



ARCUS

**RETFORD CIRCULAR ECONOMY PROJECT**

**TECHNICAL APPENDIX 9.1 OUTLINE WATER ENVIRONMENTAL  
MANAGEMENT PLAN**

**FEBRUARY 2023**



## TABLE OF CONTENTS

<b>1</b>	<b>INTRODUCTION .....</b>	<b>1</b>
<b>1.1</b>	<b>Purpose and Scope .....</b>	<b>1</b>
<b>2</b>	<b>GROUNDWATER ABSTRACTION/DEWATERING.....</b>	<b>2</b>
<b>3</b>	<b>SITE DRAINAGE.....</b>	<b>3</b>
<b>3.1</b>	<b>Usage of current site drains .....</b>	<b>3</b>
<b>3.2</b>	<b>Drainage ditches .....</b>	<b>3</b>
<b>3.3</b>	<b>Monitoring .....</b>	<b>3</b>
<b>4</b>	<b>MANAGEMENT OF EXCAVATED PFA.....</b>	<b>5</b>
<b>5</b>	<b>SPELL RESPONSE PLAN (SRP) .....</b>	<b>6</b>
<b>6</b>	<b>OTHER POLLUTION PREVENTION MEASURES .....</b>	<b>7</b>
<b>6.1</b>	<b>Vehicles .....</b>	<b>7</b>
<b>6.2</b>	<b>Chemical storage.....</b>	<b>7</b>
<b>6.3</b>	<b>Dust suppression and control.....</b>	<b>7</b>

## 1 INTRODUCTION

This outline Water Environmental Management Plan (WEMP) forms an Appendix to the Environmental Statement (ES) Chapter 9 Hydrology, Hydrogeology and Flood Risk for the Retford Circular Economy Project (the Proposed Development), comprising the extraction of PFA contained in former disposal lagoons, progressive restoration, processing and export.

### 1.1 Purpose and Scope

This WEMP has been produced as part of the planning application for the Proposed Development, specifically, to set out environmental protection measures with respect to surface water and groundwater during the construction, operational and restoration phases as relevant. It is a working document, currently in draft form, that would be updated in line with the permitting application for the Proposed Development. In particular, the surface water and groundwater monitoring regime would be designed following the further risk assessment and analytical modelling that would be undertaken as part of the permitting process.

Details of the current Proposed Development design are provided in the ES Volume 1, Chapter 5 Project Description.

This document takes into account activities to be undertaken during the construction and operational phases of the Proposed Development, including:

- Construction and operation of access roads;
- Trial period temporary processing plant;
- Extraction, processing, storage, removal, and transportation of the Pulverised Fuel Ash (PFA) on and from the Site; and
- Construction and operation of hardstanding areas and buildings (including a concrete pad for a screen, crusher and conveyor hopper, the processing plant and construction compounds).

The identified potential sources of pollution as a result of the construction and operational phases of the Proposed Development, based on the findings of the EIA, are as follows:

- Leachate generated by extraction, processing and handling of PFA;
- PFA lagoons;
- Potential de-watering of working areas in advance of extraction;
- Runoff from exposed ground and material stockpiles;
- Runoff from access roads and haul routes;
- Plant washings / vehicle washing areas;
- Fuel and chemical storage; and
- Leaking / vandalised equipment.

## 2 GROUNDWATER ABSTRACTION/DEWATERING

Operations at the Site could generate significant quantities of water through active dewatering of groundwater in addition to surface water flows, through runoff and direct rainfall.

A preliminary site drainage management plan has been developed and is included in the ES (**Volume 3 Appendix 9.3**). This would be updated at the detailed design stage following consultation with the EA and in line with the Environmental Permit application.

Dewatering, where necessary, would be achieved by excavating base ditches at the bottom of the wet extraction face, to collect groundwater. This would then travel into a sump or similar, where the top water would be removed allowing the remaining silt laden water to settle within the main dig.

It is proposed that the discharge of dewatering from active areas of the Site would be via pumping to settlement and soakaway ponds, to be constructed in LR P1 and LR P2 along the southern boundary of the Site. Initial settlement ponds and ditches would be maintained within the dig, with gravity flow from the open face. Flow controls would be implemented to improve silt retention within the dig (e.g. the use of check dams).

As part of the dewatering process, it would be ensured that:

- Method statements are produced for the dewatering/abstraction process that are aligned with the abstraction permit and discharge conditions within the Environment Permit;
- Major excavation works would be minimised during heavy precipitation events. If possible, excavation below groundwater would be undertaken during dryer months;
- A control methodology, including where necessary temporary storage and attenuation of surplus water within the main dig area, would be established to ensure that water quantities pumped to the settlement and soakaway ponds is managed during extreme storm events in order to prevent overflow from the ponds;
- A regular monitoring regime is established in consultation with the EA for monitoring the outflow of the settlement lagoons to ensure compliance with any discharge standards set out in the Environmental Permit; and
- Appropriate threshold trigger values, aligned with any discharge standards established by the Environmental Permit, and emergency response procedures, including the capacity to isolate the settlement lagoons from the soakaway ponds, are in place to protect groundwater.

If groundwater abstraction is not authorised, the settlement and soakaway ponds would still be required for the treatment and disposal of PFA leachate and surface water runoff that would collect in the open excavation.

### **3 SITE DRAINAGE**

This section addresses the management of sediment and surface water runoff generated during construction and operation.

A preliminary site drainage management plan has been developed and is included in the ES (**Volume 3 Appendix 9.3**). This would be updated at the detailed design stage, likely secured by a suitable planning condition, following consultation with the EA and in line with the Environmental Permit application.

#### **3.1 Use of Existing Drainage Systems on Site**

The site drainage management plan allows for the utilisation of the existing drainage system at Bellwood Industrial Estate for disposal of all surface water runoff from the Main Processing Site that has not come into contact with PFA, with the foul water from the offices and welfare facilities being discharged to the existing septic tank.

Prior to construction, a detailed condition survey of the existing drainage system, including the septic tank, would be undertaken to determine their suitability for the Proposed Development. This would include estimating the likely discharge quantities to ensure there is sufficient capacity in the current system and where necessary upgrading the outfall structures to the unnamed tributary of the River Idle.

If required, additional below ground storage and interceptors would be retrofitted into the existing drainage system local to ancillary buildings, processing plant and car parking areas to ensure that there is no adverse impact on the quality and quantity of drainage entering the receiving watercourse.

A regular monitoring and sampling regime for the surface water outfall would be established.

#### **3.2 Drainage Ditches**

An unlined ditch system would be established along the Haul Road for interception of surface water runoff. Prior to construction the operator would produce a method statement for the construction of drainage ditches. If required, flow controls such as semi-permeable check dams would be implemented to improve silt retention.

#### **3.3 Extraction Area**

Prior to the development of the main settlement ponds and soakaways excavation of the PFA would be above the water table and it is anticipated that surface water runoff would be pumped to the Main Processing Site to be discharged through the drainage system here. The more detailed assessment of the condition and capacity of the existing system, to be undertaken as part of the design for the main dig dewatering system, would confirm whether this is practicable. If not, alternative arrangements, such as the construction of a temporary settlement lagoon within the main dig (Area A), would be made in order to discharge the water.

On completion of the main settlement ponds and soakaways, and for the entire operation of Processing Areas 2 and 3, direct rainfall and runoff from temporary stockpiles would be intercepted by the leachate management system described in Section 2, above.

#### **3.4 Monitoring**

A groundwater and surface water monitoring regime would be established in consultation with the EA as part of the permitting process that would commence prior to construction, continue throughout the life of the Proposed Development and continue for a period of time post-restoration to be agreed with the EA. The design of the monitoring system,

sampling frequency, schedule of physico-chemical parameters, reporting and auditing procedures would be completed as part of the Environmental Permitting process.

#### **4 MANAGEMENT OF EXCAVATED PFA**

The following preventative measures would be implemented to control erosion and sediment runoff from stockpiles throughout the operation of the Proposed Development:

- Material would be stockpiled for as short a time as practicable;
- Exposed ground would be open for as short a time as practicable with the area excavated and restored progressively in phases to ensure this;
- All stockpiled and banded material would be stored at least 20m from any artificial drains and waterbodies to reduce wash-off of sediments; and
- If runoff of sediment is observed onsite, silt fences and/or mats would be employed.

Good practice measures would be adopted during construction to control the generation and dispersion of dust such that significant impacts on neighbouring habitats would not occur. The hierarchy for mitigation would be prevention, suppression then containment and would include regular wheel washing of wagons/vehicles and ensuring that vehicle loads are covered.

Further details for the suppression of dust are provided in the Dust Impact Assessment (**Volume 3, Appendix 13.6**).

## 5 SPILL RESPONSE PLAN (SRP)

The detailed SRP would be based on a risk assessment to be undertaken once the detailed design is finalised. This assessment would address such matters as:

- The material the Proposed Development would require for construction and operation;
- How and where the materials would be delivered, stored, transferred, and used within the Site boundary;
- The nature of activities that would use the materials; and
- The nature and location of receptors that are vulnerable to leaks and spills.

The results of the risk assessment would provide the basis for planning and prioritising protection and contingency measures.

Once the sources of potential spills and leaks and the resources at potential risk have been identified, the detailed SRP would set out specific protective and management measures for the different sources. These measures would specify such matter as:

- Specifications for reception and storage facilities (e.g. tank size, base material, bunding capacity, secondary containment);
- Procedures for use of potentially hazardous materials;
- Separation distances between hazards and vulnerable receptors;
- Procedures for working near vulnerable receptors when this cannot be avoided;
- Training of personnel; and
- Other good practice measures as required.

Based on the risk assessment the detailed SRP would identify the most likely leak and spill scenarios, together with the procedures to be adopted in each case and the equipment and materials required on-site to facilitate the response. This would address such matters as:

- Training of personnel;
- Communicating and reporting incidents;
- Use of vehicular spill kits;
- Inventories for larger spill stations and their locations; and
- The response procedures.

The detailed SRP would set out relevant monitoring, inspection and auditing actions relating to spill response. This would include clearly designating the person(s) responsible for these activities.

The detailed SRP would set out procedures for providing evidence of implementation and maintenance of the SRP such as the reporting of monitoring, inspection, and auditing activities, and the format and frequency of reporting.

The detailed SRP would also set out incident internal and external reporting protocols.

The detailed SRP would set out the internal and external triggers and process for the plan to be maintained up to date and relevant, for example lessons-learned procedures in the event of an incident.



## **6 OTHER POLLUTION PREVENTION MEASURES**

### **6.1 Vehicles**

All onsite vehicles would be regularly maintained offsite to ensure that there is minimal potential for fuel or oil leaks / spillages to occur. If onsite maintenance is required, it would be conducted on suitable absorbent spill pads to minimise the potential for groundwater and surface water pollution. All machinery would be equipped with drip pans to contain minor fuel spillage or equipment leakages. All vehicles would be refuelled offsite.

### **6.2 Chemical storage**

Potentially contaminating chemicals stored on site would be kept within a secure bunded area to prevent any accidental spills from affecting hydrological resources. Construction compounds would have a bunded area underlain by impermeable ground membrane layer. The bunded areas would have 110% capacity to attenuate stored liquids.

The chemicals storage area would be kept secure to prevent theft or vandalism. A safe system for accessing the storage area would be implemented by the Construction Contractor.

Further details of chemical storage are presented in Section 5 Spill Response Plan.

### **6.3 Dust suppression and control**

Further details of the dust suppression and control policy are provided in the Dust Impact Assessment, **Volume 3, Appendix 13.6**.