



Variation Report

Bradgate Bakery

FOR: SAMWORTH BROTHERS LTD

PROJECT NUMBER: ECCS 144 004

PREPARED BY: EC CONSULTANCY SERVICES LTD

Variation Report

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For:	Samworth Brothers Ltd
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1 INTRODUCTION

1.1 OVERVIEW

This report has been prepared on behalf of Samworth Brothers Ltd (hereby referred to as the 'Operator') in relation to a substantial permit variation application for the existing Bradgate Bakery Installation Site located in Beaumont Keys, Leicester (Permit Number: EPR/CP3430WV).

The site is a long-established Bakery business and employer in the local area which encompasses two facilities (Ashton Green & Madeline Road). The two facilities are collectively referred to as "Bradgate Bakery". The site produces high quality ready to eat food products for major UK retailers. The processes carried out on site involve the production of sandwiches, wraps, pasta pots, and salads. Finished products are packed into skilnet sleeves, flow wrap, or plastic trays before being passed through to despatch. Product distribution is predominantly carried out by Samworth Brothers Supply Chain (SBSC), along with contract haulers to major supermarkets and convenience stores throughout the country. The Bakery employs approximately 1,600 people across the two sites and has been operational since 1993 (33 years ago). An Environmental Permit was originally applied for in 2015 (and subsequently granted in 2017) under one of the newly prescribed regulated activities within the Industrial Emissions Directive (IED).

1.1.1 Regulatory Framework

The Stationary Technical Unit (STU) for the existing Bradgate Bakery Installation Site is captured under Chapter II activities listed within Annex I within the Industrial Emissions Directive (2010/75/EU).

There are four types of variation (substantial, normal, minor and administrative) each differing by the potential significance of environmental impacts and the level of technical assessment required by the Regulator.

Within the Environment Agency's Environmental Permitting Charges Guidance, it states that:

"Substantial variation" means an application to vary a permit which the Agency considers is likely to involve significant assessment."

The type of variation is based on the level of risk. Whilst the proposed changes do not represent significant changes in operating techniques across the site, the changes do introduce a new listed activity as well as an increase in the overall throughput capacity at the site, thus it is considered that this application falls within the definition of substantial variation to add a new listed activity, and a normal variation to increase the production capacity at the site.

1.2 SCOPE AND OBJECTIVES OF REPORT

This Variation Report has been prepared specifically in answer to Questions Q1a and 3d within Part C2; Questions Q3, 3a1, 3c, 4b, 6a, 6b, 6c, 6d, 6e of Part C3; and all relevant questions within part C6 of the Environment Agency's Application Forms.

The objectives of this Variation Report are to:

- Part C2 Q1a: Describe in detail all changes or additions proposed to the existing activities;
- Part C2 Q3d: Provide a Summary of the Operators existing Environmental Management Systems;
- Part C2 Q4: Provide an updated environmental risk assessment;
- Part C3 Q1: Provide details of all the activities listed in schedule 1 of the EPR and all directly associated activities (DAAs) that the applicant proposes to carry out at the installation;
- Part C3 Q2: Describe all point source emissions to be added to the permit;
- Part C3 Q3a: summarise the main measures proposed to control the risks or hazards associated with the proposed new activities, and provide details of any changes proposed to Operating Techniques Documentation currently referenced within Table 1.2 of the permit;
- Part C3 Q3c & 6d: Describe all types and amounts of raw materials and provide justification for their use;
- Part C3 Q4b: Describe measures proposed for monitoring of emissions associated with newly proposed activities;
- Part C3 Q6a: Describe the basic measures proposed for improving energy efficient across the site;
- Part C3 Q6b: Provide a breakdown of any changes to the energy existing activities use / create;
- Part C3 Q6e: Describe how the Operator will comply with Council Directive 2008/98/EC on waste;
- Part C6: Describe details of the newly proposed Effluent Treatment Plant (ETP).

As highlighted above, this report is restricted to assessing risks and describing operational techniques associated with the newly proposed activities only and does not describe existing Operational Techniques for activities that are already permitted and are to remain unchanged as a result of this variation. These Techniques have already undergone assessment and are authorised under current permit conditions.

1.3 RELEVANT LEGISLATION AND GUIDANCE

The existing permitted activities and proposed new DAA are subject to a number of European, domestic, statutory, and non-statutory legislation and guidance documents. Operators are required through the Environmental Permit application process, to demonstrate how they will comply with the relevant requirements of this legislation and guidance.

In relation to the new activities proposed at the Bradgate Bakery Site, the following pieces of legislation and guidance are considered relevant for this report:

- Industrial Emissions Directive 2010/75/EU;
- Waste Framework Directive 2008/98/EC;
- Medium Combustion Plant Directive (EU) 2015/2193;
- The Environmental Permitting (England and Wales) Regulations 2016;
- The Environmental Permitting (England and Wales) (Amendment) Regulations 2018;
- The Environmental Permitting (England and Wales) (EU Exit) Regulations 2019;

- Establishing Best Available Techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the Food, Drink and Milk Industries (2019/2031);
- Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council, published on 10 August 2018 (the 'Waste Treatment BAT Conclusions');
- Sector Guidance Note: 6.10 The Food & Drinks Sector Guidance, Environment Agency, March 2009.

1.4 THE APPLICANT / OPERATOR

Samworth Brothers Ltd (Company No. 03116767) was incorporated on 20 October 1995. The company's registered office address is: Chetwode House, 1 Samworth Way, Melton Mowbray, Leicestershire, LE13 1GA. The Company was originally founded in 1896 as a family business, with the Samworth group now employing over 9,500 people across the business Group.

1.5 SITE LOCATION AND ENVIRONMENTAL SETTING

The existing Bakery occupies some 6.2 acres of land and is located approximately 4 miles North-West of Leicester City Centre. The surrounding area consists of predominantly industrial units to the East and West, with small Greenfield areas to the South and North-West. The nearest residential areas are located to the North and South of the Bakery, beyond the Industrial Estate.

To the West of the site is the 'Walkers Charnwood Bakery', which is another 'sister' food manufacturing facility also owned and operated by Samworth Brothers Ltd. Access to the Industrial Estate is via the A563 (Krefield Way) to the South, which links with the A46 which connects to Junction 21a of the M1 Motorway (approx. 5 miles to the South-West of the site). The nearest railway station is Leicester City Railway Station, located approximately 4.1 miles North-West of the site.

The full site address is:

Bradgate Bakery
Madeline Road & Ashton Green
Beaumont Leys
Leicester
LE4 1WX

Site Grid Reference: SK 57310 08822

Figure 1.5.1a Site Location

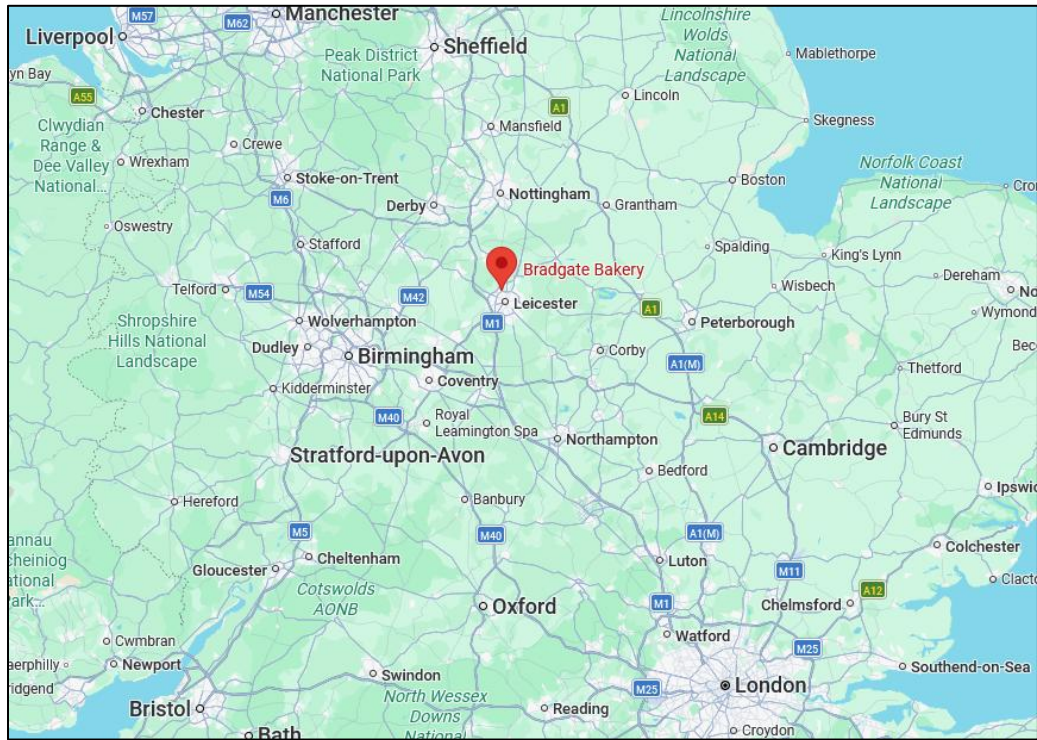


Image sourced from Google Maps ©2026

Figure 1.5.1b Madeline Road & Ashton Green Sites



Image sourced from Google Maps ©2026

1.6 EXISTING INSTALLATION ACTIVITIES

The site produces high quality ready to eat food products for major UK retailers. Both sites are jointly involved in the production of food for human consumption. The processes carried out at both sites involves salad preparation with washing, cooking of dried carbohydrates and vegetables, ingredient preparation (chopping, slicing, dicing and mixing), filling, chilling, packaging and dispatch. Ingredients include bread, fresh produce, ready prepared cooked meats, dry pasta, rice, grains and ready to use sauces, all of which are from third party suppliers and delivered to site via third party road transport. Salad items are prepared in house by first entering through Intake, before passing through to the salad prep area, where produce is washed with chilled mains water and sliced/diced. Pasta is cooked and then transported to the quench and chill quench tanks before draining. Other ingredients will be de-boxed in Intake, transferred through sanitiser tunnel/de-bagged or removed from their cans prior to entering through to High Care. The individually prepared ingredients are then portioned into trays ready to be deposited mechanically or by hand on to the required product. Finished products are packed into skillet sleeves, flow wrap, or plastic trays before being passed through to despatch. Product distribution is predominantly carried out by Samworth Brothers Supply Chain (SBSC), along with contract haulers to major supermarkets and convenience stores throughout the country. The permit is currently restricted to a production capacity of 143 tonnes per day.

The primary Schedule 1 installation activities as currently listed within the permit are as follows:

- **AR1 - Section 6.8 Part A(1)(d)(iii)(aa):** Treatment and processing, other than exclusively packaging, of animal and vegetable raw materials (other than milk only), both in combined and separate products, with a finished product production capacity in tonnes per day greater than 75 if A is equal to 10 or more. Where 'A' is the portion of animal material in percent of weight of the finished product production capacity. Production capacity is currently limited to 143 tonnes per day.
- **AR2 – Section 5.4 Part A1 (a) (ii):** Disposal of non-hazardous waste in a facility with a capacity exceeding 50 tonnes per day by Physico-chemical Treatment. prior to discharge to the foul to sewer.

The permit also has several Directly Associated Activities (DAAs):

- **AR3 – Steam supply** –Combustion plants:
 - 1 x 1 MWth natural gas fired boiler;
 - 6 x <1 MWth natural gas fired boilers;
 - 1 x < 1MWth natural gas steam generator;
 - 2 x <1 MWth natural gas fired ovens; and
 - 3 x < 1MWth natural gas fired tray wash burners.
- **AR4 – Raw material storage and handling** – Storage and handling of raw materials at the installation.
- **AR5 – Use of refrigerants** – Use of refrigerants in cooling, chilling and/or freezing systems at the installation.

- **AR6 – Storage and use of chemicals and oils** Storage and use of chemicals and oils at the installation.
- **AR7 – Waste storage and handling** Storage and handling of waste materials.
- **AR8 – Surface Water Drainage** collection of uncontaminated site surface waters.

Figure 1.6.1a Existing Permit Site Boundary – Ashton Green Site

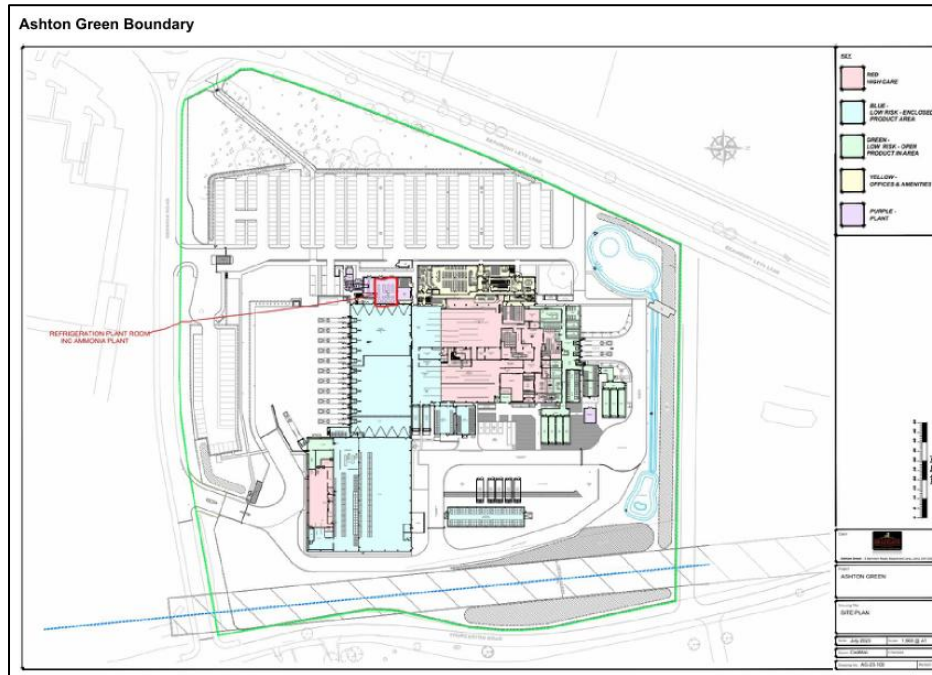


Image sourced from Permit EPR/CP3430WV

Figure 1.6.1b Existing Permit Site Boundary – Madeline Road Site

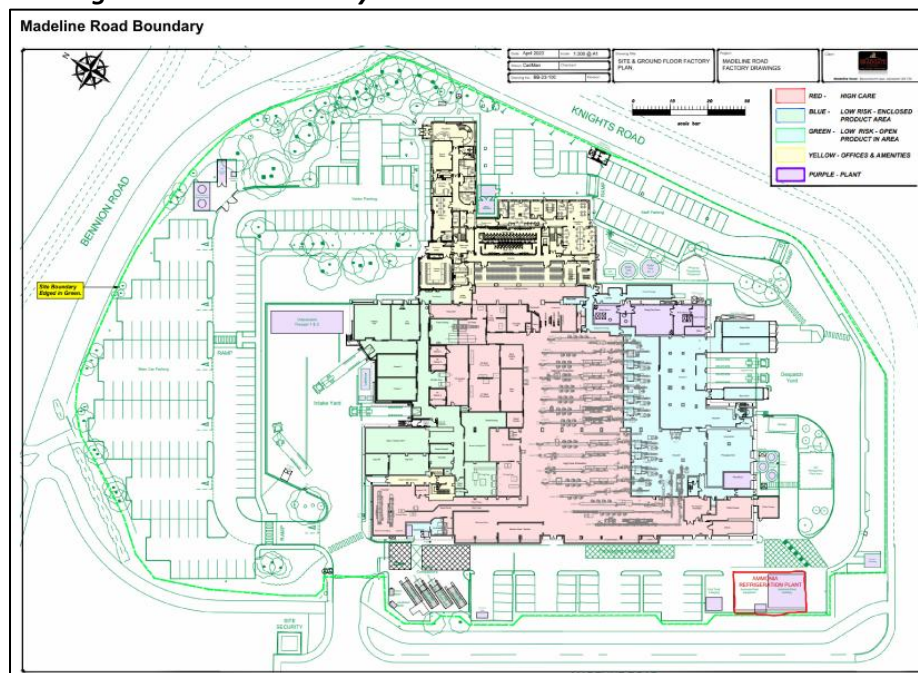


Image sourced from Permit EPR/CP3430WV

2 PROPOSED CHANGES TO PERMIT

2.1 PROPOSED CHANGES TO PERMITTED ACTIVITIES

The existing Installation Permit was varied in December 2024, and a Consolidated Permit issued following the completion of the Food and Drinks Sector Permit Review.

Since then, Samworth Brothers Ltd have secured a further investment for future development and expansion plans for their existing operations at the Bradgate Bakery site. The expansion project will include:

- the installation of multiple new production lines (up to 6 new lines) at the Ashton Green Site (which will result in an increase in overall daily throughput capacity at the site); and
- the installation of a new Effluent Treatment Plant (ETP) at the Ashton Green site. (It is worth noting that this new ETP will be located within the existing permitted site boundary and effluent will discharge via the existing consented discharge point to sewer from the site).

The above-mentioned changes to site operations will result in the following changes to the existing permitted activities:

- **Section 6.8 Part A(1)(d)(iii)(aa):** The new process lines will increase the overall throughput capacity at the site from the existing permitted daily production capacity of 143 tonnes per day to 250 tonnes per day; and
- **Section 5.4 Part A1 (a) (ii):** A new listed activity is to be added to Table 1.1 of the permit to accommodate the new ETP at the Ashton Green site.

The Operator wishes to take this opportunity to also update their permit to acknowledge the completion of all Improvement Conditions as listed within Table 1.3 of the existing permit. Evidence of the Environment Agency's (EA) acceptance and discharge of these Improvement Conditions is provided within Appendix B to this report.

The changes listed above will not result in any new point source emissions to air, groundwater, land, or sewer. Effluent discharged from the new ETP at the Ashton Green site will discharge to sewer via the existing point source emission, as referenced within Table S3.2b of the permit. The ETP is designed to improve the quality of the discharge from site, to ensure effluent is within the existing Trade Effluent Consent Limits.

All changes proposed will take place within the existing permitted site boundary lines.

2.2 PRE-APPLICATION DIALOGUE

The Operator requested enhanced pre-application advice in March 2025. In place of a meeting, the EA provided detailed written correspondence in the form of several emails (dated March and June 2025). The advice given confirmed the type of application required; the anticipated technical content; as well as the application fee. A copy of the pre-application dialogue is provided within Appendix B to this report.

2.3 NEW PROCESS LINES

The Operator is proposing to introduce multiple new production lines (up to 6 new lines) at the Ashton Green Site, which will result in an increase in overall daily throughput capacity from 143 tonnes per day to 250 tonnes per day across the two bakeries.

The new process lines will be installed within an extension building, which will be located adjacent to the existing factory building, but within the existing permitted site boundary line. In order to accommodate the new extension building, the sites existing waste compaction and recycling storage area is to be relocated further to the North-East of the outside yard area. A schematic layout of the proposed new process lines is provided within Appendix F to this report. An updated site layout and drainage plan is also provided within the Drawings Section of this application. The new process lines are as follows:

- Line 30: Flow Wrap Line;
- Line 31: Flow Wrap Line;
- Line 32: Sandwich Line;
- Line 33: Sandwich Line; and
- Line 34: New Salad Line.

The new process lines will include the addition of the following ancillary equipment to be installed at the Ashton Green Site:

- 2no. Dry Air Coolers located on the plant room building;
- 2no. air compressor units housed in an outbuilding;
- An additional blast chiller unit; and
- Ammonia Heat Pump.

In alignment with the Operators de-carbonisation strategy, the refrigeration system at Ashton Green Site will integrate an ammonia heat pump, used to extract energy from the chiller condenser water circuit, to utilise the energy to generate hot water. The heat-pump will be designed to raise the water temperature from 60°C to 69°C.

Layout Plans for the warehouse have been provided in support of this application, within the Drawings Section. The layout overlaps the drainage plans for the Ashton Green site. The new lines will be manually operated by staff placed along each line. There will be no additional combustion units or ovens, and thus no additional point source emissions to air.

The new process lines will allow the Operator to offer their customers with a wide range of fresh products. Raw materials will not vary as a result of the new lines; however, volumes will increase incrementally as production goes up.

2.4 NEW EFFLUENT TREATMENT PLANT (ETP) AT ASHTON GREEN SITE

There are currently two-point source emissions to sewer from the Bradgate Bakery, one discharge for each site (Madeline Road and Ashton Green). At present, only the Madeline Road site treats their process effluent, prior to discharging to sewer. The Operator is applying to include a new ETP at the Ashton Green Site, in order to improve the quality of the discharge to sewer, to ensure they can continue to comply with the sewerage undertakers (Severn Trent Water Ltd) Trade Effluent Consent (TEC) limits. The new ETP will consist of a number of treatment phases. In order these are:

- Primary Treatment – Screening (1mm Screen);
- Secondary – pH Correction (comprising of equalisation and chemical dosing);
- Third – Fat Trap.

A Process & Instrument Drawing of the newly proposed plant is provided within Appendix F of this report. The ETP will consist of the following key infrastructure:

- Intake Raw Effluent Sump Tank (Existing Below Ground Tank) – 6m³;
- Screened Effluent Tank - 4 m³;
- Balance Tank Capacity - 258m³;
- Acid Storage Tank - Sulphuric Acid Solution(15%) - 5m³;
- Caustic Storage Tank – Caustic Soda (32%) - 5m³; and
- Fat Trap (size TBC).

The ETP is designed to ensure that effluent entering the sewerage network meets the existing effluent standards/limits as set within the Trade Effluent Consent (TEC). A copy of the associated TEC is provided within Appendix G to this report. The new ETP has been designed by FLI CAP Technology, who were commissioned to provide a site-specific solution to treat the sites existing process effluent, prior to discharge to sewer via the Ashton Green Sites existing Trade Effluent Consent. The proposed effluent treatment plant solution will be fully automatic and controlled by a new PLC control system with colour touch screen HMI.

A process description of the newly proposed ETP is as follows:

1 – Raw Effluent Screening and Balancing.

Raw effluent from the site will flow into an underground inlet sump. From here a set of duty / standby above ground centrifugal pumps (each capable of pumping a flow rate of 80m³/h), will pump effluent to a rotary drum screen (1mm screen). Discharge from the rotary drum screen will flow by gravity to the screened effluent transfer tank. Screened waste material will drop into a waste bin located adjacent to the screen. It is anticipated that the wheelie bin will require emptying twice a day, with the contents transferred to the sites existing waste compactors, prior to being sent off site by the Operators existing waste contractor for treatment.

Screened effluent will be pumped via a set of centrifugal pumps capable of transferring 80m³/h, operating on a duty / standby arrangement to the 258m³ Balance tank. A hydrostatic pressure sensor will measure the level of the screened effluent within the tank and activate the screened effluent transfer pumps, as well as modulating the speed of the pumps to ensure a smooth transfer rate is achieved reducing the

number of stop / starts required. An operator will be able select whether the screened effluent is transferred to the Balance tank, or bypass the balance tank and pH correction and go straight to the existing discharge manhole.

The inner working balance tank (constructed from coated steel) will have a working capacity of approximately 258m³, nominally 6.83m diameter by 7.03m tall with a maximum water level of 6.5m. The concrete base for both tanks will be coated with an epoxy to protect the concrete from potential corrosion. All tanks (with the exception of the existing underground inlet tank and chemical tanks) will be located within a dedicated secondary containment concrete bund tank, which will provide a 110% containment for the largest tank (balance tank), with nominal dimensions of 8.54m diameter by 7.03m tall.

The working balance tank vessel will operate at varying levels to balance variations in the effluent flow and composition throughout the day. A hydrostatic level sensor will be installed to monitor the level in the balance tank and start and stop the serpentine feed pumps, which will operate on a duty / standby arrangement. The bund tank will also be fitted with a hydrostatic level sensor to monitor the level in the bund tank and alert an operator if there the balance tank overflows or if there is a breach of the internal tank. An externally mounted aeration unit will be installed on the outside of the vessel to mix and aerate the contents of the inner balance tank. The mixer aerator will include a single ejector nozzle. The equalised effluent will then be delivered to a new serpentine unit, for pH correction using two duty / standby centrifugal pumps at a flow rate of 40m³/h. This feed rate will be controlled using an inline electromagnetic flowmeter and modulating a pneumatic positioning butterfly valve to maintain the desired flow rate.

2 - pH Correction.

Effluent passes from the balance tank will be pumped into the serpentine, where chemicals will be added to neutralise the effluent and bring it into trade effluent consent limits. Two 5,000 litre semi-bulk self-bunded chemical storage tanks will be provided for the storage of acid & caustic soda. All tanks will be stored outside of the main factory building. To enable the continued use of 32% caustic, a heater will be provided in the caustic storage tank. Delivery fill pipes will be taken to a safe point where hoses from the delivery vehicles can be connected. Ultra-sonic type of level sensors will be provided to monitor the level in the storage vessels and alert an operator when the vessel needs re-filling.

Two safety showers will be provided, safety shower one will be located near to the chemical storage tanks and safety shower two will be located near to the chemical dosing pumps. A manually retractable pH probe will be installed in the Serpentine to monitor the pH of the equalised effluent, and to enable caustic or acid to be injected automatically to the operator desired pH set point. The pH probe and meter will give a control signal to caustic or acid dosing pumps. These pumps will be arranged in a duty/standby configuration in dedicated cabinets. They will automatically delivery the required volume of caustic or acid to control the pH of final effluent. The pH correction pumps will be housed inside chemical cabinets with Perspex covers to protect against leaks and spills.

3 – Fat Trap

Effluent discharging from the serpentine unit will be pumped to a fat trap. The trap will essentially consist of three chambers (inlet chamber; settlement chamber; outlet chamber). The inlet chamber will slow down the flow rate, whilst the settlement chamber will allow Fats, Oils and Grease (FOG) (which is around

70-80% lighter than water), to rise to the surface to allow any solids to settle to the bottom. The final outlet chamber will pump effluent to the existing outlet pipe which will ultimately discharge to sewer.

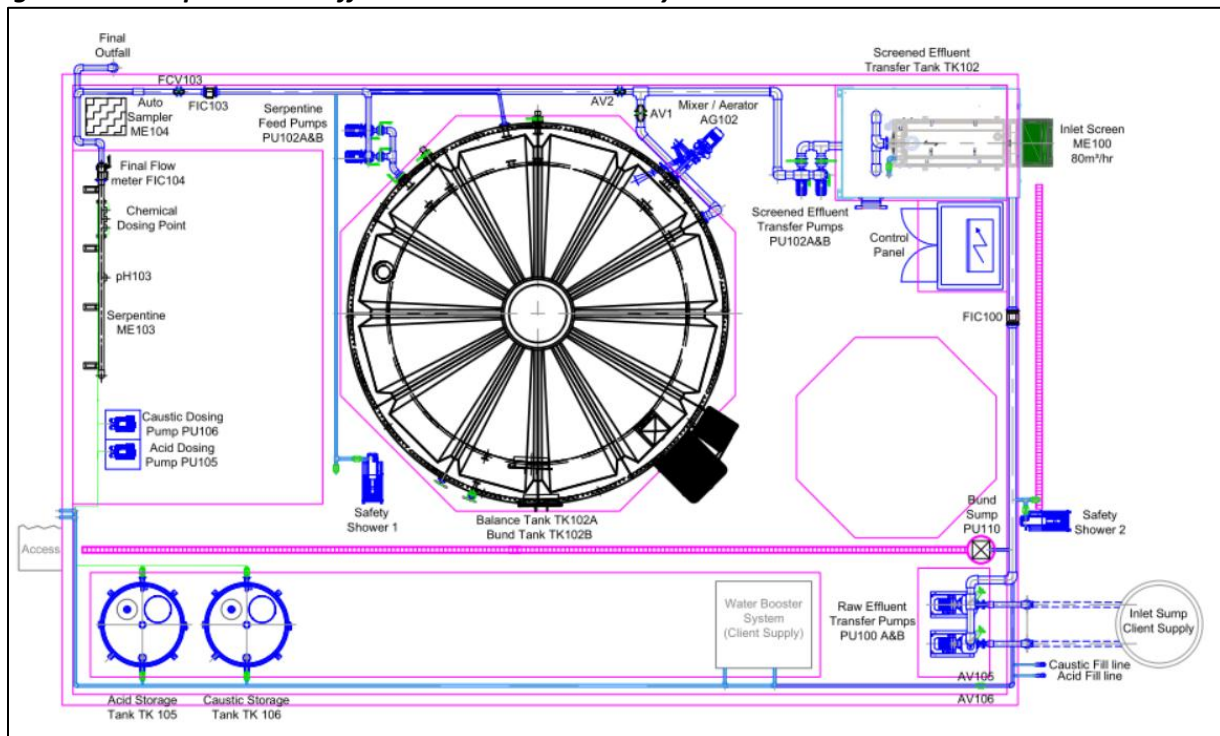
Figure 2.4.1 Photographs of proposed New Fat Trap



Source: Bradgate Bakery © 2026

The existing final effluent pH sensor, flowmeter and autosampler currently in place will be retained without modification and will monitor effluent at the point of discharge from site.

Figure 2.4.2 Proposed New Effluent Treatment Plant Layout



Source: FLI CAP Technology © 2025

3 ENVIRONMENTAL RISK ASSESSMENT

3.1 OVERVIEW AND SCOPE OF ASSESSMENTS COMPLETED

A number of assessments have been considered to determine the environmental risks posed by changes proposed to the Bradgate Bakery Site and to identify whether the level of risk can be considered acceptable with appropriate mitigation or if further measures are required.

The objectives of this Environmental Risk Assessment (ERA) are to:

- Identify potential sources of risk and hazards that the new changes proposed may present to the environment;
- Identify nearby sensitive receptors;
- Screen out those risks that are insignificant and don't require detailed assessment;
- Where appropriate identify potentially significant risks and undertake detailed assessment;
- Where appropriate choose the right control measures; and
- Report the findings of the assessment.

It was established early on in the project conception phase, that the following technical assessments would be required:

- **Noise.** A detailed Noise Impact Assessment (NIA). An NIA has also been carried out to assess the environmental impact from noise sources introduced from the new process lines, and the new ETP;
- **CIRIA Risk Assessment.** A detailed risk assessment has been carried out to assess the risks associated with the new storage tanks associated with the new ETP, and an appropriate secondary containment considered.

All other hazards identified have been considered and either assessed qualitatively or screened out as requiring no further technical assessment. The qualitative risk assessment is provided within Appendix C to this report.

3.2 HAZARDS AND RISKS ASSOCIATED WITH CHANGES PROPOSED

This report follows the Environment Agency's Guidance and begins by identifying potential hazards and risks to the environment from the changes proposed to the permit. Hazards and risks to be considered within this assessment are presented within Table 3.2.1 below.

Table 3.2.1 Identified Hazards and Risks

No.	Hazard / Risk	Changes Proposed to Permitted Activities
		Details
1.	Amenity Impacts	Changes proposed will not introduce new hazards or risks of amenity impacts from site operations.

Changes Proposed to Permitted Activities		
No.	Hazard / Risk	Details
		Existing management systems and procedures remain fit for purpose No further assessment required
2.	Noise	There are potential new noise sources from the proposed new ETP and the additional process lines and vehicle movements A full Noise Impact Assessment was carried out to fully assess the changes to noise levels from the site
3.	Odour	Introduction of Effluent Treatment Plant is intended to decrease potential odour emissions from process effluent discharged to sewer from the Aston Green Site, however there is potential for odours to be generated from the treatment process itself.
4.	Point Source Emissions to Air	No changes proposed to point source emissions to atmosphere No assessment required
5.	Emissions to Surface Water and/or Sewer	Changes proposed will not introduce new hazards or risks of emissions to surface water from site operations. Existing management systems and procedures remain fit for purpose There have however been some changes to site drainage around the new ETP which requires consideration.
6.	Fugitive Emissions	Potential increase in uncontrolled releases to the environment due to increase in process throughput as well as potential fugitive emissions from new ETP will require further consideration.
7.	Wastes Generated on Site	Changes proposed will not introduce new hazards or risks of waste generated on site, however volumes of waste generated will increase due to increase in process throughput Existing management systems and procedures remain fit for purpose No further assessment required
8.	Abnormal Operations or Accidents	The introduction to additional process lines will not introduce new hazards or risks of abnormal operations or accidents, however the new ETP will introduce new hazards to that area of the site. A CIRIA Risk Assessment is required to assess appropriate containment measures. Existing management systems and procedures will be updated to include control measures for new ETP
9.	Global Warming Potential	Changes proposed will not significantly change direct and indirect emissions produced by the site energy or alter global warming potential Existing management systems and procedures for monitoring impact remain fit for purpose No further assessment required

3.3 SENSITIVE RECEPTORS

A search was carried out using the government website 'www.magic.gov.uk' as well as a nature and heritage conservation screen assessment obtained from the Environment Agency (EA) as part of pre-application dialogue. The site does not lie within any ecologically designated sites within a 10km radius. This includes Area of Outstanding Natural Beauty (AONB), RAMSAR sites, Special Protection Areas (SPAs), Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), or National Nature Reserves (NNRs).

The Bennion Pools Nature Area is situated approximately 40m North of the Madeline Road site.

The site is located within Leicester Air Quality Management Area (AQMA), which is designated for Nitrogen Dioxide (NO₂).

There are also several human health sensitive receptors in close proximity to the site. Table 1.8.1a below provides further details of all sensitive receptors considered within this permit application.

Table 1.8.1a Human Sensitive Receptors

No.	Receptor	Type	Distance (m) & Direction from Madeline Road Site	Distance (m) & Direction from Ashton Green Site
1	George Hythe House	Care Home	75 NE	W
2	8 Edgbaston Close	Residential	280 NE	25 W
3	2 Crabtree Cottage	Residential	700 NE	250 N
4	Birstall Lodge	Residential	570 NE	45 E
5	80 Cashmore View	Residential	320 S	550 SW

3.4 NOISE

As detailed within Section 3.1 above, it was identified early in the project that a detailed Noise Impact Assessment would be required to fully assess the impact of all new sources of noise, in combination with existing noise sources from the Bradgate Bakery Site. An NIA was thus undertaken at the end of 2025, and early 2026.

A baseline survey was undertaken in December 2025 at representative sensitive receptor locations. The baseline noise survey was undertaken in the vicinity of the site from which, typical background sound levels were derived for both daytime and night-time periods. As it was not possible to programme in a shutdown period at the site, measures were taken to ensure any noise from the existing facility was inaudible at the chosen monitoring locations. The results of the survey have been analysed to determine typical background noise levels have subsequently been used on the assessment.

Computer modelling was then used to determine noise levels generated by the new plant items at the nearest noise sensitive receptor locations. The calculations indicated that operational noise from the facility would not exceed the background sound levels during both the daytime and night-time assessment periods, which will ensure a low impact with regard to noise standards (BS 4142).

The assessment concluded that noise sources from new plant and equipment, in consideration with existing noise sources, will not result in adverse impact on nearby receptors.

A copy of the full Noise Impact Assessment Report is provided within Appendix E of this report.

3.5 EMISSIONS TO SEWER

There are two existing point source discharges to sewer point from the Bradgate Bakery site; one discharge from the Madeline Road Site; and another from the Ashton Green Site. Process effluent from Madeline Road is currently treated on site through an existing Effluent Treatment Plant. Process Effluent from the Ashton Green Site is currently not treated prior to discharge to sewer. Emissions from both sites

discharge into the public foul sewer system (managed by Severn Trent Water Ltd). Effluent is then treated further downstream at the Wanlip Sewage Treatment Works (STW).

The principal purpose of the new ETP at Ashton Green is to improve the quality of the existing discharge to sewer, to ensure the discharge remains within consent limits now and in the future, and to meet Best Available Technique (BAT) Standards. When consideration is given to the fact that the discharge to sewer from Ashton Green has already been assessed and is referenced within the existing permit; a Trade Effluent Consent from Severn Trent Water Ltd is in place; the discharge does not include any priority hazardous substances; and that the changes proposed at Ashton Green will not require an increase in existing discharge limits; nor will the changes proposed at the site introduce any new components within the discharge; the need to complete a new H1 assessment has been screened out as there is no change to assess. The current discharge is well within the consented flow rate limits specified within the TEC (650m³ per 24hr period), thus providing sufficient headroom for any increase in process effluent which may arise as a result of the introduction of new process lines.

Based on the above considerations, no further assessment to the existing discharge has been undertaken.

3.6 FUGITIVE EMISSIONS

Fugitive emissions can be from either intentional (i.e. vented) or unintentional (i.e. leaked) sources. The design of the new ETP has considered the need for emergency vents or pressure relief valves to be built into the systems as part of the integral safety procedures for equipment on site. The ETP will have its own dedicated control panel and Supervisory control and data acquisition (SCADA) System. The system will be monitored by a third party continuously, however any alterations to system settings or processes will require manual password approval from the Operator. Pipes, tanks and ancillary infrastructure will be regularly inspected as part of the sites Planned Maintenance Schedule, to ensure all equipment is working to its optimum performance. Tanks will also be coated with Epoxy resin to prevent corrosion.

There is potential for harmful unintentional or uncontrolled fugitive releases to the environment from the new ETP, however, the likelihood of a release is very low given designed mitigation and control measures.

It can thus be concluded that potential hazards from fugitive emissions to air or surface waters from the new ETP would be highly unlikely and considered to be overall low risk following application of appropriate control measures.

3.7 WASTES GENERATED ON SITE

The new activities will result in an increase in volumes of waste generated on site, however the nature / type of wastes generated will not change.

All Hazardous wastes will be removed from site by an appropriately permitted waste contractor and will be recovered at a suitably authorised and permitted facility. As a waste producer, the Operator will receive consignee returns every quarter from their consignee dealing with their hazardous wastes.

Records of all non-hazardous and hazardous wastes removed from site will be recorded, held securely, and made available for inspection by the Environment Agency upon request. Should any new waste

streams be generated during either normal or abnormal operations, the Operator will apply the principles of the Waste Hierarchy prior to removal off site.

3.8 ABNORMAL OPERATIONS OR ACCIDENTS

A review has been undertaken of the sites existing Accident and Emergency Response measures. Whilst the sites current procedures and Accident Management Plan remain fit for purpose when considering the new process lines, the new ETP does introduce new hazards under abnormal operations, from accidental release from spillages during transferring of substances to and from site or catastrophic tank failure. Spillages could also occur from overfilling of vessels.

Appropriate mitigation and control measures were considered at project conception stage and incorporated into plant design. This included consideration under abnormal or emergency scenarios. As a result the new ETP infrastructure will benefit from secondary containment, appropriately designed to suit the nature of material being stored and the risks posed. The primary tanks and ancillary equipment will be located within a concrete bund, sized to hold 110% capacity of the largest tank (balancing tank). The Acid and Caustic Tanks will be serviced with their own secondary containment.

As part of the Operators work undertaken to discharge Improvement Conditions included within the most recent permit variation issued in 2024 (V003), the Operator carried out a CIRIA Risk Assessment for both the Madeline Road and Ashton Green Sites. A copy of the Ashton Green Assessment is provided within Appendix J to this report. The assessment also considers the new ETP and all storage tanks associated with the design.

Spill kits will be available with materials suitable for absorbing and containing minor spills and site staff will be trained in their use and in the spill clean-up procedures. Deliveries of chemicals will be supervised by the Operator's personnel or the O&M Contractor personnel.

The existing underground inlet sump tank is fitted with a level sensor which is designed to alert staff if the levels in the tank rise beyond a set level. In a worst-case scenario that the sensor fails or the tank overflows, process effluent will spill out of the top manhole, onto impermeable concrete surfacing. The area immediately adjacent to the sump is sloped to channel run-off from that area to a collection manhole, where any spillage can be contained and removed. The entire area surrounding the ETP will be serviced with surface water drains which will drain to the onsite pond. In the extremely rare event that the surface water drains are contaminated, run-off can be contained within the site pond, as there is a slam shut valve on the outlet of the pond.

As a result of structural and operational controls described above and within the technical reports, this assessment has concluded that the potential for catastrophic failure or localised loss of containment off site would be extremely low.

4 OPERATING TECHNIQUES AND BAT ASSESSMENT

4.1 ENVIRONMENTAL MANAGEMENT SYSTEM (EMS)

The Operator currently implements their own comprehensive Environmental Management System (EMS) which is certified to ISO14001 standards. The existing EMS provides a framework through which the Bradgate Bakery Site's environmental performance can be monitored, controlled and improved upon. The EMS sets out supporting information on plant technology and the appropriate level of information to provide:

- a mechanism for defining environmental responsibilities for all staff, helping them to understand the environmental impact of their activities and individual actions;
- ensures that all operations have procedures that minimise their impacts and strive towards high standards of environmental protection by preventing or minimising emissions;
- records environmental performance against set targets;
- can be audited; and
- will help the company identify opportunities to reduce waste and improve raw material consumption and energy efficiency.

The existing EMS will be updated to include the Operating Techniques and Maintenance Manuals associated with all new plant and equipment associated with this variation application.

Existing Operating Techniques as referenced within Table S1.2 of the permit will not be replaced but will remain fit for purpose. Additional techniques proposed for the new activities as described within this report are to be included as additional techniques within Table S1.2.

4.2 STAFF TRAINING

Staff employed at the Bradgate Bakery Site benefit from a variety of training programs designed to improve their professional and technical knowledge. The Operator ensures that any person performing tasks for it, or on its behalf, are competent based on appropriate education, training or experience, and retains all associated records. The training programme includes raising staff awareness of the sites Permit and EMS. New employees are given full induction training by managerial staff or other appropriately qualified personnel. Records are kept of all staff qualifications and training in relation to operation of the processes at the site, emergency protocols and the content and requirements of the environmental permit and its management plans, where appropriate.

Where works are contracted out, the successful contractor will have undergone an assessment during the procurement process to determine technical competency and to satisfy training standards required by the company. Site works will only be carried out under approved RAMS and Permits to Work.

4.3 RAW MATERIAL & WATER CONSUMPTION

The Bradgate Bakery site uses a multitude of different raw materials (primary food ingredients) as well as fuel input (natural gas) and mains water supply, at the site. The introduction of the new process lines and overall increase in throughput capacity use of raw materials, however the types of raw materials will not change. The new ETP will also result in an increase in use of chemicals, however these will be the same as currently used at the ETP located at the Madeline Road Site. A Resource Efficiency Review was carried out by the Operator in 2024, (a copy of which is provided within Appendix M to this report). The report provides details of measures the Operator implements to review and identify opportunities for improvement and reduction in consumption, through efficiency measures. The Operator also records a list of all raw materials consumed, on site including annual consumption.

All raw materials will be stored in suitable above ground tanks or containers and will benefit from the following pollution prevention techniques:

- Impermeable bunds with a capacity of 110% of the largest volume;
- Fill points provided with secondary containment (as appropriate);
- Be subject to regular visual inspection;
- Spill kits – materials suitable for absorbing and containing minor spillages will be readily available on site;
- Any spills or leaks will be handled in accordance with the company's Emergency procedures for Spillages; and
- In the unlikely event that contaminants enter the drainage system, this will be directed to the onsite effluent treatment plant prior to discharge to sewer, rather than any surface water drains.

The Operator will continue to:

- take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- maintain records of raw materials and water used in the activities;
- review and record at least every 4 years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- take any further appropriate measures identified by a review.

In summary, it can be concluded that the proposed changes to the permit continue to meet indicative BAT requirements for raw material use, as laid out in Environment Agency Guidance.

4.3.1 Avoidance, Recovery and Disposal of Wastes

The nature of wastes produced at the site will not fundamentally change as a result of this permit variation. The volumes of wastes produced will increase, however existing waste minimisation measures will continue to be implemented across the site.

Waste oil or any other hazardous wastes will be removed by an appropriately permitted waste contractor and will be recovered at a suitably authorised facility. As a waste producer, the Operator will receive consignee returns every quarter from their consignee handling the removal of hazardous wastes. If returns are not automatically provided, the Operator write to the consignee requesting copies.

The Operator recognises the need to implement the principles of the Waste Hierarchy wherever possible. Environmental Targets set within the Operators existing EMS will include auditing of wastes generated in order to identify opportunities for improvement.

4.3.2 Energy Efficiency

Bradgate Bakery implements a number of existing energy efficient measures which will remain fit for purpose and will be rolled out across all new plant installed at the site.

Monthly electricity and gas consumption is monitored across the site. A Resource Efficiency Review carried out by the Operator in 2024, (a copy of which is provided within Appendix M to this report) provides a summary of the level of information routinely collated by the Operator, to monitor energy efficiency. Monitoring and planned preventative maintenance will be used to ensure that the plant will run at optimum performance thereby maximising the energy efficiency of all new plant and equipment.

It is anticipated that energy consumption will increase across the site as a result of the new process lines being installed. Table 4.3.1 below provides energy consumption data for 2025. The site will continue to monitor energy consumption following the implementation of the new lines, and identify any new efficiency measures where possible.

Table 4.3.1 Bradgate Bakery Energy Consumption Data for 2025

2025 Energy	AG (kWH)	MR (kWH)	Total Bradgate (kWH)
Elec	8,220.55	9,827.50	18,048.04
Gas	5,522.76	7,885.66	13,408.41
Energy purchased	13,743.30	17,713.15	31,456.45
Solar PV	12,894		12,894.00
Total Energy	26,637	17,713	44,350.45

Source: Bradgate Bakery © 2026

4.3.3 Accident Prevention and Emergency Protocols

An assessment of potential new accidents and abnormal scenarios, along with measures to reduce the risk of them occurring has been undertaken and is included within the Environmental Risk Assessment (ERA) in section 3 above. The ERA identifies the potential hazards posed by the changes to the permit under both normal and abnormal operating conditions. An assessment of each hazard identified has been

evaluated and the potential risk and prevention measures described. Control measures are essential unchanged from the measures currently implemented at the site for existing plant and processes. The site implements and Accident Management Plan (AMP), a copy of which is provided within Appendix I to this report.

4.3.4 Site Security

Access to the Bradgate Bakery Site is restricted with access controlled via gatehouses and vehicle check points. This includes security fencing, gates and CCTV cameras.

4.3.5 BAT Assessment

A BAT Assessment was completed in 2024 as part of the most recent permit review and subsequent variation. The review assessed the site against relevant technical standards applicable to the primary installation activity (BAT Conclusions Document for the Food, Drink and Milk Industries, published November 2019).

An updated BAT assessment has been carried out, a copy of which is included within Appendix H to this report.

It is acknowledged that the Effluent Treatment Plant – as listed as a standalone listed activity also falls under the published Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council, published on 10 August 2018 (the ‘Waste Treatment BAT Conclusions’). It is noted that there is significant overlap between the two BREFs, in particular the generic BAT Conclusions applicable to all industrial sectors. (BAT 1-15). Where additional BAT conclusions within the Waste Treatment BAT Conclusions specifically relate to treatment of liquid wastes, the proposed new Effluent Treatment Plant will comply with these standards.

5 EMISSIONS AND MONITORING

5.1 EXISTING POINT SOURCE EMISSIONS TO SEWER

The Bradgate Bakery Permit already has a point source emission to sewer referenced within the permit (currently referenced as S1 within Table S3.3b).

The permit currently does not specify any emission limits or monitoring requirements for the discharge to sewer, to avoid duplicate regulation. It is understood that this will remain as existing, as the quality of effluent emissions to sewer will result in an overall improvement, as a result of the on-site ETP. That said, it is acknowledge that effluent emissions monitoring must demonstrate compliance with relevant BAT standards, in particular BAT 4 of the Food and Drinks Sector. As evidenced within the sampling analysis data provided within Appendix L to this report, Chloride was detected within the effluent discharge from Ashton Green Site. The Operator is therefore proposing to include monthly monitoring of Chloride within their sampling programme, to ensure compliance with BAT, Despite Chloride not being a parameter specified within the sites Trade Effluent Consent. The parameters as set out within the site existing Trade Effluent Consent are however listed within Table 5.2.1 below.

Table 5.2.1 Point source emissions to sewer – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
TBC	Discharge from Site Effluent Treatment Plant	Total of non-volatile matter	No limit set	--	--	--
		Temperature	No limit set	--	--	--
		pH	No limit set	--	--	--
		Suspended Solids	No limit set	--	--	--
		Total of Phosphorus	No limit set	--	--	--
		COD	No limit set	--	--	--
		Oils	No limit set	--	--	--

5.2 EXISTING POINT SOURCE EMISSIONS TO SURFACE WATERS

The site is predominately serviced with an impermeable concrete base providing a physical barrier between the plant and the land and groundwater below. Chemicals are stored within a locked containers and are serviced with appropriate secondary containment.

The surface water discharge from site will not change in nature or location of emission point as a result of this variation.

No process effluent will discharge into surface water drains. Only clean uncontaminated surface water run-off will discharge via the surface water discharge point.

Spill kits are available on site and appropriate staff receive internal training on their use.

Copies of sites Drainage Plans are provided within the Drawings section to this report.

5.3 PROCESS MONITORING

The Operator will have a computer-based system in place to monitor all key aspects of operating the proposed new ETP to optimise efficiency and identify system failures. The effluent plant will be monitored via several different monitoring stations that will be checked regularly. A central Control Panel also situated next to the ETP will control and monitor the overall operation of the plant. SCADA software will operate continuously gathering and analysing real time data. Equipment will be checked and monitored regularly by the site engineering team, who will carry out daily, weekly and monthly checks.

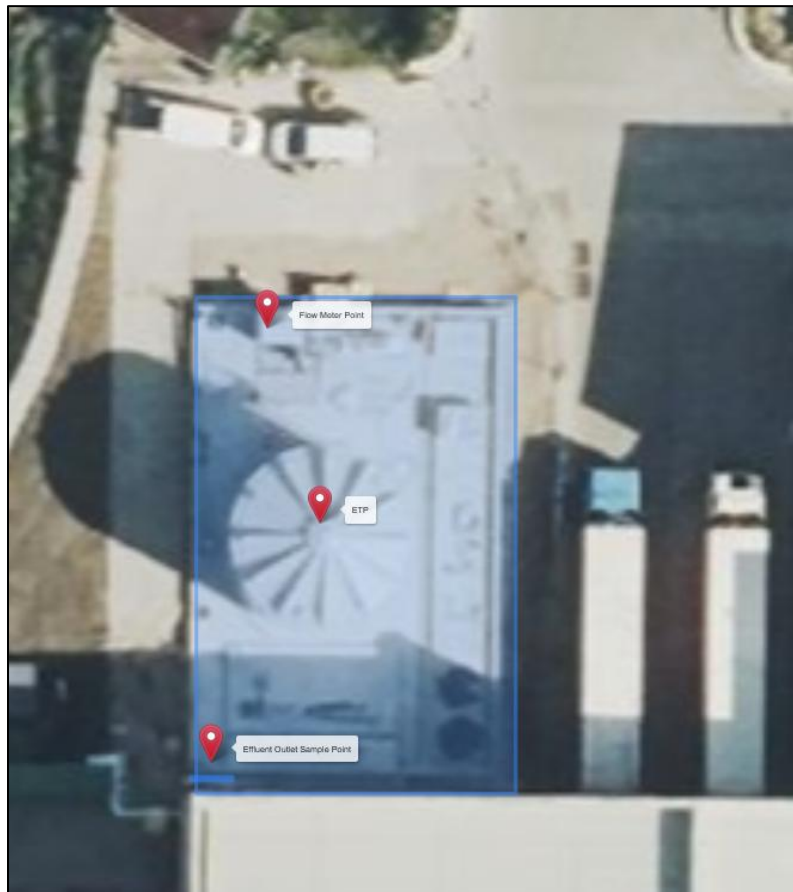
Data will be downloaded continuously thus allowing the operator to generate monitoring data reports for all key elements of operational plant. The ETP will have an MCERTS accredited flow monitor which will continuously record the flow rate of effluent discharging into the sewer. Copies of calibration certificates for all monitoring equipment is provided within Appendix K to this report.

All of the above parameters will be recorded and maintained for inspection by the EA upon request.

The Operator will continue to monitor production performance in accordance with the monitoring requirements as set out in Schedule 4 of the permit, and as per existing management procedures.

The location of the flow meter and Effluent Outlet Sample Point are illustrated within Figure 5.3.1 below.

Figure 5.3.1 Ashton Green ETP Sample Points



Source: Grid Reference Finder © 2026

DRAWINGS

APPENDICES

APPENDIX A – ENVIRONMENTAL PERMIT

APPENDIX B – EA CORRESPONDENCE

APPENDIX C – ENVIRONMENTAL RISK ASSESSMENT

Table A: Risk Assessment and Risk Management Techniques

Hazard	Receptor	Pathway	Risk Management Techniques	Probability of Exposure	Consequence	Overall Risk
Noise						
Noise generated from additional plant and equipment	Nearby Human Receptors	Noise through the air	The likelihood and risk of noise emissions causing annoyance or disturbance to any sensitive receptors from the newly proposed operations is considered to be negligible. A Noise Impact Assessment was carried out to quantitatively model and assess potential noise impacts from the proposed new activities. The majority of new process will be located within existing buildings which will already provide noise attenuation.	Low	Low	Low
Noise generated from new plant, equipment and vehicle movements			The Operator will continue to implement a planned preventative maintenance regime to ensure equipment remains fit for purpose and equipment operates within optimum conditions and minimises generation of noise and/or vibration. The Operational procedures are in place to investigate and respond to any complaints about noise. Records will be maintained on site.	Low	Low	low
Fugitive Odours						
Malodors from generated from Effluent Treatment Plant	Local Workforce at Site; Nearby Human Receptors	Transportation through the air	The likelihood and risk of odour emissions causing annoyance or disturbance to any sensitive receptors from ETP is considered to be negligible. The Operator will continue to implement a planned preventative maintenance regime to ensure equipment remains fit for purpose and equipment operates within optimum conditions and minimises generation of odours. Operational procedures are in place to investigate and respond to any complaints about odours. Records will be maintained on site.	Low	Low	Low

Hazard	Receptor	Pathway	Risk Management Techniques	Probability of Exposure	Consequence	Overall Risk
Discharges to Sewer						
Breach of Trade Effluent Consent Limits	Local Workforce at Site; Waste Water Treatment Works Downstream	Transportation through sewer network	Effluent from both sites will be treated prior to discharge to sewer. Effluent will be monitored to ensure that emissions to sewer remain within limits set within existing Trade Effluent Consent. The Operator will continue to implement a planned preventative maintenance regime to ensure equipment remains fit for purpose and equipment operates within optimum conditions. Records will be maintained on site.	Low	Low	Low
Fugitive or Abnormal Emissions						
Fugitive Odour Release	Local Workforce at Site; Nearby Human Receptors; Local Drains	Transportation through the air	The Operator will undertake routine checks across to site to identify any leaks. In the event a leak is detected emergency procedures will be followed.	Low	Low	Low
Fugitive Dust Release			The Operator will continue to implement a planned preventative to ensure they are operating within optimum conditions. Appointed professional, registered & qualified contractors for inspecting, servicing & maintaining refrigeration equipment and repairing any leaks without delay.			
Loss of Containment		Transportation across land & site drains	The Operator will continue to implement a planned preventative maintenance programme that will include regular checks on the structure remains in good repair and fit for purpose. Appointed professional, registered & qualified contractors for inspecting, servicing & maintaining refrigeration equipment and repairing any leaks without delay. Secondary containment is provided where required.			

APPENDIX D – NOISE IMPACT ASSESSMENT

APPENDIX E – EMS DOCUMENTATION

APPENDIX F – PROCESS FLOW DIAGRAMS & P&IDs

APPENDIX G – TRADE EFFLUENT CONSENT

APPENDIX H – BAT ASSESSMENT

APPENDIX I – ACCIDENT MANAGEMENT PLAN

APPENDIX J – CIRIA RISK ASSESSMENT

APPENDIX K – CALIBRATION CERTIFICATES

APPENDIX L – SAMPLE ANALYSIS - ASHTON GREEN

APPENDIX M – RESOURCE EFFICIENCY REVIEW
