Worsbrough Environmental Management Plan

Site Location

The purpose of this Construction Environmental Management Plan (CEMP) is to outline how the BarhaleDoosan Joint Venture (BDJV) construction project at Tophill Low Water Treatment Works will eliminate, minimise or mitigate arising impact on the environment and demonstrate the BDJV`s commitment to meet our Legal and Moral environmental requirements.

Environmental Management Plan (EMP)				
Principal Contractor	Barhale Enpure			
Project Name and Address	Worsbrough STW Edmunds Road, Worsbrough, Barnsley, South Yorkshire, England, S70 4TA			
Client	Yorkshire Water Services			
Clients Contract Reference	YW.200418			
	Name	**Signature**	**Position**	**Date**
Author	Nicholas Smith		Contracts Manager	Sep 23
Updated following discussions with YWS planning consultants and updated ecology survey	Nicholas Smith		Contracts Manager	Jan 24

Contents

1 Introduction

1.1 Project overview

The BDJV has been awarded the Worsbrough STW Project by our client Yorkshire Water Services. The project will be completed in an environmentally sensitive location near to a nature reserve and near the River Dove. The project has committed to

The project requirements include the design and construction of the following:

- Secondary stage coagulant dosing system (Kiosk)
- Chemicals off-loading area
- Emergency drench shower and wash water booster pumping station
- Primary stage coagulant dosing point (Point of application/ POA)
- New intermediate Pumping station
- New tertiary treatment
- Return liquors Pumping station upgrade
- New secondary Activated Sludge (SAS) pumps
- New sludge thickening plant (2 x skids rated each at 50% of duty, duty/ duty basis) and liquid poly bulk storage and poly batching/ dosing systems

New SAS feed pumped main routed parallel to the existing main serving the thickening plant units c/w bypass to the thickened sludge tank

- New Odour Control Unit (OCU)
- New external mixing pump and draw-off points installed at the existing thickened sludge tank
- All necessary civil constructions, pathways, buried services, chambers, manholes, reinstatements, etc
- Commissioning and reliability testing of new equipment

EICA solution comprises

- New power supply capacity
- A new Motor Control Centre with ICA section and new kiosk
- Site lighting for new plant, processes and access routes
- Associated EICA to implement the above

- UMON3 and UMON4 monitoring equipment including MCERTS flow meter on the TSR feed pump station discharge pipe line and MCERTS flow meter on the combined disc filter dirty backwash pipeline
- Confirm the existing gas detection and warning light system within he sludge building is functioning and integrate it itn to the new design
- Lightning protection to kiosks
- Decommissioning of electrical equipment that will become redundant as part of the new scheme (odour control unit, pol dosing system, SAS pumps, Liquor return pumps, GBT no. 1 and no. 2)
- Commissioning and reliability testing of new equipment

Off station Road onto Edmonds Road heading to site entrance

Site Entrance Location

1.2 Purpose and Scope of the Document

The key aim of the Worsbrough Project is to minimise environmental impact whilst maximising environmental enhancements. As such, this document has been written to provide environmental guidance to the project team throughout the construction phase.

This EMP will apply to all works that the BEJV will be undertake and in all areas where work will be completed.

It is of paramount importance that environmental aspects and impacts associated with the project are assessed and mitigated to a level that is acceptable. This is a requirement of the BEJV Environmental Policy commitment.

Thus, this Environmental Management Plan has been developed to provide the management framework required to ensure planning and undertaking of construction activities is in accordance with environmental commitments identified in the planning and enabling phase of the project. A key objective of this document is to reduce the risk of adverse impacts of construction activities on sensitive environmental resources and to minimise disturbance to local residents.

This EMP will also contain project specific environmental targets for the BEJV and reasonable standards against which the contractor`s performance in this regard can be measured during construction.

The corporate and project environmental objectives and targets can be found in section 3.1 of Project specific Contract Phase Plan.

1.3. Legislation and other requirements

A significant number of legal requirements are applicable to the Worsbrough STW project. Vast amounts of legislation are environmentally specific. All legal requirements and their guidance requirements pertaining to the project may be found via the Envoy system under Environmental Legislation Requirements.

The BEJV must comply with this legislation throughout all phases of the project.

The following list is intended to serve as a guideline only for BDJV and its subcontractors, this list should not be considered exhaustive.

The primary pieces of legislation that may affect the project are as follows *(subject to further changes):*

- *Environment Act 2021*
- *Environmental Protection Act 1990*
- *The Waste (England and Wales) Regulations 2011*
- *Conservation of Habitats and Species Regulations 2017*
- *Environmental Permitting Regulations 2010*

- *Town and Country Planning Act 1990*
- *Environmental Protection (Duty of Care) Regulations, 1991*
- *Pollution Prevention and Control Act 1999*
- *Hazardous Waste Regulations 2005*
- *Noise and Statutory Nuisance Act, 1993*
- *Clean Air Act, 1993*
- *Wildlife and Countryside Act, 1981*
- *Control of Pollution Act 1974*
- *Natural Heritage Acts*

BEJV and its stakeholders / sub-contractors will ensure that measure are put in place to comply with all applicable legislation.

Legislation provides a minimum standard to adhere to. The BEJV project will look, wherever possible, to set an example of best practice, for example with regards to net gain biodiversity, managing and reducing waste, recycling of materials and oil and chemical storage.

1.4. Barhale Enpure Environmental Cardinal Rules

Barhale Doosan has its Environmental Cardinal Rules which are mandatory on all BEJV sites. Although the BEJV is required to be legally compliant, these requirements are over and above legal minimums and all tasks must be carried out in accordance with the cardinal rules;

- All incidents, however minor will be reported immediately to allow for prompt investigation and review so that lesson can be learnt and prevent re-occurrence;

- Waste will be managed in accordance with the waste hierarchy- reduce, re-use, recycle etc. and Duty of Care and other relevant legislation. All waste is to be segregated and carriers will be engaged in accordance with waste management procedure ***CPR2327 Waste Management*** and will be appropriately registered to handle our waste;

- All fuels and chemicals will be stored in accordance with current legislation. Proportionate spill control equipment must be available at all filling stations at all times;

- Water and effluent shall be managed to avoid unauthorised or uncontrolled abstractions and discharge in accordance with ***CF2644-50 Permit to Pump***

1.5. Consents and Permissions

Table given below to be completed by the Construction Manager to ensure all the permission and consents are arranged during the enabling/planning phase where possible.

Type of Consent	Regulator	Required (Y/N)	Activity or Location	Start and End Date
Flood Defence Consent (works in/near watercourses)	Natural Resource Wales/ Environment Agency/ SEPA	No	site	
Environmental Permits: Water Discharge Consent Abstraction	Yorkshire Water/ Local IDB	No		
Groundwater Permits		Potential	TSR pumping station	Jan 24
Waste Management Licence		No		
Waste Exemptions	Natural Resource Wales/ Environment Agency/ SEPA	No		
Hazardous Waste Producer Registration	Natural Resource Wales (only)	No		
Planning Permission	Local Authority	Yes	New kiosks/ welfare building	Oct 23
Hedgerow Removal	Local Authority	N		
Land Drainage Consent	Local Authority	N		
Footpath Diversions (temporary / permanent)	Local Authority	N		
Protected Species Licenses e.g. Bats/Badgers/Great Crested Newts	Natural Resource Wales/ Natural England	Potential	Badgers – needs an updated ecology survey	
Scheduled Ancient Monuments	Ministry for Culture, Media and Sport	N		
Consent to work in SSSIs	Natural Resource Wales/ Natural England	No	Site is not a SSSI	
Countryside Stewardship Grant	Natural Resource Wales/ Natural England	N		
Tree Preservation Orders	Local Authority	N		
Listed Building Consent	Local Authority	N		
Conservation Area Consent	Local Authority	N		
Construction (noise) Consent	Local Authority	N		
Night Lighting/ Working	Local Authority	N		

1.6. Roles and Responsibilities

An overview of the roles for each individual with environmental responsibilities is presented below

Roles	Responsibilities
Contract/Project Manager	• Responsible for ensuring the requirements of environmental management, as set out in the EMP are implemented • The principles contained in the BEJV and Client Environmental/Sustainability policies are met.
Site Management	• Responsible for implementing environmental mitigation measures and best environmental practice throughout the site • Responsible for delivering the site induction including site specific environmental information
Sub-contractor such as labour agencies/ plant and equipment supplier	• Responsible for their own compliance with legislation and BEJV`s requirements.
Lead Environmental Advisor	• Responsible for the development and revision of EMP • Responsible for ensuring the environmental legislations are kept up to date • Responsible for delivering environmental training

Project based environmental personnel	• Responsible for ensuring delivering project specific environmental deliverables • Responsible for ensuring project compliance to EMP, Contract Phase Plan (CPP), Legal, Corporate and Client requirements • Responsible for environmental incident investigations
HSEQ Advisor	• Conducting site inspections • Ensuring implementation of best practice/corrective actions are undertaken • Ensuring the staff are fully aware of their duties to the environment • Ensuring the aspect and impact register is kept up to date • Ensuring the contract complies with Site Waste Management Plan

2 Ecology

2.1 Ecology Overview

Worsbrough Sewage Works is situated on the outskirts of Worsbrough town, south Yorkshire and is adjacent to a local nature reserve and backs on to the River Dove. This river is not classed as a main river but is still a significant watercourse in the area

A baseline ecology survey was carried out in 2020 by BL ecology (Ref 006_20_24_RE01). Following development of the scheme an updated ecology survey was carried out in October 2023 by Milner Ecology (Ref ME814)

2.2 Ecology Baseline

A standard walkover survey was undertaken in line with the recommendations made in the CIEEM Guidelines for Preliminary Ecological Appraisal.

An overview of the habitats present on site have been identified in the ecological appraisal / survey. The survey involves walking the site, mapping, and describing all habitats present. The condition of each habitat is also assessed using the DEFRA Biodiversity Metric 3.0 condition assessment sheets. Additionally, evidence of fauna and faunal habitat is also recorded, for example droppings, tracks, or other field signs.

A breakdown of specific habitats can be found in the BL Ecology report from 2020. This has been updated in Milner Ecology report in October 2023

2.3 Ecology Protection & Preservation

Initial surveys indicate most area of ecological significance lie outside of the works

Himalyan Balsam has been identified outside the works area. The team will check for migration of the invasive species

There are no known bat roosts

No Great Crested Newts have been identified in the works area

It has been advised to undertake a more up to date badger survey prior to starting works

There will be no impact to water voles by the construction project.

There are no trees within the site boundary. The TransPennine trail runs to the north of the site – this is tree lined and some branches overtop the boundary fence. These trees are unremarkable specimens. Where branches are close to the new Welfare building they will be pruned and trimmed back to the boundary fence to allow the installation of the building. There will be no impact to the root structure as the welfare building will sit on top of existing ground. The Ferric Dosing kiosk is too far away to impact any branches or root structures.

2.4 Ecology Appraisal Recommendations

BL ecology 2020 identified the following

Table 1 - Summary

Factor	Constraint Risk			Recommended Action
	Presence on site		Potential presence on site	
Sites of Nature Conservation Interest	**On site**	**Within 2km**		
Statutory sites	NO	YES	-	Consideration needs to be made as the site lies immediately adjacent to Worsbrough Country Park Local Nature Reserve (LNR). Avoid siting the development in close proximity to the LNR. Depending on the size and nature of the works, a Construction Environmental Method Plan (CEMP) may be required.
Non-statutory sites	NO	YES	-	Barrow Colliery Local Wildlife Site (LWS) lies immediately to the west of the site. Avoid siting the development in close proximity to the LWS. Depending on the size and nature of the works, a Construction Environmental Method Plan (CEMP) may be required.
Botany				
Biodiversity Action Plan (BAP) Habitat	YES		-	Approximately 4.6ha of the site likely qualifies under the BAP Open Mosaic Habitat on Previously Developed Land (OMHPDL). Pollution prevention methods should be in place and works should be located a minimum of 3m from all waterbodies highlighted within the report, as well as both the River Dove and Blacker Dike which both run through the survey area/site.
Invasive non-native species (INNS)	YES		-	Himalayan balsam was recorded in the north-east sector of the site ad along Blacker Dike. This require specialist treatment and removal.
Faunal species				
Badger	UNKNOWN		YES	Some areas inaccessible due to dense scrub which could support badger setts. The woodland immediately boarding the site to north also has the potential to support badger setts. Depending on the location of the development, these areas may require further survey. If the development has not occurred within 12 months of the date of this report a pre-construction badger survey should be considered
Bats	LIKELY		YES	See general below.
Birds	YES		YES	Nesting and foraging birds noted within survey area. Limited vegetation removal should take place outside the breeding bird season (or after a check by a suitably qualified ecologist).

			Breeding bird surveys required (April-June) if large areas are to be impacted
Great crested newts	UNKNOWN	YES	Insufficient standing water was present at location P3 by the eDNA surveys had been undertaken to take a viable sample and therefore the presence of great crested newts (and other amphibians), although considered unlikely cannot be ruled out completely. The eDNA surveys of P4 and P5 were returned as negative.
Otter	UNKNOWN	YES	If the detailed design of the development indicates that the earth banks, woodland and dense scrub along the banks of the River Dove to the east (where the River is less disturbed) will be impacted, an otter survey for the presence of holts would be required. See general below.
Reptiles	YES	YES	Reptile surveys required if large areas are to be cleared. For works within limited areas a precautionary method of works must be followed involving a two-stage vegetation clearance and removal of all arisings. See general below.
Water vole	UNKNOWN	YES	Water vole survey to be carried out by a suitably qualified ecologist should the river or dike be directly impacted by the proposed works.
White-clawed crayfish	NO	NO	No action required.
Migratory and coarse fish	UNKNOWN	YES (River Dove)	See general below.
Invertebrates	YES	-	Due to the plants/habitats present within the survey area, and the immediate proximity to Barrow Colliery LWS, in part designated for its invertebrates, important invertebrate species/assemblages could be present. Invertebrate surveys required if large areas are to be impacted (April and late September through to early October, with additional surveys often required during optimal species-specific period).
BAP species	UNKNOWN	YES	Due to the habitats present on site, both hedgehogs and brown hare are likely to be present within the survey area, see general below.
General			
General actions which cover multiple botanical and faunal factors	• If tree/woodland/hedgerow removal is required these habitats should be replaced with specimens of the same age/species on site or on a suitable receptor site. • Protect retained trees in line with BS:5387 (2012) guidelines. • Ideally site the development on hard standing, bare ground or mown grassland. • Operational maintenance of existing habitats should be kept to a minimum. • If vegetation removal or soil stripping is required, the area should ideally be sown with a suitable species rich grassland mix. • Security fencing (if required) should ideally allow a 20-30cm gap around the base to allow the passage of mammals.		

	• Avoid long-term security lighting where possible, reduce light spill onto boundaries if lighting is required. • Pollution prevention methods should be in place during the development to avoid polluting the waterbodies within and surrounding the site. The Environment Agency's Guidance for Pollution Prevention series (replacing the old Pollution Prevention Guidelines) provides relevant information and should be consulted. • Scrub management along Blacker Dike and within the grasslands would help improve the structure and in turn biodiversity value of the site. • Scrub and tall ruderal management within the area of the old workings would also improve the structure in this area and allow grassland species to develop.

Following scheme development and the recent Ecology report from Milner (ME814) the recommendations have been summarised below

- Initial surveys indicate most area of ecological significance lie outside of the works.
- Himalyan Balsam has been identified outside the works area. The team will check for migration of the invasive species. – a TBT will be provided to the site team on Himalayan Balsam
- Habitats within the site works area have limited ecological value and natural regeneration of the area will be promoted
- Low risk of Great Crested Newts – site team will be briefed via TBT
- No badger setts found or anticipated on site – TBT will be briefed to site team
- There is no known bat roosts.
- There will be no impact to water voles by the construction project.

3 Environmental Risks and Opportunities

3.1 Environmental Impact Assessment

The BEJV HSEQ Lead will be responsible for producing the register of Environmental risks and opportunities on site in accordance with ***CG2621-02 Environmental Risk Register***. This register will comprise the various environmental risks identified in the Risk Assessments.

Risk will be identified under the following headings:

- Emissions to Air
- Nuisance (Noise, odour, lighting & vibrations)
- Ecology (Flora & Fauna)
- Land & Watercourse Contamination
- Flood Risk and Drainage
- Archaeology/ Cultural Heritage; and
- Combined Effects
- Waste Elimination & Material Management
- Energy & Carbon Management

The site-specific Environmental risk register will be found within the Project Environmental Impact Assessment, this is a live document therefore it is deemed to be updated regularly to ensure environmental aspects are covered thoroughly by the site.

3.2 Environmental Risk Assessment

The BEJV project will ensure all task specific environmental risk assessments undertaken on the project are location specific. Risk assessments may be undertaken by the Construction Manager or our subcontractors. However, in the latter case, the risk assessments must be reviewed and accepted by the BEJV Construction Manager. When undertaking internal assessments, ***CPR2621 Risk Assessment & Method Statements (RAMS)*** and ***CG2621-02 Environmental Risk Register procedure*** will be adopted. This will enable the assessor to:

- Identify the significant environmental impacts that can be anticipated.
- Assess the risk from these impacts & align with Ecology Recommendations
- Identify the control measures to be taken and re-calculate the risk
- Report where an inappropriate level of residual risk is identified so that action can be taken through design changes, re-scheduling of work or alternative methods of working in order to reduce the risk to an acceptable level.

The results of risk assessments, and their residual risk are only considered acceptable if: the severity of outcome is reduced to the lowest practical level; the number of risk exposures are minimised; all reasonably practical mitigating measures have been taken and the residual risk rating is reduced to a minimum.

The findings of the risk assessment and in particular the necessary controls **are to be briefed** to all operatives before the commencement of the relevant tasks.

3.3 Risk Assessment Method Statements (RAMS)

Method statements will be site specific and/or activity specific which will also reflect environmental constraints and the mitigation measures proposed to reduce the level of risk. This will be completed by the site agent or other appropriate experienced personnel, in consultation with regional **HSEQ Advisor/ Project specific Environmental Personnel** and where necessary, environmental specialists. Their production would include a review of the environmental risks and commitments, as identified in this EMP and risk assessment, so that appropriate control measure are developed and included within the construction process.

Method statements will be produced by site agent and approved by contract/project manager and reviewed by **environmental/ HSEQ Advisor** during their inspections in accordance with ***CPR2621 Risk Assessment & Method Statements***. Method statements will contain as a minimum:

- Location of the activity
- Activity to be undertaken and methods of construction
- Plant and materials to be used
- Labour and supervision requirements
- Health, Safety and Environmental considerations
- Any permit or consent requirements (A permit to pump is required for all fluid transfer operations no matter how minor)
- Emergency preparedness / contingency planning

4 Environmental Monitoring and Measurements

Mitigation measures identified in surveys undertaken and licenses and permissions obtained for example, noise monitoring, water sampling to monitor water discharges etc. are to be incorporated into the site-specific environmental risk assessment.

4.1 Environmental monitoring

Environmental deliverables required by the EMP will be subject to regular independent inspections from Environmental Advisors/HSEQ Advisors. These inspections would be used to confirm that:

- Works are being undertaken in compliance with project plans (EIA/EMP/SWMP), relevant environmental procedures and risk assessment method statements;
- Agreed protection or mitigation measures are in place, prior to or during the implementation of construction activities;
- Construction works have been completed in accordance with the design and commitments made during the enabling/design phase
- Works comply with statutory, implemented planning consent, and all contract requirement;
- Remedial actions and opportunities to improve been taken, as necessary;

CF2683-60 the HSE inspection form and ***CF2683-66 detailed environmental inspection form*** are available on the IMS. Any advisory notes will be captured using the ***CF2683-60 HSEQ Advisor inspection form.***

4.2 Non-Compliance Procedures and Environmental Incidents

Given the nature of the works and the environmental sensitivity of the site, it is possible, although unlikely, that environmental incidents could occur. Such incidents could include:

- Hydrocarbon spillages;
- Silt runoff into surface or groundwater;
- Environmental nuisance;
- Poor waste management practice;
- Breach of environmental legislations
- Failure to comply with Ecology preservation requirement
- Ineffective emergency preparedness / contingency plan

The site team will follow BEJV's environmental procedures for responding to environmental incidents and/or client's environmental procedures if BDJV are not principal contractor. In the event of an environmental incident a detailed investigation will be conducted in line with ***CF2151-51 Detailed Incident Investigation*** consisting the following:

- Date the environmental incident occurred;
- Description of the environmental incident situation;
- Impact of the environmental incidents;
- Description of the elements of the environmental subject to impacts caused by environmental incidents (receptors);
- Actions to be implemented in response to environmental incidents;
- Responsibility for undertaking actions;
- Time frame for implementing actions.

The Site manager/Contracts Manager is responsible for ensuring site staff has been fully briefed on how to respond to emergency environmental incidents.

All incidents and accidents would be recorded on a ***CF2151-50 Injury and Incident report form*** and will be reported to the project manager and the Environmental /HSEQ Advisor. All incidents would be subject to a full investigation resulting in a report detailing the remedial measures taken and the root cause analysis to prevent recurrence. The Environmental/HSEQ Advisor would instigate an appropriate change in procedures where necessary.

All incidents occurring within the site will be reported immediately to the Project Manager and the Environmental/ HSEQ Advisor in order for them to notify the appropriate parties as required, including the nominated clean-up contractor, Environment Agency, other relevant local authorities and clients.

4.3 Environmental Positive Interventions

All Positive Interventions should be reported in line with BarhaleEnpure Positive Intervention requirements ***CPR2153 Reporting Positive Intervention, Good Practice or improvement.***

The Environmental/HSEQ Advisor will respond to any significant Environmental issues reported by the site. The Project manager in conjunction with the Environmental Advisor or Head of HSEQ may raise an alert e-mail and circulate it to all appropriate departments following an incidents or a positive intervention.

4.4 Environmental Management Controls

4.4.1 Spillages

Any spill risks will be incorporated in the environmental risk assessment, which all staff are made aware of, and be trained to manage spill risks in the event of an environmental spills. This plan will take into account any client specific requirements. The appropriate incident response equipment will be available next to the particularly sensitive activities i.e. overpumping/material storage areas such as fuel/chemical storage areas).

A supply of spill containment and treatment equipment and materials will be available near storage areas of hazardous materials at all times in sufficient quantities to deal with small to medium scale spillages and all staff will be aware of where this equipment is stored.

An incident of pollution at the construction site will be contained using equipment within the sensitive area, mopped up quickly adequate spill kits and removed from the area for storage prior to permanent removal from site. Any contaminated ground will be removed immediately and stored outside the sensitive area for testing and removal from site.

All incidents occurring within the site will be immediately reported to the Client environmental representative and the project manager in order for them to notify the nominated clean-up contractor. The incident will be recorded and the HSEQ/Environmental Advisor will conduct an investigation into the cause and effect of the incident, recommending an appropriate change in procedures where necessary.

4.4.2 Materials Handling, Use and Storage

During materials handling and storage the following measures will be employed by the project:

- Only designated areas would be used for the handling or storage of construction materials;
- All dust-generating materials transported to and from site would be covered by sheet;
- Stockpiles would be dampened to minimise the potential for dust generation;
- Stockpile surface would be compacted, if necessary;
- Storage time of materials on site would be minimised

The types of potentially polluting materials associated with the project will be stored as shown in the table below

Type of Material	**How and Where it will be stored**
Topsoil	• To be stored beside the works to a height of no more than 2m. • Do not compact but mould and shape to maintain the soils natural properties and structure • To be stored separately from subsoil. • Topsoil should not be positioned within the root or crown spread of trees or hedgerows, or adjacent to ditches, watercourses or existing or future excavations. • Nothing should be stored or left on the topsoil bund
Subsoil	• To be stored beside the works to a height of no more than 2m. • Do not over compact but mould and shape to maintain the soils natural properties and structure • To be stored separately from topsoil. • Subsoil should not be positioned within the root or crown spread of trees or hedgerows, or adjacent to ditches, watercourses or existing or future excavations.
Sand / Stone	• To be stockpiled in the allocated lay down area in the site compound in a way to minimise dust and wastage.
Concrete	• An area of ground below the dispensing chute of the concrete wagon will be covered, to protect the underlying ground. Any amount that falls to unprotected ground will be removed immediately. • If concrete wagons dispense directly into concrete bins, these bins will be sat on a layer of polythene sheets. • A washout skip lined with polythene sheets will be provided for the wagon to wash into. • Concrete skips/hoppers will be washed out over the washout skip. • A low level polythene sheets will be used for washing out concrete pump hoppers.
Other bagged materials	• To be stored inside a container where practicable otherwise off the ground on pallets and protected from the weather.
Chemicals, Bitumen, Paints, Solvents, Grease	• To be stored in the original packaging and should be stored appropriately in the COSHH stores 9i.e. in drip tray or bunded area to prevent chemicals mixing). • Consult the MSDS or COSHH sheets for details of particular storage requirements.
Oils	• To be stored in the COSHH stores in the site compound in a drip tray/plant nappy. • Keep container and contents away from ditches and drains at all times.
Batteries / Fluorescent tubes	• In a designated covered storage area. Waste will be stored in separate hazardous waste containers.
Empty drums / Containers	• In a designated area prior to disposal. • Away from sensitive boundaries and watercourses

Inert Waste	• To be kept separate from non-hazardous and hazardous waste in a clearly designated area/skip (labelled with List of Waste (LoW) code) located on a hard standing where possible.
Non-Hazardous Waste	• To be kept separately from inert and hazardous waste. • To be segregated into its component streams and kept in clearly labelled containers/ skips, labelled with LoW code • Containers/ skips to be in good condition, enclosed if necessary (plastic/paper/cardboard/general) and located on hard standing. • Containers/ skips to be located away from sensitive boundaries and watercourses • Containers/ skips to be screened from external receptors if possible.
Hazardous Waste	• To be kept separately from inert and non-hazardous waste. • To be segregated into its component streams and kept in clearly labelled containers/ skips, all hazardous waste containers should be labelled with LoW code including asterisk (*). • Containers/ skip to be in good condition enclosed i.e. 205L drums manufactured to a UN standard and located on hard standing. • Containers/ skips to be located away from sensitive boundaries and watercourses • Containers/ skips to be screened from external receptors if possible.

4.4.3 Storage of Hazardous Substances

BEJV will make provision to ensure that all potential contaminants stored on the construction site are controlled in accordance with the Control of Substances Hazardous to Health (COSHH) regulations 1999 and are properly isolated and bunded and that no oil or other contaminants are allowed to reach watercourse or groundwater, including aquifers.

The storage locations for such materials would be positioned at least 50 m away from watercourses and agreed with the relevant planning authority.

All surface water or other contaminated water which accumulates in the bund will be removed by manually controlled positive life pumps. This water will be removed from site and discharged in accordance with relevant legal requirements.

Spill response kits containing equipment appropriate to the quantity and types of materials present on site will be available in the event of a fuel spillage and personnel will be trained in their use.

Storage areas would be clearly signed and would be regularly monitored for spills. Any leaking containers will be repaired or removed from site.

BDJV and its sub-contractors on site will ensure continuous compliance with all the above conditions under the monitoring by the Site manager/HSEQ Advisor.

4.4.4 Air Quality (Dust Control)

Any dust emitting activities will be mitigated as proposed in site specific environmental risk assessment, mitigations measures will include:

- Site roads and work areas would be swept and sprayed with water in prolonged spells of dry weather;
- Adherence to speed limits for all vehicles;
- Wheel washing facilities would be provided and maintained in use at all times during the construction period;
- Materials, which arise from the preparation of the site will be stockpiled and where possible used for the redevelopment process, thus reducing the number of off-site vehicles movements required to bring such material onto the site.
- Accumulation of dust on and off-site would be monitored regularly, if needed corrective actions would be undertaken;
- Handling areas should maintained in a clean condition.

4.4.5 Waste Management

A variety of different materials will be used for construction of the development. the purpose of the waste management plan is to define waste management procedure to ensure that waste is stored and disposed in accordance of Waste- Duty of Care regulations, and BDJV`s corporate requirements and any specific requirements from the client.

BDJV will apply waste hierarchy of Reduce, Reuse, Recycle, and Dispose Waste materials such as concrete, stones, muck (uncontaminated), wood will be used on site where possible or on another BDJV site.

The waste management plan provides overarching guidance to all activities carried out on site, all waste materials and residual materials from the operations will be handled in accordance with ***CPR2327 Waste Management*** and ***CF637-50 Monthly Safety and Environmental Return***. As well as any applicable legislation, guidance and Client requirements.

The table below lists potential waste streams, these can be expanded if needed. Include waste contractors and disposal information to demonstrate duty of care regulations.

Waste Stream	**Treatment**
Paper & Cardboard	Recycle
General Waste	Recycle/Landfill
Metal Waste	Recycle
Plastic Waste	Recycle
Spoil Uncontaminated	Landfill or use of waste recovery e.g. land profiling subject to Permit or CLAIRE Declaration,
Spoil Contaminated	Treatment and Landfill
Inert mixed construction and demolition wastes	Recycle
Used spill kits and oily rags	Treatment and Landfill

4.4.6 Site Waste Management Plan

A waste management plan will be produced by Barhale Enpure in line with ***CPR2327 Waste management*** and ***CF637-50 Monthly Safety and Environmental Return***.

4.4.7 Land Contamination/ Remediation

In the event of contaminated material being found, appropriate measures would be put in place to isolate this material in situ, or to remove it from site in accordance with ***CPR2646 – Contaminated Land*** and ***CG2646-01 Contaminated Land Guidance Document***

The site personnel will be made aware through the site induction, training and toolbox talks of the stipulation to remain observant during all excavation works to the possibility of unearthing contaminated land.

If the contamination is encountered unexpectedly; work will be stopped, the contaminated soil/objects will be covered off and be notified to the Contracts Manager, Site Manager, and Environmental/HSEQ Advisor. The contaminated spill will be stored securely i.e. bunded and be kept away from drains and watercourses.

Site will ensure the contaminated material is not mixed with uncontaminated (inert) material during the site works and dispose the contaminated soil as hazardous waste if necessary.

4.4.8 Noise and Vibration

Noise and vibration will be controlled and limited as far as reasonably practicable so that sensitive receptors are protected from excessive noise and vibration arising from BDJV projects.

The principles of best practicable means will be employed to minimise noise levels during construction. Recommendation for the control of noise and vibrations on construction sites are set out in ***CG263902 BS5228 - Code of practice for noise and vibration control on construction and open sites.*** The following measures will be used where appropriate:

- Hydraulic plant will be used in preference to pneumatic plant where possible;
- Plant and equipment will be maintained in good working order and fitted with silencers and acoustic panels where appropriate;
- All plant and equipment will be switched off when not in use;
- Methods used for concrete breaking and demolition will be carefully considered;
- Consents/exemptions such as Section 61 if required will be arranged prior to work commencement

NOTE: Noise & Vibration management must be reviewed against Ecology Appraisal recommendations which are subject to seasonal change to protect faunal species.

4.4.9 Ecology and Habitats

All ecological constraints have been addressed within section 2 of this document and further guidance is available within the Environmental Risk Assessment and Ecology reports.

4.4.10 Energy

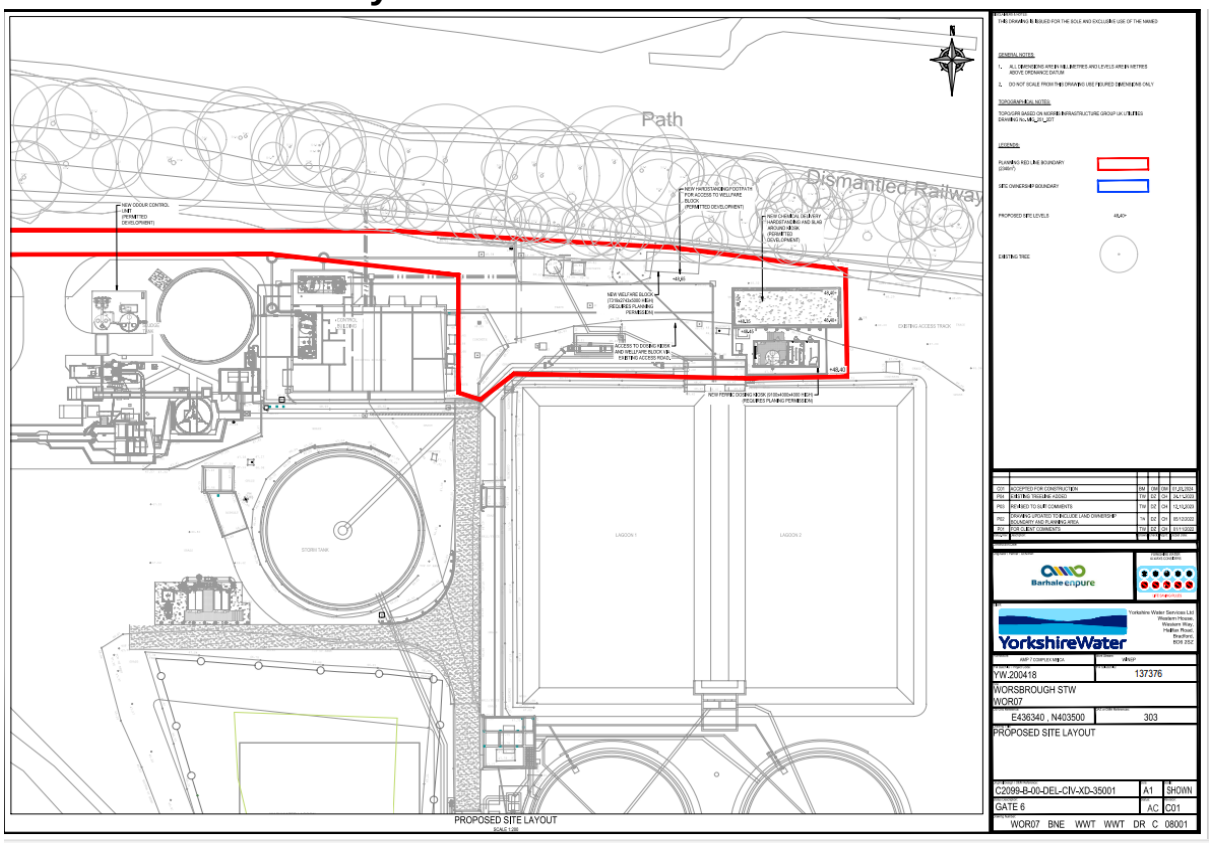
In line with Barhale`s ISO 50001 commitment, Site will implement CPR2647 – Energy management, this entails applying energy efficiency measures and source energy efficient plant and tools, following measures will be considered on Barhale site

- Construction plant and equipment is to be maintained to maximise fuel efficiency;
- Utilise energy from renewable sources where feasible;
- Minimise workforce travel;
- Incorporate and source local materials to be minimise associated transportation.
- Use environmentally friendly welfare cabins on site
- Charging Point install (EV) to be determined as works progress

4.4.11 Archaeology

BDJV would ensure that Site personnel are aware of archaeological issues. Should any archaeological artefacts be exposed during excavation, work on the area where the artefacts were found, would cease immediately and the project manager would be notified as soon as possible.

4.5 Construction Site Layout Plan



4.6 Environmental Reporting

BDJV will measure and report the environmental performance within the agreed timescale for the end of the reporting period. The key indicator will be:-

- Waste
- Gas Oil (Fuel consumption)
- Carbon Footprint
- Environmental Positive Intervention
- Environmental Incidents
- Noise & Vibration Data & Assessments
- Biodiversity Net Gain - Quarterly Assessments (Latter phase of project)

Regular communication will be maintained between representatives at all levels of the contract to ensure that everyone is fully aware of project environmental issues. Communication methods will include induction, toolbox talks, and briefings. Letters/memos and review meeting.

Internal communication will be primarily via the following processes:

- Weekly HSEQ Flash Report: weekly Environmental awareness/incident
- Environmental Alerts
- Site Inductions (Module 2 Site Specific)

4.7 Documented Information

All documents pertaining environmental requirements will be kept on site in accordance with ***CG2321-00 Master Filing System*** and be available for monitoring and auditing purposes. Site inspections may require access to this documentation for environmental auditing purposes

Copies of all environmental documentation relevant to the works will be filed on site and made available for internal inspections, including

- Waste Transfer Notes
- Hazardous waste consignment notes
- Records of all hazardous materials used on site (COSHH) Register
- Monitoring data/ Permit to pump
- Consents and Licenses obtained
- Site specific environmental risk assessment
- RAMS
- Records/reports of surveys and inspections
- Environmental training records (site induction, flash reports, toolbox talks, etc.)

Documents such as waste transfer notes and consignment notes will be accessible from site either electronically or physical copies.

5 Conclusions and Recommendations

The EMP will ensure that the best environmental practice is achieved throughout the project and all sensitive environmental and residential receptors are protected as far as possible.

The Environmental Management Plan must be used as an on-site reference document during all phases of the project, and auditing must take place in order to determine compliance with the EMP.

Provided the project follows the requirements of this EMP and CPP, it is anticipated that most of the negative environmental impacts of construction can be mitigated and controlled. The Project manager and HSEQ/Environmental Advisor will need to monitor the site throughout construction to ensure that the required environmental controls are in place and working effectively.

6 Competence, Training and Awareness

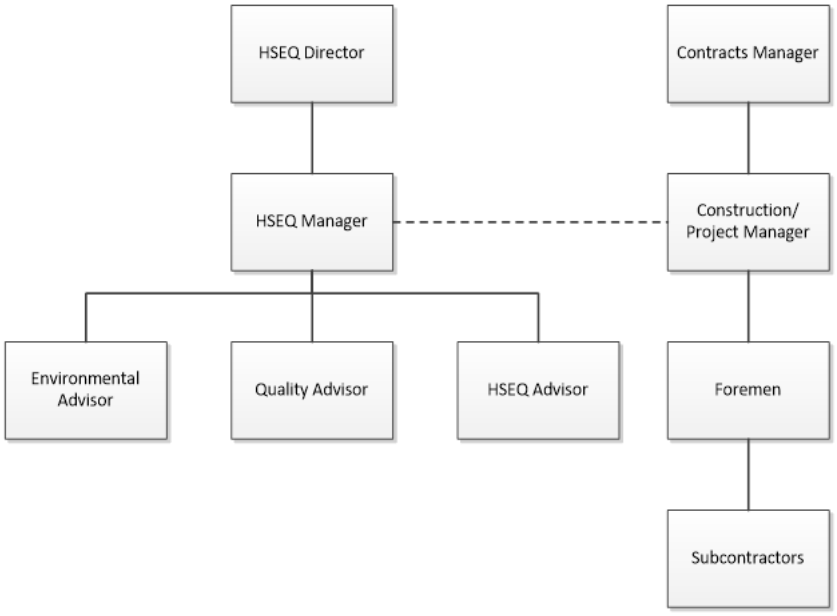
The raising of environmental awareness is viewed as a crucial element in the appreciation and implementation of the EMP. BDJV will identify the training needs in accordance with ***CG2620-03 HSEQ Training Needs Matrix*** to staff to ensure environmental awareness on the worksite. The method of identification is based on the person's role and its ability to encounter environmental risk.

Training will be given in the form of briefings and toolbox talks to the site workforce. A modular training package will also be offered to the staff on site in line with the project objectives and targets.

The EMP will be part of the terms of reference for all sub-contractors involved in the project with BDJV and have access to project specific EMP. All sub-contractors would have to give some assurance that they understand the EMP and meet the BDJV environmental requirements. All senior and supervisory staff members shall familiarise themselves with the contents of EMP. They shall know and understand the specification of the EMP and shall be able to assist other staff members in matters relating to the EMP.

Additional Input:

Environmental Leadership Organogram



SHEQ Forum & Frequencies to be agreed