


Project details	Environmental Permit Application EPR/BP3702MC/A001 Larkshall Mill Aggregate Manufacturing Facility
Applicant details	O.C.O Technology Limited Montague Place Quayside Chatham Maritime Chatham Kent ME4 4QU
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1. INTRODUCTION

O.C.O Technology Limited (the applicant) has requested that Reva Environmental Ltd (the agent) prepares an Environmental Permit (EP) application, for its recycling facility at Larkshall Mill, Thetford Road, East Wretham IP24 1QY.

The site is in an existing industrial area, at National Grid Reference TL 92002 89123. The site setting is described on Drawing OCO_LKSM-EP03 provided in **Appendix D** of the application.

The site location is shown on **Figure NVMP1** below, in green.

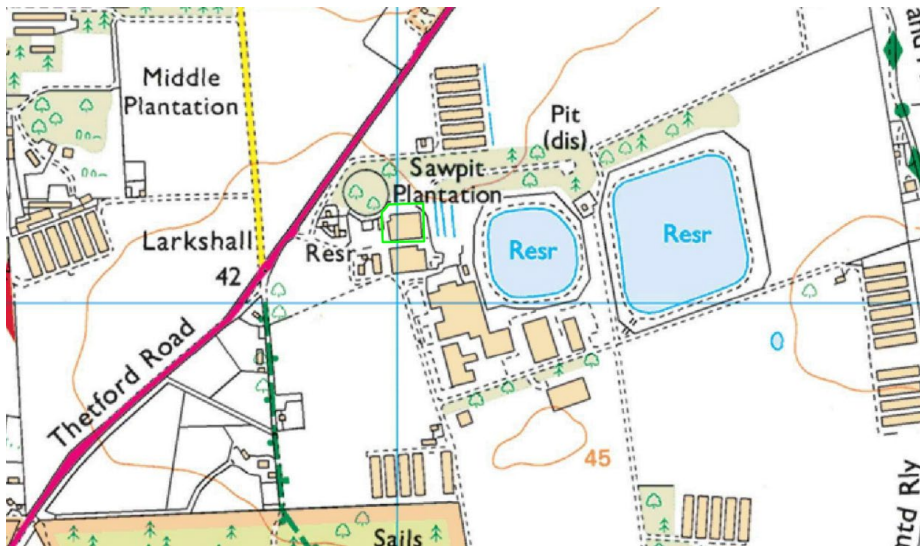


Figure NVMP1: Site Location

The proposed EP boundary is shown on Figure NVMP1 below, in green.

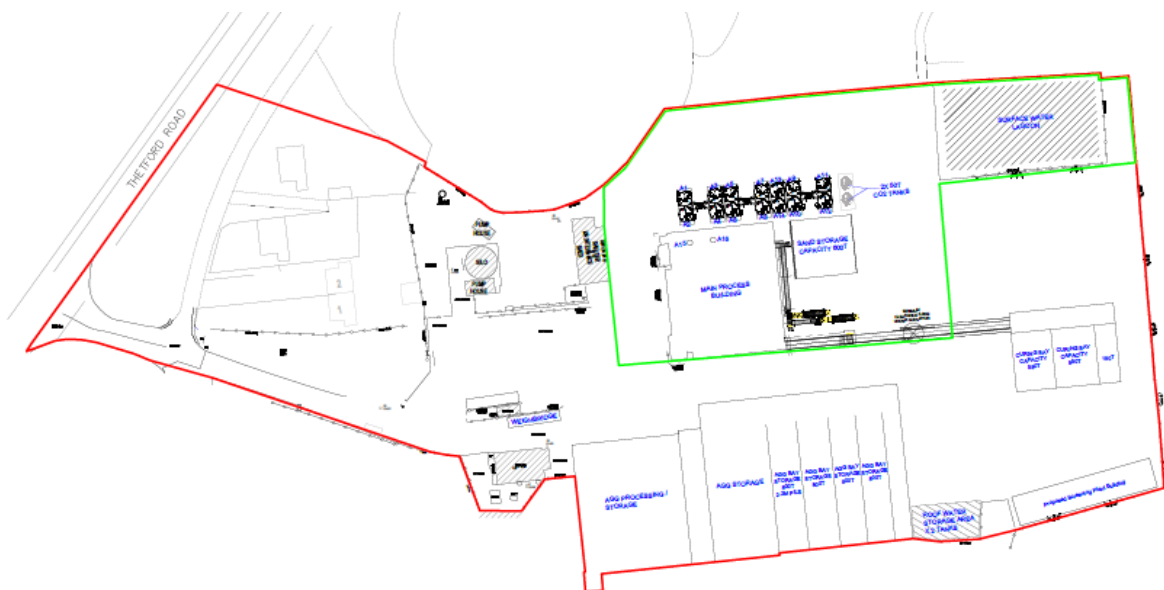


Figure NVMP2: EP Boundary

Larkshall Mill is located approximately 9.4 km northeast of Thetford, Norfolk and around 46 km

southwest of Norwich. The closest settlement is the village of East Wretham to the north.

The site is part of an industrial estate created on the site of the former Larkshall Mill which extends to the south and to the southeast of the site, comprising numerous large industrial units, areas of hard standings and car parking. The estate is surrounded by flat, arable farmland, along with some woodland. There is an area of grassland and scrub north and north-east of the site, beyond which is a tree belt forming part of 'Sawpit Plantation'. There are poultry sheds north of the tree belt, and in various scattered locations throughout the surrounding countryside, along with a residential property used by the manager of the poultry farm. To the east and northeast are large, open, and raised water reservoirs which serve the agricultural activities in the area.

The site is low-lying and is approximately 40 m Above Ordnance Datum (AOD). The wider landscape surrounding the site is predominantly flat with minor and localised topographical variation, locally impacted by the raised reservoirs.

Access to the site is directly off Thetford Road, the A1075, and has good links to the surrounding road network with the A11 approximately 5 km to the south.

The site entrance road is surfaced and allows access to a gravel covered car park area, separate from the main site. The surfaced access continues adjacent to the car park before entering the main site area. The main yard is concrete surfaced and enclosed by steel palisade fencing. There are two weighbridges, and several industrial buildings on site (or proposed) as set out in Table NVMP1 below:

Table NVMP1: Site Buildings

Building	Use	Area (approx.)
Main office	Office	194 sq. m
Warehouse	Aggregate loading and storage	1,066 sq. m
Warehouse	Aggregate loading and storage	2,387 sq. m
Old Mill	Processing Facility	924 sq. m
Baling hall office	Laboratory/control room/canteen	247 sq. m
Workshop	Workshop	85 sq. m
Aggregate screening building	Screening	320 sq. m

Norfolk County Council are the relevant planning authority. There are no planning conditions for the site which relate to the control of noise.

APCr, cement and CO₂ will be delivered to the site using bulk tankers which fill dedicated silos pneumatically, preventing windborne dust. Sand is delivered by sheeted bulk tippers and tipped in the sand storage building. The process is described in 5 stages.

Stage 1: APCr is delivered in sealed bulk powder tankers and pneumatically conveyed through pipes into enclosed storage silos. The APCr is then pneumatically conveyed into sealed mixers, where it is treated with carbon dioxide to chemically and physically change the residues using the patented process known as Accelerated Carbonation Technology (ACT). This initial process causes the calcium in the materials to be converted to calcium carbonate, which both chemically and physically stabilises the materials, lowering the pH and reducing the potential leaching of any contaminants. Material movements are fully automated, with no manual handling of the ingredients.

Stage 2: The carbonated output from Stage 1 is blended with binders and fillers (typically sand and cement) within a sealed mixer to produce a material with the correct properties for pelletisation. As

with stage 1, material movements are fully automated with no manual handling of the ingredients.

Stage 3: Pelletising is undertaken within a horizontal rotating drum pelletiser. The duration of the material within the pelletiser is controlled to ensure the aggregate achieves the required strength and pellet size for use.

Stage 4: The aggregate is then transported along a covered belt conveyor system to the proposed aggregate curing bays. The conveyor is covered to avoid dust arising from the aggregate, albeit at this stage the product is sticky due to the water content. The aggregate is allowed to cure in the bays before it is taken to the aggregate storage building using a loading shovel. The curing bay building consists of 3 bays constructed from in situ re-enforced concrete covered by a steel pent structure.

Stage 5: If necessary, the aggregate may go through a further stage of processing such as screening before being stored, depending on the specification required by the customer. This additional processing would take place internally, this will be undertaken within a separate building.

This noise and vibration management plan (NVMP) has been requested by the EA because the proposed operation does have potential for noise from both the processing facility and associated traffic.

A Noise Impact Assessment has been produced for the planning application for the full scheme (100,000 tonnes per year). This assessment and supporting noise survey data and modelling files have been provided to meet the EA requirements for the purpose of responding to the Non-Duly Made request.

This noise and vibration management plan (NVMP) supports that assessment and forms part of the Environmental Management System (EMS). The NVMP, in the same way as other procedures are, will be reviewed on a regular basis in accordance with the EP and also updated as required following any substantiated complaints, noise events, changes to process, or to reflect changes in legislation or best practice. It seeks to outline the procedures that are in place to ensure that noise is managed at the site. O.C.O Technology acknowledges that the permitted operations should prevent or minimise noise pollution, and that noise impact should be regularly assessed.

All employees have a stake in emissions control at the site, and training is therefore provided to all staff. A copy of the NVMP is made available at the site in both hard copy (within the process building) and electronically.

1.1 Sensitive Receptors

The potential impact on noise sensitive receptors depends on various factors including:

- The time of day the noise occurs
- The level of noise
- The type of noise i.e., what it sounds like
- Whether it is continuous or intermittent
- If intermittent, how often it occurs and the pattern of occurrence
- The local topography, any man-made or natural features that can influence noise emissions

The site is located within an existing facility off Thetford Road, within an existing Industrial Estate with some localised residential properties adjacent and nearby.

The noise sensitive receptors are considered to be those within 150m of the site and are all residential of high sensitivity.

On this basis, for the purposes of the associated NIA, the other premises within the Industrial Estate

are not considered to be NSRs. This is on the basis of the nature of those being predominantly factories, the closest operating 24 hours a day, and many operating equipment that presents a greater noise source than proposed activities at the site.

Table NVMP1: Sensitive Receptors

Receptor Ref	Receptor description	Receptor Type	Distance at closest point (m)
NSR1	O.C.O Technology owned dwellings	Residential	3
NSR2	Saw Pit Farm	Residential	90
NSR3	Private dwelling to the south	Residential	143

Note that the noise assessment provides an assessment to the 3 closest receptors to the site, as detailed in Table NVMP1.

The noise sources on site are not at height, and so the closest receptors would be subject to the highest noise emission levels from site. The noise levels at receptors at greater distance from the site are expected to be lower than detailed in the noise assessment, and impacts would be no greater than reported in the noise assessment.

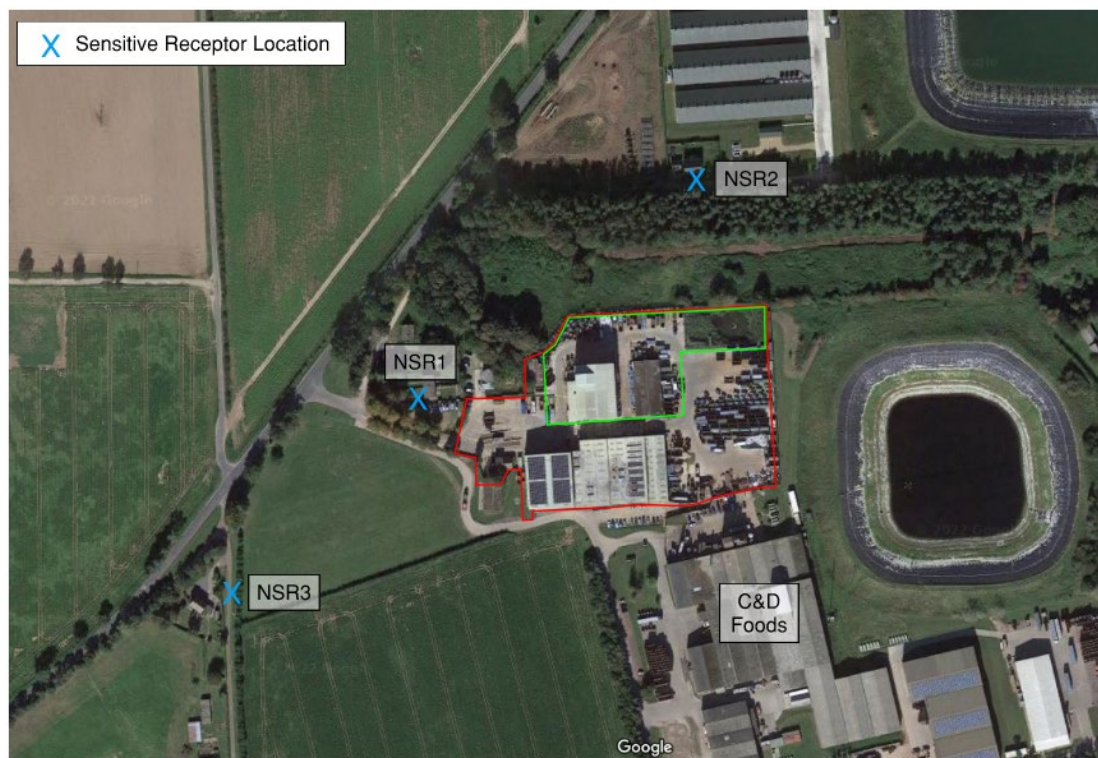


Figure NVMP3: Sensitive Receptors

The site is located within an existing industrial area that comprises a pet food manufacturing facilities and agricultural businesses. The pet food factory operates 24/7. These other sources of noise are relevant when considering the potential impact from the facility and are presented in Table NVMP2. It should be noted that the previously the site was operated as a waste transfer station. The noise climate would have comprised sorting of waste and heavy good vehicles (HGVs) accessing the site.

Table NVMP2: Other Noise Sources

Company	Address	Type of Business	Distance from site (m)
C&D Foods	Thetford Road, East Wretham, Thetford, Norfolk, IP24 1QY	Pet food manufacture	0

2 SITE OPERATIONS

2.1 Waste Deliveries

Waste is delivered in specialist powder tankers. The vehicles delivering waste are operated by Grundon Waste Management Limited who is a 90% shareholder of O.C.O Technology.

The waste comprises a fine-grained powder similar in consistency to cement powder. Standard duty of care paperwork will accompany all deliveries to site; this will be retained as per permitting and other legal requirements regarding waste records, in addition to invoices and daily records pertaining to waste receipt, unloading, handling and storage. Each load is tested before delivery into the silos to ensure compliance with the contract specifications and, by default, licencing.

To unload there is a specific process and protocol which all drivers are trained in before they can deliver to the site. Unloading is also monitored by an O.C.O Technology representative to ensure adherence to the unloading method statements and risk assessments. O.C.O Technology operate a ‘three strikes and out’ policy on all contractors, including drivers, who do not follow the correct procedures.

In mitigating further the impacts on the environment from extraction of virgin materials, the second stage of the process (where fillers are added such as sand), may also use other recycled materials. These, as with sand, are delivered in sheeted bulkers and stored under cover. To minimise vehicle movements, those bulkers delivering materials are encouraged to also be used for export of aggregate.

2.2 Other Deliveries

For the manufacturing process, other raw materials are also brought on to site other than the waste types identified above. These consist of cement, CO₂, and sand. Cement is imported in a similar way to the powder wastes, within pressurised specialist powder tankers and, like the powder waste, is pneumatically pumped in to dedicated silos. From these silos the cement is pneumatically pumped into Stage 2 of the process.

Sand is delivered by sheeted bulker and tipped into a dedicated and covered storage bay to the east of the process building. This is delivered into the process via front end loader that delivers the sand into feed hoppers. A covered conveyor takes to sand to a feed hopper above the Stage 2 mixer and from there the sand is added. Materials other than sand may be used in this process, but the same delivery will apply.

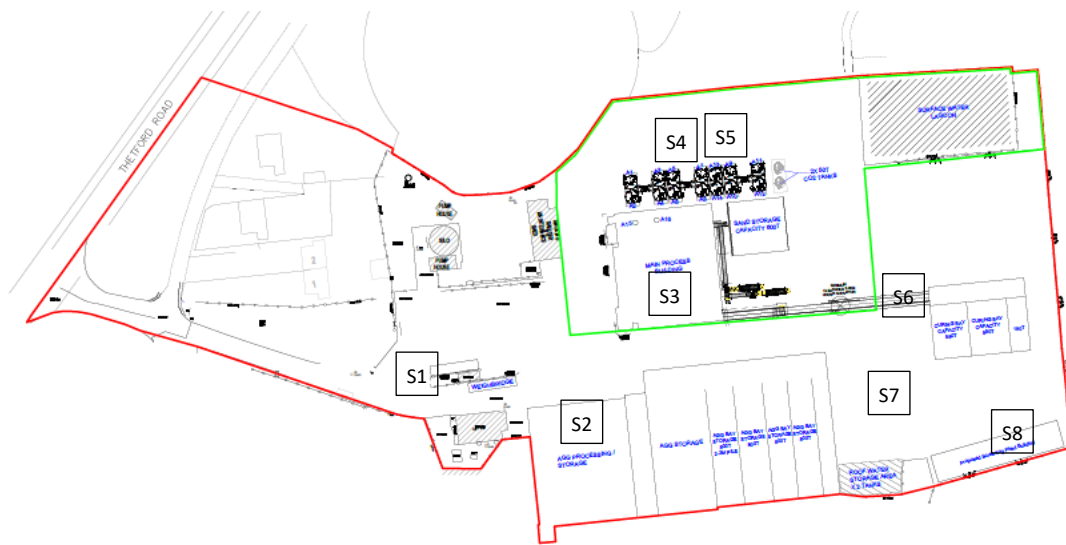
CO₂ is delivered in liquid form and pumped into dedicated and specialist tanks.

2.3 Overview of Waste Processing

The site layout is shown on standalone Drawing OCO-LKSM-EP02 which is reproduced in Figure NVMP4. Potential noise sources are shown on this figure as S1 to S8 and are described in Table NVMP3.

All waste processing/treatment takes place takes place within the building. The building is full

enclosed, although access for forklifts is located on the eastern and southern facades. These doors are kept closed at all times other than for access into the building.



All waste processing/treatment takes place within the building shown as Work No 1A. The building is full enclosed, although access for forklifts is located on the eastern and southern facades. These doors are kept closed at all times other than for access into the building.

To manufacture aggregate from the carbonated material, sand and cement plus water is added in a stage two mixer. Sand is introduced via a covered conveyor feed to a hopper above the mixer. Sand is delivered into an enclosed building for storage when delivered. This sand is fed into a feed hopper by a front-end loader and fed via a covered into the process.

Manufactured aggregate in its uncured form is conveyed out of the process building on a slow-moving covered conveyor (slow speed is required to ensure some curing is achieved). The aggregate is at a temperature of around 40 degrees and damp at this stage. From the conveyor it drops into a curing bay where it is allowed to further cure for 24 hours.

Once the 24-hour cure is complete, the aggregate is hard enough to be moved to the storage sheds which is undertaken by another front-end loader. The site will operate two loaders to avoid unnecessary movement between the two areas and allowing one to also be used for loading of HGV bulkers collecting the aggregate.

The aggregate will be stored for a further few days prior to be exported off site via bulker in its manufactured form. The facility will also operate a screening plant which will have its own building on the southern boundary. This is to provide customers with the ability to have a specific sized aggregate. Room will also be available for screening within the storage buildings.

3 NOISE & VIBRATION MANAGEMENT

3.1 NVMP Responsibilities

The site is operated in accordance with the IMS, the implementation of which is the responsibility of, and led by, the management team. It is their responsibility to ensure that the system is understood and complied with at all levels of the organisation. The Site Manager and Team Leaders / Supervisors all have responsibility for emissions management at the site; this includes consideration of, compliance with, and implementation of this NVMP. All employees have a stake in emissions control at the site and training is therefore provided to all staff via safe systems of work / toolbox talks.

Refresher training is provided if assessed as being required and/or in light of any changes made to the NVMP.

As for all IMS documents, this is considered a 'live' document and is reviewed on a regular basis (annually). Circumstances that would initiate an extraordinary review would include a significant change to operations, the introduction of any new control measures, the introduction of a new noise source, a change to the site layout, or changes to the sensitive receptors.

3.2 Sources and Control of Noise

The potential noise sources are shown on Figure NVMP3 above and set out in Table NVMP3.

Table NVMP3: Source-Pathway-Receptor Routes

Source	Pathway	Type of Impact	Control Measures
S1: Heavy goods vehicles movements	Propagation through air	Not continuous	<p>Deliveries at the site are scheduled so arrival at site is immediately acknowledged and vehicles are directed to the appropriate unloading location. Tanker (waste) deliveries are to be 24/7 but with limited number between 2200 and 0700. Movements relating to aggregate offtake will be between 0600 and 1900. Movements for the delivery of fillers (sand) will be between 0600 and 1900. Vehicles are not permitted to idle once in location.</p> <p>Product transfer from the curing bays to the aggregate storage shed will be via front end loader, as will the feed of filler from the sand bay to the feed in hoppers. These will operate 24/7.</p> <p>No HGVs to access the site during Sunday night-time periods.</p>
S2: Aggregate Processing/Storage	Propagation through air	Not continuous	<p>No particular noise control measures proposed, as these spaces will predominantly be used for storage. Some noise will be present when loaders move aggregate into these buildings. The Aggregate Processing/Storage building marked as S2 is open on the northern elevation, although no continuous noise will break out unless a loader is moving aggregate into this space.</p>
S3: Main Process Building/Building Doors	Propagation through air	Continuous for duration of cycle	<p>The doors to the process building will be kept closed when not in use.</p>
S4: Silos	Propagation through air	Continuous	<p>No noise control measures deemed to be required.</p>
S5: APCr tanker off load	Propagation through air	Not continuous	<p>Unloading of waste tankers will be undertaken by off tanker compressors, suitably mitigated for noise and noise controlled to within O.C.O Technology requirements. This will prevent mitigated on truck compressors being used.</p>

Source	Pathway	Type of Impact	Control Measures
S6: Conveyor	Propagation through air	Continuous	Conveyor is covered. No other noise control measures deemed to be required.
S7: Wheeled loader	Propagation through air	Continuous	The loaders will move continuously around site. Loaders will be switched off when not in use and operators will avoid unnecessary revving of the loader engines. No additional noise control measures deemed to be required.
S8: Screening plant	Propagation through air	Continuous	No noise control measures deemed to be required.

In the event that any of the standard control measures in place to prevent fugitive emissions from the site fail; the EA will be informed within 24 hours and, if needed, part or all of the operations will cease until the problem is remediated.

3.3 Enclosure of Waste Processing & Storage Areas

All waste processing and treatment takes place within a fully enclosed building. Curing of the aggregate is in a building of which 3 sides are fully enclosed. Storage of aggregate is within a fully enclosed building. Screening of aggregate is within a building of which 3 sides are enclosed.

The yard area is not covered.

4 NOISE MONITORING

As detailed in the ERA submitted with the EP application, and Tables NVMP1 and NVMP2 above, the proposed operations are not considered likely to have an impact on noise sensitive receptors. The reason for this is a combination of the control measures in place, the existing noise landscape of the surrounding industrial estate, the distance of the receptors, and the land features that lie between the site and the receptors. The proposed noise emissions from the site are within the context of the existing noise climate from adjacent site uses, and within the context of the earlier site use as a waste transfer station. The noise climate would have comprised sorting of waste and HGVs accessing the site.

Noise monitoring has been carried out for the NIA submitted with the EP application. No ongoing noise monitoring is proposed once the site is operational. Should it be required, it will be carried out in accordance with EA guidance, specifically regarding British Standards for monitoring and assessment, and details will be provided to the EA for agreement prior to undertaking monitoring.

5 REPORTING AND COMPLAINTS RESPONSE

The site will be operated in accordance with an IMS. Included in the IMS is a process for managing non-conformances and incidents; this also includes management of complaints. Complaints will include those made by members of the public who may perceive there to be an emission from the site; a regulatory body either as the complainant or following receipt of a complaint from a third party that could relate to the site; or contractors/visitors to site who may perceive there to be an emission from the site.

Complaints may be received in person, by telephone, email or letter. Upon receipt of a complaint of perceived noise from the site, an incident report will be completed. This will record details of the complaint, time and date of perceived emission, and contact details for the complainant (including address, and location of the complaint if that is different). Whilst all complaints received will be recorded, not all will be substantiated as relating to activities at the site.

In order to identify if a complaint is substantiated, an investigation will be carried out. This will include, but not be limited to, the following:

- The activities that were being undertaken at the time of the complaint/perceived emission (e.g., any machinery in use, vehicle movements);
- The weather conditions at the time of the complaint/perceived emission (e.g., wind direction, speed, temperature, humidity);
- The location of the complainant/perceived emission; and
- Whether other complaints of a similar nature have been received or whether it is an isolated incident.

The completed incident reporting form will be kept alongside any other supporting information relating to the complaint for example photographs, copies of emails/letters, print outs of weather conditions at the time of the suggested emission etc.

This will facilitate the investigation stage of the complaints process.

Findings of the investigation will be provided to the complainant within 2 working days. Where required by the EP (i.e., if the complaint is substantiated), the EA will also be notified.

Records of complaints are retained for a period of at least 6 years.

5.1 Community Engagement

Communication lines are maintained between O.C.O Technology and its neighbouring businesses; this ensures that pertinent information is shared. This includes notifying those premises of any potential or actual issues that could have an environmental impact on them and may require them to take action to prevent or minimise impact.

A Community Liaison Group also operates and meets every 3 months. Any off-site issues can be reported and discussed through this Group.

Sensitive receptors immediately adjacent to the site and site access road (NSR1) are owned by O.C.O Technology and so, as landlord, communication with the tenants is on a regular basis and tenants have a contact number for any issues to be reported.

5.2 Management Responsibilities

The site is operated in accordance with the EMS, the implementation of which is the responsibility of, and led by, the management team. It is their responsibility to ensure that the system is understood and complied with at all levels of the organisation. All employees have a stake in emissions control at the site and training in the NVMP is therefore provided to all staff. Any member of staff may receive a complaint and is trained to record the correct details on the incident reporting form; this is then given to the Site Manager for follow up and investigation.

5.3 Summary

This NVMP identifies potential noise sources at the site, key noise sensitive receptors and defines control measures that must be implemented, and remain operational, to appropriately control noise emissions.

It has been written in support of the EP application for the site; at the request of the EA.

This DMP, as for all EMS documents, is considered a 'live' document and is reviewed on a regular basis. Circumstances that would initiate an extraordinary review of the DMP would include a significant change to operations, the introduction of any new control measures, the introduction of a new dust source, a change to the site layout or changes to the sensitive receptors.