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1 Introduction

1.1 Purpose

This preliminary Construction Environmental Management Plan (CEMP) has been developed for the tender process of the Tees Valley Energy Recovery Facility.

This document provides an overview of the environmental sensitivities at the site and sets out the key environmental management and mitigation measures that would be implemented during construction. These control measures reflect environmental commitments made in the Environmental Statement and those required by Planning.

HZI operates an integrated Health, Safety and Environmental (HSE) management system, and therefore should be read alongside the Construction Phase Plan (CPP) which details generally how HSE would be managed on site.

This document has been developed to conform with relevant legislation and other compliance requirements and should be read alongside any Construction Method Statements and referenced documents.

This is a preliminary document that will be revised as further pre-construction studies are carried out and then again and prior to key stages in the construction and commissioning of the plant.

1.2 Scope

HZI as well as any contractors working on the project shall comply with the requirements set out in this document and its appendices.

1.3 Acronyms and Definitions

CEMP	Construction Environmental Management Plan
CONTRACTOR	The person or persons, firm or company named as such in the Contract Agreement, who has undertaken to execute the works
COSHH	Control of Substances Hazardous to Health
CPP	Construction Phase Plan
EMS	Environmental Management System
EPP	Emergency Preparedness Plan
ERF	Energy Recovery Facility
ES	Environmental Statement
HSE	Health, Safety and Environment
HSEMS	HSE Management System
HZI	Hitachi Zosen Inova
PC	Principal Contractor
PMS	Process Management System

POWRA	Point of Work Risk Assessment
PTW	Permit to Work
RAMS	Risk Assessment Method Statement
SDS	Safety Data Sheet
SOR	Site Observation Report
TII Erection Description	Technical Document issued by Contractor on the erection method of that scope of works including risk assessment
TBT	Toolbox Talk
WMP	Waste Management Plan

1.4 Related Documents

Doc. No.	Doc. Name
50132056	Construction Phase Plan
2019	Project Environmental Statement
18 th November 2019	Prairie Site Ecological Appraisal
AA 426 19	Management of Plant and Equipment (Mobile and Handheld)
AA 426 23	Chemicals and Hazardous Substances Procedure
AA 426 41	Management of Excavation Works and Contaminated Land
GP 426 F27	Central Team HSE Scored Inspection
GP 426 F30	Site Monthly Environmental Inspection
GP 426 F53	Waste Duty of Care Audit Form

2 Background

2.1 Project Description

The proposed project will involve all works associated with the construction of an ERF. The facility is designed to recover energy in the form of steam and electricity for export to the national grid through the thermal treatment of non-recyclable waste. In addition, the facility will be “Carbon Capture ready” for the later addition of a Carbon Capture Plant.

The project comprises civil and process aspects, including two process lines, fuel reception, storage, shredding, fuel and air supply systems, boiler, facilities for the treatment of exhaust gases, on-site facilities for handling and storage of residues and waste water, stack, control systems for process operations, data acquisition and storage.

Details of the construction programme are given in the CPP.

2.2 Site Description

The proposed Energy Recovery Facility (ERF) site is located in North Yorkshire and is part of a larger area of brownfield known as the Prairie. The site is within the South Tees Development Corporation (STDC) area, which comprises 1,800 hectares of land that forms part of the STDC’s Regeneration Master Plan.

The STDC area, has been divided into specific zones. The proposed ERF site occupies a 10-hectare site situated at the southwestern corner of the STDC area, within the Grangetown Prairie Zone. It lies 1.2 km south of the River Tees and approximately 6.5 km to the north east of Middlesbrough Town centre.

The site of the proposed ERF is the first zone within the Grangetown Prairie area to be developed. The proposed site comprises of relatively flat grassland and is brownfield land and was once dominated by industrial buildings at the heart of the steel making industry on Teesside. The SSI Torpedo Shed, lies to the south of the Grangetown Prairie site and is still in operation. Lackenby steelmaking complex is situated to the east. South Tees Freight Park lies to the west. South Bank Coke Ovens are located to the north east.

The site is well defined by existing infrastructure corridors such as the Tees Valley Railway Line, which runs along the north of the site, beyond which is an existing landfill and waste management facility. The A66 is located south of the site.

An additional parcel of land comprising of 1.3055 hectares to the east of the site will be utilised during the construction phase of the proposed ERF for construction laydown and carparking.

3 Environmental Management

3.1 Management System Overview

HZI operates an integrated Health, Safety and Environmental Management System (HSEMS) key details of which are given in the CPP. All persons on site, including Contractors, are required to comply with the HSE requirements as detailed in the CPP, this document and its appendices.

The HZI Environmental Management System is ISO 14001 certified (see Appendix A).

At the core of the EMS is the HZI Environmental Policy (see Appendix B). Copies of this shall be displayed on site and every employee shall be made familiar with the key elements of the policies as applicable to site through the induction process (see CPP).

3.2 HSE Risk Identification

Environmental risk identification is generally carried as part of a joint HSE process called HazOps (at design stage) and during construction through HAZCONs and Risk Assessment Method Statements (RAMS). Prior to starting a task, workers are also required to complete a Point of Work Risk Assessment that covers HSE risks. This is all detailed in the CPP.

In addition to the above, specific environment risk assessment is also carried out in an Environmental Aspect Identification review as detailed in the HZI procedure AA426 15. The project shall review Environmental Aspects and Impacts in accordance with this procedure to reflect site specific environmental risks and identify site specific control measures. This shall be updated on an annual basis or more frequently as required, and the control measures incorporated into Project documentation.

3.3 Compliance Obligations

HSE compliance obligations and how they are managed, is detailed in the CPP.

3.4 Objectives and Targets

A full suite of objectives and targets shall be developed for the Project as detailed in the CPP. This shall include specific environmental goals in line with current HZI Corporate Objectives and Targets together with any others required by the Client. Environmentally this would typically include:

- To complete the project without any HSE incidents
- To have zero breaches in planning conditions, prohibition, enforcement and prosecution notices
- To achieve in excess of 95% (weight) of non-hazardous project waste be reused, recycled or recovered, and therefore diverted from landfill.
- A target for energy consumption reduction appropriate to the company targets in place at the time.

3.5 Project Environmental Roles and Responsibilities

3.5.1 General

Environmental management, together with Health and Safety management, is generally integrated on HZI sites. See CPP for details of how key roles on site, such as Project Director, Site Manager and HSE Manager will manage HSE. Roles specific to environmental are detailed below.

Suitable and sufficient management resources shall be applied to the project to ensure environmental performance is monitored, maintained and continuously improved throughout the project. The HZI Project Director and HZI Site Manager shall take responsibility for overall management of environmental issues on site.

HSE professionals from both HZI and Contractors working on the project will be invited to work as a joint HSE team. Their aim shall be to ensure there is a consistent and professional approach to addressing HSE issues and to continuously challenge best practice and look for new and innovative ways of taking HSE issues beyond compliance.

3.5.2 Environmental Responsibilities and Competencies

3.5.2.1 HZI Central Environmental Manager

HZI will designate an Environmental Manager (see Attachment C) who will periodically attend site throughout the construction process. The Environmental Manager shall:

- Lead by example and champion all areas of environmental management;
- Ensure that all legal environmental requirements are identified and met;
- Review environmental documentation throughout the construction process to ensure it remains relevant and effective in identifying and managing environmental risks;
- Be available to assist with specialist environmental advice as required.

3.5.2.2 HZI HSE Advisor (Environmental)

In addition, one of HSE Advisors (see CPP) will be designated Environmental Site Advisor and shall have NEBOSH Environmental Management Certificate or equivalent. This Environmental Site Advisor shall:

- Ensure that the environmental requirements of this plan are effectively implemented on site on a day to day basis;
- Carry out monthly environmental inspections;
- Ensure that environmentally orientated briefings and “Toolbox Talks” are being delivered to the site workforce; and
- Be in charge of waste management on site and shall carry out periodic audits and inspections to ensure the requirements of the Site Waste Management Plan are being implemented.

3.5.2.3 Environmental Specialists

Environmental Specialists will be involved if required, for example:

- Planning, setting up and maintaining environmental noise monitoring

- Inspection of habitats and identification of mitigation measures (i.e. if vegetation clearance work has to be undertaken during breeding bird season); and
- In the event there is a discovery of any archaeological finds.

3.6 Environmental Inductions and Training

3.6.1 Site HSE Induction

The Site HZI HSE Induction process described in the CPP, shall contain details of key environmental requirements as appropriate to the workers being inducted.

In addition, the Contractor shall induct all their workers, and provide any specific environmental requirements to their scope of work.

3.6.2 Site Specific Training

HZI will arrange and deliver to relevant HZI and Contractor individual's site-specific training for site specific environmental aspects requirements (if not covered in the site HSE induction).

Contractors shall prepare toolbox talks to cover specific environmental issues raised during the works as and when required. Examples may include; waste management and dust mitigation measures. Contractors shall retain toolbox talk records and forward these to HZI. Central HSE Team has a number of Environmental Toolbox Talks which are available for use.

3.7 Environmental Communication

Environmental communications are carried out principally as follows:

- Significant environmental aspects shall be communicated to key staff following the annual environmental aspects review described in Section 3.2;
- Bi-annual HSE roadshows will be present to HZI workers on sites by the Corporate HSE Team. This will include details of updates from other sites including details of environmental incidents and learnings resulting from company audits;
- Environmental campaigns shall be held on site at intervals. This might include campaigns on waste or energy saving.

Environmental Lessons Learned shall be communicated as per the Procedure AA426 34, which includes notifying Site HSE Managers and posting lessons learned on the company intranet.

3.8 Inspections and Audits

All inspections and audits on site will cover HSE topics. HZI and Contractor(s) shall both schedule environmental monitoring activities based on risk. Monitoring activities may be carried out jointly as well as separately. Contractors should develop their own schedule of monitoring environmental activities and submit to HZI for approval.

Actions resulting from these inspections and audits shall be tracked by the auditor until closure.

3.8.1 HZI Site HSE Team

Site HZI HSE Team shall carry out as a minimum the following documented inspections / audits in addition to daily (undocumented) site walkarounds:

- Weekly HSE Inspections;
- 6 Week Post Mobilisation Contractor HSE Inspection (using GP426 F55);
- Monthly environmental inspections (using GP426 F30) to ensure compliance with the requirements of this CEMP

3.8.2 HZI Central Environmental Manager

In addition to site lead inspections and audits, the HZI Central Environmental Manager shall carry out inspections and audits. This shall include as a minimum:

- Quarterly Scored Environmental Inspections (GP426 F27)
- Annual Environmental Management System Audits in line with requirements of ISO14001.

Supplier HSE audits will also be carried out as documented in the HSEMS Manual (PM 10).

3.8.3 Enforcement Authority Visits

Planned or unplanned enforcement authority visits shall be reported immediately to HZI who shall manage them in accordance with the HSE MS Manual (PM 10).

3.9 Environmental Reporting

Environmental incidents shall be reported to HZI immediately as per the process outlined in the CPP.

On a monthly basis, environmental data shall be collected and submitted as per CPP Section 3.13. The following data as a minimum shall be submitted:

- Environmental incidents
- Environmental Site Observation Reports
- Hydrocarbon consumption
- Electricity consumption
- Water consumption
- Complaints

3.10 Continuous Improvement

Management reviews to evaluate environmental performance and identify areas to improve shall be carried out by both Site Management and by the central Environmental Manager over the company a whole.

The review shall include results from inspections and audits and monthly environmental data (see section 3.9) as well as lessons learned (see Section 3.7).

4 Ecology Management

4.1 Introduction

This section takes data from the Project Environmental Statement and information from subsequent Ecological surveys summarised in a letter from Hartlepool Borough Council (18/11/2019). A Habitats Regulations Assessment (HRA) is required for site, and the Report to Inform a Habitats Regulations Assessment (BSG Ecology, January 2022) should be read in conjunction with this CEMP.

There are no non-statutory or locally designated wildlife sites within 2km of the site and no indirect impacts on these sites are likely.

4.2 Site Fauna

The wider brownfield site supports or is likely to support several Tees Valley Local Biodiversity Action Plan species, Natural Environment and Rural Communities Act 2006 (Schedule 41) Species of Principal Importance and red/ amber Birds of Conservation Concern. These include:

- Brown hare
- Lapwing
- Herring gull
- Black-headed gull
- Skylark
- Reed bunting
- Meadow pipit
- Common toad
- Various butterflies (Grayling, Wall, Dingy skipper, Small heath)

The site does not support any European Protected Species. While common pipistrelle bats may use the site for foraging likely impact on this species was assessed to be negligible. Several of the ponds were tested for great crested newt DNA and all results were negative. There are no populations of great crested newt within 5km and this species was assessed as not occurring.

Due to the risk of ground nesting birds such as skylark and lapwing, a mobilisation plan may need to be put into place to minimise risk if mobilisation to site takes place during nest season (March to end July).

4.3 Invasive non-native species

The invasive species Small-leaved cotoneaster (*Cotoneaster microphyllus*) occurs on adjacent land and may be present. Under Schedule 9 Wildlife and Countryside Act 1981, it is illegal to distribute or allow the spread of cotoneaster species into the wild.

4.4 Impacts and Mitigations

The potential impacts and associated mitigation measures are summarised Table 2. Mitigations relating to pollution of water, dust and light that may affect ecology are given in Sections 5, 8 and 10 respectively.

Table 2: Potential Impacts to Ecological Receptors and Associated Mitigations

Activity	Potential Impact	Mitigation
Site Activities - General	Accidental harm to Fauna	Contractor shall stop work immediately if any amphibian, reptile or nest is discovered and inform HZI immediately, who shall in turn inform ecologist.
		Should any nests be found, they should have an appropriate exclusion zone put in place, if possible, to safeguard the nests until the chicks have successfully fledged.
		Through the Site HSE induction and Toolbox Talks (TBT) personnel shall be made aware of the following: <ul style="list-style-type: none"> • Which species may be found on site and what they look like • Where the likely habitat areas / nesting areas are on or near the site • Measures to prevent harm and actions to take if spotted
		In the event the Project is required to abstract water from surface water for use on site, a fish guard shall be installed at the abstraction point.
Site Clearance	Habitat Loss	<p>An area of approximately 7ha will be safeguarded, enhanced and managed for the lifetime of the facility as a designated biodiversity area.</p> <p>Several ponds will be created in this designated biodiversity area and managed for the lifetime of the facility. These will be integrated with the attenuation areas and designed for wildlife benefit.</p> <p>Archaeological Area B (as designated in the Environmental Statement) shall be covered with existing site won topsoil to maintain connectivity of habitat.</p> <p>A management plan shall be developed to provide sufficient information to enable the Plant Operator to maintain the biodiversity area after the end of construction.</p>
	Harm to nesting birds	Initial mitigation in the form of pre-construction checks for breeding birds shall be undertaken. Any vegetation clearance required to permit works and access should be carried out outside of the bird breeding season (i.e. avoiding March to September inclusive). If works are proposed for the bird breeding season, or if following initial clearance, it becomes apparent that some further de-vegetation is necessary during the bird breeding season, an experienced ecologist should first check all areas for the presence of nesting birds.
Invasive Species	Spread of Invasive Species	All plant operators and contractors will implement plant hygiene procedures after working in an area where invasive species have been found.
		Through the Site HSE induction and TBTs personnel shall be made aware of the following: <ul style="list-style-type: none"> • Legal requirements relating to invasive species • Which invasive species may be found on site and what they look like • Measures to prevent spread and actions to take if an invasive species is spotted
		No access / work shall be carried out outside the site boundary unless approved by HZI
		Invasive species in the vicinity of the construction area (where it is possible to be spread by vehicles or activities associated with sit), shall be removed.

5 Pollution Prevention Management

5.1 Introduction

The major water body in the local area is the River Tees, which lies 1.8 km to the north of the site, with a width of approximately 300 m. Whilst the Tees estuary is classified as being of 'Poor' ecological potential, chemical status and overall status, the whole estuary area holds an international designation. Therefore, the sensitivity is considered to be very high.

In addition to the Tees estuary, there are several small surface water bodies within or close to the site, including ponds, lagoons, drainage channels and culverts. These are considered to be ephemeral, although there are wetland species (e.g. common reed) recorded. The water bodies are likely to be the result of localised poor drainage. The former course of Holme Beck runs immediately to the west of the site in a north/northwest direction. Holme Beck watercourse is now culverted and diverted to lie north of the site boundary, being culverted to the east to join the Cleveland Channel which flows into the Lackenby Channel. These two channels appear as lagoons, which drain out to the Tees at Teesport. To the east of the site, the Knitting Wife culvert also drains into the Cleveland Channel, and a storm drain connects these culverts upgradient of the site. There are three unmapped small ponds located to the north, south east and south of the site, with no obvious inlets or outlets.

Given the protracted history of activities in the area, it is possible that other culverted structures may be present.

5.2 Contaminated Land

An updated Contaminated Land Risk Assessment shall be undertaken prior to site development which may include additional ground investigation to characterise soil and groundwater conditions. Subsequently a Strategy shall be developed for site which would look to refine further baseline assessments, consider the risks associated with any identified contamination and propose appropriate construction phase mitigation measures to reduce the potential for impacts to occur.

Where the presence of contaminated materials is known or suspected, testing of soil samples in advance of construction will be used to clarify the baseline conditions and potential contaminants in the soil. Subsequently, verification testing will be undertaken in order to establish contamination levels and thereby determine an appropriate methodology for dealing with materials suspected as being contaminated. A watching brief will also be maintained during site re-development works.

5.3 Control of Substances Hazardous to Health

Control of Substances Hazardous to Health shall be controlled as detailed in the CPP.

5.4 Impacts and Mitigations

All transportation / construction activities shall be planned and implemented in a manner which will ensure no pollution of the water courses, culverts or drainage ditches which serve the River Tees. This shall include implementing appropriate pollution prevention measures as detailed in CIRIA Guidance Control of Water Pollution from Construction Sites (C532D).

The potential impacts and associated mitigation measures to comply with pollution prevention legislation and ensure the control of potential impacts are summarised in Table 3.

Table 3: Potential Pollution Impacts and Associated Mitigations

Activity	Potential Impact	Mitigation
General	Impact to surface / groundwater	In the event any areas with flood potential are identified, all potential pollutants (including plant) will be moved to a safe area
		TBTs about potential water pollution impacts and associated mitigations as well as how to identify contaminated land shall be given to all site staff
	Flooding	The approved Surface Water Management Plan, incorporating all mitigations detailed in the Environmental Statement and Flood Risk Assessment, shall be followed to prevent runoff from site causing any flooding downstream.
	Transportation of Contaminants off-site	The approved Surface Water Management Plan shall be followed to ensure that silt and other suspended solids and contaminants are not discharged off site.
Excavations / earthworks	Changes in sedimentation regime leading to pollution / harm to protected species	Surface water run-off is routed to either the attenuation pond or to a local sump / silt trap in a controlled fashion. No silt or mud shall be allowed to flow off site.
		Temporary cut off ditches directed to settlement sumps or water attenuation pond, siltbusters, silt fences or other mitigations shall be used as required to minimise the silt load of any dewatering to the attenuation pond and to prevent water / silt flowing off-site.
		No discharge or dewatering to River Tees or any other water body or culvert without written permission from HZI.
		Water from trenches or excavations that require dewatering shall be free from contamination, including sediment, prior to discharging into site drainage system.
Selection of hazardous materials	Pollution in the event of a loss of containment	Hazardous substances shall not be used where a practicable safer alternative exists.
		All hazardous substances will be furnished with Safety Data Sheets (SDS) in English. These SDS should be dispatched to site, prior to shipment of the material, for approval by HZI Site HSE Manager.
		All contractors shall have sufficient and appropriate spill equipment to respond to any spills by chemicals / hydrocarbons they have on site.
Handling of hazardous materials	Pollution to surface and ground water in the event of a loss of containment Harm / health risk to workers	A safe system of work and all relevant PPE will be provided by Contractor to ensure that the risks associated with the use and handling of such substances are minimised
		Any persons handling hazardous substances shall receive instructions regarding the hazards, the system of work to be adopted and the actions (including use of spill kits) required in the event of spillage as per EPP.
		Spill kits will be positioned to allow immediate reaction to any pollution incident and shall be checked as part of weekly and monthly inspections
Storage of hazardous materials	Pollution to surface and ground water in the event of a loss of containment	The storage of hazardous materials on site will be kept to the lowest practical levels and shall be kept in secure containers that shall be normally locked.
		All fuel and chemical storage will be located a minimum of 10 metres from all drainage channels / culverts or water bodies or anywhere at risk of flooding.

Activity	Potential Impact	Mitigation
		<p>Polluting material, such as fuel oil, will be stored on an impervious base within designated area, surrounded by impervious bund or in proprietary double skinned tanks. The volume of the bunded compound shall be at least equivalent to the capacity of the tank(s) + 10%. All filling points, hoses, gauges and sight glasses must be located within a bund. The drainage system of bunds shall be sealed with no discharge to any water course, land or underground strata. Associated pipework shall be located above ground and protected from accidental damage. All filling points and tank overflow pipe outlets discharge downwards into the bund</p> <p>All bunds and drip trays shall be managed so that they do not fill up with rainwater, or that if they do, a method for emptying them is in place to ensure compliant disposal of contaminated water.</p>
Mobile Plant / Equipment	Pollution to surface / groundwater	<p>All mobile plant will have satchel type spill kits. Construction plant will have drip trays and undergo regular maintenance checks</p> <p>Drip trays, plant nappies, and readily accessible spill containment equipment shall be located in the vicinity of refuelling operations.</p> <p>Regular maintenance of all mobile equipment in accordance with manufacturer's instructions.</p> <p>Refuelling would only be undertaken in designated areas / with a drip tray.</p> <p>Wheel wash facilities shall be kept on an area of hardstand at least 10m from any drain / culvert</p>
Spills	Pollution to surface / groundwater	HZI shall develop a spill response plan as part of the EPP. This shall include training of relevant staff and spill response drills.
Earthworks	Pollution to surface / ground water	<p>Groundwater and surface water monitoring will be carried out as recommended by pre-mobilisation ground investigation studies to confirm no mobilisation of contaminants.</p> <p>On discovery of contaminated soil, work in the area will be stopped and barriered off in line with Management of Excavation Works and Contaminated Land procedure (AA 426 41)</p> <p>If evidence of land contamination not previously identified is found, work shall be stopped in that area until an amendment to the remediation strategy, detailing how this unsuspected contamination shall be dealt with, has been submitted and approved in writing by HZI.</p> <p>TBTs will carried out prior to excavations about how to identify contaminated land and actions to be taken in the event of discovery.</p>
Piling	Pollution to surface / ground water	Piling would be undertaken in accordance with EA guidance and a piling risk assessment for the site.

6 Soil Management

6.1 Materials Management Plan

Prior to any earthworks operations a soil resource survey shall be carried out and the results integrated into a Materials Management Plan which shall detail:

- Areas of soil to be protected from earthworks and construction activities;
- Methods for stripping, stockpiling and re-spreading and ameliorating landscape soils;
- Requirements for imported topsoil and subsoil or disposal of soils;
- Compliance requirements to ensure disposal of any surplus material is in accordance with Waste Management Licencing Regulations 1994 and Duty of Care Requirements in accordance with the Environmental Protection Act 1990; and
- Testing and sampling plan.

6.2 Impacts and Mitigations

The potential impacts and associated mitigation measures with respect soils are summarised in Table 4. Impacts relating to contaminated land are covered in Section 6 and dust from excavations and stockpiles is covered in Section 8.

Table 4: Potential Impacts relating to Soils and Associated Mitigations

Activity	Potential Impact	Mitigation
Soil - General	Degradation or compaction of soil	The sequencing of the works will seek to avoid the need for temporary haul roads across unworked and restored land.
		Trafficking and compaction will be minimised where possible. Dedicated haul routes which have been stripped of topsoil /subsoil materials will be established.
		The amount of exposed ground and soil stockpiles from which water drains and the period of time such water drains shall be minimised.
Topsoil Stripping	Degradation and compaction of topsoil	Topsoil movement will take place when the soil is in a condition such as not to damage its structure. Therefore, it shall be handled in dry conditions rather than in or after heavy rain. These limits will be confirmed by the Civils Manager.
		Topsoil will be stripped separately from subsoil.
		Topsoil shall be stripped by an excavator standing on the surface of the topsoil working a strip of up to 6m width and digging topsoil or subsoil to their maximum depth and loading directly into on site transport vehicles which will traffic on previously stripped areas.
Soil Storage and Reuse	Degradation of soil quality Maximise reuse of materials	Topsoil will be stored separate from other soil arisings (e.g. subsoil), stone, hardcore, rubbish and cements
		All topsoil, subsoil, overburden and other soil making material shall be retained on site, and none shall be sold off or removed.
		Temporary stockpiles shall not exceed 3m in height, and stockpiles of subsoil shall not exceed 4m in height.

Activity	Potential Impact	Mitigation
		<p>Any mounds in-situ for a period of over 3 months shall be seeded with a hardy cultivar such as Italian Rye Grass and shall be maintained weed free until reuse.</p> <p>Once the topsoil has been placed in stockpiles:</p> <ul style="list-style-type: none"> • No other material will be placed on top of the stockpile; • No construction plant shall traffic or pass over the stockpile; <p>The stockpile shall be protected from contamination;</p> <p>Soil amelioration (including the use of vegetation stripped from site if possible) and other locally sourced materials will be considered.</p>
Plants and Imported Topsoil	Invasive Species and other	No plants or topsoil shall be brought onto site unless prior agreement with HZI

7 Noise and Vibration Management

7.1 Introduction

The site is located in a brownfield area away from residential areas. The impact of noise generated by construction was therefore assessed to be minimal. However, standard mitigations shall be applied on site.

This section only covers environmental noise. The health impact of noise on construction workers is covered in the CPP.

7.2 Equipment

Each item of plant used shall be carefully selected so as to comply with the noise thresholds quoted in the relevant European Commission Directive 2000/14/EC/United Kingdom Statutory Instrument (SI) 2001/1701.

All Contractors shall be required to produce a 'Register of Plant & Equipment and Statutory Certification' (as per Management of Plant and Equipment AA 426 19) to ensure only plant conforming to relevant standards and directives on emissions is used. They will also be required to assess their plant and machinery to be utilised on site. The assessment will include noise level predictions and assessments of plant and machinery in respect to ensuring that excessive noise levels are identified, and suitable control measures implemented to minimise those noise levels.

7.3 Impacts and Mitigations

The potential noise impacts and associated mitigation measures are summarised in Table 5 and include noise control measures as given in BS 5228.

Table 5: Potential Impacts and Mitigations relating to Noise and Vibration

Activity	Potential Impact	Mitigation
Equipment	Nuisance	Equipment shall be maintained in good mechanical order and fitted with appropriate silencers, mufflers or covers whereas per manufacturer's instructions.
		Compressors must be silenced "sound reduced" models fitted with properly lined and sealed acoustic covers that shall be kept closed whenever the machines are in use.
		Where practicable, equipment used for breaking concrete, brickwork or masonry shall be those that use bending or bursting methods rather than percussive tools. Where percussive tools are unavoidable, they will be fitted with mufflers or attenuators in accordance with the manufacturer's recommendations.
		Where practicable, rotary drills and bursters actuated by hydraulic, chemical or electrical power will be used for excavating hard or extrusive material.
		Plant will be started up sequentially rather than all together and noisy activities will be staggered in time and space where feasible
		Any machinery which is in intermittent use shall be shut down during periods of non-use or where this is impractical, it shall be throttled back to a minimum.
		Avoid unnecessary revving or idling of engines /equipment when stationary or not in use

Activity	Potential Impact	Mitigation
Vibration	Nuisance	Vibration is unlikely to be an issue on site due to its location away from sensitive receptors. However, all practical measures to reduce vibration levels will be applied where reasonable and practicable.
		Static plant known to generate significant levels of vibration will be fitted with vibration dampening features

8 Dust Management

8.1 Introduction

The dust generated by construction traffic and activities have the potential to impact protected species and result in loss of resource. The dust control hierarchy for site shall be based on:

- good operating and management practices to avoid emissions arising from activities;
- good process design to minimise emissions; and
- abatement or control to reduce dust emissions

8.2 Impacts and Mitigations

The potential dust impacts and associated mitigation measures are summarised in Table 6.

Table 6: Potential Impacts and Mitigations relating to Dust

Activity	Potential Impact	Mitigation
General	Dust generated, causing: Nuisance to community Harm to protected species	Wind speed and direction, and site surface conditions in planning activities at risk of causing air pollution, dust or odour shall be taken into account to reduce adverse impacts.
		Dust emitted during any site activity, including driving along site roads, shall be dampened down using water suppression when required
		Potentially dusty materials will be handled as little as possible and removed off site as soon as possible (unless being reused on site)
		All heavy goods vehicles carrying bulk materials or waste into and out of the site must be covered unless the load is otherwise enclosed.
		Drop heights of materials shall be minimised
		Aggregates shall be stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place
		Bulk cement and other fine powder materials shall be delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery
		For smaller supplies of fine powder materials, bags shall be sealed after use and stored appropriately to prevent dust
		Where appropriate plant will be fitted with dust suppression/ collection equipment
		All staff shall be made aware of potential impacts and mitigations measures relating to dust
Stockpiles / Earthworks	Dust generated, causing: <ul style="list-style-type: none"> • Loss of Resource • Harm to protected species 	Earthworks and stockpiles will be kept damp or treated, especially during dry weather, to prevent dust.
		Soil mounds with the potential to generate dust will be treated with surface binding agents, sealed by seeding or surfacing with vegetation or covered with secured tarpaulins
		Stockpiles will be of the minimum practicable height and will be located away from the site boundary / sensitive receptors. Stockpiles will be

Activity	Potential Impact	Mitigation
		<p>suitably profiled to minimise windblown dust emission and where possible located in sheltered areas.</p> <p>Revegetate earthworks to stabilise surfaces as soon as practical</p> <p>Avoid double handling of materials</p>
<p>Haul Routes and Traffic on Site</p>	<p>Dust generated, causing:</p> <ul style="list-style-type: none"> • Loss of Resource • Harm to protected species 	<p>Uneven surfaces will be filled as necessary to minimise the potential for puddles and potholes to form.</p> <p>Paved areas will be swept on a regular basis using a vacuum sweeper.</p> <p>Non-paved areas will have limited vehicle speeds and be damped down during dry windy weather.</p> <p>The speed limit on site will be 10 mph maximum.</p> <p>Construction access roads will be well maintained to reduce noise and vibration from construction traffic.</p>

9 Archaeology – Management of Unexpected Finds

9.1 Procedure in the Event of Unexpected Finds

Should an unexpected find be identified, works in that area shall cease immediately and the Site Manager informed. An archaeologist will be consulted to determine the significance of the finds, to agree how works shall proceed and the requirements for archaeological investigation or mitigation.

9.2 Impacts and Mitigations

The potential impacts to archaeology and associated mitigation measures are summarised in Table 7. This shall be updated following the publication of results of archaeological investigations prior to construction.

Table 7: Potential Impacts and Mitigations relating to Unexpected Finds

Activity	Potential Impact	Mitigation
Excavations / Earthworks	Damage to archaeological finds	In the event an unexpected find is uncovered, work will be stopped, and the Site Manager informed
		The potential for encountering archaeology will be identified as part of training to ensure site operatives understand what to do in the event of encountering archaeology and shall be included in excavation RAMS

10 Lighting

10.1 Introduction

The lighting from construction activities have the potential to cause visual impact to the community and protected species, particularly those protected species related to River Tees.

10.2 Impacts and Mitigations

Potential impacts and mitigations relating to lighting on site are summarised below.

Table 8: Potential Impacts and Mitigations relating to Lighting

Activity	Potential Impact	Mitigation
General	Light nuisance to Bats and Birds	Site lighting will be positioned and directed so as not to intrude unnecessarily on adjacent land and to avoid light spill.
	Energy Efficiency	Where possible, lighting units would be fitted with energy saving devices (e.g. a time clock or photocell to allow for automatic and manual operation) or motion sensors where practical.

11 Waste Management

11.1 Introduction

HZI and its Contractors shall seek to minimise the generation of waste, utilising the waste hierarchy where practicable, to manage waste. The waste hierarchy seeks to reduce waste through elimination, reduction, re-use, recycling through to disposal as the final option.

Site waste management shall be managed in compliance with legal requirements and shall be documented in a site Waste Management Plan.

Details relating to reuse of excavation and demolition materials shall be covered within the Site Materials Management Plan (see Section 6.1).

11.2 Impacts and Mitigations

The main mitigations relating to site waste management are detailed in Table 9.

Table 9: Potential Impacts and Mitigations relating to Waste

Activity	Potential Impact	Mitigation
General	Compliance with Waste Hierarchy	The waste hierarchy shall be followed to reduce waste through elimination, reduction, re-use, recycling through to disposal as the final option
		Waste streams and approximate volumes will be estimated prior to mobilisation and the waste storage area sized to accommodate various streams.
		Non-hazardous wastes are adequately segregated, and under no circumstances are hazardous and non-hazardous wastes mixed.
		Waste containers shall be provided in a quantity and type sufficient to ensure waste segregation in the work area and welfare area.
		Materials with a high recycled content (provided these meet with durability and life span targets) shall be used.
Waste Storage	Poor waste management leading to pollution or littering	A designated waste storage area shall be allocated on site. The storage area shall: <ul style="list-style-type: none"> - Be within fenced site boundaries or secured; - Be situated outside areas identified on site as potential for flooding; and - Be situated at least 10m from any surface water.
		All waste containers shall be clearly marked and in good condition.
		Non-hazardous waste will be stored in skips or containers. These containers must be covered / enclosed where there is the potential for waste or dust to blow out
		All hazardous waste shall be stored: <ul style="list-style-type: none"> - in accordance with any COSHH and SDS requirements - to avoid cross contamination between waste types (i.e. no mixing of hazardous and non-hazardous wastes); - if liquid, it shall be kept in closed containers within bunds or drip trays that shall be protected from rain.
		A Duty of Care will be demonstrated for all wastes

Activity	Potential Impact	Mitigation
Waste Removal from Site	Fulfilment of Duty of Care requirements	Documentation (Carrier permit details, Waste Transfer Notes / Consignment Notes) shall be issued as per legal requirements and retained for a minimum of 2 years.
Waste general	Poor waste management leading to pollution or littering	Housekeeping shall be maintained to ensure no litter on site.
		Waste performance will be monitored and reported to HZI monthly.
		On decommissioning, the Contractor shall remove all wastes from site, including footings and foundations of their facilities, unless agreed otherwise with HZI.
		Fly-tipping and burning of any project wastes, or land spreading of any wastes, is strictly prohibited.

12 Social and Socio-Economic Impacts

12.1 Introduction

The project is located away from town centre and local community. However, various social and potential socio-economic impacts were identified in the Environmental Statement and proposed mitigations are detailed below.

12.2 Impacts and Mitigations

The main mitigations relating to socio economic impacts are detailed in Table 10.

Table 10: Potential Impacts and Mitigations relating to Local Community

Activity	Potential Impact	Mitigation
Construction - General	Socio Economic / community	Security fencing shall be installed around the construction area to minimise the risk of break-ins, vandalism and theft. The fencing shall be at least 2m high and shall have anti climb devices on the top of the fencing, such as anti-climb rotator spikes. Two perimeter fences with a gap between them shall be considered to make break ins more difficult.
		The Project shall be registered with Considerate Constructors Scheme (CCS)
Traffic	Nuisance	Project shall minimise impact of construction traffic and deliveries on public highways through development of a Traffic Management Plan and recommended routes to site and avoid congestion / nuisance at peak times
		Incorporate measures or infrastructure to travel via private car.
		Make provision for electrical vehicle charging points
		Ensure no waiting or parking of deliveries outside site except in designated areas

12.3 Community Liaison and Complaints

Community liaison and complaints from community shall be handled as per Section 3.10.4 of CPP. Contractors shall ensure that any complaints are referred courteously and promptly to the HZI Site Manager.

13 Attachments

13.1 Attachment A: Company ISO14001 Certificate

13.2 Attachment B: Environmental Policy

13.3 Attachment C: Environmental Manager Curriculum Vitae

Certificat CH16/0551.00

Le système de management de

Hitachi Zosen Inova AG

Hardturmstrasse 127
CH - 8005 Zürich



été audité et certifié selon les exigences de

ISO 14001:2015

Pour les activités suivantes

**Développement, ingénierie, construction et service d'installations pour
le traitement thermique et biologique des déchets et
des matières similaires
Construction de chaudières et de tuyauteries**

Ce certificat est valable du 19 avril 2020 au 18 avril 2023.

Sa validité est garantie par des audits de surveillance annuels.

L'audit de recertification doit avoir lieu 60 jours avant la date d'échéance.

Version 4. Certifié depuis avril 2016.

Ceci est une certification multisite.

La liste des sites additionnels est mentionnée dans les pages suivantes.

Autorisé par



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SGS



Hitachi Zosen Inova AG

ISO 14001:2015

Version 4

Sites additionnels

Hitachi Zosen Inova AG
Hardturmstrasse 127
8005 Zürich

Hitachi Zosen KRB AG
Industriestrasse 6
9470 Buchs SG





Environmental Policy

Hitachi Zosen
INOVA

The Executive Board of Hitachi Zosen Inova are committed to ensuring that the protection of the environment is firmly embedded in both our company's and employees' culture and will endeavour to influence our suppliers and customers in a similar strategic environmental manner.

We use our technological capability for the continued environmental improvement of our products and processes by technical innovations throughout their lifecycle. These activities include the entire value-added chain of our company and means that we shall:

- comply with all applicable environmental laws and regulations as well as any additional contractual requirements when we design, construct, commission and operate our plants or provide after sale services;
- undertake all efforts to design, construct and operate our plants so they will protect the environment and minimise resource use to the greatest extent possible;
- take action to prevent pollution, reduce waste and minimise the consumption of resources in all areas of our business;
- consider environmentally responsible behaviour as an obligation for every employee and incorporate this attitude into all our activities (offices, construction sites, plant operations business trips, laboratories etc.) in order to limit environmental impact to the greatest extent possible;
- encourage a policy of sustainable procurement and environmental stewardship amongst our suppliers and subcontractors through proactive management, and endeavour to influence other key stakeholders;
- encourage and enhance biodiversity and ecology where practicable;
- commit to continual improvement of environmental performance by measuring against a set of stretching environmental targets and reviewing progress at the management level.

This policy is binding to the Executive Board, managers and employees of Hitachi Zosen Inova. It will be communicated to all staff, subcontractors and suppliers and will be available to the public on the Hitachi Zosen Inova web site. This policy shall be reviewed periodically.

Zürich, 14th January 2021



Bruno-Frédéric Baudouin Chief Executive Officer (CEO)

Position: Environmental Manager
Joined HZI: October 2016

Qualifications/Training:

Education - University

MSc Environmental Management and Sustainable Development, University of Staffordshire (Distinction)

- Part 1: Postgraduate Diploma (completed 2008)
- Part 2: Dissertation: Effects of Brent Spar controversy on environmental legislation on decommissioning (Distinction) (completed 2011)

BA Joint Honours – Geography and French (2:1) Keele University, England (1990 – 1994)

Education - Professional

- ISO-14001 Environmental Management Systems Auditor Course, ERM, 2006
- Municipal Waste Water Treatment (10-week part time course), CIWEM, 2013
- CITB, HSE Test for Operatives, Passed (100%), 2016
- Phase 1 Habitat Surveys for Site Assessments and Environmental Audits, Field Studies Centre, 2016
- Siltbuster Water Management on Constructions Sites (2018)
- IOSH Safety Passport, 2018
- IOSH Train the Trainer, 2019

Professional Memberships:

- Chartered Environmentalist (Society for the Environment)
- Member of the Chartered Institution of Water and Environmental Management (CIWEM)
- Institute for Environmental Management and Assessment (IEMA)

Current Role:

Environmental Manager for HZI ensuring implementation of the HZI Environmental Management System and compliance with environmental requirements in all parts of the business.

Previous Employment/Experience:

Environmental Consultant - Infrastructure Development Partnership (Aug 2015 to Mar 2016)

TCO LLP Future Growth Project – Construction of new onshore cargo terminal, haul roads and accommodation in Kazakhstan.

Worked with client to prepare Environmental, Labour and Community (ELC) documentation to comply with IFC Performance Standards to obtain external financing including:

- Developed four construction phase environmental management plans: waste, water (covering water resources, consumption and pollution), land (including terrestrial ecology) and Project ELC Management System manual;
- Wrote 3 chapters of ESHIA (including ELC Management) and reviewed ESHIA terrestrial Technical Annexes.

Principal Environmental Engineer, AMEC Foster Wheeler (Sept 2009 to Aug 2015)

As Principal Environmental Engineer and Deputy Discipline Manager, I was required to ensure all projects were carried out in accordance with ISO14001 and relevant environmental standards, and was frequently audited by client or company auditors. Other general corporate responsibilities included: environmental input into bids; collation, dissemination of environmental lessons learned; and mentoring of junior staff.

Projects included:

Premier Sealion – Front End Engineering Design (FEED) of a Tension Leg Platform located 220km North of the Falkland Islands

- Defined and developed the Environmental Requirements Register and the Best Available Technique (BAT) Reports.
- Managed the Environmental Impact Identification (ENVID) workshops including developing scope of work.
- Developed Scopes of Work and supervised development of and approved, the noise and emissions Environmental Modelling Studies for the EIA.

GDF Suez Cygnus Development – FEED, Detailed Design and Follow on Engineering (fabrication) of an offshore development in the Southern North Sea, comprising four platforms

- Managed environmental engineering issues and supervised development of environmental deliverables including Environmental Philosophy, UK Regulatory Compliance Plan, ENVIDs, P&ID Environmental Reviews, Environmentally Critical Elements Performance Standards and Register, BAT Reports (including Energy Efficiency and Produced Water), Technical Notes (including biocide dosing and bird deterrents) and Environmental Management and Monitoring Plan.
- Provided environmental input into Vendor Invitations to Tender.
- Carried out Environmental Design Audit of platform at the fabrication yard prior to tow-out.

BP Rumaila Gas Field, Iraq – Concept studies for upgrade of two degassing stations and developing schemes for onshore produced water reinjection.

- Identified potential environmental impacts associated with the field upgrade to ensure environmental requirements (legal, corporate and IFC standards) were implemented and ensured environmental issues were managed in accordance with BAT. Deliverables included: Chairing of the ENVID / HAZID Workshop; writing the Environmental Concept Selection Report; and developing the Environmental Basis of Design.

Kuwait Joint Operations Greenfield Development Project – FEED of new onshore facilities

- Worked on behalf of the client reviewing and approving environmental deliverables (including impact identification) of a third party engineering contractor.

Environmental Co-ordinator, BP Global Safety and Operations Team (Jan 2009 – Aug 2009)

Development of Group Environmental and Social Group Defined and Group Recommended Practices: Guidance to cover all BP new projects

Assisted in the editing of both the mandatory and non-mandatory international practices covering environmental processes and environmental performance standards for all new BP Projects.

Environmental Co-ordinator (June 2007 – Jan 2009) BP Azerbaijan Project Team, UK (based at CB&I)

BTC/SCP Pipeline and Associated Facilities (8 permanently manned Pumping Stations, Sangachal Reception Terminal and Ceyhan Marine Terminal and Storage Yards, and other associated facilities) Expansion (FEED & Detailed Design) and NRGF Pipeline (concept).

Client representative in the design engineers office working with design team advising and resolving environmental issues and reviewing environmental design. This included:

- Holding Environmental and Social Screening and Categorisation workshops and ENVIDs;
- Managing consultants carrying out environmental assessments and reviewing output including: air dispersion modelling, energy efficiency, toxicity assessments (of chemicals used), risk assessments, scoping reports and legal reviews;
- Developing Environmental Assessments to document impact of the new facilities;
- Liaising with in-country operations teams for up to date information; and in-country central functions (e.g. legal, commercial) to progress permit issues; and
- Reporting and presentation of Environmental and Social issues and KPIs to management and partners.

Cross Country EMS Co-ordinator, BP AzSPU, Azerbaijan (June 2006 – June 2007)

BTC/SCP Pipelines and Associated Facilities (8 permanently manned Pumping Stations including Accommodation, Sewage Treatment, Crude Topping Units, Pigging, Metering and other support facilities) (Construction and Operations).

- Preparing for ISO14001 certification by co-ordinating environmental and social cross-country documentation and procedures on legal compliance, audits and common procedures and documents
- Providing assurance over in-country operations teams ISO14001 implementation;
- Assisting in development of operations phase Environmental and Social Action Plans (Water, Ecology and Emissions to Air);
- Presentation of Environmental and Social issues and progress reporting to Management and Partners;
- Supporting teams as required e.g. producing a training booklet "Operations guide to Environmental Commitments"; developing Community Safety Handbook for start-up of the SCP gas pipeline; and a Community Leaflet for Pipeline Right of Way Access Strategy (Azerbaijan).

Technical Writer / Environmental Co-ordinator, BP (Oct 2003 – June 2006 UK/ Azerbaijan)

BTC/SCP Pipelines Project and Associated Facilities (Detailed Design and Construction)

Role included:

- Compiling and editing weekly and monthly technical progress reports, and monthly environmental progress reports, to Partners and Lenders;
- Assisting with compilation of Operations Phase Environmental and Social Action Plans;
- Compiling, editing and producing quarterly Environmental and Social reports to the Lenders.

Other

- Chair of local Wildlife Area (Since 2014): This volunteer role includes developing and implementing a Management Plan for phased development of a Wildlife Area (within an inner city public gardens); and working with public and private bodies and volunteers on practical aspects of the maintenance, development and funding.
- Ad-hoc onshore protected species surveys (mostly Bats) for Thompson Ecology (Summer 2016) for developments seeking permits.