Pattemore's Transport (Crewkerne) Ltd
PAT-OD-03 - Odour Management Plan
Pattemore's Dairy

Site name: Pattemore's Dairy

Site address: Mosterton Road, Misterton, Crewkerne, Somerset, TA18 8NT

Operator name: Pattemore's Transport (Crewkerne) Limited (Pattemore's)

Permit number: EPR/NP3127SX

Who this plan is for:

- **Site Management and all operational staff**: will receive appropriate training on the OMP using the EMS and documented procedures. Changes made to the OMP will be communicated to all operational staff via a Toolbox Talk.

- **Contractors working on site:** all contractors will receive a site induction outlining the requirement to prevent/ minimise the potential for odour impact outside the boundary.

- **Environment Agency officers:** the Environment Agency will be notified of a revision to the OMP and a copy of the revised OMP will be submitted to the Environment Agency for approval.

A paper copy of the latest version of the OMP will be held in the Site Office. A copy will also be maintained electronically.

List of revisions

Version No.	Authorised by	Change(s)	Revision By
1.0			Earthcare Technical Ltd

Contents

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Abbreviations

AMP	Accident Management Plan
AQIA	Air Quality Assessment
BIO DAF	Biomass dissolved air flotation
CIP	Cleaning in Place
CO_2	Carbon dioxide
DAF	Dissolved air flotation
EA	Environment Agency
EFHS	Engineering, Facilities & Health & Safety
EMS	Environmental Management System
ETL	Earthcare Technical Limited
ETP	Effluent Treatment Plant
IBC	Intermediate Bulk Container
MBR	Membrane Bioreactor
MLSS	Mixed liquor suspended solids
NGR	National Grid Reference
NH_4	Ammonium
OMP	Odour Management Plan
PAC	Poly Aluminium Chloride
SOP	Standard Operating Procedure

1. Introduction

1.1 Site description

This Odour Management Plan has been prepared by Earthcare Technical Ltd (ETL) to cover the scope of operations at the Pattemore's Dairy site, Mosterton Road, Misterton, Crewkerne, Somerset, TA18 8NT ('the Site') operated by Pattemore's Transport (Crewkerne) Limited (Pattemore's).

This OMP has been written to support the environmental permit application for the Site, which requires a bespoke installation permit (Permit ref: EPR/NP3127SX). It is a live document that will be updated accordingly throughout the operation and closure of the regulated facility.

The site location is shown in Figure 2.1 – Map of site location and receptors.

The site comprises a diary processing installation. The Site footprint (proposed permitted area) is approximately 6.3 hectares (15.5 acres). The Site is in a rural location with the villages of Misterton approximately 1km to the northwest and South Perrott 1.3km to the southeast. The southern boundary of the Site is bordered by a tributary of the River Parrett. To the east of the Site there is a solar farm with an area of 2 hectares (5 acres) which is operated by Pattemore's Transport (Holdings) Ltd and provides energy to the Site.

Table 1.1 summarises the existing and proposed site infrastructure.

Table1.1 Existing and proposed site infrastructure

Aspect	Components
Existing infrastructure	
Basic site infrastructure	• Access road • Weighbridge • 2 No. parking areas • Office buildings
Process infrastructure	• **Milk reception building** • **Silos** - 13 No. milk silos (2 proposed, total = 15 No.) - 16 No. cream silos - 8 No. skim silos (2 proposed, total = 10 No.) • **Separator building** - 4 No. centrifuges to separate milk from cream • **Main dairy building** - Lorry loading bay - Pasteuriser room - Evaporator 1 - Long-life cream area - Pergul lines (filling machine for bags) - Cream filling room - Cold storage - Pallecon storage (clad IBC) - 2 No. mains water storage on roof

	- 3 No. air conditioning units - 3 No. chillers • **1 No. chiller (on plinth)** • **Mechanical Vapour Recompression (MVR) building (Evaporator 2)** • **Cooling tower**
Cleaning systems	• **Lorry wash bay** • **Tray wash (tented structure)** • **6 No. Cleaning in Place (CIP) systems** - CIP1: All equipment in the factory that has contact with pasteurised products - CIP2: Milk silos and milk pumps and at times also for cleaning tankers - CIP3: Tanker and box wash stations - CIP4: Skim silos - CIP5: Under commissioning for use on process lines within the dairy - CIP6: Operates as a contingency for CIP1 during downtime or breakdowns
Storage areas / tanks for chemicals/ fuels	• 2 No. bulk storage tanks for caustic (30%) • 2 No. bulk storage tanks for prime CIP (30% caustic) • 1 No. bulk storage tank for nitric acid • 2 No. bunded kerosene tanks • 3 No. bunded diesel tanks • 1 No. bunded Ad Blue tank • 1 No. glycol tank
Workshops	• **Mechanics workshop** - including engine oil storage • **Maintenance workshop** - containing back-up generator
Combustion plant	• **3 No. kerosene boilers** - for steam production for heating, cleaning equipment and pasteurisation (fixed) • **1 No. standby kerosene boiler** - for steam production for heating, cleaning equipment and pasteurisation during the servicing/ maintenance of the other boilers (mobile) • **1 No. standby generator** - (inside Maintenance Workshop)
Water supply/ storage	• Borehole • 1 No. clean water storage pit • 3 No. water storage tanks • Dirty water Emergency Overflow Pit (10m^3) & Emergency Overflow Tank (40m^3) • Site drainage containment
Effluent Treatment	• **Effluent Treatment Plant (ETP):** - 6 No. Effluent Storage Tanks ('Back Tanks') - Balance Tank - Activated Sludge and Aerobic Tank (AS Tank) - Membrane Bioreactor (MBR) - Anoxic Tank - Sludge Tank

	- Dissolved Air Flotation (DAF) plant - Biomass (BIO) DAF Plant - Screw press for sludge in Separation Bunker • **1 No. sewage treatment plant** • **Reed bed and 3 No. ponds** - for final polishing of effluent prior to discharge
Proposed infrastructure	
Process infrastructure	• **New processing line for goat and plant milk** - Robotic packaging plant • **Silos** - 4 No. skim silos (140m^3 each)
Cleaning systems	• Associated CIP system for new line for goat milk • Additional CIP to serve as an upgrade to CIP1
New development to the east of site	• Dry store and packaging warehouse • 1 No. sewage treatment plant • New workshop • Fuel storage • Waste oil store • Effluent store (approx.750m^3) (lagoon or tank designed to industry standards) • 3 No. Concrete surface water settlement ponds with clarifier, dewatering bag and soakaway

The Site is operational 24 hours per day, 365 days out of the year, with the dairy operating throughout the night.

1.2 Maintenance and review of the OMP

It will be the responsibility of the Engineering, Facilities & Health & Safety Manager (EFHS Manager) to be fully aware of the contents of the OMP, to update the OMP and to provide relevant training to staff.

A paper copy of the OMP will be held in the Site Office such that all employees have access to the latest version. A copy will also be maintained electronically. The OMP will be reviewed on an annual basis (as a minimum) or immediately following any incident, complaints or a change in the operation or infrastructure to ensure that it continues to remain relevant to the Site activities and in line with current guidance.

In the event of a revision to the OMP the Environment Agency (EA) will be notified, and a copy will be submitted for approval by the EA.

The EFHS Manager will ensure all persons performing tasks for the organisation or on its behalf, whose work may have a significant impact on the environment, are competent based on appropriate education, training and/or experience, and will retain associated records.

The EFHS Manager will establish and implement procedures to identify the training needs associated with the OMP, the operation of the Site and the retention of staff competencies. The training requirements for new staff will be determined following the Training Procedure (**PAT-SOP-04**).

All staff are to be fully aware of the OMP to ensure that procedures and controls are upheld. All new staff will receive appropriate training on the OMP using the Environmental Management System (EMS) and documented procedures to understand and reduce impact of the odour.

Thereafter, any changes made to the OMP will be communicated to all operational staff via a Toolbox Talk. All formal training and Toolbox Talks received will be logged in the Skills and Competency Matrix.

1.3 Relevant sector guidance on which this OMP is based

This OMP follows the suggested EA OMP format[1] and has been produced in accordance with:

- **EA H4 Odour Management guidance[2]**

  The guidance from EA is intended for permit holders and applicants, to advise them on how to comply with odour conditions set by the permit. It includes measures to assess, reduce, take control measures, and monitor pollution. It contains advice on odour thresholds or benchmarks for assessment.

- **Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries**

  The guidance[3] sets out indicative Best Available Technique (BAT) or appropriate measures for the sector including measures that can be used to prevent or minimise odour release.

- **Biological waste treatment: appropriate measures for permitted facilities[4]**

  This guidance applies to permitted waste management facilities that handle organic waste ('biowaste'). There is overlap between BAT and necessary measures for waste operations. The EA uses the term 'appropriate measures' to cover both sets of requirements.

- **Waste Treatment BREF[5]**

  This document is a reference document on indicative BAT for the waste treatment sector, the associated emission levels (and other environmental performance levels) including that of odour and the associated monitoring.

[1] Environment Agency Odour Management Plan Template Final V2. (05.05.21) (https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit#odour-management-plan)
[2] Environment Agency (2011) H4 Odour Management – How to Comply with your Permit. Horizontal Guidance Note IPPC H4.
[3] Best Available Techniques (BAT) Reference Document for the Food, Drink and Milk Industries, European Commission, 2019
[4] Biological waste treatment: appropriate measures for permitted facilities, Environment Agency Published 21 September 2022, Updated: 25 November 2024. (https://www.gov.uk/guidance/biological-waste-treatment-appropriate-measures-for-permitted-facilities)
[5] Best Available Techniques (BAT) Reference Document for Waste Treatment, European IPPC Bureau, 2018

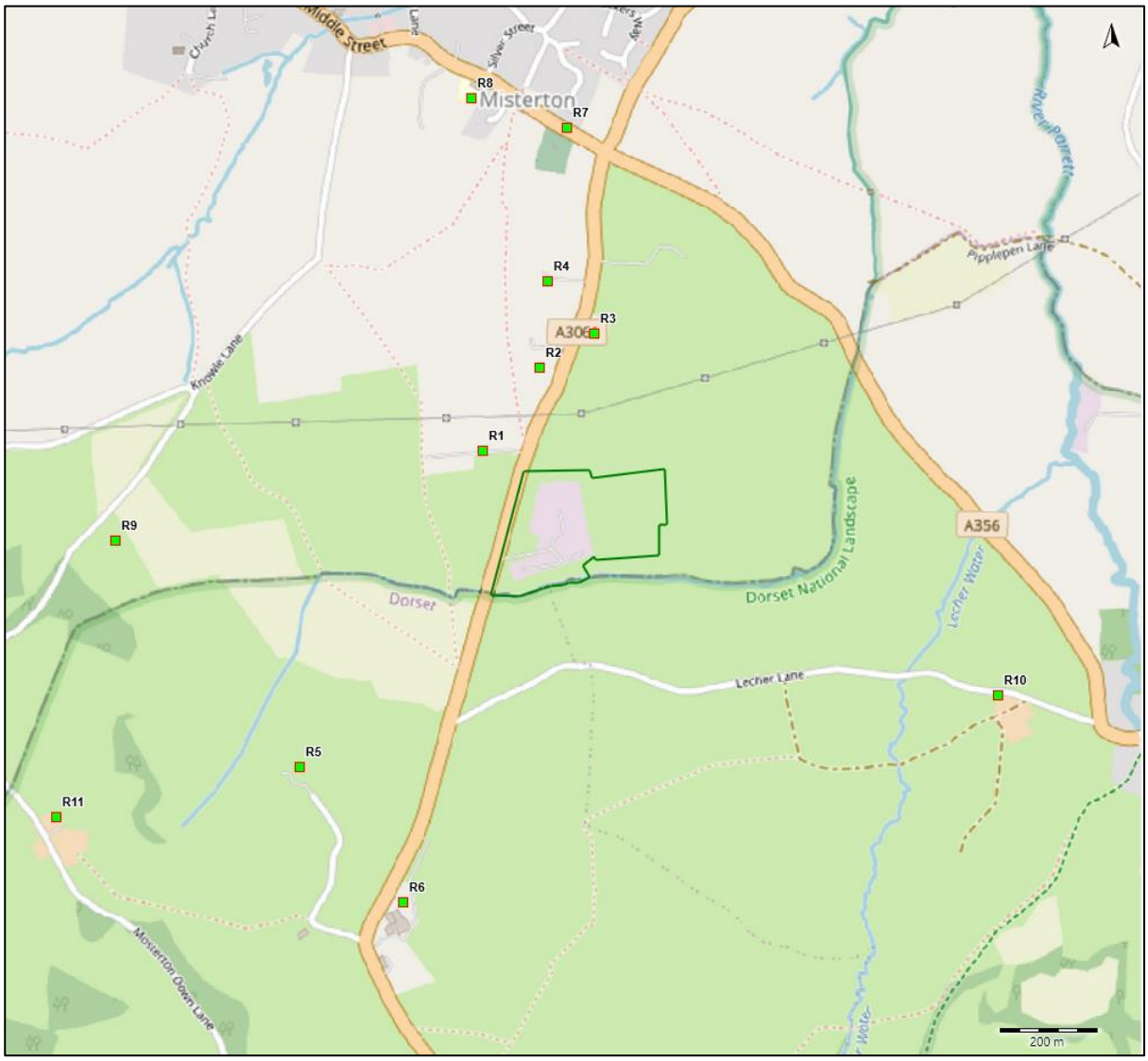
2. Receptors

2.1. Receptor List

Table 2.1. Receptor list

Receptor reference	**Location**	**Land use e.g. house, school, hospital, commercial**	**Direction from Site (North, South, East, West)**	**Approximate distance to Site boundary (m)***	**Sensitivity to odour** Low (e.g. footpath/road) Medium (e.g. industrial / commercial workplace) High (e.g. housing / pub / hotel etc.)
R1	Owls Barton	Residential	Northwest	100	High
R2	Knowle Farm & NS Used Car Dealer	Residential & Commercial	North	200	High
R3	Houses off A3066 south of Misterton	Residential	North	280	High
R4	R V S Accident Repair	Commercial	North	380	Medium
R5	Bluntsmoor Farm	Residential	Southwest	510	High
R6	Chapel Court Farm including plant hire company	Residential & Commercial	South southwest	635	High
R7	Misterton village	Residential	North and northwest	670	High
R8	Misterton Church of England First School	School	North northwest	735	High
R9	Badgers Glory	Residential	West	790	High
R10	Tumberlands, Lecher Lane	Agricultural & Residential	Southeast	845	High
R11	Downbarn Farm – Dairy Farm	Residential & Agricultural	Southwest	945	High
*Distance from receptor boundary					

Figure 2.1 Map of Site location and receptors



Legend

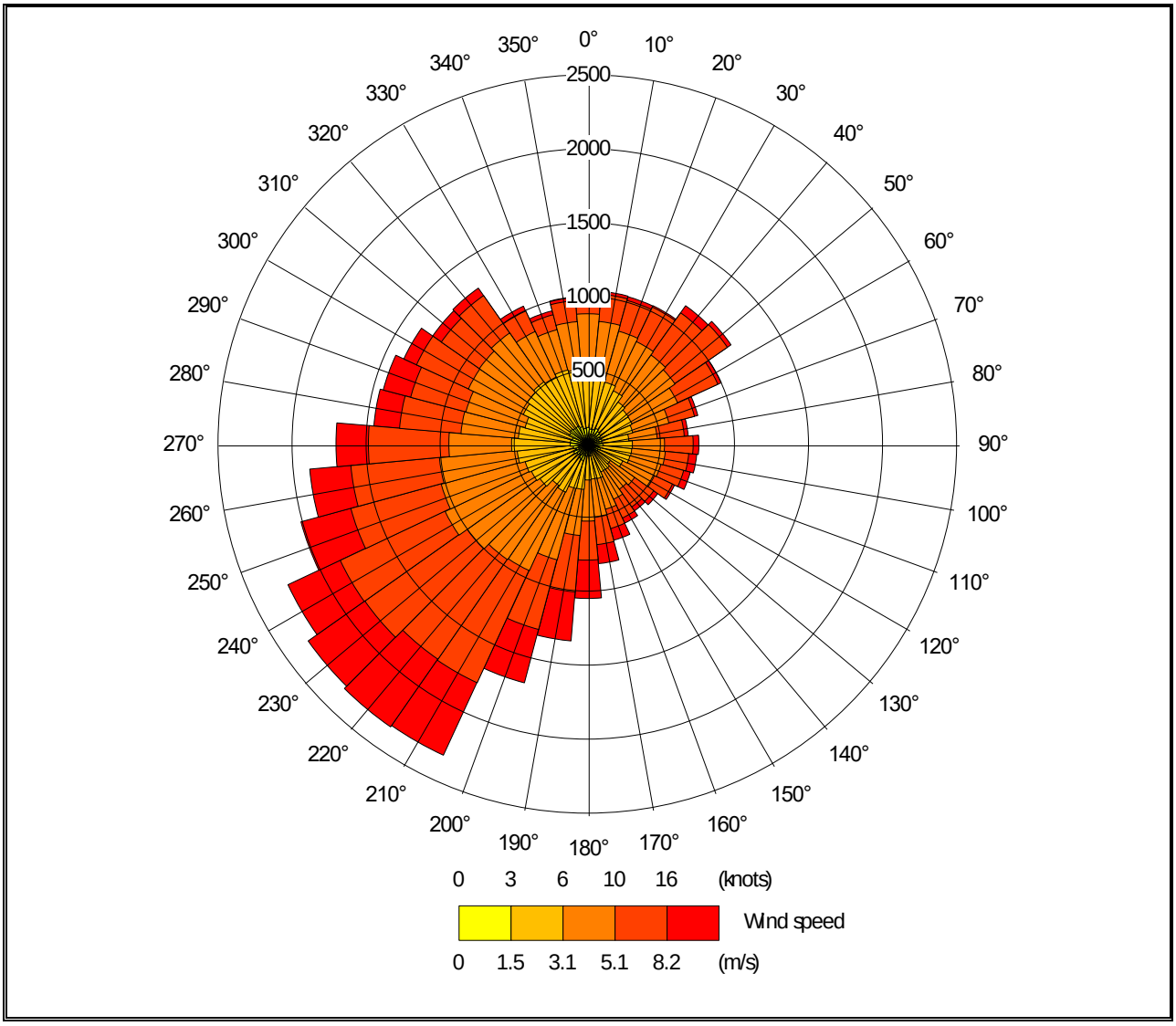
Human receptors

2.2. Windrose and source of weather data

A wind rose data, obtained from a Numerical Weather Prediction system known as the Global Forecast System (GFS) of the Site location for a 5-year period shows the prevailing wind direction is from the southwest (Figure 2.2). The prevalence of winds from these directions means that those receptors that lie to the northeast of the Site will be those most frequently 'downwind' of the Site and therefore most likely to be impacted by odour emissions from the operation.

Daily weather conditions are recorded in the Site Diary using information secured from online resources and reviewed by operators as part of the routine monitoring on-site. The meteorological data will be considered during routine odour surveys and prior to and during operations that have the potential to give rise to off-site odour impacts.

Figure 2.2. - Wind rose, GFS meteorological data (50.861°, -2.767°), (2019 – 2023)



Source: A&S Modelling & Data Ltd

3. Sources of odour and Site processes

3.1 Odorous materials entering and leaving site

A schematic of the Site layout is provided in Figure 3. The main processes undertaken at the Site can be summarised as:

- Food and drink production processes utilising milk (the dairy);
- Cartoning of plant-based milks; and
- Wastewater treatment processes (the effluent treatment plant)

The operation includes the treatment and processing of cows' milk, namely the production of pasteurised milk, cream and concentrated skimmed milk from cream production. The permit application also makes provision for the pasteurisation and packaging of goats' milk and plant-based milk.

All raw materials are defined by a specification, and purchased from reputable, approved suppliers. Records of all approved suppliers are kept and reviewed regularly. Raw materials, including that of goats and plant-based milk, entering the Site for processing are delivered directly from source, have been previously stored and transported under controlled conditions and, as such, are not odorous. Raw materials are accepted in bulk, delivered in refrigerated tankers to the Pattemore's Dairy, unloaded within sealed pipework, and stored on-site under controlled conditions in insulated silos. Due to the controlled conditions under which the raw materials are transported, stored and processed, there is no odour generation from the acceptance of raw materials for onsite processing or from products leaving the Site associated with the milk processing operation.

Effluent, comprising dirty water generated onsite, including liquid wastes and cleaning chemicals, is treated within the onsite ETP. Sludge, separated within the Screw press, falls directly into a hydraulic tipper trailer positioned beneath within the enclosed Separation Bunker. The sliding doors to the Separation Bunker remain closed during the operation and are opened only for vehicle access when the trailers are exchanged. Each trailer is fitted with a sensor to avoid over-filling, and routine visual checks are made by ETP site operatives during each shift. The separated sludges, contained within the curtain-covered hydraulic tipper trailer, are removed from Site twice weekly for landspreading. During transport, odours from the separated sludge material will be contained within the covered trailer, the offsite transfer activity will be intermittent (twice weekly), and brief (removed from Site immediately following dispatch from the Separation Bunker).

Contingencies are in place to protect the functionality of the ETP, such that if high volumes of concentrated water require treatment, any quantities above which the ETP can process is diverted to appropriate contractors for landspreading for agricultural benefits. There is approximately one tanker of wastewater per week that is sent off-site to local farms for landspreading (and potentially pre-storage) under a Mobile Plant Landspreading environmental permit and deployment consisting of concentrated effluent which might otherwise overwhelm the ETP. The material is removed from site in a sealed tanker and there is therefore no associated emission to air or otherwise from this material.

Table 3.2 below lists all materials with the potential to become odorous on-site due to the activities undertaken.

3.2 Odorous materials

Table 3.2 Odorous materials

Odorous and potentially odorous material (any solid, liquid or gas)	Odour potential High Risk / Medium Risk / Low Risk	Maximum quantity on site at any given day (approx. tonnes per day or litres per day)	Maximum time held on site (hours or days)	Location of odorous materials on site	Additional comments
Dirty water	**Low Risk**	• **Site drainage containment** (transient) • **Balance Tank** (250m^3) Average throughput 262m^3 /day. Filled to <10% of available capacity. • **Dirty water Emergency Overflow Pit** (10m^3) & Emergency Overflow Tank (40m^3). Filled to <25% of available capacity (for treatment and contingency).	Continuous flow through site drainage containment and through ETP. ETP pumped to balance storage and treatment requirements, whilst maintaining capacity for contingency.	• Site drainage containment • Effluent Treatment Plant (ETP): Balance Tank • Emergency Overflow Pit & Emergency Overflow Tank	Dirty water sources include yard runoff, CIP systems water, water from the first stage evaporation process, boiler blowdown water, and under abnormal circumstances, spillages within dairy. At source, the dirty water is not odorous.
Effluent (within ETP)	**Medium Risk**	Total ETP storage capacity 1,306m^3 • **6No. Effluent Storage Tanks** ('Back Tanks') (60m^3 each, 360m^3 total. Filled to <30% of available capacity.	Continuous flow through ETP: pumped to balance treatment and contingency requirements.	ETP: 6No. Effluent Storage Tanks	Not completely sealed (airtight) as they have been drilled to allow for pipework, no sealant.

Odorous and potentially odorous material (any solid, liquid or gas)	Odour potential High Risk / Medium Risk / Low Risk	Maximum quantity on site at any given day (approx. tonnes per day or litres per day)	Maximum time held on site (hours or days)	Location of odorous materials on site	Additional comments
Effluent (within ETP)	**Medium Risk**	**Balance Tank** (250m^3) Average throughput 262m^3/day. Filled to <10% of available capacity.	Continuous flow through ETP: pumped to balance treatment and contingency requirements.	ETP: Balance tank	Open tank. Fairly consistent odour strength (i.e. low intensity) and character. Some variation according to dairy processing lines operated e.g. more concentrated effluent due to cream processing, and abnormal events e.g. spills and more dilute during periods of heavy rainfall.
		AS Tank (493m^3) Filled to 95% of available capacity (flows to MBR).	Continuous flow through ETP: pumped to balance treatment and contingency requirements.	ETP: AS Tank	Open tank. Fairly consistent odour intensity/ character. Some variation according to operations/ abnormal events.
		MBR (88m^3) Filled to 95% of available capacity.	Continuous flow through ETP: pumped to balance treatment and contingency requirements.	ETP: MBR	Open tank. Fairly consistent odour intensity/ character.
		Anoxic Tank (25m^3)	Continuous, (completely renewed after a few hours).	ETP: Anoxic Tank	Sealed tank with breather vent and open outlet to AS Tank.
		Sludge Tank (30m^3) Filled to 10 – 15% of available capacity.	Continuous, (completely renewed after a few hours).	ETP: Sludge Tank	Sealed tank with breather vent.
		DAF Tank (25m^3) Filled to 95% of available capacity.	Continuous, (completely renewed after a few hours).	ETP: DAF Tank	Open tank contained within a building (DAF Plant).

Odorous and potentially odorous material (any solid, liquid or gas)	Odour potential High Risk / Medium Risk / Low Risk	Maximum quantity on site at any given day (approx. tonnes per day or litres per day)	Maximum time held on site (hours or days)	Location of odorous materials on site	Additional comments
		BIO DAF (35m^3) Filled to 95% of available capacity.	Continuous, (completely renewed after a few hours).	ETP: BIO DAF	Open tank. Fairly consistent odour intensity/ character.
Effluent (new store)	**Medium Risk**	**Effluent store** (750m^3)	[To be updated on final lagoon design.]	Effluent store (lagoon or tank designed to industry standards)	Fairly consistent odour intensity/ character.
Sludge	**Medium Risk**	Approximately 6 tonnes/ day sludge processed through Screw press. Maximum 28 tonnes held within Separation Bunker at any one time prior to removal.	Continuous operation. Maximum of 28 tonnes (up to 4 days' worth) held at any one time. Approximately 2 No. trailers removed per week.	Enclosed Separation Bunker	Low to moderate odour intensity. Separated sludge stored within trailer, within enclosed Separation Bunker. Trailer is covered during transfer offsite.

3.3 Overview of odorous processes and emissions

Process Description

Food and drink production processes and packaging

The Process Flow for cream, homogenised cream, stabilised cream is included as Appendix 1.

A proportion of the raw milk is diverted directly to the Pasteurisation Unit. The Pasteurisation Unit uses heat from the steam boilers. The pasteurised cows' milk is then homogenised, then either dispatched in bulk or packaged and sent off site. The heat treatment (pasteurisation) process is closely controlled and monitored; it does not result in odour emissions or cause the heat-treated product to become odorous.

The milk that is not pasteurised is routed via 3 No. lines to the 3 No. Separators which work using centrifugal force to separate the cream from the milk ('skim'). The resulting cream is either stored in sealed silos ('Cream Holding Tanks'), dispatched off site in bulk or packed for dispatch.

The resulting skim from the separators is either: dispatched off site in bulk; packaged and dispatched off site; or piped to the sealed skim silo for storage and then to the evaporators to produce concentrate, which is either dispatched in bulk or packaged. Neither the separation or clarifying processes or separated products are odorous.

The proposed processing of goats' milk and plant-based milk will also involve the reception of milk from bulk tankers, pasteurisation, packaging into cartons, storage and dispatch. The acceptance and processing of goat's milk and plant-based milk on-site will be subject to the same controls in accordance with appropriate standards for the food, drink and milk industries sector and there will be no odour generated from this aspect of the Site operation.

Steam supply

Four on-site boilers, including a standby boiler, all fuelled by gas oil (kerosene), are used to produce steam for pasteurisation and cleaning processes. There is an emergency standby diesel generator operated for the purpose of testing for no more than 50 hours per year and no more than 500 hours of operation in an emergency. Whilst the boilers and standby generator will emit products of combustion through exhausts, the stack emissions will not be odorous.

The operation of the boilers generates boiler blowdown water, that is intentionally wasted from a boiler to avoid concentration of impurities during continuing evaporation of steam. Blowdown water is not odorous; any odour, for example that of sulphur, would indicate that the boiler is not operating efficiently, if for example the temperature setting is too low.

Dirty water generation

Dirty water is generated from several sources/ processes onsite, including:

- cleaning: 6 No. CIP systems used for the cleaning of storage and production areas, and associated equipment and vehicles;
- water from the first stage evaporation process;
- boiler blowdown water;
- yard run off water; and
- under abnormal operating conditions, any spillages within the dairy itself. All dairy drains are waste drains which lead to the ETP and therefore spillages are directed to the to 6 No.

Effluent Storage Tanks. This temporary buffer storage allows the controlled input of concentrated spills into ETP, at a rate that would not adversely impact its operation.

The dirty water generated directly from these sources will not be odorous, although there is the potential for the material to become odorous when stored within the Effluent Storage Tanks and/or within the ETP.

Wastewater treatment processes (the Effluent Treatment Plant)

The Effluent Treatment Pipe Plan Layout is provided in Appendix 1.

The Effluent Treatment Plant is designed to remove fats and oils from the wastewater. The treatment process is dependant on aeration and therefore certain storage and treatment tanks that comprise the ETP are open to air.

As shown in the Site Wide Drainage Diagram (Appendix 2) all dirty areas of the Site, including areas associated with the cleaning of vehicles onsite, drain to the Balance Tank.

Further, all liquid and solid wastes associated with the processing of milk products are directed for treatment within the ETP. Washings with high solid content are diverted to the Effluent Storage Tanks ('Back Tanks') that are sealed, although not airtight. The majority of process waste material received in the ETP is water, and while the composition will vary, typically 2 - 4% will comprise milk, cream, in addition to chemical constituents associated with onsite chemical dosing and cleaning procedures.

With regard to the proposed changes to the ETP, the proposed 750m^3 Effluent Store (lagoon or tank designed to industry standards) will allow additional buffer storage for wastewater prior to treatment within the ETP. This will offer operational and environmental benefits, providing contingency storage should there be issues or breakdowns within the ETP. The proposed lined Effluent Store will be situated to the east of the permitted site area, approximately 350m southeast and predominantly downwind from the nearest receptor (R1).

The existing open Balance Tank, situated approximately 190m to the southeast of R1, will be repurposed as an Activated Sludge Tank ('proposed AS Tank') which will improve the ETP treatment efficiency. Neither of these changes will result in an increase in the volume or flow rate of effluent discharged under the existing discharge consent. Flows through the ETP will not exceed the treatment capacity.

Odours from the components of the ETP that rely on aeration and are therefore open to air, including the proposed Effluent Store, Balance Tank, MBR, Anoxic Tank and BIO DAF, are reasonably consistent in intensity/ character but will vary according to the dairy processing lines being operated at any one time e.g. the effluent from cream processing is more concentrated and in the case of abnormal events such as spills odours may increase, whilst at other times the effluent may be more dilute and less odorous.

Effluent streams entering the ETP are treated by Dissolved Air Flotation (DAF) within the DAF Tank. Within the DAF Tank, most solids are removed through a combination of adding poly aluminium chloride (PAC), sulphuric acid and polymer in conjunction with the white-water system and paddles which scrape off the sludge that has risen to the surface. The DAF Tank is open tank although contained within the enclosed DAF Plant.

The partially treated liquid component of the effluent is directed to the Anoxic Tank and subsequently the Activated Sludge and Aerobic Tank (AS Tank) before undergoing secondary treatment within either the Membrane Bioreactor (MBR) or the secondary Biomass DAF (BIO DAF) tanks. Within the MBR, 400 filter screens allow the flow of liquid across the membranes to filter out the mixed liquor suspended solids (MLSS) which are directed to the Anoxic Tank, with the clean water then discharged to the ponds.

The BIO DAF system operates in parallel to the MBR, receiving MLSS from the AS Tank and by adding Polymer in conjunction to the white-water system, separating the MLSS from the liquid. The clean liquid can then be discharged to the ponds and the majority of the MLSS sent back to the AS tank.

The inputs into the ETP are monitored to understand the characteristics of the effluent. This allows the ETP team to feed the ETP at a controlled rate that will not adversely impact its operation and to prevent the intensification of malodour.

The Sludge Tank receives the sludge from the Main DAF but also a percentage of the BIO DAF scrapings. Material from the Sludge Tank (mainly fats and oils) is sent to the Screw Press whereby adding Polymer and then forcing it through a helicoid rotating screw and pressing it against the filter plates, the liquid is removed from the solid. The liquid is in turn fed into the Main DAF tanks under controlled conditions (as slowly as possible) and the solids are sent to an Anaerobic Digestion (AD) plant for treatment and recovery.

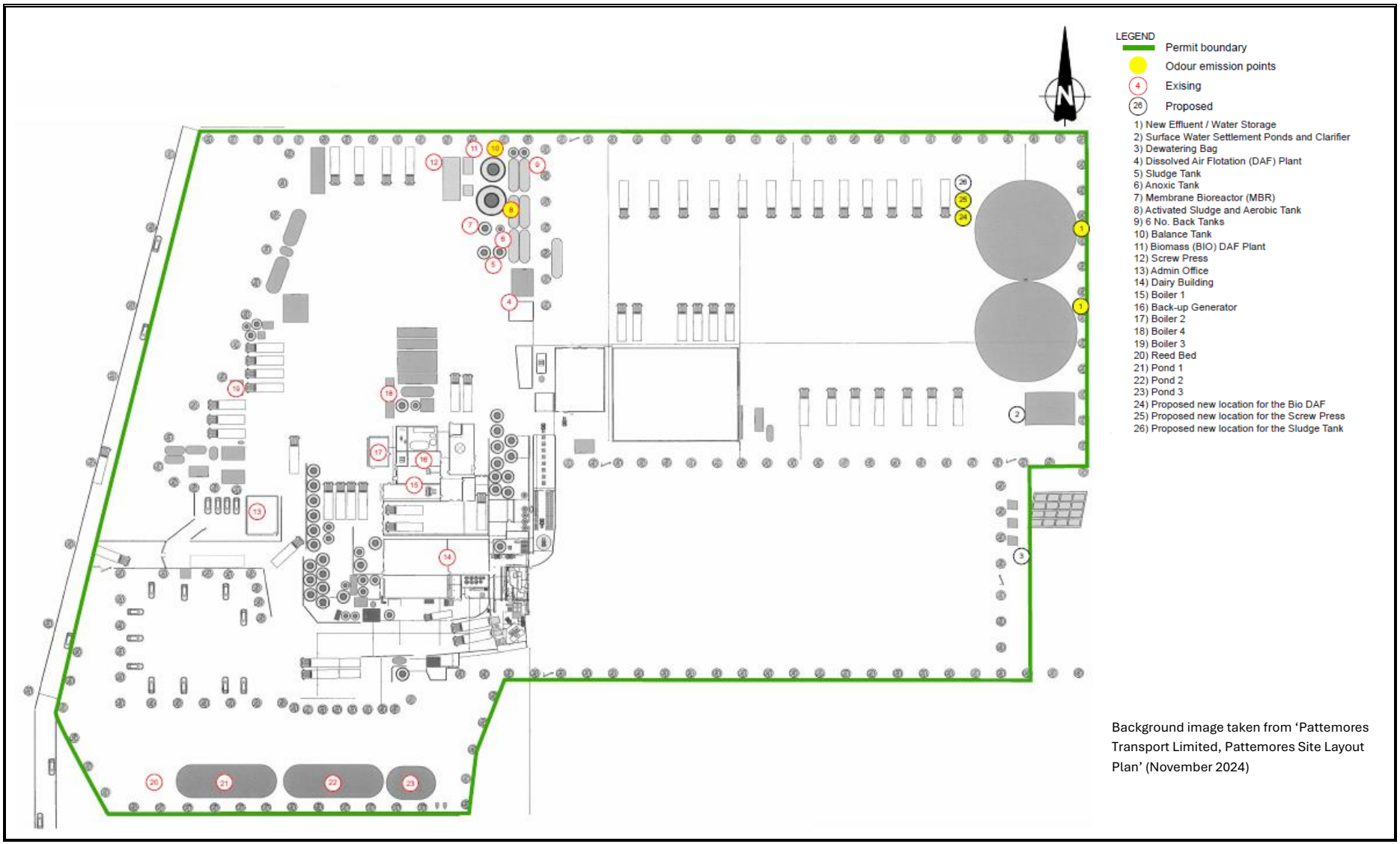
Sludge separation and storage is undertaken within an enclosed bunker with sliding door to contain odour emissions. During normal operations the bunker door is closed and opened only to allow access for the removal of sludge and/or for maintenance.

There is regular inspection and maintenance of critical plant and infrastructure in accordance with manufacturer's recommendations and the Maintenance and Service Planner (**PAT-MP-01**) to prevent breakdowns and conditions which may lead to the generation of malodours. Planned maintenance represents an abnormal operating scenario during which time large-scale maintenance activities such as the emptying and cleaning of an ETP tank, has the potential to generate malodour over a short period of time. Such activities are relatively infrequent (e.g. a tank is completely emptied and cleaned once per year) and can be undertaken at times when conditions are unlikely to cause an off-site odour impact. The potential for odour generation during abnormal operations is detailed further in Section 6.

The Operator undertakes process monitoring to ensure optimal operation of the ETP. All sampling results are documented on the ETP Water Dailys Sheet (**PAT-MP-06**) to facilitate the observation of trends by the ETP Team.

All treated (non-odorous) trade effluent is discharged from the pond to the tributary of the River Parrett via V-Notch at Emission Point W1.

Figure 3.3 – Schematic showing Odour Emission Points



4. Control measures and process monitoring

4.1 Appropriate measures / BAT

Table 4.1 lists the odorous and potentially odorous materials held or odorous processes undertaken on-site and the relevant controls and actions that the operator will take to prevent or minimise odour from these sources that include containment, abatement, appropriate measures, and BAT.

Table 4.1 also sets out:

- how often these control measures on site are monitored;
- the process parameters that are monitored (including the optimum performance levels for each parameter);
- associated trigger levels (that will help identify that the process is under control and there is potentially a higher risk of odour); and
- actions to be taken if the monitoring shows results outside of the optimum performance levels.

In each case, the following trigger limits will also apply that indicate that an aspect of the site is operating outside of optimum performance levels, that will initiate an investigation as to the odour source and implementation of appropriate remedial action(s):

1. Receipt of an odour complaint (Section 5.1)
2. Boundary and/or off-site odour (odour intensity 3 or above) as detected during routine (daily) odour monitoring ('sniff test' method) (Section 5.3)
3. Strong odour (odour intensity 4 or above) reported by staff/ visitors on arrival at the site (Section 5.3)

The details of all monitoring carried out in response to the above will be recorded accordingly.

Table 4.1 Monitoring procedures for appropriate measures/ BAT

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
Drainage system	**Containment** • Dirty water is contained within sealed site drainage system and directed to ETP **Monitoring** • Drainage system water levels • Visual checks for blockages **Management** • Clean water is segregated from dirty water drainage to manage the flow through the ETP. • Facility to turn pumps off e.g. if spillage in yard, to prevent discharge into surface water settlement system. • Continuous staff presence enables timely response e.g. to spills. • Contractor permit to work system in place • Scheduled cleaning and maintenance of the drainage system and/or components	**Daily** • Water levels/ blockages • Odour monitoring	**PAT-MP-04 Daily Checks** Sufficient capacity within drainage channels/ no blockages	Volume >75% of available capacity. Blockages/ stagnation.	Investigate reason. The drainage system will be cleared out using specialist jetting contractor or vacuum tankers if required.
			PAT-SOP-09 Odour Monitoring Procedure Intensity of odours at source less than or equal to 3 (moderate odour – detectable)	Strong odour (bearable) from drainage system (intensity 4 or above); and/or 'moderate' odours (intensity of 3 and above) are detected at the nearest downwind receptor and are attributed to this activity. Odour complaints received in relation to the operation.	
			PAT-SOP-12 Spill Control Procedure No evidence of spills.	Spillages of raw materials/ chemicals/ waste effluent.	

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
ETP	**Containment** • DAF Tank contained within enclosed DAF Plant. • Process tanks not reliant on aeration (Anoxic Tank, Sludge Tank) are closed /sealed. **Monitoring** • Monitoring inputs into ETP to understand the characteristics of the effluent. Enables feeding at a controlled rate that will not adversely impact its operation. • Process monitoring to ensure optimum operation of the ETP. • High-level sensors are installed on the; Balance Tank, AS Tank, MBR, 2 No stainless steel tanks ('Back Tanks') to prevent over-filling. Any high-level triggered will automatically disable the DAF Plant, stopping the process. The process can also be transferred manually if required. **Management** • Contingencies to protect the functionality of the ETP e.g. high volumes of concentrated effluent is diverted to appropriate contractors for landspreading. • The transfer of effluent between ETP process tanks is automated, however can be undertaken manually as required e.g. to bring process back under control.	**Constant** • Visual observations **Daily** • ETP inspection (integrity of plant) • ETP sample analysis • Odour monitoring **Monthly** • ETP samples - monthly validation analysis **Ad-hoc** • Monitoring to establish off-site odour in the event of an odour release e.g. during planned maintenance	**PAT-MP-06 ETP Water Dailys Sheet** Monitoring inputs into ETP. Samples are analysed daily within the on-site laboratory using Hach test cuvettes. Parameters tested include: pH, Total Suspended Solids, Ammonium, Total nitrogen, COD. Monthly validation analysis is (Eurofins Laboratories). Samples from MBR outlet and the V-Notch (emission point W1) analysed for: pH, total suspended solids, ammonium as N, ammonium as NH_4, total phosphorus, visible fats, oils and grease.	Monitored parameters out of specified ranges.	Investigate reason (e.g. process equipment function, blockages, inputs etc). Actions to bring the process back under control may include dilution of effluent, equipment repair, emptying and cleaning of tank/ equipment). Schedule maintenance without delay and review procedures and responsibilities for scheduling. Investigate reason for malodour.
			PAT-MP-01 Maintenance and Service Planner Inspection and maintenance of critical plant and infrastructure in accordance with manufacturers' recommendations and the Maintenance and Service Planner.	Maintenance/ service unscheduled and/or overdue.	

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
	• A static deodoriser (mist spray) is positioned at the ETP (Balance Tank) and activates when the wind direction is from south to north. The system can be operated manually. It is operated continuously during warmer periods, and occasionally during cooler temperatures if there is a moderate odour onsite. The system utilises a non-hazardous odourless chemical, to neutralise odours. • Continuous staff presence enables timely response to issues. • Planned service and maintenance schedule, that includes cleaning. The EA will be notified if planned large-scale tank emptying and cleaning activities have the potential to cause an off-site odour impact.		**PAT-SOP-09 Odour Monitoring Procedure** Intensity of odours at source less than or equal to 3 (moderate odour – detectable)	Strong odour (bearable) from ETP (intensity 4 or above); and/or 'moderate' odours (intensity of 3 and above) are detected at the nearest downwind receptor and are attributed to this activity. Odour complaints received in relation to the operation.	
Screw Press Separator	**Containment** • Sludge separation and storage is within an enclosed Separation Bunker with sliding door that is closed during normal operations, except for access/ sludge removal. **Monitoring** • Visual observations (to ensure door is closed) • Operation included in daily ETP checks **Management** • Odour awareness and contingency measures included within staff inductions and training. • Continuous staff presence enables timely response to issues. • Maintenance and service contract in place with door/ screw press supplier.	**Constant** • Visual observations **Daily** • ETP inspection • Odour monitoring	**PAT-MP-06 ETP Water Dailys Sheet** Door closed during screw press operation.	Door stuck open.	Call engineer if Operator unable to resolve. Diversion of sludge in the event of plant/ door failure to prevent build-up of material.
			PAT-SOP-09 Odour Monitoring Procedure Intensity of odours at source less than or equal to 3 (moderate odour – detectable)	Strong odour (bearable) from Separator Bunker (intensity 4 or above); and/or	

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
				'moderate' odours (intensity of 3 and above) are detected at the nearest downwind receptor and are attributed to this activity. Odour complaints received in relation to the operation.	
Sludge storage/ transfer	**Containment** • Falls into curtain covered, hydraulic tipper trailer within enclosed Separation Bunker. • 2No. trailers removed per week. **Monitoring** • Visual observations (to ensure door is closed) • Operation included in daily ETP checks • High-level sensors are installed on all trailers to prevent over-filling. **Management** • Quantity weighed prior to dispatch to track system throughput. • Odour awareness and contingency measures included within staff inductions and training.	**Daily** • ETP inspection • Odour monitoring	**Storage time** Separated sludge < 4 days	**Storage time** Separated sludge > 4 days	Ensure spills cleared/ trailer cover in place. Review plant control and monitoring of storage times to prevent malodour from sludge. Review dispatch procedure if necessary.
			PAT-MP-06 ETP Water Dailys Sheet Sludge contained within trailer at or below fill line level. Curtain secured over trailer prior to dispatch.	Sludge exceeds fill line/ overspill from trailer. Trailer uncovered.	
			PAT-SOP-09 Odour Monitoring Procedure Intensity of odours at source less than or equal to 3 (moderate odour – detectable)	Strong odour (bearable) from sludge storage/ transfer (intensity 4 or above); and/or 'moderate' odours (intensity of 3 and above) are detected at the nearest downwind receptor and are attributed to this activity.	

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
				Odour complaints received in relation to the operation.	
Proposed Effluent Store	**Containment** • Effluent will be transferred to/ from the proposed Effluent Store via sealed pipework. **Monitoring** • Storage operation included in daily ETP checks **Management** • Over-filling of the store will be avoided through maintaining a freeboard within the store • Any spillages next to the store would be cleaned-up immediately, following the Spill Control Procedure and Accident Management Plan	**Daily** • ETP inspection • Odour monitoring	**PAT-MP-06 ETP Water Dailys Sheet** Effluent contained within trailer at or below freeboard.	Effluent exceeds freeboard/ overspill from Effluent Store.	A review of the storage operation and associated infrastructure will be undertaken without delay and further inputs ceased, if necessary, until the issue is resolved.
			PAT-SOP-12 Spill Control Procedure No evidence of spills.	Effluent spill/ evidence of overfill.	
			PAT-SOP-09 Odour Monitoring Procedure Intensity of odours at source less than or equal to 3 (moderate odour – detectable)	Strong odour (bearable) from Effluent Store (intensity 4 or above); and/or 'moderate' odours (intensity of 3 and above) are detected at the nearest downwind receptor and are attributed to this activity. Odour complaints received in relation to the operation.	

5. Odour reporting

5.1 Complaints reporting

Complaints data is recognised by the EA as the most direct and reliable form of monitoring which odours are causing a problem outside of the site boundary. The Operator will address both internal and external complaints in a prompt and comprehensive manner to resolve any issue as quickly as possible.

All complaints will be collected, registered, and validated following the Complaints Procedure.

If an odour complaint is received, the EFHS Manager will complete an Odour Complaint Form **(PAT-FT-06)**.

In order that odour complaints can be substantiated it is imperative that the Site is immediately informed either by the complainant themselves or by the EA. Local residents will be encouraged to immediately contact the site in the event of an off-site odour to enable site personnel to verify the presence, extent and cause of the odour. The Site Office telephone number is displayed at the site entrance.

A stepwise approach to odour complaint investigation and reporting is presented in Figure 4.1.

The complaint investigation will start with an initial screening exercise to verify the odour incident to screen out those odour complaints that are unlikely to be due to the facility. The initial screening exercise will consider the following:

- potential odour sources at the facility (Table 3.2);
- routine/ additional odour monitoring data; and
- weather conditions considered in relation to the location of the complainant.

If the EFHS Manager can attend the complaint location quickly, it may be possible to carry out a review of the complaint independently by a 'sniff test'. This is further described in Section 5.4 'Reactive Odour Monitoring'.

After recording the complaint on the Complaint Form **(PAT-FT-06)** and completing an appropriate level of investigation the EFHS Manager will discuss the matter with the Operations Manager.

The Complaint Form will be forwarded to the EA together with the outcome of the investigation within 24-hours of investigation and validation and any corrective and preventative actions taken in response to the complaint.

The Operator will maintain a system of complaints monitoring and analysis. Complaints will be registered on a database, validated where possible and reviewed on a monthly basis.

All complaints forms will be kept until the surrender of the Permit. All records will be available for inspection by EA representatives.

Problem resolution

The complaint investigation will involve identifying the odour source and implementing measures to bring the source under control. The corresponding odour investigation report will detail the actions taken to minimise the potential for re-occurrence.

In order to bring the process back under control the following will be considered:

- Cease the activity causing the abnormal situation and/or if necessary, arrange for the immediate removal of any odorous materials giving rise to the problems;
- Take immediate steps to eliminate the cause of the abnormal situation;
- Contact the relevant maintenance contractor if necessary;
- Record the response to the situation and the remedial actions taken; and
- Advise the EA of the complaint(s), details of the problem, and mitigation/improvement measures undertaken.

Temporary problem rectification

If the default procedure does not provide a satisfactory resolution, the following actions will be considered until the problem is resolved:

- In the dairy: temporarily restrict acceptance of raw materials;
- At the ETP: temporarily increase processing throughput (i.e. decrease residence time of effluent within ETP), for example, to reduce ammonia concentrations.

Review and improvement following complaints

Once the cause of the problem is identified and the improvements implemented, the following actions will be undertaken:

- A further odour survey will be completed to assess if the improvements have addressed the source of the elevated levels.
- If the cause is due to inadequately followed odour management controls re-training of employees will take place to ensure that all employees operate to the required standards.
- If the odour management controls are determined to be inadequate it will be raised as part of the review of control measures detailed in the OMP; and
- All parties affected by the problem event will be notified of the cause, actions, and resolutions by the EFHS Manager.

Figure 4.1 Odour Complaints Procedure – Stepwise Procedure

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- On receipt of an odour complaint at the site, the EFHS Manager will be notified immediately.
- EFHS Manager to visit the location of perceived off-site odour without delay, on the basis that the EA has provided the approximate location of the odour complaint, to determine odour presence/absence, odour characteristics and intensity.
- Conclude complaint 'screening' stage. Inform EA of outcome.
- Note observations on the **Odour Complaint Form (PAT-FT-06)**

Is the complaint likely to be due to site activity?

No

Yes

Have there been multiple odour complaints due to an off-site or unidentified source?

Yes

No

If the cause of the odour complaints are considered to be due to an off-site (alternative) or unidentified source, the following actions will be taken:

- Conduct an odour survey to identify any likely sources and potential causes for the odour.

If the odour source that led to the complaint cannot be established, the EFHS Manager will:

- Arrange for a monitoring point in proximity to the complainant(s) address to be incorporated into the routine daily inspections, the exact location of which is to be agreed by the EA; and
- Arrange for either independent odour monitoring; odour diaries/ community surveys for key complainants; and/or visitor questionnaires to substantiate the odour complaints as agreed with the EA.

- Review the operations at the site prior to and at the time of the complaint:
- The **Site Diary** will be checked for 'abnormal' site operations;
- Review the environmental control systems operating prior to and at the time of the complaint; and
- Review the previous history of complaints at the location identified.

Have there been multiple odour complaints due to site activity?

No

Yes

- If the cause of the complaint is due to site activity, further advice will be developed with the EA regarding odour control measures and such measures instigated without delay.
- If odour generation cannot be prevented with additional mitigation in place, consideration will be given to the suspension of the activity, where safety and operational constraints allow, until appropriate action, as agreed with the EA, can be implemented.

- Update the **Site Diary**
- All details of the results and actions taken will be reported on the **Complaint Form (PAT-FT-06)**
- Prepare a brief, factual summary report;
- Discussions with the Director;
- Notify EA within 24 hours; and
- Update complainant within 24 hours.

5.2 Community engagement

The Operator will ensure that they are approachable and open to discussion at all times, so that problems can be identified and rectified at the earliest opportunity.

Liaison with local residents in closest proximity to the site operations (subset of the receptors given in Table 2.1) and the EA will be co-ordinated through the EFHS Manager and Operations Manager. Both parties will be notified of activities that have the potential to generate significant odour emissions.

In circumstances where, over an extended period, odour complaints from the community do not match the results of the regular sniff-test monitoring the Operator will engage with members of the community, in key locations, to participate in a period of community monitoring. These designated residents would perform offsite surveys, recording the data in an Odour Diary for an agreed length of time. The Operator will maintain logs of community involvement and keep all completed odour diaries for future reference.

5.3 Pro-active odour monitoring

Meteorological Monitoring

Weather conditions are key to understanding the potential odour impacts to downwind receptors. Meteorological monitoring at the site will be performed:

- During routine odour monitoring;
- To predict periods when conditions for the dispersion of odour are likely to be poor, enabling planned maintenance operations to be re-scheduled to avoid such times;
- At the time of abnormal events to predict where odour impacts could potentially occur;
- To identify times when plant conditions and/or odour abatement techniques need to be adjusted to account for adverse conditions; and
- For the investigation of odour complaints.

Meteorological data will be sourced by site operatives from on-line resources.

Monitoring Odorous Releases

Site staff will be trained to be continuously aware of odour during the working shift and to report any issues to the EFHS Manager. This section of the OMP sets out the additional monitoring procedures that will be implemented, during normal operations.

Routine (Daily) Olfactometry Monitoring

The Operator will carry out routine daily odour checks in accordance with the Odour Monitoring Procedure (**PAT-SOP-09**). Observations will be recorded on Odour Monitoring Form **(PAT-FT-04)**.

Predetermined monitoring locations (that includes locations listed below from number 1 to number 3 inclusive) should be surveyed on every occasion.

A flexible downwind monitoring location (location OMP4 below) will be chosen at the time of the survey. This survey location will be visited once weekly at the nearest downwind off-site receptor location(s) even if odours are not detected at Site boundary. This is to acknowledge that odours may ground beyond the site boundary even where no on-site or site boundary odour is detected.

As a minimum monitoring will be undertaken at the following (with upwind locations to be surveyed first):

To be undertaken **daily**:

- OMP1 - Off-site, NW (A3066 at the junction with Owls Barton access road)
- OMP2 – Onsite, adjacent to/ downwind of the existing Effluent Treatment Plant infrastructure
- OMP3 – Onsite, adjacent to/ downwind of the proposed Effluent Treatment Plant infrastructure

To be undertaken **weekly**:

- OMP4 - Flexible location - nearest off-site downwind receptor location(s) (even if odours are not detected at site boundary)

An Odour Monitoring Locations Plan is included in Figure 5.1.

Monitoring will be undertaken at different times each day during operational hours to capture a range of conditions and at times when there is a risk of off-site odour impact, for example due to operational changes or due to weather conditions.

Additional odour monitoring surveys will be undertaken during the following circumstances:

- During operational hours, where the risk of odour dispersion is towards off-site receptors. This may be due to prevailing wind direction and/or during periods of still air conditions.
- During periods of maintenance and/or abnormal operating conditions (Table 6.1) where there is increased risk of odour release.
- In order to verify to success of any contingency measures implemented on-site to control odour in response to either the detection of abnormal odour release during routine odour monitoring (Section 5.3) or as a result of measures implemented in response to verified odour complaint(s). The survey will be undertaken on-site at the location of the verified odour source(s), at the downwind site boundary and at the off-site affected receptor location(s).
- In order to qualify the presence or absence of odour from other sources beyond the site boundary if there is no established pathway between the site but odour has been detected at a potential offsite sensitive receptor.

The results will be recorded on the Odour Monitoring Form **(PAT-FT-04)**. This data can be used to inform proactive odour management.

The Odour Assessor

Monitoring staff must not be desensitised to odour. A variety of trained odour monitoring personnel should be used and, where possible, selected from office-based staff who are unlikely to have been exposed to on-site odours.

The odour assessor must not be exposed to significant odour in the 30-minutes prior to the assessment or consume strongly flavoured food or drink within this time period. This is to ensure that the assessor is not suffering from odour fatigue and will be sensitive to on-site odours.

It is important to note that olfactory monitoring ('sniff tests') are subjective and both the hedonic tone and intensity may be experienced differently by different people. The Hedonic Scale and Odour Intensity Scale is included in the Amenity Monitoring Procedure (**PAT-SOP-09**), Appendix 4.

Routine Monitoring Inspection Methodology

1. The tester will walk slowly, breathing normally, and starting at points with least expectation of odour (e.g. off-site and/or upwind). If an odour cannot be detected in this way, the inspector will periodically stand still and inhale deeply facing upwind.
2. If no odour is perceptible in this manner, then the intensity will be 0. If odour is detected but there is some doubt as to whether an odour is present, then the intensity will be recorded as 1 (very faint). If odour is detected but cannot be described using precise words or terms, then intensity will be recorded as 2 (faint). If odour is detected while walking and the odour character is recognisable, the intensity will be recorded as at least 3 (distinct). If the odour character is easily recognisable then the intensity is 4 (strong). If the odour is considered offensive the intensity is 5 (very strong) and if the odour is offensive and possibly nauseous i.e., an instinctive reaction is to reduce personal exposure to the odour, then the intensity is 6 (extremely strong). The score used to classify odour are provided on the Odour Monitoring Form **(PAT-FT-04)**.
3. If a recognisable odour or stronger (i.e., intensity of 3 and above) is detected at the downwind site boundary and/or at off-site receptor locations, an on-site inspection of operations will be carried out to trace any observed off-site or site boundary odour to the source, or identification of the direction of an off-site odour, so that appropriate corrective action can be taken.
4. On reporting the results, it is important that additional observations including time, date, weather conditions, odour type, location, intensity, extent, and sensitivity are recorded in the Odour Monitoring Form.
5. Abnormal site operating conditions at the time of the survey e.g., maintenance to process equipment will also be recorded.

5.4 Reactive odour monitoring

Actions in the Event of Abnormal Emissions

Investigate Pollution Incident and Cause

If odour monitoring or odour complaint(s) indicate that abnormal emissions from the facility are taking place the Plant Manager (or deputy) will investigate the complaint as soon as possible on receipt of the results/ complaint.

The Plant Manager will check relevant equipment/ plant in order to identify the possible cause of the abnormal emission and/or attend the complaint location to carry out a 'sniff test'.

The Operator will liaise with the EA within 24 hours to inform of the outcome of the screening assessment (Figure 5.1) and whether any action is to be taken. If the Site is not confirmed to be the odour source, then the investigation will stop at that point.

If the screening process confirms the odour incident, then a more detailed investigation will be carried out.

The actions outlined in Figure 4.1 will be followed if the site is identified as the origin/cause of the odour complaint.

Figure 4.1 also outlines the actions that will be undertaken by the Operator in circumstances where the source of the odour cannot be confirmed.

Table 5.1 summarises the schedule for proactive and reactive odour monitoring.

Figure 5.1 – Site plan showing odour monitoring locations

Table 5.1 Schedule of Odour Monitoring ('Sniff Tests')

Frequency	Person Responsible	Method	Reason	Records	Actions
Proactive (daily checks)	Trained office-based staff or non-operational staff	Perform sniff test at locations indicated on **Figure 5.1**	Routine monitoring to establish normal working conditions and check for odour emissions/ issues.	Odour Monitoring Form **(PAT-FT-04)**	If a distinct odour (intensity 3 or above) is detected at site boundary/ at off-site receptor investigate and establish source during the survey and identify the requirement for remedial measures. Record the details of the odour using the Odour Monitoring Form.
Reactive (in response to odour complaint)	EFHS Manager (or deputy)	Perform sniff test at relevant receptor locations, boundary locations and at suspected on-site sources	In response to odour complaint / to establish/ confirm off-site odour in the event of an odour release	Odour Complaint Form **(PAT-FT-06)** Odour Monitoring Form **(PAT-FT-04)**	In response to odour complaints, follow stepwise approach (Figure 4.1). If a distinct odour (intensity 3 or above) is detected at off-site receptors identify appropriate remedial measures. If odour generation cannot be prevented with additional mitigation in place, consideration will be given to the suspension of the activity, where safety and operational constraints allow, until appropriate action, as agreed with the EA, can be implemented. Record the details of the odour using the Odour Monitoring Form.

6. Abnormal events

Table 6.1 provides a summary of the foreseeable situations that may compromise the Operator's ability to prevent and/or minimise odorous releases from the process. The response requirements to minimise the impact to abnormal event scenarios are also summarised in Table 6.1.

Potential odour sources under abnormal operating conditions, may include:

- Plant infrastructure compromised (leading to gas/ liquid release from storage tanks, pipework)
- Plant breakdown
- Power failure
- Absence of key staff
- Flood
- Fire/ explosion
- Accidents (e.g. spillages)
- Process out of control (e.g. overfilling of raw materials tanks/ effluent tanks/ Effluent Store)
- Unavailability of transfer vehicles

It is expected that, any emissions arising due to abnormal operations, incidents and/or due to periods of maintenance at the site would not occur frequently and would not be sustained or of prolonged duration.

When maintenance work is undertaken, there is the potential that the facility is more vulnerable, or there is a risk of a small odour release, e.g., removing a pump, replacing a pipeline, or rodding/flushing a pipe/chamber etc. Large-scale maintenance activities such as the emptying and cleaning of a large effluent tank will only be undertaken once per year. Suitably qualified and competent contractors will complete maintenance works. Rules/work permits will be required for all contractors working on site. Sections of the plant which require maintenance will be sealed off from the main process to control and limit the potential release of odours during maintenance works.

The Operator will immediately inform the EA when planned or emergency maintenance of plant items must be carried out and there is a likelihood of odour being released to atmosphere to the degree that an adverse off-site impact may occur. The Operator will provide details of the event, actions being taken to resolve the issue and likely timescale to rectify.

A list of contingency contacts in the event of abnormal operations/ critical failures is provided in the Accident Management Plan (AMP).

In the event of a critical failure of the facility which results in reduced processing capacity, additional mitigation measures will be put in place to minimise the impact of the incident. These will include:

- Stop receipt of raw materials
- Containment of spillages or odour releases
- Clean-up/ wash-down procedures
- Containment of waste either into sealed containers/by covering or removal to an alternative facility within 24 hours.

In the case of operational difficulties, raw materials would be prevented from travelling to and/or diverted to an alternative facility before arriving at site. In the event of serious odour issues and disaster or emergency situations, measures are also in place to divert or remove wastes for disposal.

A backup generator is available on-site to avoid power failure impacting the operation. The generator will be subject to routine servicing. Deputies are available for any individual key staff member should they be unavailable for any reason.

Table 6.1 Summary of Abnormal events and proposed recovery steps

Abnormal event	Recovery steps
Site infrastructure compromised (gas / liquid release)	• Member of Site personnel on duty at all times to attend to/ rectify issue (e.g., to stop pumps/ close valves etc. as necessary). • Service contract with engineer in place for emergency breakdown/ repairs. • Supply of critical spare parts held on-site. A suction tanker is available on-site at all times to retrieve liquids. Clean affected area, apply absorbents. Clean equipment surfaces. Any waste will be diverted to authorised facility until repaired.
Plant/ equipment Breakdown	• Dairy operators always present to respond to issues. ETP: Member of site personnel on duty from 07.30 – 17.00 to attend to/ rectify issue(s), thereafter an out-of-hours on-call system is in place (1 - 2 hours response time). • Supply of critical spare parts held on-site. Routine and emergency maintenance contracts in place with associated contractor for plant/ equipment. • Inputs/ waste will be diverted to authorised disposal facility until repaired.
Power failure	• In the case of power failure power is provided by the on-site stand-by diesel generator.
Absence of key staff	• In the short-term, other staff members will be reassigned to critical operations. In the event of prolonged absence of staff members, temporary staff will be recruited and appropriately trained to fulfil non-critical roles whilst other more experienced staff members are reassigned. • The Operations Manager will be the primary contact for the site on all matters associated with site operations and its environmental performance. Deputy/ technically competent personnel will be available at all times. • Odour awareness and contingency measures included within all staff inductions and training, including that for drivers.
Flood (the site is situated in a location which has a low probability of flooding)	• In the event of a flood, invoke AMP as appropriate. • If due to a man-made incident follow Spill Control Procedure. Use suction tanker to retrieve liquids from sumps and subsequently load to process as appropriate.
Fire and/or explosion	• Invoke AMP. Contact the Fire and Rescue services. • If safe to do so, attempts should be made to extinguish the fire using fire response equipment held on-site.
Accidents (e.g. spillages)	• Invoke AMP. All spillages will be promptly removed. • Re-training for tanker drivers following any spillage incidents. • The EA will be notified immediately via email should a spillage have potential to give rise to pollution. Corresponding odour monitoring to be undertaken (if spilled material odorous). • Root cause analysis conducted after any accident has occurred.
Process out of control (e.g. overfilling of tanks/ trailers/ effluent stores)	• The Operator will arrange for the removal of material and re-direct inputs and/or suspend operations as appropriate. • The EA will be notified immediately via email should the incident have potential to give rise to pollution.
Vandalism	• Any necessary repairs, to either the fence or infrastructure, are to be actioned immediately. If the integrity of the infrastructure is compromised, inputs/ processing will cease until such a time as the damage is repaired. • Corresponding odour monitoring to be undertaken if required.

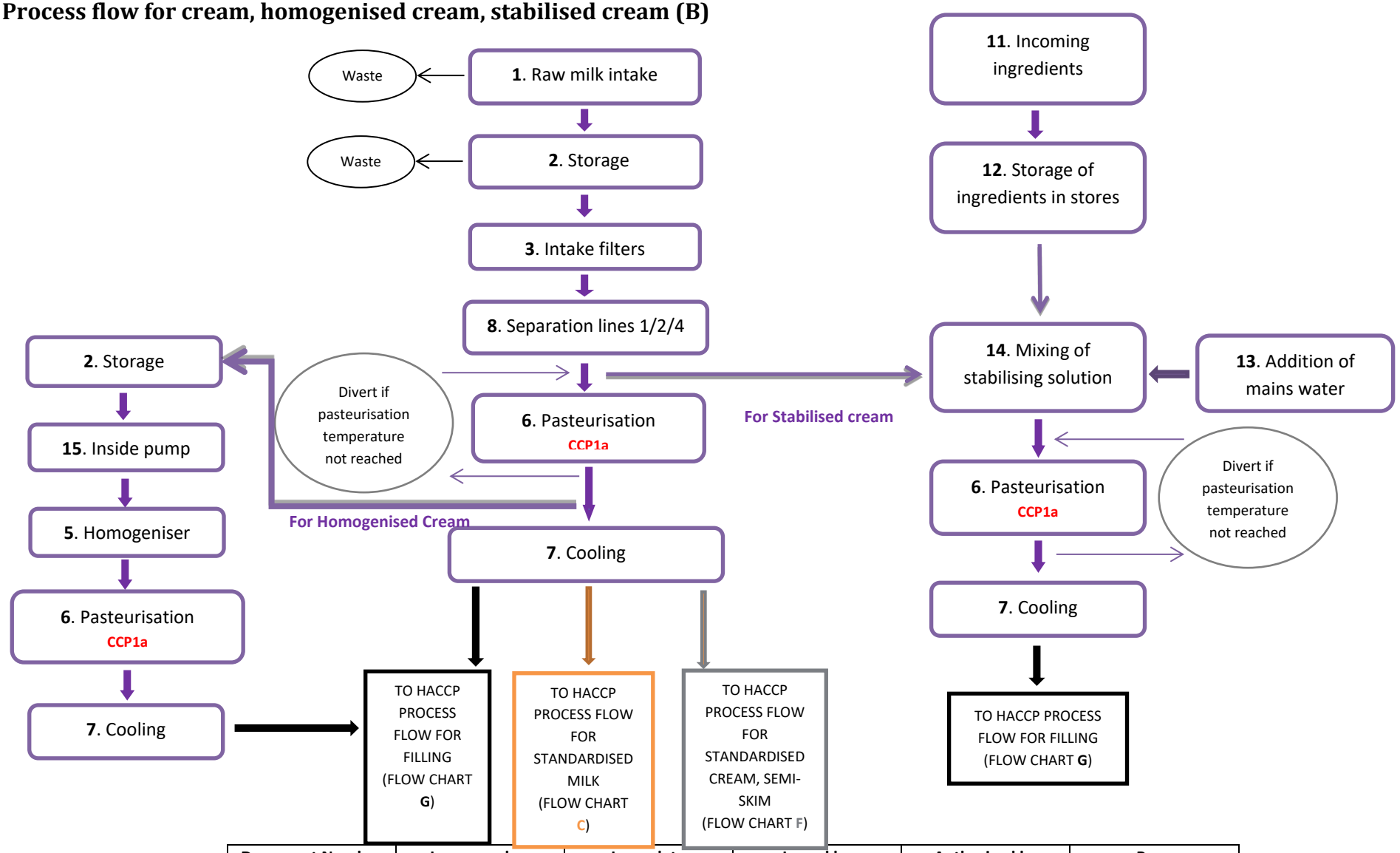
Appendix 1 – Process Flows

- Process flow for cream, homogenised cream, stabilised cream
- Effluent Treatment Pipe Plan Layout

PATTEMORES DAIRY
INGREDIENTS

Hazard Analysis Critical Control Points

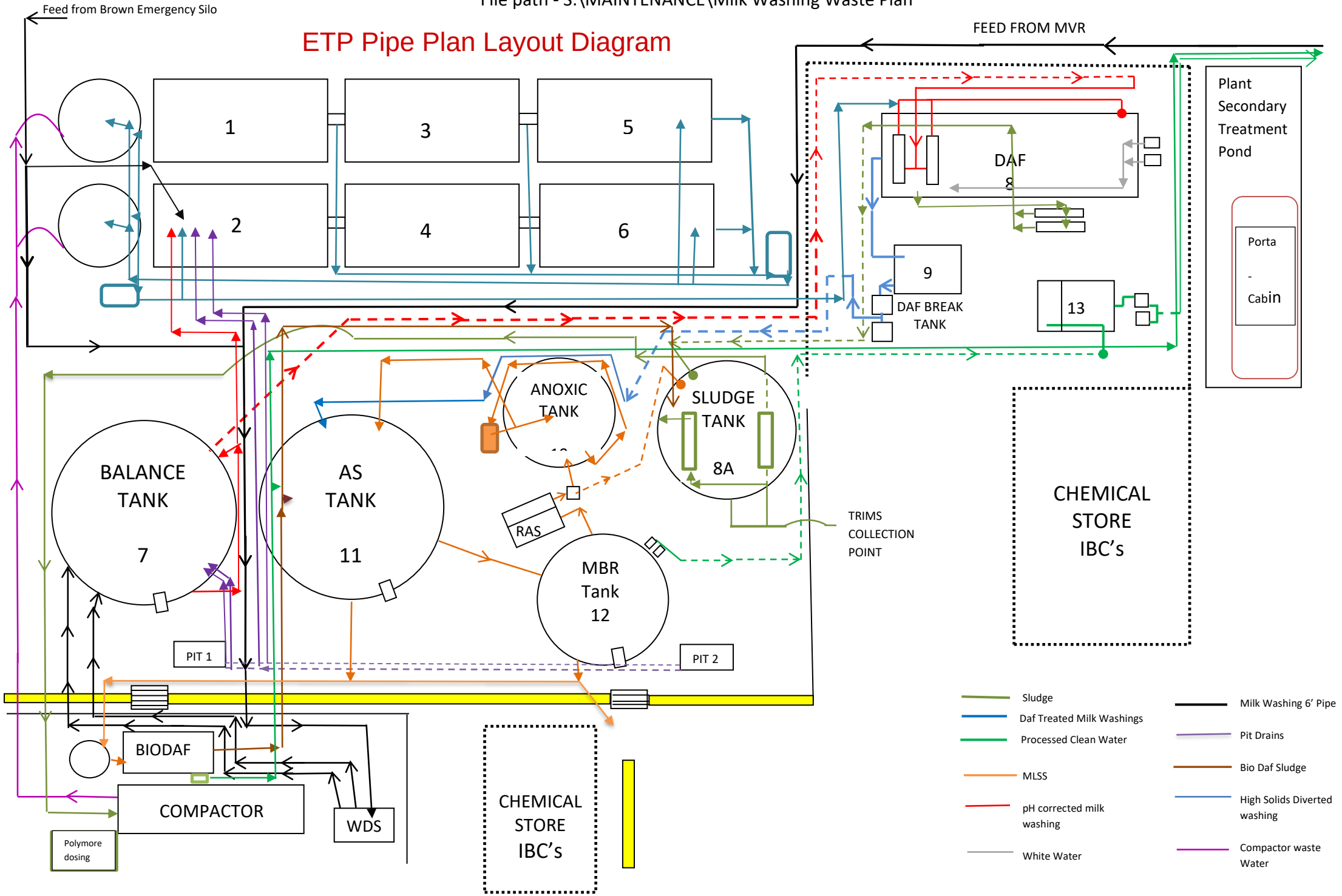
Process flow for cream, homogenised cream, stabilised cream (B)



Document Number	Issue number	Issue date	Issued by	Authorised by	Page
QMP09 HACCP	20	15.01.2024	A. Jelonek	P. Williams	1 of 1

File path - S:\MAINTENANCE\Milk Washing Waste Plan

ETP Pipe Plan Layout Diagram

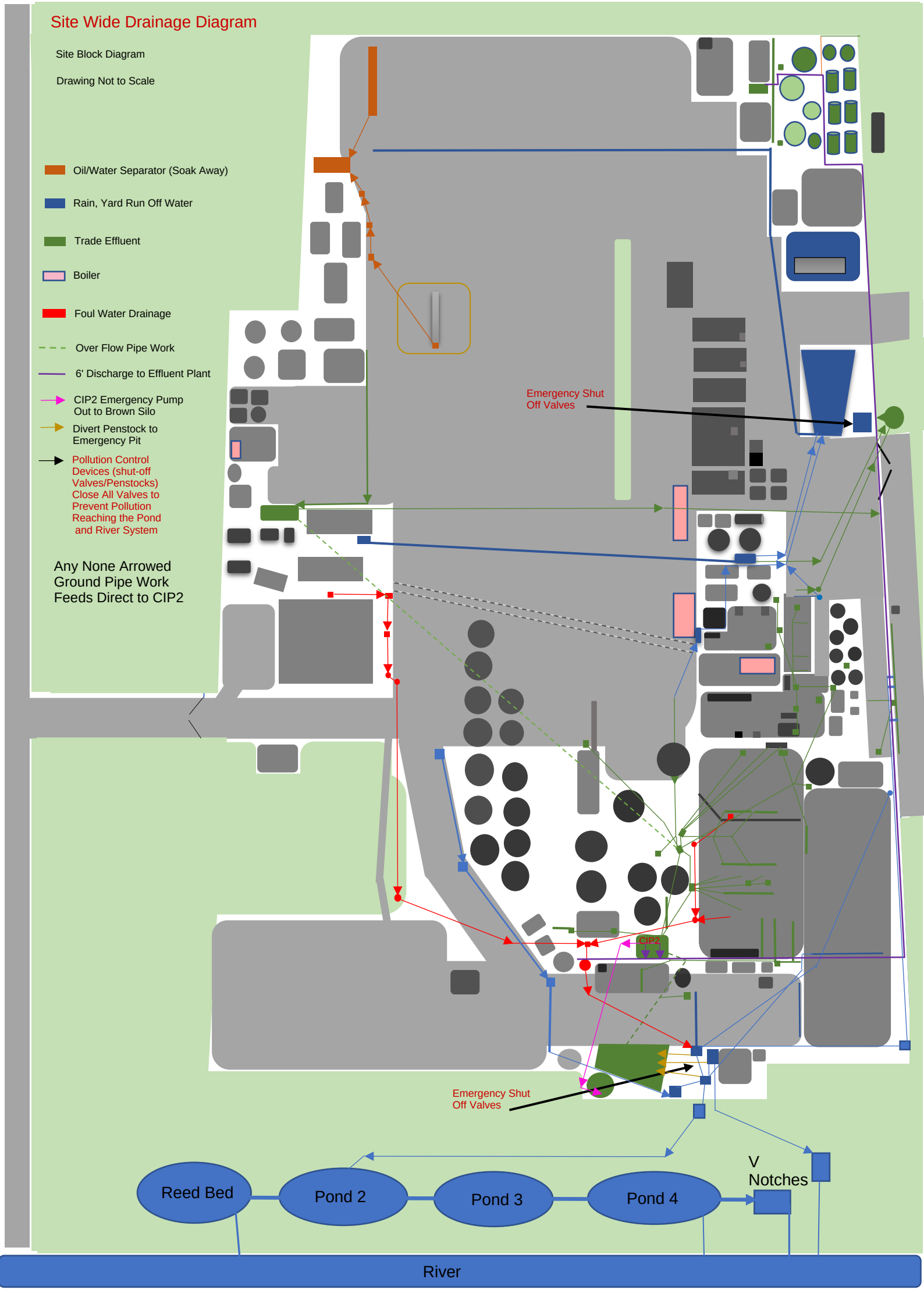


Appendix 2 – Site Wide Drainage Diagram

Site Wide Drainage Diagram

Site Block Diagram

Drawing Not to Scale



Appendix 3 - Odour Monitoring Procedure (PAT-SOP-09)

PAT-SOP-09
Odour Monitoring Procedure

Issue 1 – January 2025

Version Control

Issue	Date	Revision Details / Summary of Changes	Author	Approved by
1	Jan 2025	Odour Monitoring Procedure	Earthcare Technical Ltd	

Document owner

[Pattemores Transport (Crewkerne) Ltd]

Management approval

[S. Pattemore]

ROUTINE ODOUR MONITORING (DAILY)

1. The Odour Assessor

You must only undertake routine odour monitoring if you are not desensitised to odour i.e., you have not been subject to exposure to significant odour in the 30-minutes prior to the assessment or have not consumed strongly flavoured food or drink within this time.

2. Recording

The reporting forms used will depend on the level of odour investigation required. Observations should be recorded on:

Odour Monitoring Form (PAT-FT-04)

- Record weather conditions and time
- Record details of the routine (daily) odour survey at the 'fixed' monitoring locations (nos. 1 – 3) using the Odour Monitoring Form

3. Weather

Site operatives are responsible for recording the weather conditions before/ during the survey using an online resource that can be cross-checked against field observations during the survey. Observations should include wind direction, wind speed, and air temperature.

4. Odour 'sniff tests'

Routine (daily) monitoring should be undertaken at the 'fixed' locations shown in Figure 5.1 in the **Odour Management Plan**. Additional monitoring (i.e., at other locations or at another time during the working shift) may need to be undertaken:

- At the relevant downwind site boundary (i.e. flexible odour monitoring location OMP4)
- If a distinct odour (intensity of 3 and above) is detected at the downwind site boundary a sniff test should also be undertaken at the nearest downwind receptor location
- In the event of an odour complaint
- During any on-site operations where there is an increased risk of odour release

If a distinct odour (intensity of 3 or above) is detected at a receptor location the source of the odour should be traced and investigated.

If the source of the odour is found to be due to site activities, measures should be implemented to bring the odour release back under control and/or the activity should be stopped until the issue is resolved and/or prevailing weather conditions are more suitable.

Record data using the Odour Monitoring Form (PAT-FT-04).

Table 1 - Routine (Daily) Odour Monitoring Locations – see Figure 5.2 in OMP

Daily ('fixed') Proposed AD Plant boundary locations	
OMP1	Off-site, NW (A3066 at the junction with Owls Barton access road)
OMP2	Onsite, adjacent to/ downwind of the existing Effluent Treatment Plant infrastructure
OMP3	Onsite, adjacent to/ downwind of the proposed Effluent Treatment Plant infrastructure
Weekly Flexible location	
OMP4	Flexible location - nearest off-site downwind receptor location(s) (even if odours are not detected at site boundary)

4.1 Sniff test method

Start at off-site locations and/or upwind locations. Walk slowly, breathing normally. If an odour cannot be detected in this way, periodically stand still and inhale deeply facing upwind.

Use the guidelines below to compete the odour sniff test and record findings on the **Odour Monitoring Form (PAT-FT-04):**

Odour intensity is scored between 0 - 6 as follows:

0	**No detectable odour**
1	**Very faint odour** e.g. if odour is detected but there is some doubt as to whether an odour is present
2	**Faint odour** e.g. if an odour is detected but cannot be described using precise words or terms
3	**Moderate odour** e.g. odour is detected while walking and the odour character is recognisable
4	**Strong odour** e.g. if the odour character is easily recognisable
5	**Very strong** e.g. very strong but bearable
6	**Extremely strong** e.g. an instinctive reaction is to reduce personal exposure to the odour

Odour duration is scored between 1 – 5 as follows:

1	**No detectable odour**
2	**Transient odour** e.g. whiff (only detectable for brief intermittent spells).
3	**Sporadic discrete odour** <5 to 10 minutes or <50% of total assessment time at that location if less than 30 minutes
4	**Persistent odour** greater than 50% of the assessment time but not continuous, fairly localised
5	**Continuous** present throughout the assessment period

Receptor sensitivity is scored between 1 – 3 as follows

1	**Low** e.g. footpath, road
2	**Medium** e.g. industrial or commercial workplaces
3	**High** e.g. housing, pub/hotel, etc.

Description of odour

Provide a **description** of what the odour smells like. These include, for example:

- Balance Tank: 'cheesy', off-milk, sour, whey-like odour (usually low intensity)
- DAF sludge: as above (low to moderate intensity)

State the **hedonic tone** of the odour.

The hedonic score refers to the type of smell and how pleasant or unpleasant it is irrespective of its strength (intensity) and can help to decide how offensive an odour may be. As shown in Table 2, the hedonic scale ranges from +4 (pleasant) through zero (neutral) to -4 (unpleasant).

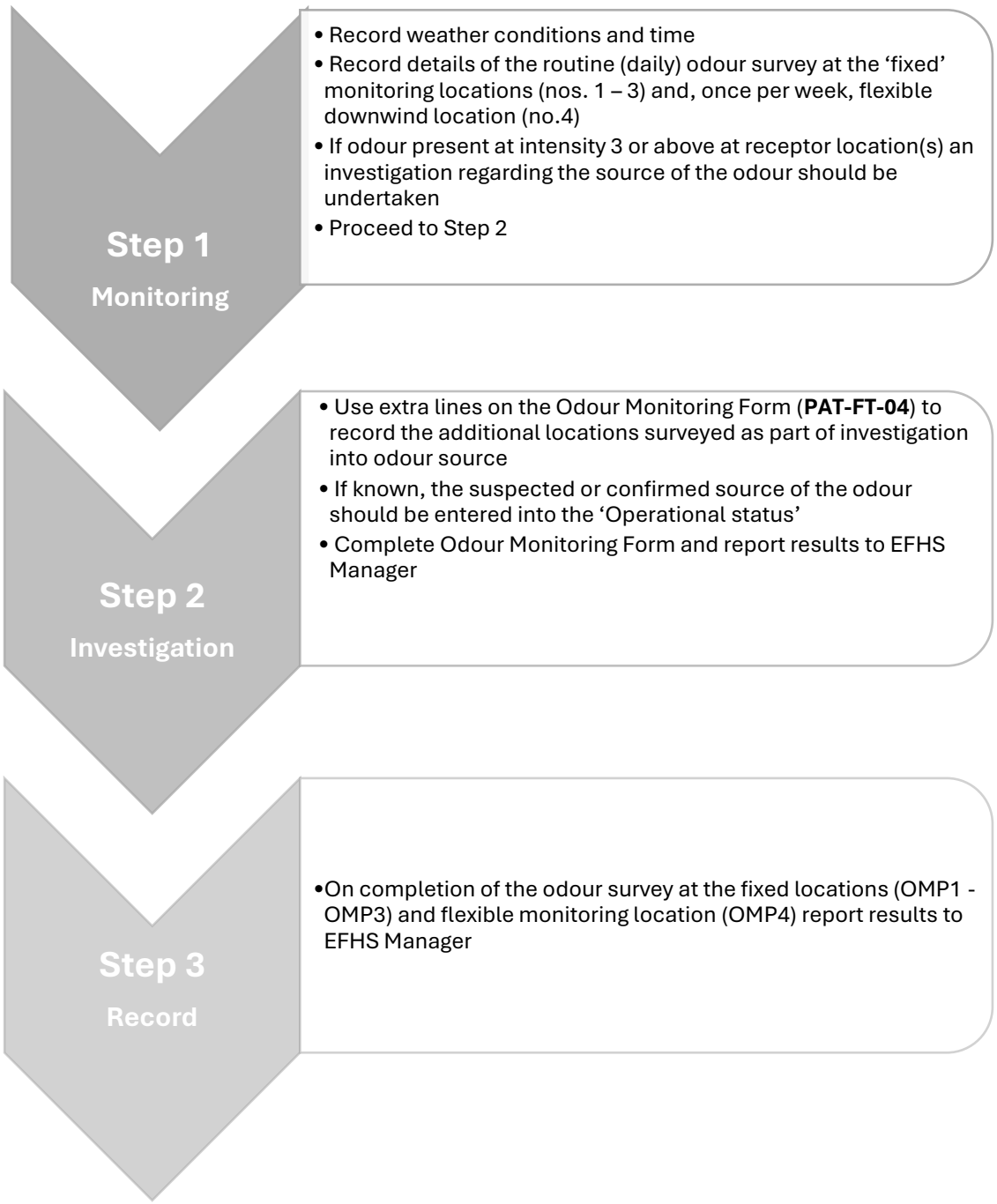
Table 2 – Hedonic Tone

Hedonic Tone	Verbal Description
-4	Extremely unpleasant
-3	Moderate unpleasant
-2	Unpleasant
-1	Slightly unpleasant
0	Neutral
+1	Slightly pleasant
+2	Pleasant
+3	Moderate pleasant
+4	Extremely pleasant

If known, the suspected or confirmed source of the odour should be entered into the **'Operational status'** section.

Abnormal site operating conditions at the time of the survey e.g., maintenance to process equipment should also be recorded.

5. Odour Monitoring - Flow Diagram



Appendix 4 – Forms

- **Odour Monitoring Form (PAT-FT-04)**
- **Complaint Record Form (PAT-FT-06)**

Survey Locations	PATTEMORES TRANSPORT LTD	Version: 1
	Odour Monitoring Form (PAT-FT-04)	Week Commencing:

Date	Time	Location	Odour Intensity (0 – 6)	Odour Duration (1 – 5)	Sensitivity (1 – 3)	Odour Description	Wind direction	Ave. wind Speed (mph)	Temp. (°C)	Operational Status/ Comments	Assessor
Mon		1									
		2									
		3									
		4									
Tue		1									
		2									
		3									
		4									
Wed		1									
		2									
		3									
		4									
Thurs		1									
		2									
		3									
		4									

Odour Intensity Scale is from 0 – 6

0. No detectable odour
1. Very faint odour (odour detectable but doubt as to whether present)
2. Faint odour (need to inhale facing into the wind)
3. Moderate odour (easily detected)
4. Strong odour (bearable)
5. Very strong odour
6. Extremely strong odour (e.g., possibly causing nausea)

Odour Duration Scale is from 1 – 5

1. No detectable odour
2. Transient odour e.g., whiff (only detectable for brief intermittent spells).
3. Sporadic discrete odour: <50% of total assessment time at that location
4. Persistent odour greater than 50% of the assessment time but not continuous, fairly localised
5. Continuous, present throughout the assessment period

Sensitivity

1. Low (e.g., footpath, road)
2. Medium (e.g., industrial or commercial workplaces)
3. High (e.g., housing, pub/hotel, etc.)

Monitoring Locations:

1. OMP1 – Off-site, NW (A3066 at the junction with Owls Barton access road)
2. OMP2 – Onsite, adjacent to/ downwind of the existing Effluent Treatment Plant infrastructure
3. OMP3 – Onsite, adjacent to/ downwind of the proposed Effluent Treatment Plant infrastructure
4. OMP4 - Flexible location - nearest off-site downwind receptor location(s) (even if odours are not detected at site boundary)

Date	Time	Location	Odour Intensity	Odour Duration	Sensitivity	Odour Description	Wind direction	Wind speed	Conditions/ Temp.	Operational Status/ Comments	Assessor
Fri		1									
		2									
		3									
		4									
Sat		1									
		2									
		3									
		4									
Sun		1									
		2									
		3									
		4									

Odour Intensity Scale is from 0 – 6

0. No detectable odour
1. Very faint odour (odour detectable but doubt as to whether present)
2. Faint odour (need to inhale facing into the wind)
3. Moderate odour (easily detected)
4. Strong odour (bearable)
5. Very strong odour
6. Extremely strong odour (e.g., possibly causing nausea)

Odour Duration Scale is from 1 – 5

1. No detectable odour
2. Transient odour e.g., whiff (only detectable for brief intermittent spells).
3. Sporadic discrete odour: <50% of total assessment time at that location
4. Persistent odour greater than 50% of the assessment time but not continuous, fairly localised
5. Continuous, present throughout the assessment period

Sensitivity

1. Low (e.g., footpath, road)
2. Medium (e.g., industrial or commercial workplaces)
3. High (e.g., housing, pub/hotel, etc.)

Monitoring Locations:

1. OMP1 – Off-site, NW (A3066 at the junction with Owls Barton access road)
2. OMP2 – Onsite, adjacent to/ downwind of the existing Effluent Treatment Plant infrastructure
3. OMP3 – Onsite, adjacent to/ downwind of the proposed Effluent Treatment Plant infrastructure
4. OMP4 - Flexible location - nearest off-site downwind receptor location(s) (even if odours are not detected at site boundary)

Additional Survey Locations	PATTEMORES TRANSPORT LTD	Version: 1
	Odour Monitoring Form (PAT-FT-04)	Week Commencing:

Date	Time	Location	Odour Intensity	Odour Duration	Sensitivity	Odour Description	Wind direction	Wind speed	Conditions/ Temp.	Operational Status/ Comments	Assessor

Odour Intensity Scale is from 0 – 6

0. No detectable odour
1. Very faint odour (odour detectable but doubt as to whether present)
2. Faint odour (need to inhale facing into the wind)
3. Moderate odour (easily detected)
4. Strong odour (bearable)
5. Very strong odour
6. Extremely strong odour (e.g., possibly causing nausea)

Odour Duration Scale is from 1 – 5

1. No detectable odour
2. Transient odour e.g., whiff (only detectable for brief intermittent spells).
3. Sporadic discrete odour: <50% of total assessment time at that location
4. Persistent odour greater than 50% of the assessment time but not continuous, fairly localised
5. Continuous, present throughout the assessment period

Sensitivity

1. Low (e.g., footpath, road)
2. Medium (e.g., industrial or commercial workplaces)
3. High (e.g., housing, pub/hotel, etc.)

Monitoring Locations:

1. OMP1 – Off-site, NW (A3066 at the junction with Owls Barton access road)
2. OMP2 – Onsite, adjacent to/ downwind of the existing Effluent Treatment Plant infrastructure
3. OMP3 – Onsite, adjacent to/ downwind of the proposed Effluent Treatment Plant infrastructure
4. OMP4 - Flexible location - nearest off-site downwind receptor location(s) (even if odours are not detected at site boundary)

Pattemores Transport (Crewkerne) Ltd - Complaint Form (PAT-FT-06)	
Time and date of complaint:	Name and address of complainant:
Telephone number of complainant:	
Date and time of odour:	
Location of odour, if not at the above address:	
Weather conditions (*i.e.*, dry, rain, fog, snow):	
Temperature (very warm, warm, mild, cold or degrees if known):	
Wind strength (none, light, steady, strong, gusting):	
Wind direction (*e.g.* from the NE):	
Complainant's description of odour: • What does it smell like?	
• Intensity (see below)	
• Duration (time)	
• Constant or intermittent in this period:	
• Does the complainant have any other comments about the odour?	
Are there any complaints relating to the installation, or to that location? (either previously or relating to the same exposure):	
Any other relevant information:	
Do you accept that odour is likely to be from your activities?	
What was happening on site at the time that the odour occurred?	
Operating conditions at the time that the odour occurred	
Actions taken:	
Form completed by:	Date:
Signed:	

Intensity

0	No odour	3	Moderate odour	6	Extremely Strong odour
1	Very faint odour	4	Strong Odour		
2	Faint odour	5	Very strong odour		