Thornton Park Manufacturing Facility Environmental Permit Variation Application

Environmental Risk Assessment

Thorntons Limited

Thornton Park, Somercotes, Alfreton, Derbyshire, DE55 4XJ

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Basis of Report

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1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by Thorntons Limited (Thorntons) to prepare, in accordance with the Environmental Permitting (England and Wales) Regulations 2016 (as amended), a substantial variation application of the Environmental Permit (EP) for the Thorntons manufacturing facility (site) located in Alfreton, Derbyshire, DE55 4XJ.

SLR understand that Thorntons is intending to add the following to the existing permitted activities:

- The production of Nutella (chocolate spread). This will include:
  - The installation of a new production line dedicated to Nutella manufacture (maximum annual production of circa 24,000 tonnes (circa 101 tonnes per day));
  - A new reverse osmosis water softening system;
  - The installation of raw material storage tanks/silos and management areas;
  - The installation of a new steam hazelnut roaster;
  - The installation of two natural gas fired boilers (each with a thermal rated input of 1.01MWth) which will serve the hazelnut roaster (approximately 1,400kg/h steam consumption @ 10 barg).
- Ferrero Collection Experience (FCE) production. Annual maximum production will be 1,550 tonnes per year (with a daily throughput of circa 13 tonnes). The production of this confectionary range will include:
  - the installation of a new preparation area within the existing manufacturing building; and
  - the installation of a new natural gas-fired oven (Buhler oven) in this preparation area.

The proposed changes will not introduce additional chiller/refrigeration systems, and hence additional refrigerants to the Installation.

In addition, in relation to existing boilers and emission points to air, the following changes have been made:

- Air emission points A4 and A5 (boilers (each 0.15MWth) which provide hot water to the chocolate storage tank jackets): these two boilers discharge via one stack (A5) and not individual stacks as stated in the EP application.
- Air emission point A7 (boilers in the packaging building providing comfort heating (each being 676.5 kWth) which exhaust via one shared stack): two of the five gas fired boilers have been removed.
- Emission point A6 (0.15MWth boiler which provided hot water to the chocolate storage tank jackets): this boiler is no longer in place.

1.1 Methodology

This Environmental Risk Assessment (ERA) is an assessment of the risks to the environment and to human health that may be associated with the proposed operations at the site.

This ERA has been undertaken in accordance with the Environment Agency (EA) guidance '*Risk Assessments for your Environmental Permit*[1]' dated August 2022. The aim of the ERA is to identify any potential significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

This ERA uses the following approach for identifying and assessing the risks from the Installation:

Step 1 Identify risks and sources of risk from your activity.

Step 2 Where risks are identified from Step 1 then identify the receptors that could be affected.

Step 3 Identify potential pathways between the sources of risk and receptors.

Step 4 Assess the risks and check that they are acceptable. Justify appropriate measures to control your risks, if necessary.

Step 5 Submit your assessment to the regulator as part of the permit application.

Section 2.0 of this document is a screening step to identify the risks requiring consideration as part of this assessment.

Section 3.0 identifies people or parts of the environment that could be harmed (at potentially significant risk) by the activity. The ERA for an EP variation requires all receptors that are near a site and could reasonably be affected by the activities to be identified and considered as part of the assessment.

For the purposes of this ERA the following distances (from the EP boundary) have been used to identify potentially sensitive receptors:

- A 10km radius has been adopted in reviewing potentially sensitive receptors of international ecological importance;
- A 2km radius has been adopted in reviewing potentially sensitive receptors of national cultural and ecological importance; and
- A radius of 500m has been adopted for all other potentially sensitive receptors (for example residential, commercial, industrial, agricultural and surface water receptors).

Section 4.0 of this document presents the environmental risk assessment and demonstrates that any risks of pollution or harm will be mitigated to manage the risk.

2.0 Identifying The Risks

Step 2 of the ERA is a screening step to identify the potential risks to the environment from the site. The EA's guidance requires the following to be considered as 'Risks from your site':

- Any discharge, for example sewage or trade effluent to surface or groundwater;
- Accidents;
- Odour;
- Noise and vibration;
- Uncontrolled or unintended ('fugitive') emissions, including dust, litter, pests and pollutants that should not be in the discharge;

1 https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit

- Visible emissions, for example smoke or visible plumes;
- Release of bioaerosols.

Further, for Installation and waste EP applications the EA guidance states that assessment of the following additional aspects is required, where applicable:

- Risks from air emissions;
- Risks to groundwater;
- Global Warming Impact;
- Risk to groundwater from landfill leachate;
- Risks to surface water from hazardous pollutants;
- Risks to surface water from sanitary and other pollutants; and
- Installations and waste operations must also decide how to treat, recycle or dispose of waste.

There are several point source emissions associated with the proposed changes to the site's operations, including emissions to air and sewer. There will be no point source emissions to groundwater, surface water or land from the variation application activities.

Based on the proposed changes to the site activities, consideration has been given to the following: point source emissions to air, discharge to sewer, odour, noise and vibration, global warming potential (GWP), fugitive emissions (including dust, mud, litter and pests), accidents and storage of waste, all of which are applicable for assessment in this instance.

3.0 The Site

The site is centred on National Grid Reference SK 41096 54474 on Thornton Park, Somercotes, Alfreton, Derbyshire, DE55 4XJ, and is located approximately 2.6km north of Ripley and 15km northeast Derby City Centre.

The site is accessed via Wimsey Way to the east and Old Swanswick Colliery Road to west through the site. This leads west to the B6179 Derby Road and west to Venture Crescent Industrial Estate.

The site location is illustrated on Drawing 001 Site Location, whilst Drawing 002 shows the site and installation boundaries, site layout and emission points. Drawing 003 Sources, Pathways and Receptors shows the local receptors such as residential, commercial and industrial, whilst Drawing 004 shows receptors of cultural and natural heritage. The drawings are enclosed in Section 7 of this application.

3.1 Land Uses

The site is situated within the greater Thornton Park, which is itself located within a mixed residential, industrial and agricultural area. A summary of the immediate environmental site setting is provided in Table 3-1.

Table 3-1 Surrounding Land Uses

Boundary	Description
North	The A38 beyond which is Oakerthorpe Brook and the town of Alfreton.
East	Woodland, Colliery Plantation and Venture Crescent Industrial Estate.

Boundary	Description
South	Open Land, sports ground and beyond that the town of Swanswick.
West	Turnpike Business Park, beyond which is the B6179 and agricultural land.

The immediate surrounding land uses are described in more detail below.

3.1.1 Industrial and Commercial

The nearest industrial receptor to the site is Venture Crescent Industrial Estate, approximately 90m east.

The nearest commercial receptors are located in Turnpike Business Park approximately 20m west.

3.1.2 Local Transport Network

The nearest road is Wimsey Way, which is located adjacent to the eastern site border. Old Swanswick Colliery Road is also adjacent to the site, on the western border. The A38 runs adjacent to the northern site boundary.

3.1.3 Woodland and Open Land

Woodland lies adjacent to the site's eastern and western borders, whilst open land lies adjacent to the sites southern border.

3.1.4 Residential

The nearest residential properties are located in the conurbation of Alfreton approximately 100m north of the site, beyond the A38.

3.1.5 Recreational

The closest recreational area to the site is Sleetmoor Playing Field located approximately 160m south of the Installation.

3.1.6 Educational

There are two educational facilities within 500m of the site, David Nieper Academy approximately 360m northeast and Woodbridge Junior School 470m northeast.

3.1.7 Surface Water Features

A search of the Multi-Agency Geographical Information for the Countryside (MAGIC) map revealed that drains are adjacent to the site's northern border. The nearest surface water feature is a pond 15m east, Tom Thumb Lake 200m north, Bardag Lake 230m north-east and Beam Valley Country Park Lake approximately 160m south.

3.2 Geology, Hydrogeology and Flooding

3.2.1 Geology

A review of the British Geological Survey (BGS) map[2] reveals that the site is underlain by a bedrock of Pennine Middle Coal Measures Formation comprising Mudstone, Siltstone and

[2] GeoIndex (onshore) - British Geological Survey (bgs.ac.uk)

Sandstone formed in fluvial and palustrine environments during the Carboniferous Period approximately 310-318 million years ago. There are no recorded superficial deposits.

3.2.2 Hydrogeology

The bedrock underlying the site is classified as a Secondary A aquifer, defined as "permeable strata capable of supporting water supplies at a local rather than strategic scale and in some cases forming an important source of base flow to rivers" on the MAGIC map website.

The MAGIC map reveals that the site is situated within a Minor Aquifer Low.

3.2.3 Hydrology

The nearest surface water feature to the site are the drains located approximately adjacent to the south and east of the site, with Oakerthorpe Brook approximately 50m north of the site.

3.2.4 Flooding

The Flood Map for Planning[3] reveals that the site lies in a Flood Zone 1, which has a less than 1 in 1,000 annual probability of river or sea flooding.

The Long-Term Flood Risk[4] assessment identifies the site as being 'low risk' from flooding from rivers and surface water.

3.3 Ecology and Cultural Heritage

3.3.1 European/International Sites

A review of MAGIC confirmed that there are none of the following within a 10km radius of the site:

- Ramsar Sites;
- Special Areas of Conservation; and
- Special Protection Areas.

3.3.2 National Ecological Sites

There are numerous national sites of ecological importance located within 2km of the site boundary. These sites, which are shown on drawings 004 Local Receptors and Natural and Cultural Heritage, include:

Local Nature Reserves (LNR):

- Pennytown Ponds LNR, 1160m east; and
- Oakerthorpe LNR, 1440m northwest,

Local Wildlife Sites (LWS):

20 x Local Wildlife Sites (LWS); the closest LWS is the Colliery Plantation adjacent to the east.

[3] https://flood-map-for-planning.service.gov.uk/

[4] Check the long term flood risk for an area in England - GOV.UK (www.gov.uk)

Ancient Woodland

- Unnamed Woodland, 1,025m west;
- Broadoak Plantation, 1,455m southwest; and
- Carnfield Wood, 1,730m northeast.

Searches on the MAGIC map confirmed none of the following are present within a 2km radius of the site:

- National Nature Reserves;
- Areas of Outstanding Natural Beauty;
- Sites of Special Scientific Interest; and
- Biosphere Reserves.

3.3.3 Priority Habitats (England only)

Priority habitats are 'habitats of principle importance for the conservation of wildlife in England' and include:

- protected or priority species;
- nationally and internationally protected species; and
- species of principle importance for conservation of wildlife in England.

No priority habitats or priority/protected species within 2km of the site have been identified.

3.4 Cultural and Heritage

3.4.1 Listed Buildings

There are numerous listed buildings (Grade II or II*) within a 2km radius of the site to the north, east, south and west. A Grade II listed building known as the House of Confinement is the nearest, located approximately 570m to the north. All listed buildings within 2km of the site are illustrated on Drawing 004.

Searches on the MAGIC map confirmed that none of the following are present within a 2km radius of the site:

- Registered Parks and Gardens;
- Registered Battlefields;
- World Heritage Sites; and
- Scheduled Monuments.

A summary of the identified receptors is provided in table 3-2 below.

Table 3-2: Identified Receptors

Receptor Name	Receptor Type	Direction	Approximate Distance at Closest Point (m)
Local Receptors within 500m, as illustrated on Drawing 003			
Woodland	Woodland	North, East, West	Adjacent
Old Swanwick Colliery Road	Local Transport Network	West	Adjacent

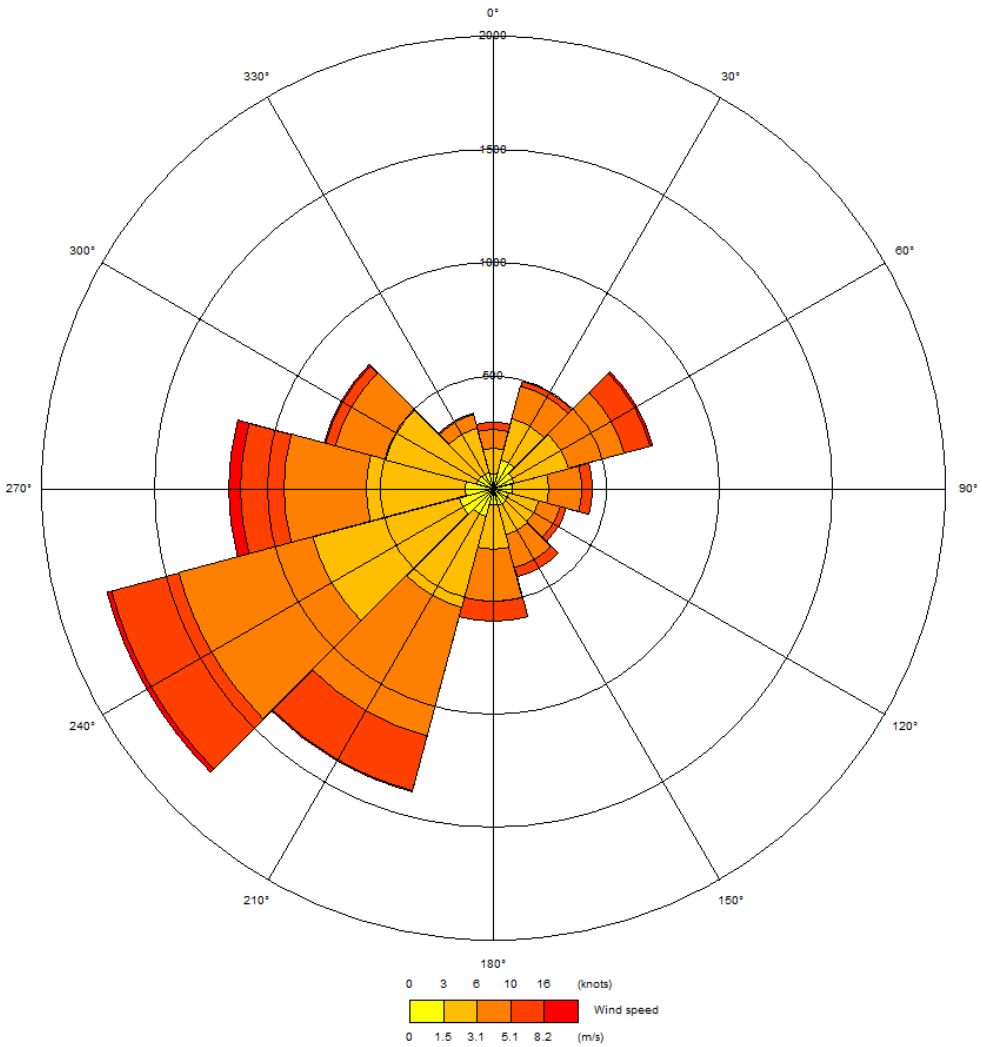
Receptor Name	Receptor Type	Direction	Approximate Distance at Closest Point (m)
Wimsey Way	Local Transport Network	East	Adjacent
Open Land	Open Land	South, West	Adjacent
Colliery Plantation	Open Land	East	Adjacent
Drains	Surface Water	South, East	Adjacent
A38	Local Transport Network	North	10
Turnpike Business Park	Commercial	West	20
Oakerthorpe Brook	Surface Water	North	50
Alfreton	Residential	North	55
Recreational Ground	Recreational	North	65
Fire Station	Public Service	West	85
Venture Crescent Industrial Estate	Industrial	East	90
Agricultural Land	Agricultural	North	100
Crematorium	Public	West	100
Sleetmoor House	Residential	West	145
Sleet Moor Playing Field	Recreational	South	160
BP Petrol Station	Commercial	West	170
Allotment Gardens	Recreational	North	175
B6179	Local Transport Network	West	270
A61 Derby Road	Local Transport Network	North	270
Allotment Gardens	Recreational	East	275
Chestnut Farm	Agricultural	South	305
Swanwick	Residential	South	320
Pond	Surface Water	West	324
Alma Watchorn Park	Recreational	North	360
David Nieper Academy	Educational	Northeast	360
Lily Street Farm	Agricultural	West	460
Woodbridge Junior School	Educational	Northeast	470
Ecological and Cultural Heritage Receptors within 2km, illustrated on Drawings 003 Local Receptors & 004 Natural & Cultural Heritage			
Local Wildlife Sites	LWS	North, East, South, West	Adjacent

Receptor Name	Receptor Type	Direction	Approximate Distance at Closest Point (m)
Listed Buildings	Listed Building	North, South, West	565
Pennytown Ponds	LNR	East	1,160
Unnamed Ancient Woodland	Ancient Woodland	West	1,025
Broadoak Plantation	Ancient Woodland	Southwest	1,455
Oakerthorpe	LNR	Northwest	1,440
Carnfield Wood	Ancient Woodland	Northeast	1,730

3.4.2 Wind Rose

A Wind Rose for Nottingham Watnall meteorological station for 2022, providing the frequency of wind speed and direction, is presented in Figure 3-3. The Wind Rose shows winds from the south-west (240˚) are most frequent with winds from the north (0˚) and south-east (120˚) least frequent.

Figure 3-3: Wind Rose (Nottingham Watnall 2022)



4.0 Environmental Risk Assessment

The following tables in this section assess the potential risk to receptors from the following hazards, taking into account the measures proposed to reduce those risks:

- Point source emissions to air;
- Accidents;
- Noise & vibration;
- Odour;
- Fugitive emissions; and
- Global warming potential.

The probability of exposure is the likelihood of the receptors being exposed to the hazard, and is defined as low, medium or high. These terms are qualified as follows:

- Low: exposure is unlikely, barriers in place to mitigate against exposure;
- Medium: exposure is fairly probable, barriers to exposure less controllable; and
- High: exposure is probable, direct exposure likely with few barriers.

The methodology outline in Section 1.0 of this report is the basis on which it is determined whether the proposed operations will lead to significant impacts on the surrounding environment. Where a conclusion of ‘not significant’ has been reached, it is proposed that the mitigation and management measures that will be in place at the Installation will be sufficient to ensure that there will be no impact at the surrounding environment.

Table 4-1: Air Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence.
Combustion emissions from gas-fired steam raising boilers serving the hazelnut steam roaster and Buhler oven.	Sensitive Receptors identified in Table 2	Air	Thorntons will undertake regular maintenance and servicing of the boilers and oven to ensure optimal operation and minimisation of emissions. The air emissions risk assessment (SLR AERA, January 2025) concluded that the potential impacts of nitrous oxide emissions on air quality as a result of the proposed changes are not significant.	Low due to management measures	Pollution, harm to environment and human health	Low
Particulate (dust) emissions from the hazelnut steam roaster and drier systems point source emissions to air.	Sensitive Receptors identified in Table 2	Air	Thorntons will undertake regular maintenance and servicing of the roaster and drier systems to ensure optimal operation and minimisation of particulate emissions. The emissions from the roaster and drier systems will pass either via cyclone separators or dust filters to minimise releases of particulates. The air emissions risk assessment (SLR AERA, January 2025) concluded that the potential impacts of particulate emissions on air quality as a result of	Low due to abatement and management measures	Pollution, harm to environment and human health	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			the proposed changes are not significant.			
Fugitive particulate (dust) emissions from air dryers for the pneumatic transport of powder ingredients: • Sugar truck unloading – storage silo conveying area.; • Sugar silo in the internally located mixing tower preparation area; • Cocoa silo in the internally located mixing tower preparation area; and • Skimmed milk power silo in the internally located mixing tower preparation area.	Sensitive Receptors identified in Table 2	Air	These intermittent emissions from these sources will pass via dust filters located in the vent stacks to minimise releases of particulates. The vents for these emissions will discharge above roof height (circa 15m agl), or in the case of the external sugar silo 26m agl. There will be a monitoring system on each of the dust filters; if the dust filter system is not performing the monitoring system will automatically stop the process. Thorntons will undertake regular maintenance and servicing of the filters and associated monitoring systems to ensure optimal operation and minimisation particulate emissions.	Low due to abatement and management measures	Pollution, harm to environment and human health	Low

Table 4-2: Amenity Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
What has the potential to cause harm?	What is at risk what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Noise from vehicle movement Noise from production activities	Sensitive Receptors identified in Table 2	Air	The proposed changes to site operations are not expected to give rise to significant levels of noise. All machinery and mobile plant have been designed in accordance with European noise standards. All plant that presents a potential risk of noise is located within a building. All plant will benefit from regular preventative maintenance in accordance with the manufacturers manual to prevent the risk of excessive noise. Vehicles must adhere to a speed limit to minimise noise. Traffic calming measures are employed to ensure a reduced speed. The Plant Manager is responsible for ensuring the monitoring emissions and implementing remedial actions, in accordance with the BATOT document (ref. 410.066170.00001/BATOT).	Medium	Nuisance, Harm to human health	Low
Odour from manufacturing processes, storage of raw materials and waste.	Sensitive Receptors in Table 2	Air	The odour risk assessment (410.066170.00001 AERA, January 2025) concluded that the potential impacts of odour emissions as a result of the proposed changes are not significant. Raw material storage and waste materials associated with the proposed changes will be stored within suitable closed-lidded containers within buildings or dedicated storage areas. Wastes will be stored in appropriate waste receptacles at the Installation. Wastes will be removed from the	Low	Nuisance	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			Installation on a regular basis by the appointed waste management contractor. Confectionary production activities are undertaken within the confines of the production and warehousing buildings. Drains benefit from fat traps which prevent fat from entering and clogging the drainage system. The drainage systems are regularly cleaned. Good housekeeping is practiced at all times with regular cleaning of operational areas in accordance with food hygiene standards. Thorntons has a cleaning schedule in place for daily, weekly and monthly cleaning (example document reference TPM HYGIENECLEAN SCH JAN 15 CCH 0653). This includes cleaning of production/operational areas, drains and waste bins. In the event that odour complaints are received, investigations will be undertaken to determine the cause and appropriate remedial action taken.			
Dust from: vehicle movements, material storage (including raw materials, chemicals and waste), and site operations.	Sensitive Receptors in Table 2	Air	Raw materials and generated wastes to be stored on site as a result of the proposed changes are not expected to give rise to significant quantities of dust. These materials will be stored in suitable containers to reduce the risk of release. All proposed manufacturing activities will take place within the confines of enclosed processing buildings. High levels of hygiene are maintained at the Installation; all operational areas are cleaned where necessary to reduce dust emissions. Thorntons has a cleaning schedule in place for daily, weekly and monthly cleaning (example document reference TPM HYGIENECLEAN SCH JAN 15 CCH 0653). This includes cleaning of production/operational areas, drains and waste bins.	Low	Nuisance	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			All vehicles delivering raw materials to or removing waste from the site shall be enclosed or sheeted to minimise emissions of dust. Traffic calming measures are implemented to enforce speed limits and reduce emissions of dust. Site access and on-site roads will be maintained to minimise emission of dust due to any uneven surfacing. Daily visual inspections of all operational and external areas of the site are carried out by Thornton's personnel. In the event that significant visual dust is observed action will be taken to suppress the dust. A record of the inspection findings and remedial action taken will be recorded in accordance with the EMS. The Plant Manager is responsible for ensuring monitoring emissions and implementing remedial actions, in accordance with the BATOT document (ref. 410.066170.00001/BATOT).			
Pests	Sensitive Receptors in Table 2	Air, land and controlled water	The food grade materials accepted, stored and processed on site have the potential to attract pests. To combat this, all food grade materials associated with the proposed changes will be stored in sealed containers and tanks; processing will take place in enclosed buildings to minimise the risk of attracting pests. Wastes will be stored in appropriate waste receptacles at the Installation, and removed on a regular basis by the appointed waste management contractor. There is a Pest Control Policy in place at the facility (CQP06 Pest Control Policy). The site has appointed a pest control company who regularly visit the site to ensure pest control is adequate. There are trained individuals at the Installation (BPCA RSPH level 2 award in Pest Management) who complete	Medium	Nuisance, Harm to human health	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			quarterly pest control audits of the pest control practices at the Installation. Thorntons has developed a training programme for staff, the aim of which is to identify the potential pest issues that may occur at the Site and to help staff to recognise the signs of pests. If any pests are identified, the appointed pest contractor will take measures to remove these from site, and the cause of the infestation will be investigated. Any repairs to storage areas or buildings which are identified as potentially allowing pests to enter the areas will be completed as soon as possible. The Plant Manager is responsible for ensuring the monitoring emissions and implementing remedial actions, in accordance with the BATOT document (ref. 410.066170.00001/BATOT).			
Litter from operations.	Sensitive Receptors in Table 2	Land	Confectionary production activities are undertaken within the confines of the production and warehousing buildings. Raw materials (excluding bulk tanker deliveries) will arrive in suitable packaging and stored in dedicated storage areas. Waste materials are stored in close-lidded containers in dedicated storage areas and regularly removed off-site by an appointed licensed waste management contractor. Thorntons has a cleaning schedule in place for daily, weekly and monthly cleaning (example document reference TPM HYGIENECLEAN SCH JAN 15 CCH 0653). This includes cleaning of production/operational areas, drains and waste bins. Good housekeeping procedures are implemented at the site to minimise the	Low	Nuisance, Amenity	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			risk of litter build-up. All operational areas are swept where necessary. The Plant Manager is responsible for monitoring emissions and implementing remedial actions, in accordance with the BATOT document (ref. 410.066170.00001/BATOT).			
Mud	Potentially sensitive receptors including local commercial properties and residential properties.	Land	Vehicular access areas of the site are hard surfaced. Areas of hardstanding will be maintained free of significant quantities of mud and debris. Good housekeeping procedures are implemented at the site to minimise the risk of mud build-up and the risk of mud leaving the site on vehicles. All operational areas and roads will be swept where necessary. The Plant Manager is responsible for monitoring emissions and implementing remedial actions, in accordance with the BATOT document (ref. 410.066170.00001/BATOT).	Low	Nuisance, Amenity	Low
Runoff from site surfaces	Sensitive Receptors in Table 2	Land, surface water and groundwater	Raw materials and waste materials associated with the proposed changes will be stored in suitable sealed containers and provided with adequate containment; these will be stored atop hard surfacing either inside buildings or designated external areas. Run-off from external areas is directed via the surface water drainage system which drains via interceptors prior to off-site discharge to surface water. Internal run off from the Production Building is directed via foul water drains fitted with fat traps, which are emptied, cleaned and visually inspected at least every	Medium	Pollution of land and controlled water.	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			three months by an appointed third-party specialist, and drain baskets designed to capture solids which are emptied regularly. This drainage is then directed to the on-site effluent settlement chamber where there is automatic pH adjustment where required, prior to consented discharge to municipal sewer (Severn Trent Water Limited consent number 006594V). Drain covers are colour coded to distinguish foul from surface water. The Plant Manager is responsible for monitoring emissions and implementing remedial actions, in accordance with the BATOT document (ref. 410.066170.00001/BATOT).			
Percolation of Materials	Sensitive Receptors in Table 2	Land, surface water and groundwater	All liquids associated with the proposed changes will be stored in sealed containers and tanks and provided with suitable containment. Operational areas of the site are hard surfaced to prevent the percolation of potentially contaminating materials into the underlying soil and groundwater. The site surfacing is regularly inspected (daily visual inspection and completion of a weekly inspection checklist record) to ensure it is in good condition. Any weaknesses will be repaired immediately using temporary solutions, with permanent measures implemented as soon as practicable. External run-off is directed to a surface water drainage system which will collect the liquid and pass it through an interceptor prior to its off-site discharge to surface water. Internal run off from the production building is directed via foul water drains fitted with fat traps, which are emptied, cleaned and visually inspected at least every three months by an appointed third-party specialist, and drain baskets designed to capture solids which are	Low	Pollution	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			emptied regularly. This drainage is then directed to the on-site effluent chamber prior to consented discharge to municipal sewer (Severn Trent Water Limited consent number 006594V). The Plant Manager is responsible for ensuring the monitoring emissions and implementing remedial actions, in accordance with the BATOT document (ref. 410.066170.00001/BATOT).			

Table 4-3: Accidents Emissions Risk Assessment and Management Plan

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk
What has the potential to cause harm?	*What is at risk, what do I wish to protect?*	*How can the hazard get to the receptor?*	*What measures will you take to reduce the risk? Who is responsible for what?*	*How likely is this contact?*	*What is the harm that can be caused?*	*What is the risk that still remains? The balance of probability and consequence.*
Fire	Sensitive Receptors in Table 2	-	Potentially combustible materials associated with the proposed changes will be stored in suitable containers in designated storage areas. A water sprinkler system and fire detection system are in place and tested regularly. Fire extinguishers are located at key positions around site. There is a dedicated Thorntons Fire Team who receive fire marshal training, this includes all engineers. All Line	Medium	Injury/death. Harm to environment, Harm to human health	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			Managers receive fire awareness training. All staff receive induction training which includes fire safety. A Standard Operating Procedure (SOP) for Fire Safety (document ref. SHESOPF01) is in place which details the type of fire extinguishers in place, fire safety responsibilities of key staff, actions to be taken in the event of a fire, the need to reduce the risk of fire damage to hazardous/flammable substances, requirement for the completion of a fire risk assessment for all storage areas by a competent person and review of the risk assessment every 3 years. In the event of an uncontainable or large fire, the Plant manager or a designated deputy will contact the fire service. The EA will be notified as soon as practicable.			
Security and Vandalism	Sensitive Receptors in Table 2	Land, air, surface water	The site is manned by security on a 24/7/365basis and benefits from security fencing around the perimeter and manned security gates. Visitors are required to report to the manned security gate to gain authorised access to the site. The perimeter fencing is regularly inspected; weaknesses will be repaired as soon as possible. Tank fill/dispensing point and valves are locked when not in use. A CCTV camera system is in place. Security guards will report any incidents to the manager on shift. The Plant Manager is responsible for ensuring the monitoring emissions and implementing remedial action in accordance with the BATOT document (ref. 410.066170.00001/BATOT).	Low	Harm to environment, Harm to human health.	Low
Flooding	Sensitive Receptors in Table 2	Land, Surface Water	The site lies within a Flood Zone 1 which is defined as having a low probability of flooding.	Low	Nuisance, Harm to environment,	Low

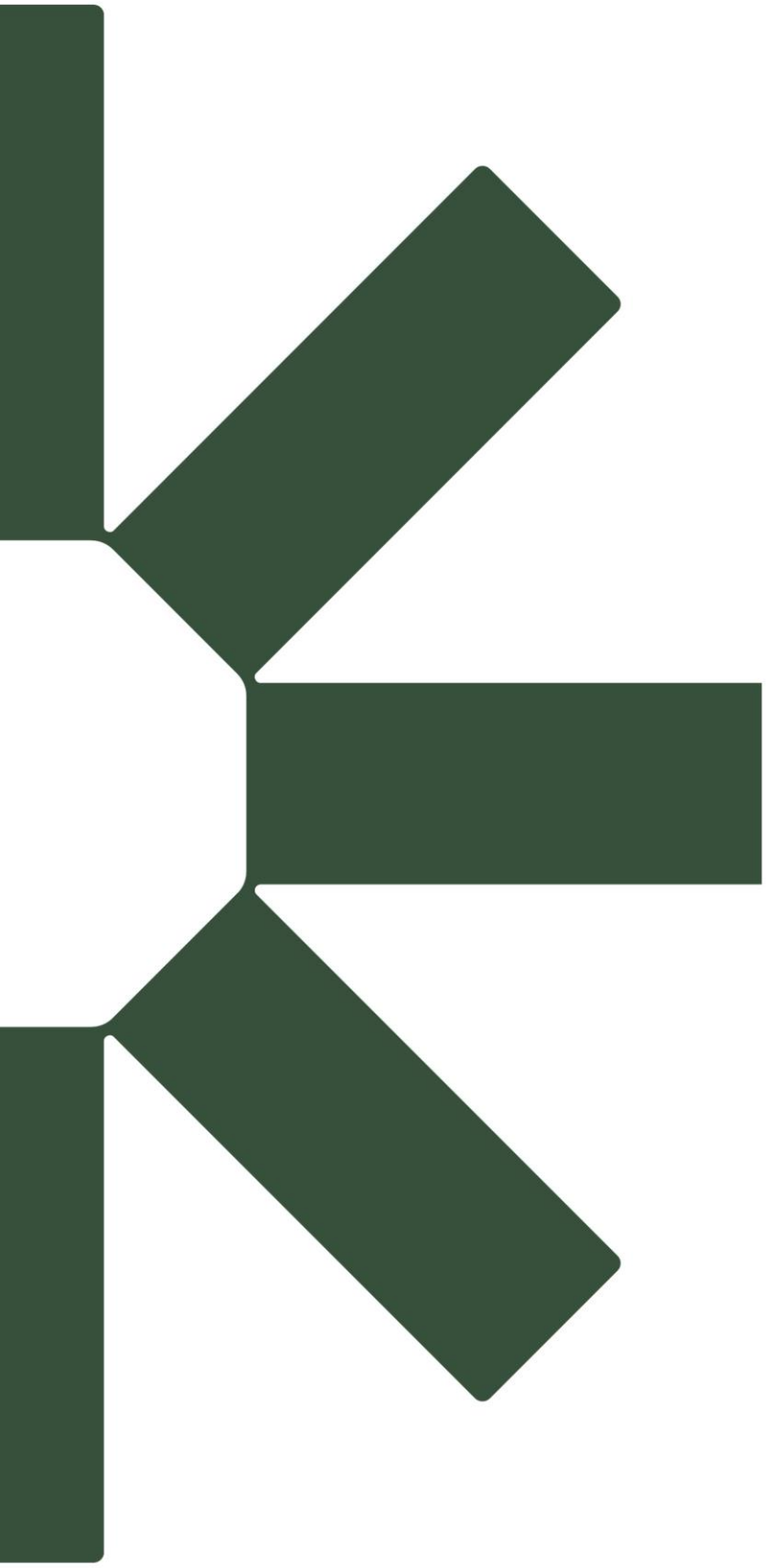
What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			Although flooding potential is low, the site benefits from a drainage system capable of handling high water levels. The Plant Manager is responsible for ensuring the monitoring emissions and implementing remedial action in accordance with the BATOT document (ref. 410.06617000001/BATOT).		Harm to human health.	
Spillage or Leakage	Sensitive Receptors in Table 2	Land, Surface Water	All materials on site are/will be stored on hard surfaced areas to help to contain any unplanned releases. Potentially hazardous materials are/will be stored in suitable sealed containers in designated storage areas designed to contain any leaks or spilt materials. When in use storage containers of potentially hazardous substances are/will be located on a bunded stillage. Raw food materials required for the proposed confectionary products, delivered to site in bulk will be stored in above ground externally sited tanks. The palm oil tank (3 x tanks) will be provided with suitable secondary containment. Other raw food grade materials delivered in individual containers/bulk bags will be stored in dedicated raw material storage areas located internally. Material storage areas are inspected visually on a daily basis by site staff to ensure continued integrity. The surface water drainage system is provided with interceptors. The effluent pumping station, which pumps pH balanced effluent to municipal foul sewer, in the event of an unplanned release can be switched off to prevent an unconsented discharge to sewer. The foul water drains serving the production building are fitted with fat traps, which are emptied, cleaned and visually inspected at least every three months by an appointed third-party specialist, and drain baskets designed to capture solids which are emptied regularly.	Medium	Harm to environment, Harm to human health.	Low

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
			Waste materials associated with the proposed changes will be stored in skips located on hard surfaced areas in designated areas of the site. Thorntons ensure that the delivered skips are in good condition and are suitable for the containment of the waste. Spill kits are maintained on site. Site personnel are trained in the use of spill kits. Minor spillages will be cleaned up immediately, using proprietary absorbents contained in spill kits to clean up liquids and other spilt materials and placed in alternative containers prior to disposal. In the event of a major spillage immediate action will be taken to contain the spillage and prevent liquid from entering on-site drains and any unsurfaced ground. The spillage will be cleared immediately and placed in containers for off-site disposal and the EA will be notified in line with the permit requirements. The Site Manager is responsible for monitoring emissions and implementing remedial actions, in accordance with the BATOT document (ref. 410.066170.00001/BATOT).			

Table 4-4: Global Warming Potential (GWP)

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequence	What is the overall risk

What do you do that can harm and what could be harmed?			Managing the Risk	Assessing the Risk		
What has the potential to cause harm?	What is at risk, what do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence.
Generation of CO_2 emissions	National and global air quality and climate change	Air	The manufacturing activities involve the use of electricity and gas which results in the generation of CO_2 emissions (i.e. direct emissions produced as a result of the use of natural gas supplied from the National Grid and indirect emissions as a result of the use of electricity supplied by the National Grid). Thorntons has a Climate Change Agreement (CAA) (agreement reference FDF1/F000211), which has a number of variable targets based on production output. Energy management techniques have been implemented to monitor, record and track energy consumption of the various activities undertaken at the Installation. Thorntons has implemented an ISO50001 energy management system. As part of the Energy Management System, Thorntons has establish energy objectives and targets, monitors energy use, has identified and is implementing energy use reduction/optimisation opportunities. An inventory of energy consumption is maintained via the Carbon Desktop system which is subject to regular review. Energy consumption and the generation of carbon dioxide emissions as a result of the proposed changes has been considered in the BATOT document (ref. 410.066170.00001/BATOT).	Medium	Harm to environment, Harm to human health	Low



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