



# Deep Moor Waste Transfer Station

## Operations and Environmental Management Plan

**Coastal UK Group Limited**

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## Revision Record

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	Click to enter a date.			
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	Click to enter a date.			

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## 1.0 Introduction

### 1.1 Report Context

SLR Consulting Limited (SLR) has been instructed by Advetec Holdings Limited (Advetec) to prepare an application to vary Deep Moor Waste Transfer Station's existing waste management licence (EAWML 100304) to include the operation of two Advetec units for the treatment of residual municipal waste, and to extend the existing site boundary.

This Operations and Environmental Management Plan (OEMP) document is reviewed and updated on an annual basis or as a result of a number of circumstances including, but not limited to, the following:

- issuance of a varied environmental permit by the Environment Agency (EA);
- a change to an operational process;
- a change in Site layout;
- a significant substantiated complaint; or
- a change to any legislation or guidance documents applicable to Aerobic Digestion Facilities.

This OEMP document is supplemented by the following documents prepared in support of the environmental permit variation application:

- Application Forms A, C2, C4 and F1 (SLR Ref: 416.065462.00001/AppForms);
- Non-Technical Summary (SLR Ref: 416.065462.00001/NTS);
- Site drawings (SLR Ref: 416.065462.00001/Drawings);
- Environmental Risk Assessment (SLR Ref: 416.065462.00001/ERA);
- Site Condition Report (SLR Ref: 416.065462.00001/SCR).
- Fire Prevention Plan (ref. 021221 Deep Moor FPP v1 JJ).

### 1.2 Site Location

Deep Moor Waste Transfer Station is located in Higher Bullen, St. Giles in the Wood, Torrington, Devon EX38 7JA (hereafter referred to as 'the Site') centred on National Grid Reference (NGR) SS 5276520904. It is situated approximately 3km northeast of Great Torrington town centre.

The site is located within a remote area and within Coastal UK Group Limited's wider site ownership boundary including a landfill site, household waste recycling centre and composting facility. Immediately to the north, west, south and east of the site boundary lies restored landfill. To the east of the wider boundary lies the local road transport network that connects the Site to surrounding areas. The landscape surrounding the Site is primarily comprised of open/agricultural land. There are no residential properties within 500m of the Site; the nearest being 530m to the southwest.

Further information on the Site's setting can be found in the Environmental Risk Assessment in Section 4 of the application.

The site is accessed via a track off an unnamed road that runs perpendicular to Belle Vue Cross Rd (B3232).

The Site Location is illustrated on Drawing 001 and the Site Layout is illustrated in Drawing 002, both can be found in Section 3 of this application.



### 1.3 Report Structure

This report describes the manner in which the Advetec units and associated equipment and waste stored is undertaken and managed at the facility to ensure compliance with the conditions of the EP. The report has been drafted to satisfy the requirements of EA Guidance and is divided into the following sections.

- Section 1 Introduction
- Section 2 Management
- Section 3 Operations
- Section 4 Emissions and Monitoring
- Section 5 Information
- Section 6 Closure

### 1.4 Document Revision History

**Table 1 A record of the revision history of this document**

Version	Reason for Revision	Date of Revision	Signature of Site Manager
1.0	First version of document	August 2024	

## 2.0 Management

### 2.1 Management System

The management system operated by Coastal UK Group Ltd will ensure that;

- the risks that the activities pose to the environment are identified;
- the measures that are required to minimise the risks are identified;
- the activities are managed in accordance with the management system;
- performance against the management system is audited at regular intervals; and
- the EP is complied with.

A summary of the Environmental Management System is included as Appendix A to the application forms in Section 1 of the application.

### 2.2 Management Structure and Responsibilities

The Site Manager is responsible for day to day operations and compliance with the environmental permit, included as Appendix A to this report.



The machines will be loaded by at least one member of staff who is suitably trained and fully conversant with the requirements of the permit regarding:

- waste acceptance and control procedures;
- operational controls;
- maintenance;
- record-keeping;
- emergency action plans; and
- notifications to the EA.

Following manual loading, the machines are designed to be operated and maintained automatically and therefore minimal staff will be required on Site in between the operations of loading and transfer off-Site.

## 2.3 Technical Competence and Training

The Site is managed by sufficient staff, competent to operate the Site. The management system ensures the following:

- all staff have clearly defined roles and responsibilities;
- records are maintained of the skills required for each post;
- records are maintained of the training and relevant qualifications undertaken by staff to meet the requirement of each post; and
- operations are governed by standard operating instructions.

Operations at the Site will be under the overall control of a technically competent person who holds the relevant Certificate of Technical Competence (COTC) under the Waste Management Industry Training and Advisory Board (WAMITAB) scheme.

An assessment of staff training needs will be carried out to identify the posts for which specific environmental awareness training is needed, and to determine the scope and level of such training. The assessment of training needs is reviewed on an annual basis.

The training programme will ensure that relevant staff are aware of the following:

- regulatory implications of the permit for the Site and their specific work activity;
- all potential environmental effects from operations under normal and abnormal circumstances;
- the need to report deviations from the permit; and
- prevention of accidental emissions and the action to be taken should accidental emissions occur.

## 2.4 Site Security

In order to prevent unauthorised access, Coastal's site ownership boundary is secured by closing and locking site entrance gates along with a combination of palisade/ chain link fencing, adjacent buildings, concrete retaining walls and earth bunding. The site has a CCTV system that is remotely monitored outside of working hours. Only authorised personnel have access to the Site via a reception where all visitors must sign in and out.

The Site is inspected at the commencement of each working day. Any defects or damage which compromise the integrity of the fencing or access gates are made secure by





temporary repair by the end of the working day. Permanent repairs are affected as soon as practicable.

All inspections, any defects, damage or repairs is recorded in the Site diary.

## 2.5 Permit Surrender

A Site Condition Report is maintained for the Site (SLR ref. 416.065462.00001\_SCR). Following the cessation of permitted activities, a review of the Site's condition will be undertaken. Following the review, the Site will be returned to a condition with reference to its condition prior to the commencement of activities on Site. An application will then be made to the EA to surrender the Site's EP.

## 2.6 Display of Environmental Permit

A copy of the environmental permit is kept available in the site office for reference by all staff and contractors whose work may have an impact on the environment.

## 2.7 Managing Documentation and Records

Controls are in place to ensure that all documents within the scope of the Environmental Management System (EMS) are issued, revised and maintained in a consistent fashion.

The documents that are included within the scope of the controls are as follows:

- policies;
- responsibilities;
- targets;
- maintenance records;
- procedures;
- monitoring records;
- results of audits;
- results of reviews;
- complaints and incident records; and
- training records.

Records are made and kept up to date on a daily basis to reflect waste received to Site, on-Site aerobic digestion treatment and waste collected from Site following treatment. All records relating to waste acceptance are maintained and kept readily available on Site and kept for a minimum of 2 years after the waste has been treated and the by-products removed off Site.

## 2.8 Reporting Non-Compliance and Taking Corrective Action

Non-compliances detected at the Site will be reported, investigated and rectified. Staff will maintain awareness of non-compliances in the following areas:

- actual or potential non-compliance with conditions of the environmental permit;
- system failure discovered at internal audit;
- suppliers or subcontractors breaking the agreed operating rules;
- incidents, accidents, and emergencies;



- malfunction, breakdown or failure of plant;
- other operational system failure; and
- complaints.

The action taken in response to the non-conformance may include:

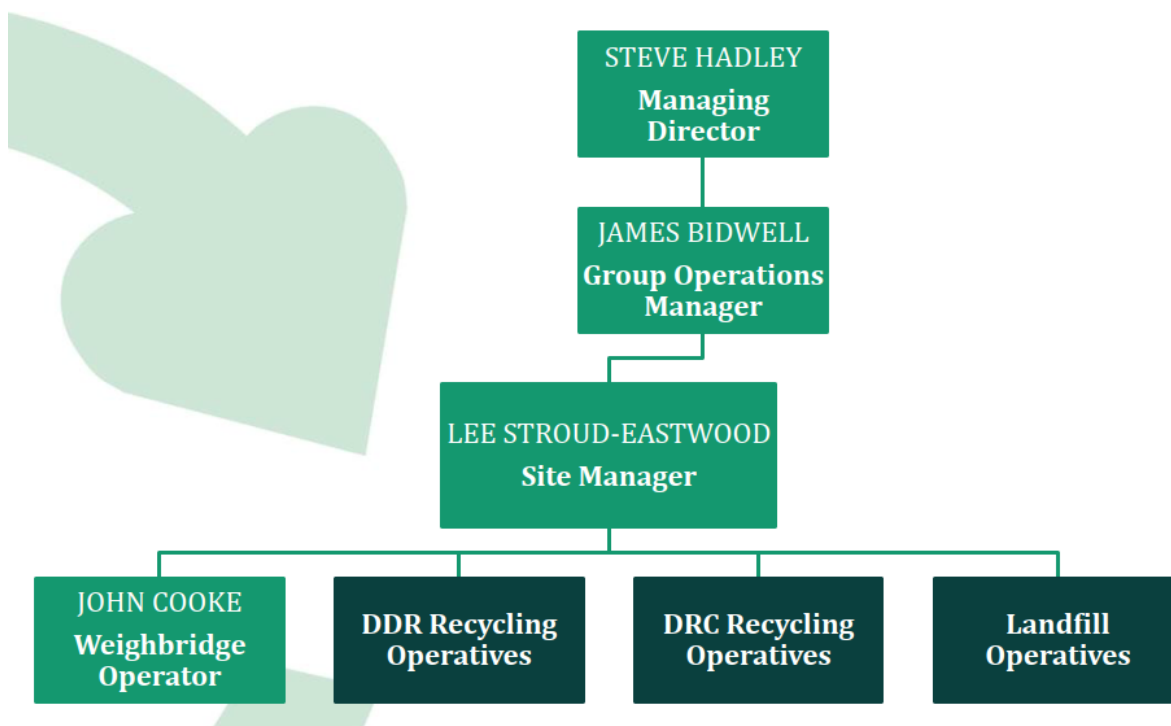
- obtaining additional information on the nature and extent of the non-conformance;
- discussing and testing alternative solutions;
- modifying procedures and responsibilities;
- seeking approval for additional resources and training; and
- contacting suppliers and contractors (as applicable).

## 2.9 Auditing and Legal Compliance

As part of the EMS, a formalised internal auditing procedure is adhered to, in order to ensure the facility is audited at defined intervals and that the progress of corrective and preventative action is monitored.

## 2.10 Monitoring, Measuring and Reviewing Environmental Performance

A formalised management structure reviews environmental performance, and ensures any necessary actions are taken. The management structure consists of the following tiers:



This document is to be updated when there is a change in management structure.



## 2.11 Operational Control, Preventative Maintenance and Calibration

The EMS contains operational procedures that will ensure effective control of Site operations, the use of approved suppliers and contract services, the maintenance of operational equipment and the calibration of monitoring equipment.

All plant and equipment are subject to a programme of planned preventative maintenance which will follow the inspection and maintenance schedule recommended by the manufacturer.

## 2.12 Design and Construction Quality Assurance

All relevant elements of the Site are designed in accordance with recognised standards, methodologies and practices.

The design process will use a risk-based approach and will be appropriately documented using drawings, specifications and method statements to provide an adequate audit trail.

Construction Quality Assurance (CQA) plans will govern all construction activities necessary in the future. These CQA plans will be prepared by competent and suitably qualified persons.

A competent and suitably qualified person will supervise the construction activities.

## 2.13 Hazard Identification

The following hazards are identified in the Environmental Risk Assessment (ERA) that was submitted in support of this variation application (reference 416.065462.00001/ERA):

- Odour from loading of waste into the two aerobic digesters;
- Odour from treatment of waste through the two aerobic digesters;
- Odour from waste storage;
- Noise from the two aerobic digesters;
- Dust from vehicle movements transferring residual waste off the site.
- Dust from storage and transfer of waste;
- Bioaerosols released during aerobic digestion;
- Contaminated run off from aerobic digesters;
- Birds, pests and insects attracted to waste stored around the compound and the residual floc produced from the aerobic digesters;
- Litter from waste;
- Mud from vehicle movements;
- Leakage of fuels and oils;
- Fire;
- Flooding; and
- Security and vandalism.

The following sections summarise the measures necessary to minimise the potential causes and consequences of accidents, as detailed in the ERA.



### **2.13.1 Odour**

Residual municipal waste from industrial and commercial sources and other non-hazardous wastes (including mixtures of materials) from the pre-pick processing of mechanically treated wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.

The Advetec units will enable Coastal to process residual municipal waste and other non-hazardous wastes (including mixtures of materials) from the pre-pick processing of mechanically treated wastes within 48 hours of receipt. This represents an improvement on the current situation, conferring a net benefit with respect to odour risk.

Waste will be loaded into the hopper which will be located external to the building. Vehicles will be used to transfer waste from the bay and into the hopper to be processed by the digesters. The storage areas have been designed to ensure there is no cross-contamination between the inputs and outputs of the aerobic digestion process.

The hoppers are located in close proximity to the entrance to the main building therefore minimising handling of waste externally. Only competent staff will handle waste using appropriate equipment.

Drop heights of the waste into the hoppers will be minimised to prevent minimise handling of waste and therefore increased potential for odour.

The digestion process is undertaken aerobically which limits odour generation compared to an anaerobic digestion process for example. The automatically controlled process ensures that anaerobic conditions will not develop within the vessel.

Storage areas and the perimeter of the site is monitored daily for any unacceptable levels of odour. The Site Manager is responsible for managing emissions of odour on site. Any odour identified on site is recorded in the site diary, investigated by the site manager and remediated as soon as possible.

Storage of floc generated by the machines will be collected internally into a holding bay within the main building and dry stored until collection / haulage off site. Floc being exported from the Site will be stabilised and is therefore less of an odour risk compared to export of untreated residual municipal waste and other non-hazardous wastes (including mixtures of materials) from the pre-pick processing of mechanically treated wastes. There will also be less vehicle movements from the Site.

Moreover, the Site is located over 500m from the nearest sensitive receptor to odour. The existing Site has no history of odour complaints.

### **2.13.2 Noise and Vibration**

Residual municipal waste from industrial and commercial sources and other non-hazardous wastes (including mixtures of materials) from the pre-pick processing of mechanically treated wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located. The waste transfer station is sited within a bunded area which attenuates noise.

Noise pollution will be reduced compared to operation without the two digesters, as transport movements required to transfer the waste generated on site will be less frequent.

The Advetec units will operate 24 hours a day. It is considered unlikely that significant noise or vibrations will be generated by the aerobic digesters due to their small scale (less than 26 tonnes per day) and the enclosed nature of the process.

Drop heights of the waste into the hoppers will be minimised to minimise handling of waste and therefore reduce potential for noise.



Moreover, the Site is located over 500m from the nearest sensitive receptor to noise. The existing Site has no history of noise complaints.

To ensure that noise and vibrations are limited, the following management techniques will be implemented:

- All plant and machinery will be operated and maintained in accordance with manufacturer's specifications;
- Machinery will be operated so as to minimise noise;
- Vehicles adhere to a speed limit on site; and
- Site surfaces will be kept in good repair to minimise noise associated with uneven roads

Daily auditory monitoring will be carried out by site personnel to identify any unacceptable levels of noise. A record of any adverse situations in the inspection findings will be made in the site diary. Remedial action will be taken in the event that noise from the site is detected at nearby sensitive receptor locations. The Site Manager will be responsible for managing noise levels on site.

### **2.13.3 Dust**

Residual municipal waste from industrial and commercial sources and other non-hazardous wastes (including mixtures of materials) from the pre-pick processing of mechanically treated wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.

Use of the digester will result in a reduction in vehicle movements thereby reducing the potential for dust generation from this source.

The Site is located over 500m from the nearest residential receptor, the nearest being 530m to the southwest. Due to the significant distance from residential areas and areas of cultural and natural heritage, the risk to sensitive receptors is considered low.

The waste transfer station is sited within a bunded area which provides shelter from wind whipping. Waste will be loaded into the hopper which will be located external to the building. Vehicles will be used to transfer waste from the building and into the hopper to be processed by the digesters. The hoppers are located in close proximity to the entrance to the main building therefore minimising handling of waste externally. Only competent staff will handle waste using appropriate equipment.

Drop heights of the waste into the hoppers will be minimised to minimise handling of waste and therefore increased potential for dust. The storage areas have been designed to ensure there is no cross-contamination between the inputs and outputs of the aerobic digestion process. Following shredding, waste will be transferred to the digesters via a fully enclosed auger. The two digesters will be located internally. After completion the post-process floc will be stored within a holding bay within the building and dry stored until collection/ haulage off site.

The output openings for each of the two digesters are located internally within a building with concrete surfacing.

Daily visual inspections will be conducted in response to any complaints. If dust is deemed a nuisance from any of these inspections, mitigation measures will be enforced to reduce any dust emissions. The result of any inspections or investigations as a result of complaints will be recorded in the site diary.

The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.



#### **2.13.4 Bioaerosols**

Ambient monitoring of bioaerosols at the site of Advetec's at Cribbs Causeway Shopping Centre installation found emissions of bio-aerosols to be below levels of detection or very low in all samples.

The Site is located over 500m from the nearest sensitive receptor to bioaerosols.

Daily visual inspections shall be undertaken at all areas of the site to check for conditions potentially affecting bioaerosol release. Records of the findings will be recorded in the sit diary.

Operational areas and site surfaces shall be maintained in a clean condition; and processes shall take place in designated and controlled areas of the site.

#### **2.13.5 Contaminated Run Off**

Residual municipal waste from industrial and commercial sources and other non-hazardous wastes (including mixtures of materials) from the pre-pick processing of mechanically treated wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.

Waste will be loaded into the hopper which will be located external to the building. Vehicles will be used to transfer waste from the main building and into the hopper to be processed by the digesters.

After completion the post-process floc will be stored within a holding bay within the building and dry stored until collection/ haulage off site. All wastes to be treated will be solid. No liquid wastes will be accepted.

The treatment process is exothermic. The heating of the waste during the treatment process causes it to dry out with the moisture extracted and vented.

Waste received will be low risk non-hazardous in nature.

The aerobic digestion process does not use water.

The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.

#### **2.13.6 Pests and Scavengers**

Residual municipal waste from industrial and commercial sources and other non-hazardous wastes (including mixtures of materials) from the pre-pick processing of mechanically treated wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.

Waste will be loaded into the hopper which will be located external to the building. Vehicles will be used to transfer waste from the main building and into the hopper to be processed by the digesters. Following shredding, waste will be transferred to the digesters via a fully enclosed auger. The digesters are located internally and will be fully enclosed.

After completion the post-process floc will be stored within a holding bay within the main building and dry stored until collection/ haulage off site.

The Site is located over 500m from the nearest residential receptor, the nearest being 530m to the southwest. Due to the significant distance from residential areas and areas of cultural and natural heritage, the risk to sensitive receptors is considered low.

Site personnel will conduct daily inspections of waste storage areas for signs of scavenging animals.



If scavenging animals are spotted a licenced contractor is contacted to remove them and the offending waste type will be investigated and removed if necessary.

The Site Manager is responsible for management of scavenging animals.

### **2.13.7 Litter**

Residual municipal waste from industrial and commercial sources and other non-hazardous wastes (including mixtures of materials) from the pre-pick processing of mechanically treated wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.

Waste will be loaded into the hopper which will be located external to the building. Vehicles will be used to transfer waste from the main building and into the hopper to be processed by the digesters.

Following shredding, waste will be transferred to the digesters via a fully enclosed auger. The digesters are located internally and will be fully enclosed. The outputs will then be passed by an overband magnet and eddy current separator to remove ferrous and non-ferrous metals. After completion the post-process floc will be collected into an internal holding bay within the main building and dry stored until collection/ haulage off site.

The Site will be inspected daily for signs of litter. The Site benefits from good housekeeping. In the event that any litter is identified on Site, it is cleared from the affected area.

The Site Manager is responsible for managing emissions of litter on and off site.

### **2.13.8 Mud**

All site vehicles will be checked to ensure that they are clear of loose waste prior to leaving the site.

Due to the reduction in the mass and volume of residual waste achieved by the aerobic digesters, transport of the waste off site will be infrequent and reduced compared to current arrangements. Therefore, the risk of mud being transferred off site is reduced.

Good housekeeping will be put in place by the Site Manager, which involves daily cleaning and inspections.

The Site will be inspected daily for signs of litter, mud or waste. Any identified instances of mud, litter or waste are cleared immediately.

The Site Manager is responsible for managing emissions of litter and mud on site.

### **2.13.9 Loss of Containment and Spillage**

There is no use or storage of oils and liquid fuels associated with the Advetec aerobic digesters.

Management to prevent and mitigate risk associated with leakage of fuel and oils will be carried out in accordance with Coastal's existing Environmental Management Procedures.



### **2.13.10 Fire**

Floc will be collected into an internal holding bay within the main building and dry stored until collection/ haulage off site.

Permitted activities do not include the burning of waste.

An internal temperature monitor continually assesses the temperature of the aerobic digesters. The temperature measurements can be accessed via cloud-based portal. The system is programmed with alerts and alarms to notify the user of any temperature related risks.

In the event of events such as arson and vandalism the incident is recorded in the site log and reported to the relevant authority. Site security measures are reviewed and improved where necessary. Deep Moor Waste Transfer Station benefits from restricted access areas and CCTV.

For further information on prevention and management of fire's associated with operation of the digesters, please refer to the Fire Prevention Plan.

### **2.13.11 Flooding**

The Site lies in a Flood Zone 1, which is classified as "Land having a less than 1 in 1,000 annual probability of river or sea flooding".

The Site Manager is responsible for the management of the Site in the event of flooding.

### **2.13.12 Security and Vandalism**

In order to prevent unauthorised access, the Site has 24 hour monitored CCTV provision from an external company with links directly to the police and fire services. The site also benefits from a full-length gate which is CCTV covered. Only authorised personnel will have access to the waste compound area.

In the event that damage is sustained repairs are made by the end of the working day. If this is not possible, suitable measures will be taken to prevent any unauthorised access to the Site and permanent repairs are affected as soon as practicable.

The Site Manager will be responsible for managing security on Site. This includes inspecting the Site at the commencement of each day.

## **3.0 Operations**

### **3.1 Process Description**

This permit application seeks to vary Deep Moor Waste Transfer Station's existing waste management licence (EAWML 100304) to include the installation of two Advetec aerobic digestors.

Waste management activities as described in the Waste Framework Directive 2008, which are currently undertaken as part of the waste transfer operation on site include:

- D15 - Storage of waste pending any of the operations listed in paragraphs 1 to 14 of the environmental permit, but excluding temporary storage, pending collection, on the site where the waste is produced
- R13 - Storage of wastes pending any of the operations listed in paragraphs 1 to 12 of the environmental permit, but excluding temporary storage, pending collection, on the site where it is produced;





- D14 - Repackaging of waste prior to the waste being submitted to any of the operations listed in paragraphs 1 to 13 of the environmental permit;
- D9 - Physio-chemical treatment not specified elsewhere in the environmental permit which results in final compounds or mixtures which are discarded by means of any of the operations listed in paragraphs 1 to 12 of the environmental permit;
- R3 - Recycling/reclamation of organic substances which are not used as solvents including composting and other biological transformation processes;
- R4 - Recycling/reclamation of metals and metal compounds; and
- R5 - Recycling/reclamation of other inorganic materials.

The two XO22 Advetec units on Site will have a capacity to treat up to 9,490 tonnes per annum (tpa) of non-hazardous residual municipal waste and outputs from the pre-processing of mixed municipal waste on site, to reduce the volume and mass of waste prior to transfer off-site for recovery.

## 3.2 Waste Types and Storage

### 3.2.1 Waste Types

The maximum quantity of waste proposed for treatment by aerobic digestion is up to 26 tonnes per day, 9,490 tonnes per annum. Table 2 lists the wastes which are proposed for treatment by aerobic digestion.

**Table 2 List of Wastes Proposed for Treatment**

List of Waste Code	Description
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 12	Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 - outputs from the pre-processing of mixed municipal waste on site
20	MUNICIPAL WASTES AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES INCLUDING SEPARATELY COLLECTED FRACTIONS
20 03	Other municipal wastes
20 03 01	Mixed municipal waste

### 3.2.2 Waste storage

Residual municipal waste from household, industrial and commercial sources is received at the waste transfer station.

Following deposit, the waste will be visually inspected to remove any visible non-conforming materials.

From here it will either be pre-processed using the site's trommel and / or picking line or directly stored in a bay within the building adjacent to where the Advetec units are located.



Waste will then be loaded into one of two bulk loading hoppers which will be located external to the building. Vehicles will be used to transfer waste from the main building and into the hoppers to be processed by the digesters.

Post-process floc will be stored internally within the building. It will be collected into a holding bay and dry stored until collection / haulage off site.

### 3.3 Site Operations

Table 3 details the new waste operation activities to be carried out on Site.

**Table 3 Description of Waste Operations**

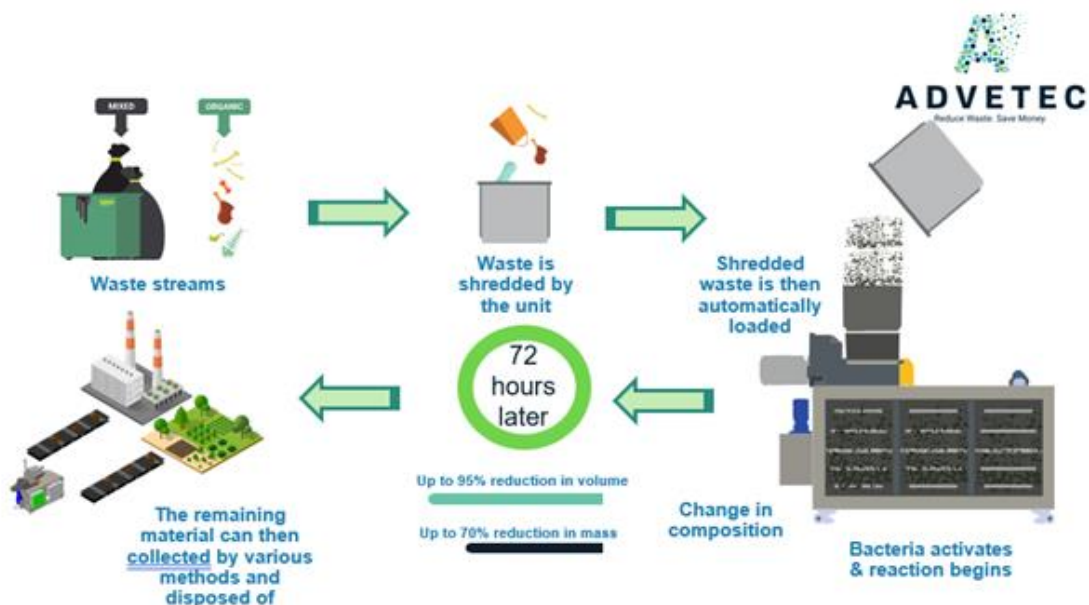
Activity Reference	Activity Description	Limits of Activity
Aerobic digestion treatment of waste	<p>R3: Recycling or reclamation of organic substances which are not used as solvents</p> <p>R5: Recycling or reclamation of other inorganic materials</p> <p>R12: Exchange of wastes for submission to any of the operations numbered R1 to R11</p>	<p>Treatment of wastes listed in Table 2, consisting of treatment via aerobic digestion process including shredding of waste.</p> <p>No more than 9,490 tonnes of waste shall be treated per year.</p>

Only authorised persons will be allowed access to the Site.

The waste will be loaded into the hoppers which connects to a shredder, which will be located externally to the building. The shredder will shred the waste into 80mm<sup>2</sup> particle size. The shredded waste is then augered into the digesters, where bacteria and bio-stimulants are automatically dosed into the waste. The digesters will be located internal to the building.

The XO22 has four chambers, with an internal mass of 22m<sup>3</sup> at any given point, through which the waste is moved for digestion. Movement is by a centralized shaft with engineered paddles that rotate according to pre-programmed algorithms. The paddles allow the system to stay aerobic while ensuring residence, and index mass throughout the process. A diagrammatic overview of an aerobic digestion process is provided as Figure 1.





**Figure 1 Aerobic Digestion Process Overview**

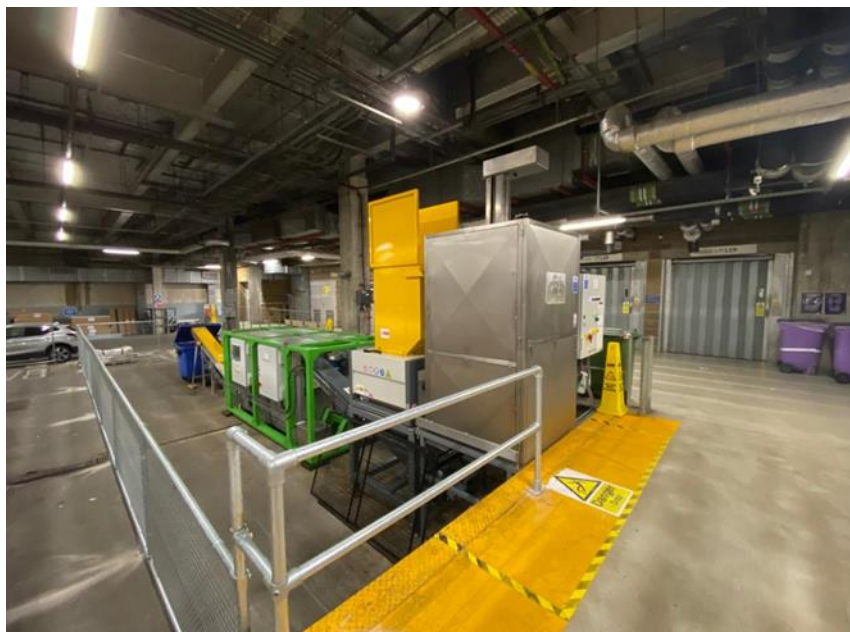
The only by-products of the aerobic digestion system are water vapour, carbon dioxide and a post-process residue (floc). The process uses exothermic aerobic respiration; therefore, it generates its own heat, which is channelled internally back into the process, using a closed-loop heating system.

The entire aerobic digestion process takes approximately 72 hours to complete, after completion the post-process floc will be passed by an overband magnet and eddy current separator to remove small pieces of ferrous and non-ferrous metal before being collected internally within the building. It will be collected into a holding bay and dry stored until collection / haulage off site. The process is designed to be continuous in nature however as opposed to being a batch process. As such, the system is fed regularly (such as once or twice a day) and continually discharging floc after digestion is completed.

Control of the XO22 is accessible via a regulated cloud-based portal. Data points are collected, logged and stored at programmable intervals, including temperature, humidity, rotational speeds, emissions monitoring, power consumption, maintenance schedules. Alert and alarm levels are programmed into the system to notify in the event of system errors or parameters moving out of range. There is also an in-line gas monitoring system which continuously monitors levels of methane (CH<sub>4</sub>), carbon monoxide (CO), volatile organic compounds (VOCs) and sulphur dioxide (SO<sub>2</sub>), in the event of detection of any of these parameters, an alarm is raised. To mitigate against any possible odours from the aerobic digestion process, an odour abatement system is fitted within the XO22 whereby the by-products of water vapour and carbon dioxide are vented to the atmosphere through a carbon filter.

A picture of a similar Advetec installation of an XO3 machine within Cribbs Causeway Shopping Centre, which can treat up to 1.5 tonnes per day can be seen in Figure 2.





**Figure 2 Advetec Installation at Cribbs Causeway**

## **3.4 Waste Acceptance**

### **3.4.1 Hours of Operation**

The units will operate 24 hours a day, but the Site is manned between the hours of 7:00am and 5:00pm, Monday to Friday. The adjacent Household Waste Recycling Centre (operated by the same site management team) is also manned on Saturdays and Sundays 10:00am to 5:00pm (4:30pm from October to March).

### **3.4.2 Load Inspection and Waste Control**

Waste is visually inspected in customers' bins during collections. All transfer documentation is checked, validated and any discrepancies resolved before the waste is accepted. If the incoming waste classification and description is incorrect or incomplete, this is addressed during waste acceptance.

All wastes entering the Site are recorded upon arrival and records of waste accepted for treatment at the Site will be kept, including details on:

- the quantity;
- characteristics;
- List of Waste (LoW) code; and
- delivery date and time.

Following deposit, waste is visually inspected to remove any visible non-conforming materials.

Waste which is identified to be incompatible with the Site's waste acceptance criteria will also be recorded and separated. This waste is quarantined, recorded and removed from Site at the earliest opportunity, to a suitably licenced facility. Records of non-compliant waste received at the Site will be kept in the Site diary, and include details on:

- the quantity;
- characteristics;



- List of Waste (LoW) code; and
- delivery date and time.

Wastes are not accepted unless the Site is adequately resourced to receive the waste.

## 3.5 Site Infrastructure and Equipment

### 3.5.1 Site Identification Board

A Site identification board which is easily readable from outside the entrance during hours of daylight is provided at the main Site entrance.

The identification board is inspected at least once per week. In the event of damage or defect that significantly affects the legibility of the board it is repaired or replaced within a timescale agreed with the Environment Agency.

The board displays the following information:

- Site name and address;
- Permit holder;
- Permit number;
- Emergency contact name and telephone number;
- Environment Agency national telephone numbers; and
- Days and hours Site is open for operations.

### 3.5.2 Plant and Equipment

The following items of plant and equipment will be associated with the aerobic digester.

- 2 x Advetec X022 Aerobic Digester

All items of plant and equipment used on Site are maintained in accordance with manufacturer's recommendations. Spare plant is available in the event of breakdown.

## 4.0 Emissions and Monitoring

### 4.1 Point Source Emissions

The Site is operated so that there are no point source emissions to surface water, groundwater, or land.

#### 4.1.1 Point Source Emissions to Air

There will be two point source emission to air from the aerobic digesters. The location of which are shown on Drawing 002.

There is an in-line gas process monitoring system that continuously monitors levels of methane (CH<sub>4</sub>), carbon monoxide (CO), volatile organic compound (VOCs) and sulphur dioxide (SO<sub>2</sub>) within the XO units. In the unlikely event of detection of any of these substances, an alarm is raised.

#### 4.1.2 Point Source Emissions to Sewer

Drains serving the waste transfer station waste storage and treatment areas are captured via a foul drainage system which leads to and results in the drainage being treated by the Deep Moor Waste Transfer Station's Leachate Treatment Plant.



## 4.2 Fugitive Emissions

Aerobic digestion takes place in a completely sealed vessel, meaning the potential for fugitive emissions to escape is considered very low.

Despite this, the Site area and perimeter will be inspected on a regular basis to inspect for fugitive emissions.

### 4.2.1 Surface Water and Groundwater

No water is used during the aerobic digestion process and no other additional site operations will require water.

To ensure that the potential for the accidental release of emissions off Site remains low, the Site area will be inspected regularly to ensure integrity and to check for any spillage of materials. Any defects will be repaired immediately with a temporary solution and fitted with a permanent repair as soon as practicable and to prevent the release of accidental emissions off Site. Any spillages are cleaned up immediately using spill kits that are provided on Site.

## 5.0 Raw materials

### 5.1 Raw material selection

The only raw materials used by the aerobic digesters are bio-stimulants. Bio-stimulants are added to stimulate bacteria indigenous to the waste stream to optimise the digestion process.

Typical usage levels and methods of storage for raw materials used on Site is shown in Table 3 below.

**Table 4 Raw Materials Inventory**

Raw material	Physical State	Storage arrangements	Storage capacity (ltrs)	Amount used (litres per year)	Description of how material is used	Environmental Impact
Bio stimulant	Liquid	Onboard tank	40	160	Added to the aerobic digestion process to aid and optimise digestion	This raw material is an extract from algae, which is classed as non-hazardous poses no known impact (toxicological or ecological risk). Potential negative impact on site runoff quality

### 5.2 Minimisation of Raw Material Use

There is only one raw material used on Site, as detailed in Section 5.1. The aerobic digestion plant is powered using electricity and does not use any additional fuel. There are no other on-Site processes which require fuel or the use of any raw materials.

The use of bio-stimulants on Site is low due to the small scale (only treating up to 26 tonnes



of waste per day) of the activity.

Despite the minimal use of raw materials on Site, the following optimisation techniques are employed

- Preventative and reactive maintenance of processing equipment; and
- Replacement and upgrading of processing equipment, when applicable, in accordance with best practice requirements.

### 5.3 Water Use

The process does not use or require any water.

## 6.0 Energy

### 6.1 Current Energy Consumption

Due to the small scale of the Site, minimal energy is required for operations. Energy for the Site is obtained from electricity, supplied to the Site from the National Grid. Each aerobic digester will use approximately 27 kW/h of electricity. This equates to approximately 11.25kW of electricity used per tonne of waste treated.

The following measures on Site will be implemented to ensure high energy efficiency:

- The purchase of energy efficient equipment, where appropriate;
- Maintenance and operation of equipment in an efficient manner; and
- Continual and periodic review of operations and identification of areas or practices that would result in improved energy efficiency.

### 6.2 Energy Efficiency Measures

Tables 5 and 6 below summarise the energy efficiency measures employed.

**Table 5 Operating, Maintenance and Housekeeping Measures**

Operating maintenance and housekeeping measures	Implemented in the installation?	Supplementary Information/ Justification
Air conditioning, process refrigeration and cooling systems maintenance (leaks, seals, temperature control, evaporator/condenser maintenance)	No	These systems are not required on Site
Motors and drivers	Yes	Motors and drivers can be controlled remotely using an installed cloud-based portal. Motors and drivers installed are variable speed.
Compressed gas system (leaks, procedures for use)	No	These systems are not required on Site
Steam distribution systems (leaks, traps, insulation)	No	These systems are not required on Site
Space heating and hot water systems	No	These systems are not required on Site
Lubrication to avoid high friction loss	Yes	The equipment will be maintained in accordance with the manufacturer's



Operating maintenance and housekeeping measures	Implemented in the installation?	Supplementary Information/ Justification
		specifications ensuring relevant components are kept lubricated.
Boiler maintenance	No	A boiler is not required on Site
Variable speed drives on air compressors	No	These systems are not required on Site
Phase optimisation of electronic control motors, such as on the inverters.	Yes	Electronic control motors incorporate phase optimisation.
Other maintenance activities within the installation	Yes	The preventative maintenance system covers all key items of productive plant.

**Table 6 Physical Measures**

Physical measures	Implemented in the installation?	Supplementary Information/ Justification
Sufficient insulation of steam systems, heated vessels and pipework.	Yes	The aerobic digestion vessel is insulated.
Provision of sealing and containment methods to maintain temperature	Yes	The aerobic digestion vessel is a sealed unit.
Simple sensors and timers to prevent unnecessary discharge of heated liquids and gases.	Yes	The aerobic digester vessel and collected data is controlled remotely and monitored using an installed cloud-based portal.

## 7.0 Information

All relevant notifications and submissions to the EA regarding the Site are made in writing and will quote the environmental permit reference number and the name of the permit holder.

Records are maintained for at least 2 years, however in the case of off-Site environmental effects, and matters which affect the condition of land and groundwater the records are kept until EP surrender. Duty of Care records are kept for a minimum of 2 years.

### 7.1 Reporting and Notifications

#### 7.1.1 Changes in Technically Competent Persons

The EA will be informed in writing of any changes in the technically competent manager of the Site and the name of any incoming person, together with evidence that such person has the required technical competence.

#### 7.1.2 Waste Types and Quantities

A summary report of waste types and quantities accepted and removed from the Site for each quarter, will be submitted to the EA within 1 month of the end of the quarter unless otherwise required by the EP conditions.

#### 7.1.3 Relevant Convictions

The EA will be notified of the following events:





- Coastal UK Group Ltd being convicted of any relevant offence; and
- Any appeal against a conviction for a relevant offence and the results of such an appeal.

#### **7.1.4 Notification of Change of Operator's or Holder's Details**

The EA will be notified of the following:

- Any change in the operator's trading name, registered name or registered office address; and
- Any steps taken with a view to the company going into administration, entering into a company voluntary arrangement or being wound up.

#### **7.1.5 Adverse Effects**

The EA will be notified without delay following the detection of the following:

- Any malfunction, breakdown or failure of equipment or techniques;
- Any accident;
- Fugitive emissions which have caused, are causing or may cause significant pollution; and
- Any significant adverse environmental and health effect.





# **Appendix A    Environmental Permit (to be inserted once variation issued)**

## **Deep Moor Waste Transfer Station**

### **Operations and Environmental Management Plan**

**Coastal UK Group Limited**

SLR Project No.: 416.065462.00001

22 August 2024

