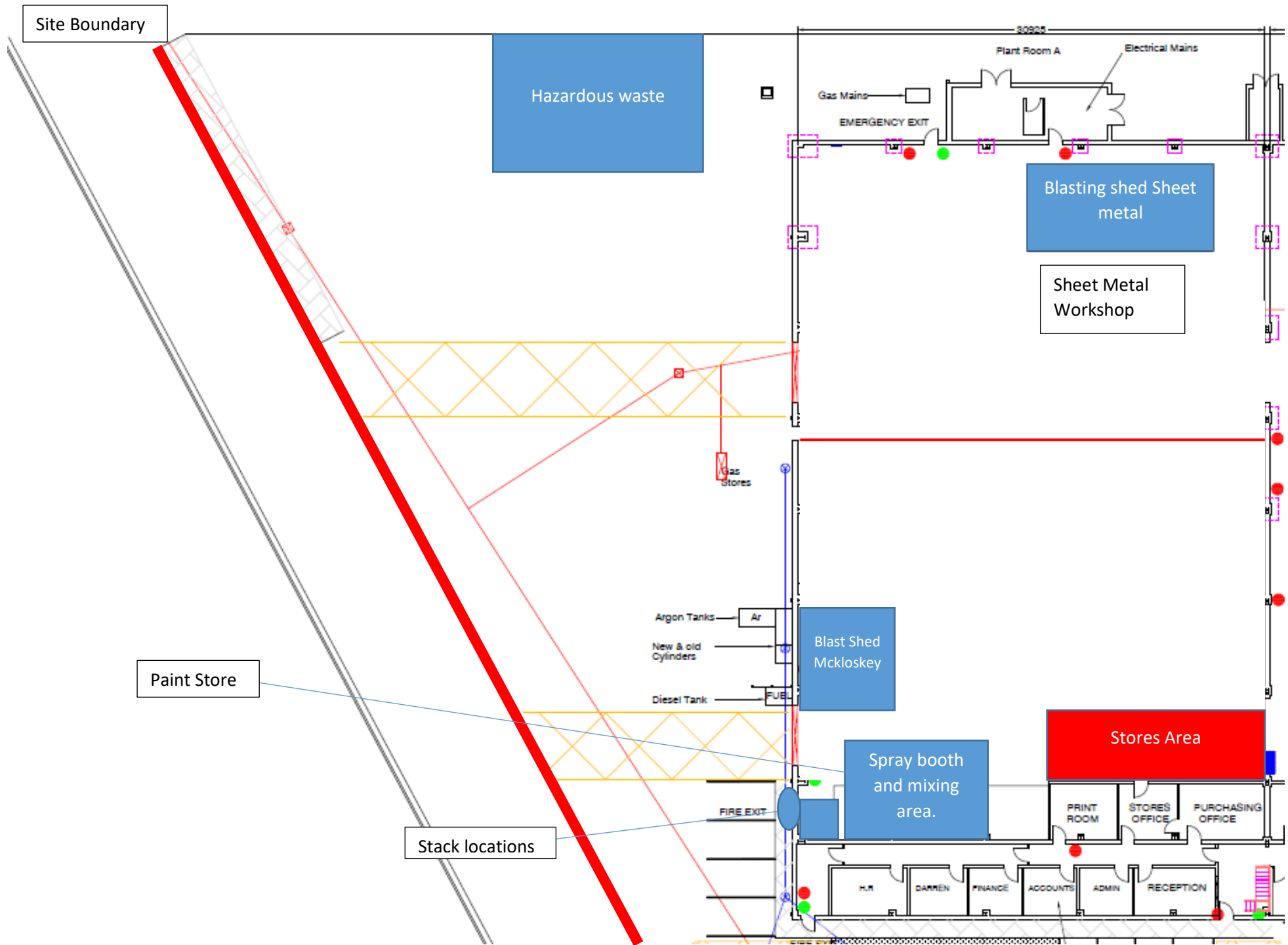


Reproduced from Google Maps 2022

Stacks A1

Train track

APPENDIX III
BLACKROW SPRAY BOOTH LOCATION PLAN



APPENDIX IV
STACK HEIGHT SCREENING ASSESSMENT

ADDENDUM 1
EXAMPLE SOLVENT MANAGEMENT PLAN
(Supplied separately)