

Outline Construction Environmental Management Plan

The following provides a suggested framework from which a Construction Environmental Management Plan (CEMP) will be produced which will govern the Contractor's undertaking of enabling and construction works associated with the regeneration of the WEHM NDC, Coventry.

Owing to the current outline stage of scheme development, the CEMP has not yet been subject to formal adoption. Further development and commitment to a CEMP will be undertaken following selection of Contractors and prior to establishment of site works.

It is further recognised that construction is proposed to be implemented over a 15 year period, during which statutory requirements and legislation would be expected to change and evolve. The CEMP will therefore require periodic review and updating in order to incorporate changes with regards to specific technical aspects, or broader environmental management issues.

1 Introduction

The Contractor appointed for the scheme shall hold and maintain for the duration of the project, an Environmental Management System (EMS) certified to the international standard ISO14001. It has been agreed that the system would be adopted for implementation during the construction period. This would be undertaken through the development of a project specific Construction Environmental Management Plan (CEMP). The CEMP would include full details of:

- Register of environmental aspects [effects of the Scheme];
- Roles and responsibilities;
- Communication and co-ordination;
- Training and awareness;
- Operational control;
- Checking and corrective action;
- Environmental control measures.

The CEMP to be adopted on this project would fall within the scope of the Contractor's externally certified international environmental management system, and as such would be subject to regular independent audits by the Contractor's certification body. A draft of the CEMP would be circulated to all Statutory Authorities prior to works commencing for information and comments.

All works on site would be undertaken in compliance with the CEMP.

2 Register of Environmental Aspects

A Register of Environmental Aspects would be produced to detail the environmental risk associated with the construction works together with all the commitments and agreements made within this ES and with the relevant Statutory Authorities. This Register would be used to inform the environmental procedures and provide a tool for construction teams when preparing construction method statements or field briefings. The Register would be regularly updated throughout the construction phase.

3 Roles and Responsibilities

The Project Director would have overall responsibility for the project, with a full time Environmental Manager/ Managers being responsible for the development and implementation

of the CEMP. Other members of the project team would also be assigned specific roles and would be responsible for the correct application of the CEMP. Individual specialists may also be appointed to provide expert advice. Suggested specific roles are described below:

Project Director

The Project Director would have overall responsibility for environmental performance throughout the construction period and would ensure that appropriate resources are made available and environmental control and any agreed or appropriate protection measures are implemented.

Environmental Manager

A full-time Environmental Manager would be responsible for co-ordinating and managing all the environmental activities during the construction phase. The Environmental Manager would carry out the following duties:

- Develop and review the CEMP and specialist procedures;
- Lead the appointment of construction staff and environmental specialists;
- Ensure delivery of environmental training to personnel within the project team;
- Monitor construction activities and performance to ensure compliance with the CEMP and that identified and appropriate control measures are being effective; and,
- Act as a main point of contact between the regulatory authorities and the project on environmental issues.

Environmental Clerk of Works

A full time Environmental Clerk of Works would be responsible for recording the progress of the Environmental Works. The Environmental Clerk of Works would carry out the following duties:

- Support the Environmental Manager in delivering the environmental component of the project;
- Monitor construction activities and performance to ensure control measures are effective;
- Maintain full records of the progress of the Environmental Works;
- Implement an auditable environment record filing system;
- Maintain regular contact and liaison with the Environmental Specialists; and,
- Carry out audits as required by the CEMP.

Site Waste Manager

This position would support the Environmental Manager in delivering the environmental component of the project and be specifically responsible for waste management issues arising from the project. The Site Waste Manager would be responsible for the following:

- Ensure compliance with Duty of Care at all times;
- Implement and monitor measures to ensure correct waste minimisation, segregation and disposal; and,
- Carry out testing and audits as required by the Waste Management Procedure in the CEMP.

Environmental Specialists

A team of Environmental Specialists would support the project on a part-time basis. Their role would be to undertake the required Watching Briefs during construction and to assist the project team with specific issues as they arise during the project.

Management Environmental Representatives (MERs)

Management Environmental Representatives would be appointed within each of the construction teams and would be responsible for:

- Ensuring that environmental considerations are included in risk assessments, method statements, work instructions and field control sheets;
- Carrying out periodic environmental inspections of the site, initiating actions and completing a periodic environmental inspection report.

4 Communication and Co-ordination

Co-ordination within the project would be achieved through periodic meetings of a Project Environmental Forum attended by representatives from the construction teams, major subcontractors, and the Environmental Manager. Representatives from the Statutory Authorities would also be invited to attend these meetings.

Environmental Fora would consider past performance – from the results of inspections, environmental monitoring, and any complaints - and would look ahead to plan actions required to prevent or mitigate forthcoming risks and disseminate best practice.

5 Training and Awareness

A project specific training plan would be produced to ensure personnel allocated with environmental responsibilities are competent to carry out their duties.

As a minimum, all staff would receive an environmental briefing as part of their site induction. Supervisors would support information provided at induction through completing briefings and 'toolbox talks' prior to specific activities commencing.

6 Operational Control

All activities on site would be reviewed against the requirements of the CEMP via an integrated risk assessment and method statement procedure. The relevant construction teams would review environmental risks associated with the construction process and appropriate control measures included in method statements and field control sheets. Mitigation or protection measures that are agreed with statutory authorities would be implemented prior to the undertaking of any potentially polluting activities and would form the basis of the Supervisors' briefings.

All Method Statements would be approved by the Environmental Manager and where necessary the relevant specialist.

7 Checking and Corrective Action

Construction teams using a field inspection sheet would carry out day to day monitoring of construction activities. In addition, a weekly inspection would be completed by each of the appointed MERs, against a suite of agreed site standards. The results of these inspections would be discussed at the monthly Project Environmental Forum.

The Environmental Manager would also carry out a monthly assessment of the project's environmental performance, based upon the performance measured by MERs during the period, environmental monitoring undertaken and his/her own site inspections.

Regular audits would be completed to verify that the Project is compliant with the established CEMP, contractual requirements and legislation. This project would also fall within the Contractor's ISO14001 Registration and as such would receive regular independent audits by the Certification body.

8 Environmental Control Measures

Specific procedures to manage the key environmental aspects of the project would be developed by the Contractor prior to work commencing. This would include the following:

8.1 Noise and Vibration Management

Predicted noise levels, based on the requirements of BS5228, have been calculated for construction activities associated with the works. The duration of the works close to the site boundary is likely to be short in comparison with the total duration of the construction programme, hence the worst-case noise levels are likely to be less frequent than the average noise levels.

To reduce the potential of nuisance being caused by construction activities, the Contractor would introduce control measures when developing construction programmes and methods of work.

Strict controls on the sequencing of works and providing noise protection would be developed on an activity-by-activity basis.

The adoption of Best Practicable Means, as defined in the *Control of Pollution Act 1974* is usually the most effective means of controlling noise from construction sites. In addition, the following measures should be considered, where appropriate:

- All mitigation bunds would be constructed at the earliest opportunity.
- On site noise levels would be monitored regularly, particularly when changes in process are required or in response to complaints. The monitoring would be in accordance with the guidance set out in Annex E of BS5228:Part 1:1997.
- Any compressors brought onsite would be silenced or sound reduced models fitted with acoustic enclosures.
- All pneumatic tools would be fitted with silencers or mufflers.
- Deliveries would be programmed to arrive during daytime hours only. Care would be taken when unloading vehicles to minimise noise. Delivery vehicles would be routed so as to minimise disturbance to local residents. Delivery vehicles would be prohibited from waiting within the site with their engines running.
- All plant items would be properly maintained and operated according to manufacturers recommendations in such a manner as to avoid causing excessive noise. All plant would be sited so that the noise impact at nearby noise sensitive properties is minimised.
- Local hoarding, screens or barriers would be erected as necessary to shield particularly noisy activities.

- Working hours would be restricted to 0700 – 1900 Monday to Friday and 0700 – 1300 on Saturdays. No construction works are currently proposed to occur on Sunday or Public Holidays and variations from the above would only occur with the prior written consent of the Principal Environmental Health Officer.

8.2 Dust and Air Quality

Dust levels along the construction corridor are not expected to be problematic, although dust suppression would be required during dry conditions. Particular care is required to maintain dust emissions at a practicable minimum near sensitive agricultural and ecological receptors.

Appropriate regard to the control of dust and exhaust emissions during the construction works would be included within the CEMP. The use of Best Practicable Means (BPM) (as defined in Part III of the Environmental Protection Act 1990) would be employed, examples of which are given below:

- Seeding and sealing of topsoil stockpiles;
- Sheeting of vehicles transporting materials to and from the site;
- Limiting the speed of site vehicles to 20mph (not including dump trucks);
- Applying a coarse gravel surface (or similar) along the haulage road, where considered appropriate;
- Placing plant as far as possible from sensitive areas and switching engines off when not in use;
- Provision of wheel washing facilities and/or regular use of road sweepers at access points and on local roads (to remove mud from public highways);
- Damping down of haul roads;
- Provision for a Project weather station to record data such as wind (speed and direction), precipitation, temperature etc;

Visual monitoring would be carried out at sensitive locations on a daily basis.

8.3 Water Pollution

Consents would be required from the Environment Agency (EA) under Section 339 of the Highways Act for the design of permanent outfalls to surface waters, and under the Water Resources Act 1991 and Land Drainage Act 1991 for temporary discharges or works affecting controlled watercourses.

Applications for consents would be made to the EA in accordance with these requirements and works would be undertaken in accordance with any conditions imposed.

Suitable protection for watercourses potentially affected by the works would be installed prior to relevant works proceeding. These measures would be in-line with Environment Agency Pollution Prevention Guidelines.

Protection measures would be developed in consultation with the Environment Agency and would include:

- Balancing ponds and water treatment areas, which would be excavated as early as possible in the main earthworks programme to provide water storage and silt settlement lagoons throughout the construction period.
- A site rainwater run-off containment and management plan, which would channel rainwater along designed 'v' ditches that incorporate baffles and flow restrictors (ideally biological) to allow sediment to settle out prior to discharge.
- Water collected in excavations would be pumped into designated 'v' ditches where available or into dedicated settlement lagoons.
- A 3m filter strip of vegetation would be left (or established) adjacent to the River Sowe and a silt-retaining fence built along the outer edge of this vegetation (and maintained on a minimum weekly basis).
- The main compound would have an impermeable and bunded surface to its vehicle maintenance and fuel storage areas, with a closed drainage system equipped with both a silt settlement facility and oil interceptor.
- Bunded storage areas, located in main compounds, would be provided for the duration of the construction period for the storage of oils, fuels, chemical and other hazardous construction materials. Local storage of these materials would also be within bunded facilities.
- All plant and equipment would utilise biodegradable hydraulic oil (subject to its suitability for tunnelling operations).
- Plant and equipment would be stored in those areas designated by the Environment Agency as being less susceptible to possible pollution incidents, or on dedicated hard standing. Plant would be refuelled in areas approved by the Environment Agency or using an approved technique.
- The site manager will obtain a daily flood risk report from the Environment Agency at the commencement of each working day, and take measures to prevent adverse environmental, economic, and health and safety outcomes.
- All mobile plant would be equipped with spill kits.
- Wastewater from the temporary staff toilets and washing facilities would be discharged to sealed containment systems, and disposed via licensed contractors.
- The site construction compound would have a contained drainage system and would be equipped with a facility for recycling aggregates and water for reuse on site.
- Early seeding of embankments near watercourses would be undertaken to reduce the potential for sediment run-off.

Monitoring of the watercourses potentially affected by the works would be undertaken, at a minimum frequency of once per week whilst construction operations are in progress. This would comprise as a minimum, weekly samples taken from the unnamed tributary and the River Sowe at agreed locations, with those samples being analysed for suspended solids, Ph and hydrocarbons.

In addition, periodic monitoring would be carried out by site teams comprising:

- Visual assessments for oil and silt;

- Analysis of Ph levels using mobile indicator equipment, where necessary.

8.4 Cultural Heritage

Archaeological works and mitigation measures are described in the Environmental Statement. In addition to those measures, the whole of the construction footprint where the ground would be disturbed could be subject to archaeological mitigation including:

- Open area archaeological excavation;
- Archaeological strip, map and sample techniques, and;
- Earthwork survey.

A detailed method statement would be developed to define how archaeological mitigation would be sequenced with earthworks operations. This would be approved by the project archaeologist and would require that all areas be certified prior to construction works commencing/continuing.

Site controls could include:

- An archaeological watching brief in designated areas along the construction corridor to take place during topsoil strips and other earth moving;
- The use of toothless buckets on all excavators, and;
- All information on areas of topsoil stripping to be provided to Halcrow in order to help inform watching brief work.

8.5 Biodiversity

Works to protect/mitigate the impacts on biodiversity are described in the Environmental Statement. Appropriate regard for the protection of local habitats and protected species during the construction works would be included within the CEMP and would incorporate the following measures:

- All site clearance works would be undertaken outside bird nesting season (March to August inclusive), or alternatively measures would be taken to prevent birds nesting within the construction footprint between March and August;
- In areas that are considered to have potential for bat roosts an ecologist should conduct a watching brief and those houses that are scheduled for demolition should be examined before any work is conducted. Prior to any works that could affect the buildings containing a confirmed bat roost, a license should be obtained from Natural England
- An ecologist would carry out a survey immediately prior to site clearance works in order to ensure that there are no protected species present. In the event of protected species being found, works would be delayed until mitigation measures have been agreed with English Nature;
- Protection would be provided to create physical separation between construction operations and ecologically sensitive areas. This would include temporary fencing where necessary;
- All areas used for temporary construction operations, for example site compounds, would be subject to complete restoration to agriculture with appropriate aftercare procedures;

- Specialist ecologists would provide expertise to the Contractor throughout the construction period in respect of the following species at the indicated time of year:

Table 4: Ecological Constraints

Issue	Timing
Amphibians	All year but key period late March through to October
Breeding birds	Nesting season – March to August inclusive
Bats	All year depending on species and what is being affected e.g. trees and buildings
Water voles	All year – main activity March to October

8.6 Waste Management

The CEMP would include detailed proposals for dealing with waste arising from the construction of this project. This would include:

- Storing and reusing earthwork materials and general arisings to negate the export or import of inert materials.
- Storing and reusing demolition materials to negate the export or import of inert materials.
- Reduction of site generated waste through waste minimisation and re-cycling initiatives, including the source-segregation of re-usable and recyclable materials.
- Appropriate methods of waste disposal linked to a robust waste disposal audit trial.
- All topsoil and subsoil would be handled and stored carefully to minimise the potential for damage to the soil structure. A detailed method statement would be produced clearly identifying correct stripping, soil handling, storage, placement and programming requirements to avoid compaction and moving the material in unsuitable weather conditions.
- Construction and demolition arisings being reused within the site as structural or non-structural fill.
- Where practicable, all concrete and redundant road pavements would be transported to a dedicated crushing and recycling facility for return and re-use on the project
- Detailed procedures and guidance would be developed and implemented through the construction process to minimise the import of non-sustainable raw materials and for identifying opportunities for re-using or re-cycling waste.
- Site office wastes would be collected in separate containers to maximise the opportunities for recycling, this would include:
 - Can, bottle, and paper banks;
 - Paint spray cans, (used for surveying), would be logged when issued so that their return is ensured.

8.7 Traffic Management

Construction of the Proposed Scheme and access/egress of vehicles will disrupt traffic. Speed restrictions would be imposed where appropriate. A construction traffic management plan will

be produced to discuss construction issues including timing and routing of traffic, ahead of commencement of construction or enabling works.

9 Summary

This CEMP is indicative only. However, it is expected that the final CEMP prepared by the Contractor will incorporate the elements detailed above, and any other requirements set by Coventry City Council and other Statutory Authorities.