

Climate Change Risk Assessment

v1.0

**Environmental and sustainability solutions provided to
Newbourne Farm Composting Limited**



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1.0 INTRODUCTION

Walker Resource Management Limited (WRM) are acting consultants for Newbourne Farm Composting Limited (hereon referred to as Newbourne Farm) who have commissioned WRM to produce a Climate Change Risk Assessment (CCRA) for their composting facility in Rockbourne, Fordingbridge. This document is a new requirement of environmental permit holders as set out by the Environment Agency (EA) in their guidance document titled: *Develop a management system: environmental permits*. This document is written in accordance with this guidance and sets out the considerations and operational details that are relevant to the operation of Newbourne Farm's composting facility in Rockbourne, Fordingbridge. This CCRA looks to set out the nature of different climate change risks, their relevant impacts as well as mitigation measures at the site.

1.1 Site Location

Newbourne Farm Composting,
Rockbourne,
Fordingbridge,
SP6 3NT

1.2 Operational Location

Site Grid Reference: Easting 410848, Northing 118613

1.3 Assessment Process

Climate change means that extreme weather incidents are becoming more common and more severe. This CCRA will identify key elements of climate change that could have an impact on the site and then identify the impacts, risks, and mitigation methods of this impact of climate change. These elements include:

- Summer daily maximum temperature;
- Winter daily temperature;
- Daily extreme rainfall;
- Average winter rainfall;
- Drier summers;
- River flow; and
- Storms.

Each one of these climate change risks may have a significant impact on the site's operational and daily management, affect upstream and downstream supply chains, and have negative effects for customers as well as end-markets.

Producing this CCRA supports Newbourne Farm to:

- Be compliant with the requirements of their environmental permit.
- Reduce impact on the environment during an extreme weather event. Including the event's impact on operations, either through accidental release or abnormal operation.
- Improve resilience and business continuity by avoiding unplanned start-ups, shutdowns, and other business interruptions.

1.4 Supporting Documents

The following documents are in support of this report and are presented in Annex A: Site Layout Plan.

2.0 CLIMATE CHANGE RISK ASSESSMENT & MANAGEMENT

2.1 Summer Daily Maximum Temperature

This may be around 7°C higher compared to current average summer temperatures, with the potential to reach extreme temperatures as high as over 40°C with increasing frequency based on today's values.

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Summer Daily Maximum Temperature						
Increase in the potential for odour generation from processing activities.	Low	Green waste, compost and soil waste on site have the potential to generate odours. An increase in daily temperatures may affect the odour generation potential of green waste and processing activities.	<ul style="list-style-type: none"> The temperature and moisture of the compost is monitored daily to ensure that the batches fall within Critical Limits. Regular site monitoring is conducted in accordance with Site procedure. The Site Manager identifies environmental aspects of operations that can be controlled or influenced, including odour. This information is documented on the Environmental Aspects Register. 	Very Low	Monitor the odour generation from green waste and processing activities and implement further mitigation where required.	

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Summer Daily Maximum Temperature						
Increase in the potential for unstable conditions in external storage areas affecting associated areas for the storage of contaminated material and / or compost awaiting dispatch. Overheating of storage areas, requiring increased cooling. The potential increase in surface temperature of concrete / storage areas / infrastructure may result in expansion and stress of plant, pipework and fittings.	Medium	An increase in summer temperatures and their frequency would likely increase the potential for unstable conditions in the external storage areas.	<ul style="list-style-type: none"> Regular site monitoring is conducted, including environmental weekly checks checking storage areas and pipework. Daily integrity tests are carried out every day on all structures to ensure integrity. 	Low	Conduct a survey of the external storage areas to identify potential infrastructure solutions, such as installing a canopy for shading the compost.	
Increase in the potential for pest related issues such as fly and rodent infestations.	Medium	The storage of waste and compost on-site may attract pests like flies, rats, and scavenging birds, leading to significant	<ul style="list-style-type: none"> The site has a pest management plan in place to ensure a safe and sanitary environment. 	Low	Maintain effective pest control by implementing strong management practices, such as improved sanitation, restricting	

Climate Change Impacts		Judgement		Action		
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Summer Daily Maximum Temperature						
		nuisance for nearby residents. This impact can become more pronounced during hotter summers.	<ul style="list-style-type: none"> Each month a contractor visits the site to inspect and maintain bait boxes. Fly traps are installed where necessary. 		access, and eliminating the use of bait boxes. Ensure that ducts, drains, and pipework are regularly cleaned, and uphold high standards of site housekeeping.	
Increase in energy and water consumption due to additional load on cooling / wetting systems.	Medium	Processing activities require energy and water, with demand potentially rising during hot spells. Additionally, increased evaporation during hot weather may lead to increased water loss from the compost.	<ul style="list-style-type: none"> The Energy Working Group, aligned with the ESG Strategy, focus on developing emissions reduction strategies. Energy used to operate the plant (electricity) is monitored in accordance with the Environmental Management Plan. Water from the composting pad is directed via a sealed drainage system to a contained underground storage tank. The storage tank is made of 8mm thick steel and has a volume of 54,500 litres. The tank is 	Low	Assess and explore the potential for installing more efficient systems or implementing processes to reduce the site's energy consumption.	

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Summer Daily Maximum Temperature						
			<p>fitted with a maximum limit level before full capacity is reached. The water collected in this tank is recirculated back into the composting process and used to amend the moisture content of process material as necessary or discharged off-site via the swale.</p> <ul style="list-style-type: none"> Water consumption is monitored in accordance with the Environmental Management Plan. 			
Increased input of green waste due to increased urban water usage and garden waste may affect raw material consumption/ demand and increase emissions from processing activities.	Medium	<p>An increase in site production will lead to higher emissions. Furthermore, increased input may also affect raw material consumption and demand.</p>	<ul style="list-style-type: none"> Processing activities and the consumption of raw materials is monitored in accordance with the Environmental Management Plan. A team oversees planning, operations, and quality control at the site to optimise efficiency and manage the storage of materials and products. 	Low	Review and develop comprehensive monitoring practices for both waste inputs and emissions.	

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Summer Daily Maximum Temperature						
			<ul style="list-style-type: none"> The company has identified and published an environmental policy. 			
Increased resistance of wiring circuits, and decreased integrity of storage tanks with increased risk of fires.	Low	Fires arising from storage of fuel and waste.	<ul style="list-style-type: none"> Appropriately stored waste and limited sources of ignition. Fuel is stored in a dedicated double bunded tank capable of storing 110% of the tank's volume. Regular inspections are undertaken as part of planned maintenance. Annual inspections and insurance tests by external contractors. 	Very Low	Continue to examine and monitor the integrity of storage tanks and sources of ignition.	

2.2 Winter Daily Maximum Temperature

This could be 4°C more than the current average with the potential for more extreme temperatures, both warmer and colder than present.

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Winter daily temperature						
An increased risk of pipework and storage tanks freezing.	Medium	Colder winter temperatures may cause pipework and vessels to freeze, contract, and expand, potentially leading to damage to the site's infrastructure.	<ul style="list-style-type: none"> Regular site monitoring is conducted. Daily integrity tests are carried out every day on all structures, including pipework. 	Low	Continue to ensure all external pipework is insulated and cladded to be sufficiently protected.	
Variations in vegetable crop quality.	Medium	Changes to the weather may impact the growing of crops and therefore impact the quality of green waste processed on site.	<ul style="list-style-type: none"> Inspections of incoming deliveries of green waste are undertaken by Site staff. 	Low	Track the growing season of certain green waste used on-site in processing activities and develop contingency plans to address variations in quality.	
Decreases in winter temperatures resulting in restricted access to the site, due to frozen access roads causing disruption to deliveries and site operator attendance.	Medium	A drop in daily winter temperatures could lead to increased ice and snow on surrounding roads, potentially affecting access to the site.	<ul style="list-style-type: none"> Site staff undertake gritting/salting of site owned hardstanding in anticipation of and during subzero temperatures. Daily checks are undertaken, and mitigation actions are enacted where required. 	Low	Coordinate with the local authority to maintain the primary public access route to the site. Assess the impact of icy conditions on access roads and develop a contingency plan for situations where operators and	

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Winter daily temperature						
					<p>deliveries may be unable to access the site.</p> <p>Implement procedures to monitor weather conditions and take pre-emptive mitigation actions as needed.</p>	

2.3 Daily Extreme Rainfall and Average Winter Rainfall

Daily rainfall intensity could increase by up to 20% on today's values and average winter rainfall may increase by over 40% on today's averages. These two weather incidents have been considered together and are presented together in the Risk Assessment given the similar impacts, risks and mitigation methods.

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Daily Extreme Rainfall and Average Winter Rainfall						
Surface water flooding of the Site.	Low	The Site is indicated (Long Term Flood Risk) to be at a very low risk of flooding from surface water.	<ul style="list-style-type: none"> The site has surface water drainage points. Water from the composting pad is directed via a sealed drainage system to a contained underground storage tank. This storage tank is made of 8mm thick steel and has a volume of 54,500 litres. The tank is fitted with a maximum limit level before full capacity is reached. The water collected in this tank is recirculated back into the composting process and used to amend the moisture content of process material as necessary or discharged off site via the swale. 	Very Low	Create a Flood Action Plan with mitigation actions to implement in the instance the site does experience surface water flooding.	
Potential for contaminated surface water run-off from site causing pollution.	Low	Should a flooding event occur that impacts the Site the flood water may become contaminated by materials and waste stored	<ul style="list-style-type: none"> The site has surface water drainage points. The Site Manager identifies environmental aspects of operations that can be controlled or 	Very Low	Include preparation for flooding in the Flood Action Plan with reference to the guidance <i>Preparing for flooding</i> ²	

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Daily Extreme Rainfall and Average Winter Rainfall						
		on-Site. This contaminated water may then migrate off Site and subsequently contaminate the surrounding area.	influenced, including storm water discharge. This information is documented on the Environmental Aspects Register.			
Potential for drainage systems to be overwhelmed.	Low	An increase in rainfall may cause the existing drainage systems to be overwhelmed and unable to cope.	<ul style="list-style-type: none"> The site has surface water drainage points. The Site Manager identifies environmental aspects of operations that can be controlled or influenced, including wastewater. This information is documented on the Environmental Aspects Register. On occasions where the maximum limit level of the underground storage tank is reached, water is discharged to the swale. 	Very Low	Further consider the impact of drainage systems becoming overwhelmed.	

2.4 Drier Summers

Summers could see potentially up to 40% less rain than now.

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Drier summers						
Restrictions may be placed on water due to drought that may affect the availability of incoming water for use by the Site.	Medium	Water availability could be limited if a hosepipe ban or similar restrictions are enforced during a drought.	<ul style="list-style-type: none"> Water from the composting pad is directed via a sealed drainage system to a contained underground storage tank. This storage tank is made of 8mm thick steel and has a volume of 54,500 litres. The tank is fitted with a maximum limit level before full capacity is reached. The water collected in this tank is recirculated back into the composting process and used to amend the moisture content of process material as necessary or discharged off site via the swale. 	Low	<p>Implement and maintain a Water Efficiency Management Plan to include:</p> <ul style="list-style-type: none"> A plan for further rainwater harvesting to supplement current water supply. 	

2.5 Storms

Storms could see a change in frequency and intensity. The unique combination of increased wind speeds, increased rainfall, and lightning during these events provides the potential for more extreme storm impacts.

Climate Change Impacts		Judgement		Action		
Impact	Initial Risk	Justification of Magnitude	Current Measures on Site	Residual Risk	Potential Mitigation Opportunities	
Storms						
Storms and high winds could damage buildings, other structures and composting areas with the potential to increase fugitive odour emissions.	Medium	Structures and composting areas present on-site may be vulnerable to adverse weather comprising increased wind speeds, increased rainfall and lightning events. In the event of storms and high winds, there's a risk of structural damage which could disrupt site operations.	<ul style="list-style-type: none"> The operators conduct visual inspections, identifying potential damages during scheduled maintenance checks. During severe weather, warnings and communications are issued based on the assessed risks. 	Low	<p>Incorporate the potential impact of storms and high winds on the site and its structures in management plans.</p> <p>Create procedures for managing site operations and ensuring staff safety during storms, as well as for inspecting and repairing any potential damage.</p>	
Storms could lead to a loss of power on site caused by a lightning strike.	Medium	As an energy consumer, the site would experience a production halt if a lightning strike caused a power outage, remaining inactive until power is restored.	<ul style="list-style-type: none"> The viability of lightning protection installation on site to protect site buildings and tanks is currently being investigated. In severe weather conditions, warnings and communications are issued based on the level of risk. 	Low	Install lightning protection on site.	

ANNEX A – SITE PLAN

