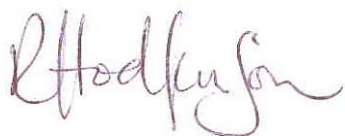


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# 1 Introduction

## 1.1 General

O.C.O Technology Ltd (the ‘applicant’) has requested that Reva Environmental Ltd (the ‘agent’) prepares an Environmental Permit (EP) application, for a new installation at Larkshall Mill, East Wretham, Thetford, Norfolk, IP24 1QY.

There is a permitted facility currently in operation at this location; the EP holder is the applicant, to whom the EP was transferred in June 2021 from Viridor Waste Management Limited (ref. EPR/KB3305ME/T001). The EP allows the acceptance and storage of waste and subsequent treatment consisting of physical sorting or separation into different components for disposal, recycling or reclamation. The operations are limited to a storage capacity of 2000 tonnes of waste at any one time (plus up to 1000 end-of-life vehicles) and treatment is limited to <50 tonnes per day.

The 2022 EP application seeks to set out details of the new use of the site, and suggests that a pre-operational condition be used to make sure that the new activity does not commence until cessation of the existing activity and surrender of the existing EP.

The objective of the application is to ultimately install three lines that will treat air pollution control (APC) residues to create an aggregate that can be used in block manufacture. This is achieved through the application of the proven Accelerated Carbonation Technology (ACT). The ACT process consists of three stages:

- 1) Carbonation of air pollution control residue (APCr) and incinerator bottom ash (IBA) in a specialist mixer using carbon dioxide and water;
- 2) Blending of the carbonated material with fillers (e.g. sand/limestone dust/other) and binders (e.g. cement/other); and
- 3) Pelletisation of the mix in a carbon dioxide laden atmosphere.

The resultant aggregate is conveyed to a screener/crusher and then into product storage bunkers.

APC residues are delivered in powder tankers and transferred into silos, then into a reactor where they are treated with carbon dioxide to lower the pH and reduce the leachability of some heavy metals. The material is then mixed with cement, sand, and water to turn it into pellets. The pellets are stored in covered bays and delivered to end users to make blocks. Processing is all carried out in a building. This process is already permitted at 3 other applicant sites in the UK:

- Leeds Aggregate Manufacturing Facility, EPR/TP3737YG/V005, permitted for 3 production lines;
- Avonmouth Aggregate Manufacturing Facility, EPR/HP3638WW/V004, permitted for 2 production lines (an application for a 3<sup>rd</sup> line is planned for 2022); and
- Brandon Aggregate Manufacturing Facility, EPR/JP3332FK, permitted for 2 production lines.

The facility will be built in two phases, with just two of the three lines being built initially. This application is for all three lines in order to futureproof the permit and all assessments completed are based on the full development.

The application seeks to allow the following activities:

- 5.3 A(1)(a)(vi) – Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving the recycling or reclamation of inorganic materials other than metals or metal compounds (R5). This listed activity will apply three times (AR1, AR2 and AR3) to reflect the three

production lines and will allow a combined annual throughput of up to 100,000 tonnes) for the purposes of producing pellets; and

- 5.6 A(1)(a) – Temporary storage (AR4) of hazardous waste with a total capacity exceeding 50 tonnes (R13). The maximum storage capacity is proposed to be 2,850 tonnes at any one time, and a maximum storage time of 6 months will be enforced, from the date of receipt of the waste.

Three directly associated activities (DAAs) are also proposed as follows:

- Handling and storage of wastes, prior to treatment and recovery activities for hazardous wastes (AR5);
- Storage of raw materials (AR6) for use within production lines AR1 to AR3; and
- Management of surface water for disposal (AR7) via discharge to soakaway (lagoon). Long term plan includes the capture and reuse of clean (roof) water.

Each line will be an exact duplicate of the other, will process the same wastes and use the same raw materials to produce the aggregate. They will run in parallel so can be operated independently to provide flexibility of operations. The proposed daily throughput capacity for each line is 140 tonnes, which is 420 tonnes combined across all 3 lines.

The EP boundary is defined on the site plans provided in **Appendix D** of the 2021 application.

As required by Question 3a of EA Application Form Part B3, a best available techniques (BAT) assessment is required to support the operating techniques set out in this application. The techniques that will be applied to the operation of the three production lines are set out in this BAT assessment which is provided to clarify these techniques and to therefore comprehensively document the measures in place at the facility.

The activities have been assessed against indicative best available techniques (BAT), in accordance with the following guidance:

- EA Sector Guidance Note IPPC S5.06 “Recovery and Disposal of Hazardous and Non-Hazardous Waste, Version 5 dated May 2013 (‘IPPC S5.06’)

The BAT assessment has been written on the basis of information provided to the agent by the applicant, and is consistent with that set out for the other existing permitted facilities.

## 2 Techniques for Pollution Control

### 2.1 In-Process Controls

BAT guidance IPPC S5.06 recognises that the implementation of pre-acceptance and acceptance procedures for waste, waste storage and waste treatment will prevent the acceptance of unsuitable wastes and therefore limit the likelihood of adverse reactions or uncontrolled emissions.

O.C.O acknowledges that in the hierarchy of the management of environmental impact, the first option is to identify ways in which to prevent the release of harmful substances. This can be achieved through the comprehensive characterisation of the incoming wastes, use of appropriate storage arrangements and selection of the most appropriate treatment technology. These are considered in turn below, in accordance with Section 2.1 of S5.06.

#### 2.1.1 Pre-Acceptance Procedures

IPPC S5.06 refers to the need for a screening step whereby the operator obtains information on the incoming waste.

O.C.O has an inward specification for waste that is either used as is or is modified to be specific to the source mix based on the quantity (therefore the proportion of the total waste throughput that it will comprise) and sample analysis undertaken. The specification is provided by O.C.O to the waste producer and agreed with the contractor, and sets the basis of pre-acceptance.

O.C.O's procedure *OP\_GEN\_408 "Pre-acceptance Procedure"* sets out the specific requirements for pre-acceptance. The following information is obtained by O.C.O for each new waste producer:

- The nature of the process producing the waste, including the variability of this process;
- The composition of the waste (chemicals present and individual concentrations); and
- A representative sample of the waste will be taken and analysed.

All information relating to pre-acceptance is recorded and referenced to the waste stream so that it is available at all times. If any changes in the waste stream take place, this information is reviewed and updated.

All records relating to pre-acceptance are maintained on site for cross-reference and verification at the waste acceptance stage. These records are kept for a minimum of 6 years.

### **2.1.2 Waste Acceptance Procedures**

Prior to acceptance of waste, the operator will ensure that it is accompanied by a written description (consignment note) of the waste describing:

- The physical and chemical composition of the waste;
- Hazard characteristics and handling precautions;
- Any compatibility issues; and
- Information specifying the original waste producer and process.

The waste is weighed at the site of waste production and is brought to site in sealed tankers. Upon arrival at the site, all documentation for the APCr is assessed to confirm that the waste can be accepted for processing. O.C.O's procedure *OP\_GEN\_301 "receipt of bulk powder tanker"* is followed and on site verification of the waste takes place as follows:

- The driver provides a sample of the load to the O.C.O laboratory technician;
- The technician undertakes analysis (in accordance with O.C.O's procedure *OP\_GEN\_401 "sampling and testing of bulk powders"*) and compares the results against the specification. Part of that is visual inspection to check that it confirms to the documentation provided. The checks confirm:
  - The identity of the waste;
  - The description of the waste;
  - Consistency with pre-acceptance information and proposed treatment method; and
  - Compliance with the EP.

If the APCr arriving at the site does not confirm to the pre-acceptance and acceptance testing, it is rejected, in accordance with O.C.O's procedure *OP\_GEN\_401 "sampling and testing of bulk powders"*. If the first sample fails it is re-sampled. If the second sample fails for reasons that mean it cannot be processed in the facility, the waste producer is informed that the load has been rejected and it is either returned to the producer or transferred elsewhere (to a suitably permitted facility).

If it fails but can be processed (as determined by the senior technician), it is discharged into a specified silo and the mix adjusted to enable it to be processed. The product testing regime can be altered to reflect the decision to process this waste to identify the impact of the variance found at waste acceptance stage. The waste producer is still informed of this such that the reason for the failure can be investigated.

A tracking system is in place which holds all documentation provided by the driver, written results of acceptance analysis and details of offloading point or off-site transfer location. Records relating to rejection of waste are also retained.

Following the completion of the waste acceptance procedures, the APCr is offloaded into one or more of the incoming waste silos. Level gauges on the silos identify what storage capacity is available in each, and offloading only takes place if there is sufficient storage space within the silo.

### **2.1.3 Waste Storage**

The layout of the site activities, including waste storage areas, is shown on the Site Layout Plan provided in **Appendix D** of the application (2021). APCr will be stored in 12 silos. The silos are suitably sized (132 m<sup>3</sup> each) for the permitted volumes, including headroom to allow for extra storage to reflect seasonal variations or to provide emergency storage in the event of production breakdowns. They are situated in an area adjacent to the northern side of the process building and are designed in accordance with industry standards for the waste type and operational experience at the existing site; they have lightning protection (as does the process building).

The silos are set on elevated frames on a raised concrete plinth to protect them from vehicle movements. The tanker discharge points (for unloading of APCr) are fixed; the tanker connects its flexible hose to the fixed point. The load points are capped and locked when not in use. The design of the silos specifically excludes the use of flexible couplings (as these are prone to failure); any failure of automatic valves can be isolated via manual valve. Catastrophic failure of a silo would lead to the instigation of the site emergency plan.

High level alarms and over pressure alarms are in place for all the silos (audible and visual), and incorporate an automatic shut off. Exhaust air (the silos vent to enable filling to occur) is filtered for dust.

The silos are separately numbered and the contents and levels in each are recorded so the operator can track waste from separate sources once on site. A driver is given the key only for the relevant tank for discharge following confirmation of acceptance of the waste. Prior to discharge into any one silo, the tanker driver is required to perform a 'ground level test' which will check that the silo systems are correctly operating and it's safe to discharge. The system is such that the driver will not physically be able to unload until this has been carried out.

The silos are subject to regular inspection and maintenance as part of the planned preventative maintenance (PPM) programme. This inspection regime extends to the overhead pipework that carries the material into the process building. Integrity testing is also carried out at a regularity defined by the risk assessment.

Once received, the APCr is processed as soon as possible so storage time is constrained by the storage capacity.

### **2.1.4 Waste Treatment – General Principals**

IPPC S5.06 states that treatment involves a change in, or modification to, the characteristics of a substance to make it suitable for another means of disposal.

The proposed facility will use Accelerate Carbonation Technology (ACT) to recycle thermal treatment residues to produce an aggregate with 'End of Waste' status. It is a technology which is the outcome of extensive research by the University of Greenwich into the effect of carbonation on waste materials.

Investment by Grundon Waste Management Ltd has allowed O.C.O to develop the ACT facilities that are currently operational in Brandon, Leeds and Avonmouth.

The treatment of APCr using ACT is well defined and established at the existing facilities. The nature of the waste is understood (and relatively homogenous) and the opportunity for up to 100% recovery of the constituents supports the chosen treatment process. If the resulting aggregate does not meet the End of Waste specification, it is re-processed.

The treatment process consists of three stages:

- Carbonation of air pollution control residue (APCr) in a specialist mixer using carbon dioxide and water;
- Blending of the carbonated material with fillers (e.g. sand/limestone dust/other) and binders (e.g. cement/other); and
- Pelletisation of the mix in a carbon dioxide laden atmosphere.

The resultant aggregate is conveyed to a screener / crusher and then into product storage bunkers.

Control of fugitive emissions to air has been considered and presented in the Environmental Risk Assessment submitted as part of the application (Appendix G, ref. OCO\_2020.04/06).

### **2.1.5 Record Keeping**

Records will be maintained at the site relating to the pre-acceptance, acceptance, storage, treatment and/or removal off-site of waste. These records are kept up to date on an on-going basis to reflect deliveries, on-site treatment and despatches. The record system includes, as a minimum, the following:

- Date of arrival on site;
- Producer's details;
- Pre-acceptance and acceptance analysis results (if applicable);
- Quantity of waste;
- The nature and quantity of wastes held on site, including all hazards and identification of primary hazards; and
- Where the waste is physically located (shown on a site plan).

The recording system will be capable of reporting on all of the following:

- The total quantity of waste present on site at any one time;
- Indication of where the waste is located on site (shown on a site plan);
- Comparison of the quantity on site against the total allowed by the EP; and
- Comparison of time the waste has been on site against any limit specified in the EP.

These records are maintained on the computer system within the site office and a backup copy of all computer records will be maintained off site.

## **2.2 Emissions Control**

### **2.2.1 Point Source Emissions**

There are no point source emissions to air or any direct emissions to groundwater from the site. There are also no emissions to sewer from the process.

All surface water from the site is currently directed via the surface drainage system into the surface water lagoon (reed bed, soakaway). Once the three production lines have been built, clean (roof) water will be captured separately and stored in holding tanks for use in the process.

There are two underground storage ('spill') tanks in the northern part of the site; these can be used if needed to hold water (for e.g. in heavy rainfall events).

### **2.2.2 Fugitive Emissions**

IPPC S5.06 recognises that the level of detail relating to fugitive emissions should be in keeping with the risk of causing annoyance at sensitive receptors. Common sources of fugitive emissions are storage areas, waste loading and unloading activities, transferring/bulking up of materials from one vessel to another, pipework and ductwork systems, poor building containment and extraction, wastewater storage, spillages and accidental loss of containment from failed plant and equipment.

There is the potential for the storage and treatment of the APCr to generate fugitive emissions to air, land, and surface water. The Environmental Risk Assessment included in Appendix G of the application (2022) details the measures that are taken to control these fugitive emissions.

APCr is not odorous and, given that the waste is delivered in sealed tankers, stored in silos and processed within the process building; it is deemed very unlikely that there will be odour detected beyond the site boundary, even if the weather conditions are not favourable.

Given the transportation, offloading procedure, storage arrangements, and processing procedures, it is also deemed very unlikely that the activity will generate dusts.

The site plant will generate noise and vibration. The noise design specification for the plant is such that employees are protected; the plant does not exceed 80 dB(A) at 1 m from the noise sources. Operations will be 24/7 but the process plant is within an enclosed building. Any complaints are recorded in the site diary, an investigation undertaken and findings acted upon. White noise reversing beepers utilised on plant. Audible high level alarms on process plant are within the confines of the building.

No specific fugitive emission management plans have been identified as being required. It is recognised that the EP includes a condition requiring the applicant to implement and maintain such management plans in future, should issues of odour, noise or dust arise.

#### **2.2.2.1 Dust**

Dust from the facility has been assessed in the ERA, Appendix G of this application (2022). This takes into account additional measures that have been implemented at the other sites as they have operated and improvements have been identified. Examples of this, which are reflected in the ERA for this site, are:

- Dust covers have been installed on the 'exchange' points on both the sand delivery conveyor belt and the aggregate curing belt (this is where the conveyors change direction and drop material onto a new belt);
- Steam / dust will be extracted from the hopper below the first stage mixer and filtered. The filtration unit (a wet wall filter system) produces a small volume of dirty water that can be added to the process water supply and does not need to be disposed of off-site. Initially the filtration unit will use mains water supply, however the third line phase of the development will bring in roof water collection and this can be used and supplemented with mains as required; and
- Automatic water sprays will be installed for dust suppression in the aggregate yard and routes with high vehicle movements.



## 2.3 Management

The applicant recognises that an effective management system is a key technique for ensuring that pollution prevention and control techniques are implemented and support compliance with BAT. IPPC S5.06 notes that the Environment Agency strongly supports the operation of a formal environmental management system (EMS) and recommends certification to a recognised standard such as ISO 14001 or EMAS.

O.C.O operates an integrated management system that is certified to ISO 14001 (EMS), ISO 9001 (QA), and OHSAS 18001 (H&S). The overarching policies and management procedures apply to all the existing operational sites, whilst local operating procedures are developed that are site-specific.

To confirm, effective operational and maintenance systems will be employed upon commencement of operations at this new site which include:

- Documented procedures to control operations that may have an adverse impact on the environment;
- A defined procedure for identifying, reviewing and prioritising items of plant for which a preventative maintenance regime is appropriate; and
- A preventative maintenance programme covering all plant whose failure could lead to an impact on the environment.

The maintenance system includes the auditing of performance against requirements arising from the above and reporting the result of audits to top management. O.C.O's procedure is MP\_GEN\_019 "internal audit procedure".

A training system is in place which ensures that all staff are provided with relevant training such that they have an awareness of the regulatory implications of the EP for the activity and their work activities, an awareness of potential environmental effects from operation under normal and abnormal circumstances, and an awareness of the need to report deviation from the EP and to also prevent accidental emissions and to take action when accidental emissions occur. O.C.O's procedure is HR\_GEN\_023 "Training policy procedure".

A record is made of the skills and competencies necessary for key posts which includes contractors and those purchasing equipment and materials. The site is operated by competent personnel who hold the requisite WAMITAB certificate for the management of waste.

Procedures are in place to detail how to handle, investigate, communicate and report actual or potential non-compliance with operating procedures or emission limits. Procedures are in place to detail how to handle, investigate, communicate and report environmental complaints and implementation of appropriate actions; this is O.C.O's procedure MP\_GEN\_020 "Non-Compliance Procedure".

All management procedures are periodically reviewed and updated if necessary to ensure that they are up to date, in line with current EA guidance, and working effectively

## 2.4 Raw Materials

### 2.4.1 Raw Material Selection

The following raw materials are used at the site:

- Binder e.g. cement, ground granulated blast furnace slag (GBBF), or other similar cement extender material;
- Filler/fine aggregate e.g. sand, limestone dust, or other similar material;

- Water; and
- CO<sub>2</sub>.

A list of the raw materials used at the site will be maintained and usage on a batch by batch basis will be recorded. Known weights will be received (weighed prior to delivery) and raw material usage will be reported internally on a monthly basis. O.C.O evaluates and tests all filler materials to ensure that they are fit for purpose and the aggregate maintains the quality required for end use, and for the end-of-waste parameters.

The raw materials used at the site will be periodically reviewed in order to identify alternative options that may present a more sustainable option e.g. with respect to location or grade of material. O.C.O looks to minimise the use of raw materials whilst still meeting the required aggregate specification.

Where potential reduction measures, and if possible any new raw materials which have an improved environmental profile, are identified these are implemented if assessed to be economically feasible.

### **2.4.2 Waste Minimisation**

Waste minimisation is where a systematic approach is taken to reduce waste at source through an understanding of, and applying changes to, processes and activities in order to prevent and reduce waste. Section 2.4.2 of S5.06 requires consideration of waste minimisation in the context of the minimisation of the use of raw materials.

The nature of the site as a waste recovery facility means that 100% of the incoming waste is recovered by the process. The small quantity of waste likely to be generated at the site is limited to general waste from the office and welfare facilities, maintenance materials from the workshop, spent particulate filters from the silos, sludge from the oil/water interceptor, and dirty water from the wet wall filter. The latter will be used to top up the water used in the process; all other waste generated will be appropriately stored and removed off-site to a suitably permitted facility for recovery, recycling or disposal.

All efforts will be made to actively reduce the quantity of waste generated on site. This is achieved through the on-going identification and implementation of waste prevention opportunities, the monitoring of raw materials usage, and by the active participation and commitment of staff at all levels.

It is considered that the process has already been refined, as a result of the mixing specification being tailored to achieve the product quality requirements.

### **2.4.3 Water Use**

Water is used within the process, for mixing Stages 1 and 2. The process water will be mains supplied for the scenario of up to two production lines operating. When the facility is upgraded to include the third line, clean (roof) water will be captured and stored in 25 m<sup>3</sup> tanks that will be located outside of the process building, allowing this to be used in the process to reduce mains water use. Any tanks would be topped up as required from the mains supply.

Water usage is typically 0.3 m<sup>3</sup> per tonne of waste processed. Usage will be recorded and regularly reviewed in accordance with the EP condition requiring it. Where this identifies viable opportunities for the reduction in mains water use, changes will be implemented. Mains water is metered so can be quantified, but also sub-meters enable O.C.O to quantify how much is used in each mix. Water usage is reported internally on a monthly basis.

Water is also used for dust control as described in Section 2.2.2.2 above. The wet wall filter system for the first stage mixer will use mains water but eventually will depend on rainwater collected from the roof. The automatic water sprays in the aggregate yard and main vehicle routes will use mains water.

In accordance with the standard requirements in the EP, a review of water use will be carried out at least every four years. This analyses the use of water, assesses the opportunities for reductions and includes the generation of an action plan to implement identified improvements.

## **2.5 Waste Handling, Recovery and Disposal**

See Section 2.1 above for details of waste pre-acceptance, waste acceptance and waste storage.

The fundamental purpose of the facility is to recover the incoming waste stream, enabling it to be placed back into the market in place of virgin materials. The nature of the site as a waste recovery facility means that 100% of the incoming waste is recovered by the process.

## **2.6 Energy**

### **2.6.1 Energy Consumption**

Energy use will be monitored and energy consumption data provided to the EA as required by the EP.

Mains power will be required for all the processing plant within the building, lighting, and in the offices and welfare facilities. Mains electricity usage will be metered and O.C.O can track and interrogate it at any time.

### **2.6.2 Energy Management Techniques**

O.C.O recognises that the manner in which its activities are operated can have a significant impact on energy consumption and that the optimisation of operating procedures and equipment schedules, as well as maintenance and general housekeeping procedures, can lead to significant energy efficiency improvements.

O.C.O will establish and implement a servicing and maintenance schedule to ensure that equipment and infrastructure is subject to regular checks and works that are necessary to achieve optimum efficiency. In addition to this schedule, the applicant has taken the opportunity to identify energy management techniques prior to development of the site and commencement of operations. These include the following:

- Use of low energy lighting;
- Use of lighting with motion sensors so lights are only on when personnel are in the area;
- Installation of clear wall panels in the process building to utilise natural day light and minimise the need for lighting;
- Mixers and motors (and other equipment) rated > 7 kW are all 'soft start' or inverter driven in order to minimise the peak loading;
- Electric motors are specified as class IE2 for energy efficiency (as set out in IEC 60034-30:2008) which is defined as 'high efficiency'; and
- Plant is controlled by a plc system which minimises power usage as items will be automatically turned off when not required.

### **2.6.3 Energy Efficiency Plan**

O.C.O endeavours to be as efficient as possible with energy usage; this is in line with the nature of its business which seeks to offer a full recovery option for waste. The site has been designed with this in mind.

The energy management techniques will be reviewed on a regular basis, and inspection and maintenance programmes will ensure that those techniques continue to be effective. The activities carried out on site will not require supply of hot gases, steam, or hot water; the energy requirements are limited to mains supply electricity.

An energy efficiency plan has been written for the business which is periodically reviewed and updated.

#### **2.6.4 Further Energy Efficiency Requirements**

The applicant does not participate in a Climate Change Agreement nor is a Direct Participant in the Emissions Trading Scheme (ETS). The applicant commits, however, to undertake measures to ensure compliance with any further permit-specific requirements as determined by the EA

### **2.7 Accidents**

BAT requires the applicant to have an accident management plan that identifies the likelihood and consequence of accidents and action to prevent and mitigate these. BAT guidance also sets out the general management requirements for operators under the EP regime. This is based on three components: the identification of hazards posed by the permitted activities; an assessment of the risks of accidents and possible consequences; and the implementation of measures to reduce the risk, as well as consideration of contingency measures in the event that accidents do occur.

O.C.O operates its other sites in accordance with procedure MP\_GEN\_027 “Emergency Preparedness Response Procedure” which also includes the recording of near misses and small accidents. This procedure will be implemented at the Larkshall site. To summarise, the applicant completes a HAZOP review, reviews the relevant risk assessments (e.g. fire, flood), then develops procedures based on the outcome of the risk assessments to put in place appropriate mitigation measures to prevent accidents occurring. Audits are carried out to check that the procedures are being followed and tool box talks are employed to communicate and refresh employees of the requirements.

The procedures include the investigation of incidents (and near misses) including identifying suitable corrective action and follow up. Procedures and risk assessments are regularly reviewed during the operation of the site and following any incident or accident on site. They are updated as required following review.

### **2.8 Noise**

BAT Guidance recognises that the level of detail relating to fugitive emissions e.g. noise and vibration should be in keeping with the risk of causing annoyance at sensitive receptors.

Potential noise emissions for the three production lines are considered in the qualitative environmental risk assessment and additional details regarding their design are provided here.

- “The installed equipment shall be designed and constructed so as to:-
  - Reduce the risk of damage to hearing, due to noise exposure, to the lowest level reasonably practicable.
  - Eliminate at source any risk due to noise exposure or, where this is not reasonably practicable, the reduction of risk to as low a level as is reasonably practicable.”

It is noted that the site plant (both mobile and fixed) will generate noise and vibration. The noise design specification for the fixed plant is such that employees are protected; the plant does not exceed 80 dB(A) at 1 m from the noise sources and is within an enclosed building. Any complaints are recorded in the site diary, an investigation undertaken and findings acted upon. White noise reversing beepers are utilised on plant. Audible high level alarms on process plant are within the confines of the building.

In addition to this, the following is noted:

- The air compressors and blower(s) for the APCr silos pneumatic conveying systems are situated on the silo plinth. These are all proprietary packaged units inside soundproof enclosures.

- The lines will run on one air compressor with a standby so there is only one running at any given time. This was initiated at other O.C.O sites as a result of energy efficiency audits but has the added benefit of reducing noise.
- All point sources are at least 25 m from any site boundary.

With regards to noise, the potential noise sources, the pathway for propagation, and the sensitivity of the receptors have been considered in the updated qualitative risk assessment (a copy of which is provided in Appendix G of the EP application (2021)) and deemed not to warrant a full noise assessment or management plan. The information provided in the qualitative environmental risk assessment is considered sufficient for the purposes of permitting.

Noise impacts are currently being assessed as part of the planning application.

## 2.9 Monitoring

There are no point source emissions to air or any direct emissions to groundwater from the site that require monitoring. Monitoring in relation to the waste processes is limited to evaluation of the use of energy and water. These are discussed in turn in specific sections of this BAT Assessment above.

No monitoring is required beyond the EP boundary.

O.C.O will monitor energy use, the quantity of raw material used and waste emissions, as set out in Section 2.4. The monitoring results will be reported to the EA as required, at the frequency required by the EP.

## 2.10 Closure

The applicant will maintain a site closure plan for the site which details how the site would be decommissioned to return it to a satisfactory state upon the cessation of activities on the site.

It covers the following:

- References to plans showing the position of underground pipework, culverts or other structures, the location of watercourses and drains, and the permeability of the underlying ground structure;
- Identification of potentially hazardous materials located in above or underground structures;
- Identification of how those structures will be decontaminated, in addition to consideration of any other hazards that dismantling the structures may pose; and
- Identification of any other pertinent issues that might need addressing at the point of decommissioning.

This is subject to regular review and update, including after any significant changes to the site that could impact the context of the closure plan.

In order to provide a baseline against which the applicant can assess the site at the time of surrender of the EP in the future, a number of reports have been produced (for site purchase and planning purposes, and for this EP application). These are as follows, in chronological order:

- Pre-purchase Phase I Desk Study and Contamination Assessment, A F Howland Associates Limited, Ref. JAH/20.304 24 November 2020;
- Pre-purchase Ground Investigation Report, A F Howland Associates Limited, Ref. JAH/20.304/GIR 1 December 2020; and
- Site Condition Report – Reva Environmental, Ref. Appendix E OCO\_2020.04/04 November 2021.

O.C.O will implement the control measures that have been identified through risk assessment, throughout the duration of its operation under an EP in order to ensure that the site is returned to a

'satisfactory state' at closure. Where instances arise that have, or could have, impacted on the state of the site, these will be recorded, detailed, and remediation undertaken where required and appropriate. This will ensure that a record is kept of the state of the site throughout the EP period.

### **3 Emission Benchmarks**

#### **3.1 Emissions Inventory**

In accordance with EA guidance, the nature and sources of foreseeable emissions will be identified.

For the proposed activity to be undertaken on site, this is limited to the recording of the quantity and composition of any waste removed from the site, recorded monthly.

### **4 Impact Assessment**

EA guidance indicates that an assessment is required to look at the significant environmental effects of foreseeable emissions. The EA guidance also indicates that the depth to which this assessment should go should be discussed with the Regulator.

It is considered that the nature of the proposed activities is such that emissions are very limited and thus the overall environmental impact of the site is minimal. As the site is operated with the purpose of recovering waste that would otherwise be disposed of, the site is having an overall positive impact on the environment. As such, it is not considered that an in-depth impact assessment is required.