

Project No: 313306

Risk Assessment

Prepared for:

2ZLF Ltd

West Meadows Industrial Estate

Derby

DE21 6HA

Contents Amendment Record

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Revision	Description	Date	Signed
1.0	Final	02 June 2023	Graeme Kennett



SAFETY
SCHEMES IN
PROCUREMENT



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Acknowledgement

This report has been prepared for the sole and exclusive use of 2ZLF Ltd in accordance with the scope of work presented in Mabbett & Associates Ltd (Mabbett) Additional Services Letter Agreement (313306/ASL/GK), dated 17 May 2023. This report is based on information and data collected by Mabbett. Should any of the information be incorrect, incomplete or subject to change, Mabbett may wish to revise the report accordingly.

This report has been prepared by the following Mabbett personnel:

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Principal Environmental Consultant

This report has been reviewed and approved by the following Mabbett personnel:

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Nicholas Clark, MEng, AMIChemE
Environmental Engineer

Executive Summary

The risk assessment looks at each specific hazard identified and assesses the likelihood of those hazards impacting on receptors. This is achieved by fulfilling the following objectives:

- Identify the location and nature of each hazard;
- Identify the specific receptors potentially at risk and assess the sensitivity of each receptor;
- Provide a qualitative assessment of the risk posed to each sensitive receptor;
- Identify management and monitoring techniques; and
- Provide recommendations for more detailed assessments where necessary.

Version	Date	Author	Changes
1	23/05/2023	G Kennett	

Table of Contents

Section 1.0: Summary of Key Parameters	1
Section 2.0: Summary List of Environmental Receptors	3
Section 3.0: Risk Criteria Ratings	5
Section 4.0: Methodology	6
4.1 Sources	6
4.2 Pathways	7
4.3 Receptors	7
Section 5.0: Risk Assessment	8
Appendix A: Designated sites location	17
Appendix B: Site in relation to River Derwent, SPZ and LNR	18
Appendix C: Local Wildlife Sites (LWS)	19
Appendix D: Protected Species	20
Table 1-1 Summary of key parameters.....	1
Table 2-1 Summary list of environmental receptors.....	3
Table 4-1 Potential Pathways.....	7

Section 1.0: Summary of Key Parameters

Table 1-1 Summary of key parameters

Summary of key parameters	
Permit ref	EPR/AB3904UQ
Facility	West Meadows Waste Recovery Facility
Location	Downing Road West Meadows Industrial Estate Derby DE21 6HA
Operator	2ZLF Ltd
Location of key environmental sites within 2km of the Installation boundary:	<ol style="list-style-type: none"> 1) The Sanctuary [LNR] 2) West Park Meadow [LNR] 3) River Derwent [LWS] 4) Chaddesden Brook and Mossey Yard Plantation [LWS] 5) Markeaton Brook System [LWS] 6) Meadow Lane Bank [LWS] <p>The locations of these designated sites are shown in Appendices A-D.</p>
Protected species within 500m	<ol style="list-style-type: none"> 1) European eel <i>Anguilla anguilla</i> 2) Atlantic salmon <i>Salmo salar</i> 3) River lamprey <i>Lampetra Fluviatilis</i> 4) Water Vole <i>Arvicola amphibius</i>
Risk assessment carried out by	Mabbett & Associates Limited
Date	8 th February 2022 (updated 31 st May 2023)
Risk Criteria Summary	
Parameter 1	<p>The site will operate as a waste treatment and transfer station and will store and treat various non-hazardous and hazardous soils and sludges via physico-chemical treatment.</p> <p>The site will operate a treatment facility to produce various types of recovered material (R3/R5).</p> <p>Waste is stored (R13) prior to treatment and transfer off site, or for treatment in the dedicated processing plant.</p>
Parameter 2	Permitted waste types – Permit
Parameter 3	Quantity of waste accepted at the facility will not exceed 65 000 tonnes per annum. <i>max</i> 26 000 tonnes hazardous (100t per day)
Parameter 4	All waste will be stored and treated on an impermeable surface with a sealed drainage system.

Parameter 5	There are no point source discharges to controlled waters.
Parameter 6	The activities are not carried out within a groundwater source protection zone 2, or within 250 m of any well, spring, borehole used for the supply of water for human consumption, including private water supplies.
Parameter 7	The activity is carried out within 250 m of a sensitive receptor (dwelling).
Parameter 8	The activity is not carried out within 1 000 m of a European Site or a Site of Special Scientific Interest (SSSI)
Parameter 9	The activity is carried out within 385m of a surface water course.

Section 2.0: Summary List of Environmental Receptors

Table 2-1 Summary list of environmental receptors

Site name/description	Distance from site	Details
Designated and non-designated habitats and wildlife sites		
Groundwater and abstractors		
		The site is located above bedrock designated as a Secondary B aquifer and Secondary A for superficial drift.
Groundwater vulnerability		
		The site lies within an area classed as 'medium-high' for groundwater vulnerability.
Source Protection Zones		
		The site is not located in a source protection zone.
Surface water and abstractors		
		No surface water abstraction licences found
Water protection zone and status		
		Area lies within an NVZ 2017
Soil classification		
		Soilscape 20 <i>Loamy and clayey floodplain soils with naturally high groundwater</i> Main surface texture class - <i>loamy</i> Natural drainage type – <i>naturally wet</i>
Surface water		
		The site lies within the catchment of a drinking water safeguard zone for surface water [GB104028053240]. The River Derwent is 385m to the south of the site.
Flood risk		
		The site lies in a flood zone 3.
Air Quality Management Area		
		The site does not lie in an Air Quality Management Area
Ecological receptors		
The Sanctuary (LNR)	900m	A bird and wildlife sanctuary and designated local nature reserve (LNR) located on Pride Park.
West Park Meadow (LNR)	2400m	Consists of grassland, woodland, scrub, hedges and a pond.

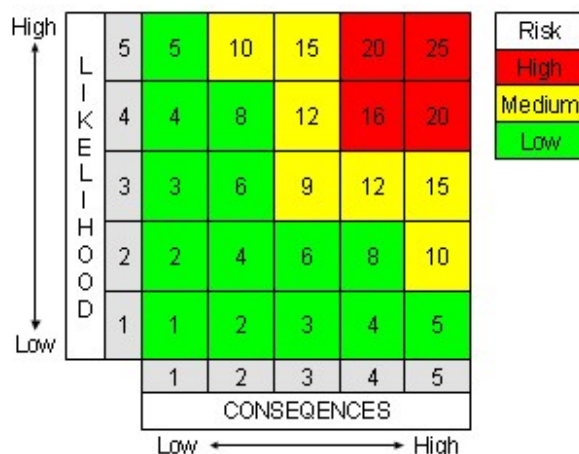
River Derwent [LWS]	385m	The River Derwent area covers surrounding moorland fringes and cloughs, stream and river tributaries, wooded valley sides, marshlands and many flower-rich grasslands as well as other smaller and more scattered habitats.
Chaddesden Brook and Mossey Yard Plantation [LWS]	1278m	The brook is home to many amphibians and invertebrates including newts and dragonfly.
Markeaton Brook System [LWS]	3280m	The brook and its tributaries support a range of flora and fauna and includes two protected areas of ecological importance at Muggington Bottoms and Kedleston Hall. Freshwater sponges, and white clawed crayfish have been found in the brook.
Meadow Lane Bank [LWS]	2431m	A collection of mature trees, remnants of ridge and furrow cultivation and a pond.
Protected species		
Identified within 500m of the site		<ol style="list-style-type: none"> 1) European eel <i>Anguilla anguilla</i> 2) Atlantic salmon <i>Salmo salar</i> 3) River lamprey <i>Lampetra fluviatilis</i> 4) Water Vole <i>Arvicola amphibius</i>

Section 3.0: Risk Criteria Ratings

Risk ratings are based on the likelihood of an event occurring multiplied by the severity of potential impact. Ratings are made of residual risk following implementation of preventative measures on site. The following scale is applied to rate these parameters:

Severity		Likelihood	
1	No environmental harm arising	1	Very unlikely to happen
2	Fleeting localised impacts	2	Low probability/occasional
3	Localised impacts medium term	3	Likely to occur
4	Wider scale impacts of a fleeting nature, or localised impacts of a more persistent nature	4	Highly likely to occur

Final calculated risk levels rating bands are as follows



Section 4.0: Methodology

This report has been prepared in accordance with the Environment Agency's Risk Assessment guidance. It specifically relates to the potential risk associated with the following risk types:

- Odour;
- Noise and vibration;
- Fugitive Emissions; and
- Accidents and incidents.

This risk assessment addresses the above, and is based on the following methodology:

- Identification of potential sources of risk;
- Identification of all potential receptors to risk; and
- Risk assessment of each risk type.

This ERA is a tool used to identify the pollutant linkage i.e., source-pathway-receptor. For most risks, the atmosphere is the main pathway and will always exist. Therefore, the ERA deals primarily with the sources and receptors.

4.1 Sources

The potential sources of risks have been considered for each risk type. The sources of risk for this application have been identified as:

Noise

- Plant and machinery;
- Vehicle movements to/from the site;
- Vehicle movements within the site; and
- Engineering works.

Fugitive emissions

- Odour;
- Particulate matter; (dust)
- Mud and litter; and
- Scavenging birds, pests and vermin.

Accidents

- Leaks/spillages;
- Fire or failure to contain firewater;
- Flooding; and
- Vandalism.

4.2 Pathways

The pathways have been identified for each risk type as shown below in Table 4-1:

Table 4-1 Potential Pathways

Risk Type	Pathway
Odour	Atmosphere
Noise	Atmosphere
Fugitive Emissions	Atmosphere
Accidents	Atmosphere
	Surface water run-off
	Infiltration
	Percolation

4.3 Receptors

Receptor locations are given in the appendices. The main pathway for the identified sources will be the atmosphere and any run-off and, as a result, the location of each receptor in relation to the site will influence the potential impact of the risk.

Section 5.0: Risk Assessment

What do you do that can harm and what could be harmed?			Managing the risk
Hazard	Receptor	Pathway	Risk Management
<i>What has the potential to cause harm?</i>	<i>What is at risk? What do I want to protect?</i>	<i>How can the hazard get to the receptor?</i>	<i>What measures will you take to reduce the risk? Who is responsible for what?</i>
Release of micro-organisms (bioaerosols)	Local human population	Air – wind blown dispersion in the atmosphere	Treatment activities are not carried out within 250m of the nearest sensitive receptor. Waste types have a low propensity to generate bioaerosols.
Release of micro-organisms (bioaerosols)	All ecological receptors identified in Table 2-1	Air – wind blown dispersion in the atmosphere	Treatment activities are not carried out within 385m of the nearest sensitive receptor (River Derwent). Waste materials have a moisture content of at least 95%, so unlikely to generate dust.
Dust from the movement of vehicles to and from the site	Local human population	Air – wind blown dispersion in the atmosphere	Site Manager is responsible for checking wind strength and direction and taking corrective action if necessary. Road surfaces are concrete and regularly swept and kept damp, so a low likelihood of generation of materials that would become airborne.
Dust from the movement of vehicles to and from the site	All ecological receptors identified in Table 2-1	Air – wind blown dispersion in the atmosphere	Treatment activities are not carried out within 900m of the nearest sensitive receptor (The Sanctuary). Waste materials have a moisture content of at least 95%, so unlikely to generate dust.
Release of particulate matter and micro-organisms from wastes deliveries to, stored and despatched from site.	Local human population	Air – wind blown dispersion in the atmosphere	All wastes are delivered by road directly to the site. Loose powders and dusts are not permitted. Waste materials have a moisture content of at least 95%, so unlikely to generate dust.

Input material may contain litter.	Local human population	Air – wind blown dispersion in the atmosphere	<p>All wastes are delivered by road sweepers directly to the site. Any litter waste generated will be stored in sealed bins and removed from site on a regular basis to ensure that large volumes of all types of waste do not accumulate on site.</p> <p>Any litter is cleared from any affected areas outside the site as soon as possible.</p>
	Adjacent farm land		
Mud on roads from the movement of vehicles to and from the site	Local human population	Deposited on the ground by vehicles entering and exiting the site	<p>Road surfaces on the site are concrete so an insignificant risk of mud being generated on site.</p> <p>Road surface will be inspected regularly and kept clean should any mud be brought on to the site. Incoming vehicles will be inspected and any issues with mud being trafficked on to the site will be addressed with the haulier/supplier.</p>
Odour from delivered waste	Local human population	Air – wind blown dispersion in the atmosphere	<p>Delivered waste is placed in the appropriate storage areas directly.</p> <p>There is minimal potential for exposure for anyone living or working downwind of the site (excluding operator and employees).</p>
Odour from storage of wastes in the process	Local human population	Air – wind blown dispersion in the atmosphere	<p>Wastes awaiting treatment are dealt with as soon as possible and on an ongoing basis to prevent further degradation that may generate odours.</p> <p>Sealed tanks and pipes are used throughout the process to ensure that odours are not generated that may cause nuisance.</p>

Increased acceptance and storage of hazardous materials	Local human population	Air – wind blown dispersion in the atmosphere	<p>Please see the sites dedicated management plans.</p> <p>In summary the site will utilise the following measures to protect receptors against dust from site operations:</p> <ul style="list-style-type: none"> • Careful placement of stockpiles and treatment activities; • Good housekeeping (keeping equipment clean); • Ensuring headroom is kept between wastes and the tops of bays to prevent wind whip; • Routine cleaning of site roads; • Use of site water to dampen stockpiles as required; and • Daily inspections and dust monitoring (frisbee monitoring). • Covered bays • No direct drainage connection to surface water as all water is treated prior to discharge to sewer via a Trade Effluent Consent.
		Direct run-off from site across ground surface, via surface water drains, ditches etc.	
Flies in waste	Local human population	Air	<p>The wastes will not be susceptible to limited fly infestation.</p> <p>All wastes will be delivered in a liquid form in sealed tankers.</p>
Rodent infestation	Local human and wildlife population	Over land	<p>The waste is in a liquid form and is not susceptible to rodent infestation.</p> <p>All wastes will be delivered in sealed tankers.</p>

Scavenging birds and animals	Local human and wildlife population	Over land and through the air	<p>The waste types are not putrescible and therefore will not attract pests or scavenging birds. As such it is considered that there is no increased risk of pests or scavenging birds because of this application.</p> <p>Strict waste acceptance procedures will be in place to minimise the risk of non-compliant wastes being accepted in accordance with the permit application.</p> <p>The Site Manager or Site Foreman will undertake regular reviews of pests and scavenging birds at the site. All site operatives will be vigilant and report any problems to the site manager.</p>
Noise from vehicle movements/ deliveries	Users of highway, local workplaces, and local dwellings.	Air	<p>Vehicle movements for waste delivery are scheduled to occur Monday to Friday during normal working hours.</p> <p>Emergency loads may be brought in outside normal hours.</p> <p>Skip removals may operate at weekends but will not operate out of normal working hours.</p> <p>Site already has well established traffic movements.</p> <p>The Site Manager is responsible for ensuring vehicles are turned around efficiently, with least impact on the neighbouring properties and that vehicles are removed from the surrounding roads quickly.</p> <p>Loading/unloading can create some noise, but this is localised, and receptors distant enough to mitigate impact.</p>
Noise/vibration from pumps/screen	Local human and wildlife population	Air	All pumps and screens are electrically operated.

<p>Delivery of wastes</p>	<p>Ground/ groundwater/ surface water</p>	<p>Spillage through ground</p>	<p>All deliveries are supervised and only take place during working hours.</p> <p>The site undertakes the following to minimise the impacts from activities on surface water, groundwater and habitats:</p> <ul style="list-style-type: none"> • Sloping of the hazardous waste bay so water collects at a central point; • Separate drainage for hazardous and non-hazardous storage yards; • The soil washing facility is fully enclosed so rainwater cannot get to the unit and cause any flooding; • Treatment and storage areas are fully concreted with sealed drainage and kerbing; • Daily inspections of the bund undertaken to ensure bund integrity. • Water holding tanks for both the soil washing facility and storage areas are appropriately sized and will be bunded to either hold 110% of the largest tank capacity or 25% of the volume of a group of tanks; • The site has a regular housekeeping regime in place; and • Site infrastructure undergoes regular inspections and maintenance. • No direct drainage connection to surface water as all water is treated prior to discharge to sewer via a Trade Effluent Consent.
<p>Chemical/oil Delivery</p>	<p>Ground/groundwater/ surface water</p>	<p>Spillage during delivery to drain/ground</p>	<p>All bulk diesel and liquid chemicals are stored on site in bunded containers.</p>

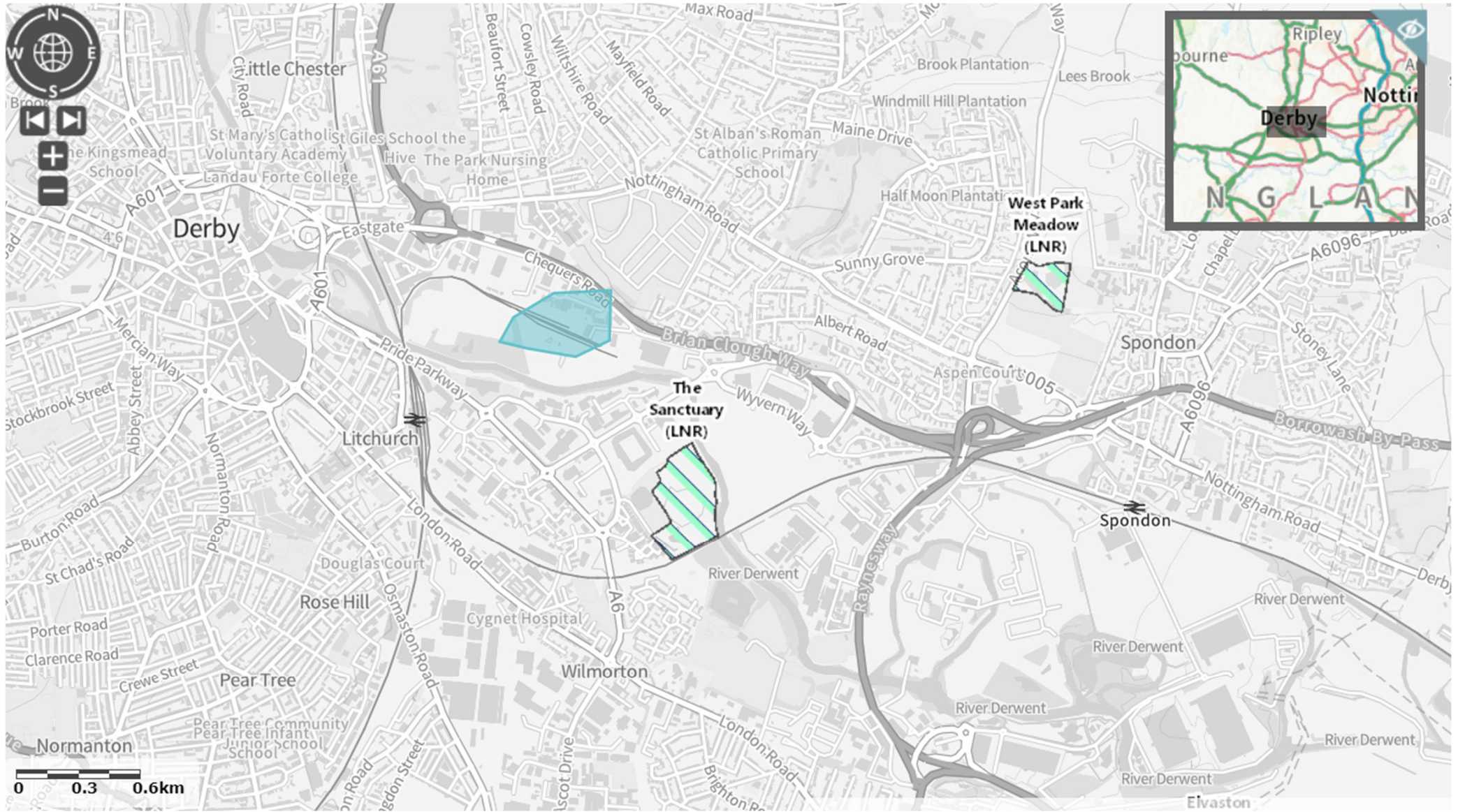
Storage of small volumes of chemicals	Local environment	Spillage during use or transferring	Any chemicals are stored with lids or caps secured. All cleaning chemicals are stored to ensure substances are not exposed to conditions that could cause a reaction and spillages are contained. Chemicals are segregated as appropriate and stored in secondary containers to catch any small spillages.
Flooding of site	Local human population and local environment	Contaminated flood waters	<p>The flood risk summary from the EA indicates that the site has a;</p> <ul style="list-style-type: none"> • Medium risk of flooding from rivers and the sea • Very low risk of surface water flooding. • Extremely unlikely risk of flooding from reservoirs, and • Unlikely risk of groundwater flooding <p>The site has several holding tanks and containment systems in place which will be utilised in the event of localised flooding.</p> <p>If significant flooding occurs, site operations may temporarily cease, and any incoming vehicles will be diverted.</p> <p>Existing waste which is stored awaiting treatment may be diverted to another facility for onwards treatment or disposal if this waste could cause pollution in the event of a flood – this will be at the discretion of the Site Manager.</p>
Spillage of liquids with high organic content.	All surface waters close to and downstream of site.	Direct run-off from site across ground surface, via surface water drains, ditches etc.	<p>All operations carried out more than 385m from a water course on an impermeable surface with a sealed drainage system.</p> <p>No direct drainage connection to surface water as all water is treated prior to discharge to sewer via a Trade Effluent Consent.</p> <p>All liquids kept in containers and provided with secondary containment.</p>

<p>Spillage of liquids with high organic content.</p>	<p>All ecological receptors identified in Table 2-1</p>	<p>Direct run-off from site across ground surface, via surface water drains, ditches etc.</p>	<p>All operations carried out more than 385m from a water course on an impermeable surface with a sealed drainage system. No direct drainage connection to surface water as all water is treated prior to discharge to sewer via a Trade Effluent Consent. All liquids kept in containers and provided with secondary containment.</p>
<p>Spillage of liquids with high organic content.</p>	<p>Groundwater</p>	<p>Transport through soil/groundwater then extraction at borehole.</p>	<p>All operations carried out on an impermeable surface with a sealed drainage system. Any liquids kept in containers and provided with secondary containment. No direct drainage connection to surface water as all water is treated prior to discharge to sewer via a Trade Effluent Consent.</p>
<p>Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land.</p>	<p>Local human population and local environment</p>	<p>Air transport of smoke. Firewater runoff from site.</p>	<p>Due to the nature of the waste types accepted at the site along with the treatment activities being undertaken, it is considered that the activities are of an inherently low fire risk. Strict waste acceptance procedures are in place to minimise the risk of non-compliant wastes being accepted. The operator undertakes regular maintenance of plant and equipment in accordance with the manufacturer's guidance. The site has access to both mains water and stored water if it is required. Treatment and storage areas are fully concreted and have kerbed edgings with sealed drainage. All chemicals are stored in accordance with manufacturers guidance within IBC's as shown on Drawing Number 2ZLF/IV.187.20/LAY/01.</p>

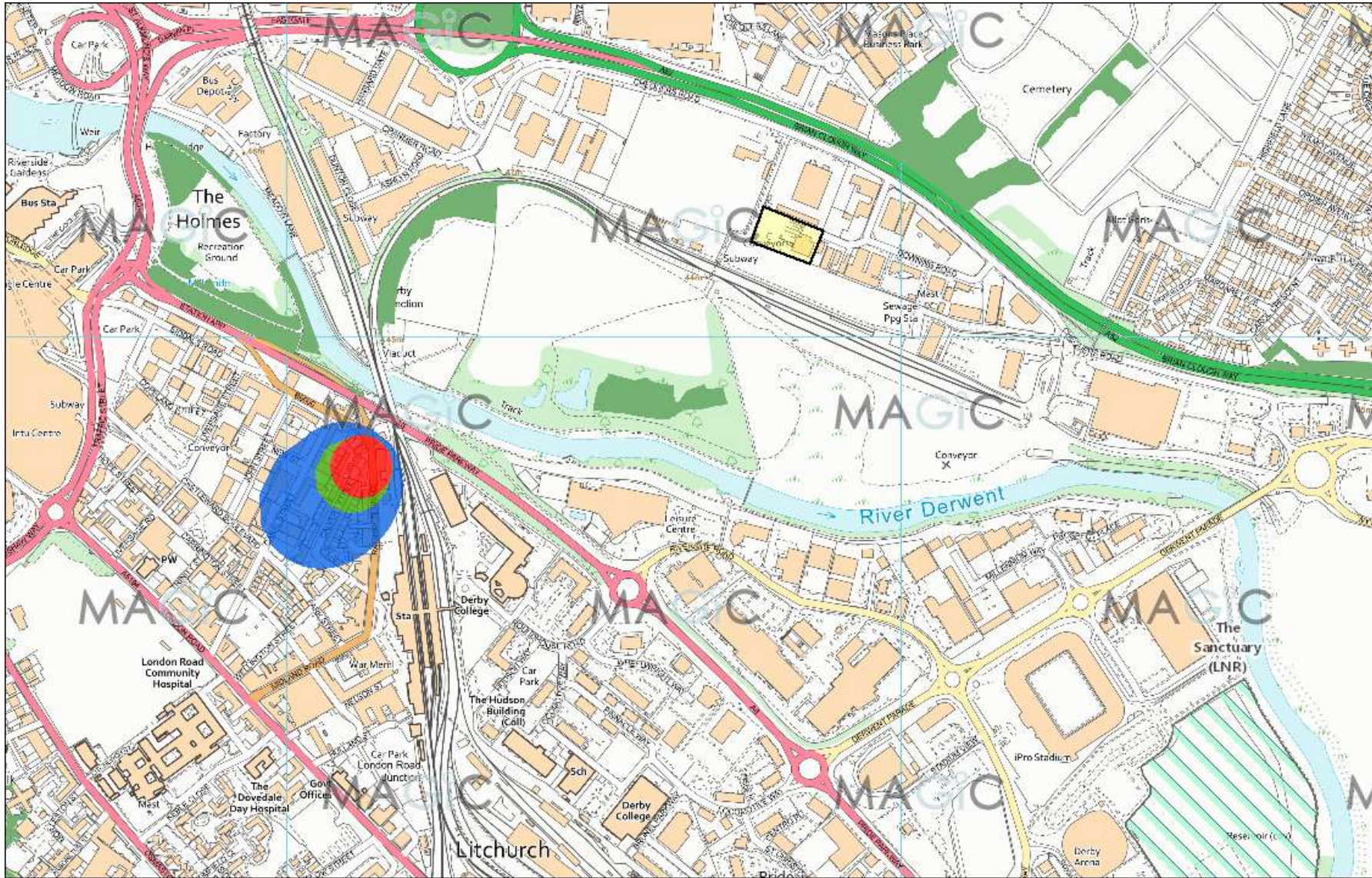
<p>Accidental fire causing the release of polluting materials to air (smoke or fumes), water or land.</p>	<p>All ecological receptors identified in Table 2-1</p>	<p>Air transport of smoke. Firewater runoff from site.</p>	<p>Due to the nature of the waste types accepted at the site along with the treatment activities being undertaken, it is considered that the activities are of an inherently low fire risk.</p> <p>Strict waste acceptance procedures are in place to minimise the risk of non-compliant wastes being accepted.</p> <p>The operator undertakes regular maintenance of plant and equipment in accordance with the manufacturer's guidance.</p> <p>The site has access to both mains water and stored water if it is required.</p> <p>Treatment and storage areas are fully concreted and have kerbed edgings with sealed drainage.</p> <p>All chemicals are stored in accordance with manufacturers guidance within IBC's as shown on Drawing Number 2ZLF/IV.187.20/LAY/01.</p>
<p>Unauthorised access to site</p>	<p>Bodily injury to person or animal entering site</p>	<p>Direct physical contact</p>	<p>The site is surrounded by a perimeter fence and has a lockable gate to the entrance.</p> <p>This gate is closed and locked always when staff are not present on site. The site is fitted with remote CCTV system so staff are alerted to the presence of intruders.</p> <p>All vehicles/people entering the site will be received by the weighbridge operator who will be present in this area while the site is open for deliveries.</p>
<p>Arson and / or vandalism causing the release of polluting material to air (smoke or fumes), water or land.</p>	<p>Local human population, staff, firefighters, vandals or local environment.</p>	<p>Air transport of smoke. Firewater runoff from site.</p>	<p>Permitted waste types are non-hazardous liquids so only a low magnitude risk is estimated.</p> <p>A series of procedures are in place to manage this eventuality: Accident and Emergency Management Plan.</p>

<p>Harm to protected site through nutrient enrichment, leachate, contaminated surface water run-off, smothering, disturbance or predation.</p>	<p>All ecological receptors identified in Table 2-1</p>	<p>Any</p>	<p>Treatment only takes place on an impermeable surface with sealed drainage in sealed vessels, thus mitigating against risks of leachate, run-off or nutrient enrichment.</p> <p>Other risks – such as smothering – are mitigated by the fact that all processing activities take place within the process building in an enclosed system.</p> <p>No direct drainage connection to surface water as all water is treated prior to discharge to sewer via a Trade Effluent Consent.</p>
<p>Plant failure and breakdown</p>	<p>Local human population, and the local environment.</p>	<p>Atmosphere. Percolation. Surface water run-off.</p>	<p>All plant is checked daily. Any issues with plant are reported immediately to the Site Manager or the Site Foreman.</p> <p>A programme of planned preventative maintenance is in place for all plant and equipment and subject to regular maintenance in accordance with the manufacturer's guidance.</p> <p>The site has ready access to replacement plant so that minimal disruption would be experienced in the event of plant failure or breakdown.</p> <p>In the event of a prolonged plant failure that could lead to environmental pollution, the Site Manager can decide to divert incoming wastes if there is not enough storage tonnage available on site.</p> <p>In addition to the above, the Site Manger can determine that the site should temporarily shut down and all waste on site should be diverted to another facility or onwards recovery or disposal.</p> <p>All vehicles and plant are be turned off when not in use.</p>

Appendix A: Designated sites location



Appendix B: Site in relation to River Derwent, SPZ and LNR



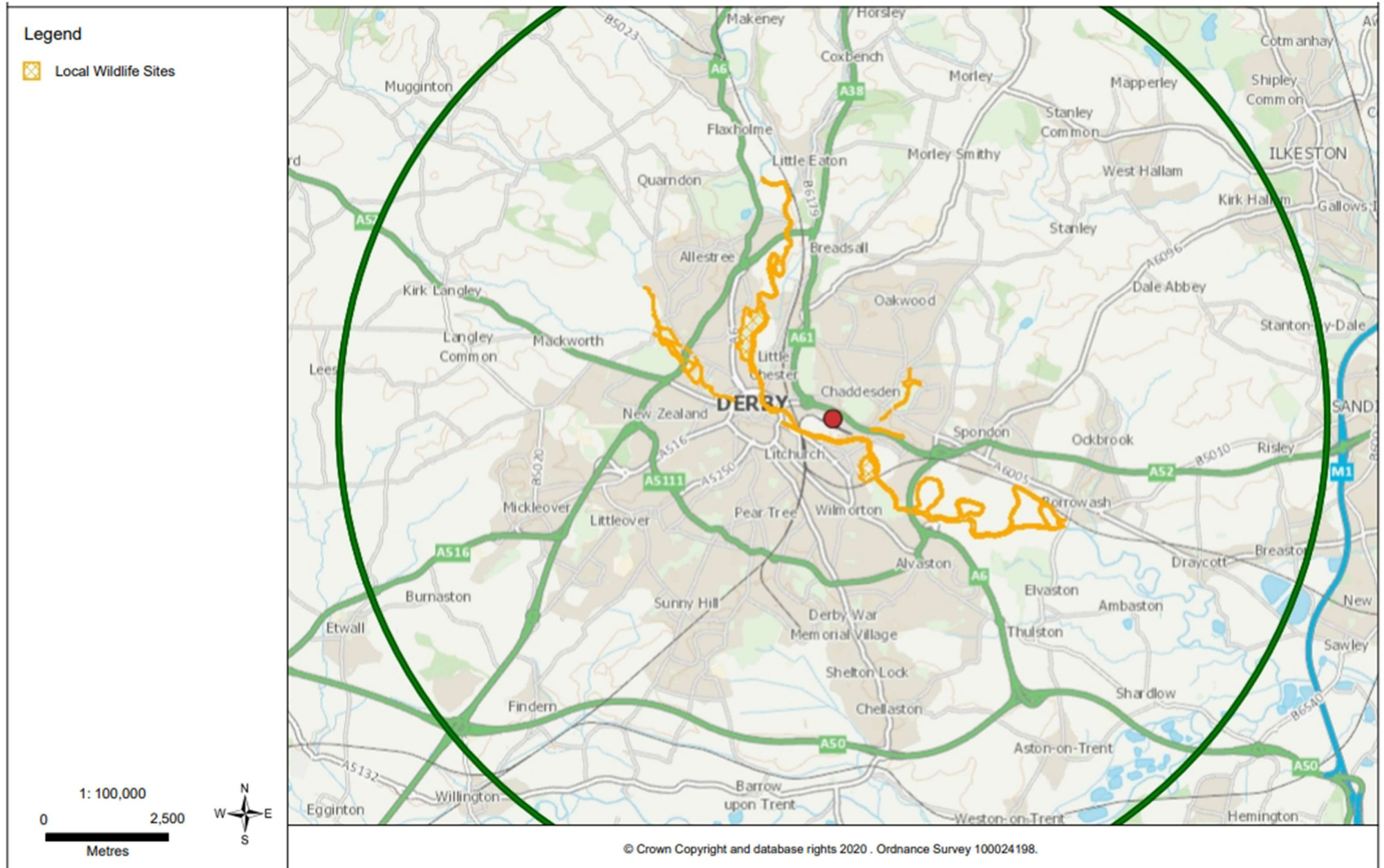
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Appendix C: Local Wildlife Sites (LWS)



Appendix D: Protected Species

