

OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGMENT PLAN

Project Name: Energy from Waste CHP Facility

Project Number:EO788 Document Reference: EO788/CEMP/001 Location: Devonport, Plymouth

Approved by:	Dated:
Signed:	
Kier Project Manager	
Prepared by:	Dated:
Signed:	
Kier Environmental Adviser	
Accepted by:	Dated:
Signed:	
Supervising Engineer	



Issue and Amendment Record

Revision Number	Date	Description of Change	Produced / Amended by
001	22/01/2011	Outline Issue Only	E Mason
002	31/03/2011	Planning	E Mason
003	21/04/2011	Update with details from ES	E Mason



Contents

Section	Title
1	Introduction
1.1	Scope of works
2	Environmental Management
2.1	Impacts and Aspects Matrix
2.1.1	Environmental Risk Assessment
2.2	Nuisance
2.2.1	Dust
2.2.2	Noise
2.2.3	Vibration
2.3	Heritage and Archaeology
2.4	Waste Management System
2.4.1	Environmental Permitting
2.4.2	Segregation of Waste
2.4.3	Disposal of Non-Hazardous Waste
2.4.4	Disposal of Hazardous Waste
2.4.5	Waste Reporting and Records
2.5	Water
2.6	Transportation & Traffic Management
2.7	Ecological Management
2.7.1	Bats
2.7.2	Reptiles
2.7.3	Flora
2.7.4	Unexpected flora and fauna
2.8	Land Contamination
2.9	Resource Use
2.9.1	Material Reuse on site
2.9.2	Energy Consumption
2.9.3	Water usage
2.10	Visual Amenity
2.11	Considerate Constructors
2.11.1	Community Liaison
3	Pollution Prevention
3.1	Pollution Prevention Planning & Emergency Response
4	Project Management
4.1	Licences/Consents/Exemptions
4.2	Site Environmental Documentation
4.3	Reporting
4.4	Auditing and Monitoring
4.5	Training
	Appendices
А	Site location map
В	Impacts and Aspects Matrix
С	Preliminary Risk Assessment
D	KG Greentop – Guide to Environmental Permits and Exemptions



1. Introduction

Kier has a sustainable vision for all its construction sites based on three balanced and interlocking elements strong and diverse environmental understanding, fundamental improvements in environmental management and use of resources, and an understanding of its social responsibility. The Kier Environmental Management Procedure sets out the objective to achieve environmental and social development simultaneously with a view to continuously improve the service and commitment it shows.

A description of the site's location and characteristics can be found in Chapter 4 of the Environmental Statement accompanying the planning application. See Appendix A, Site Location.

This Construction Environmental Management Plan (CEMP) document has been produced in **outline** format to accompany the planning application, and highlights the areas which would be covered by a completed CEMP which would be compiled prior to any works commencing on the site. This document also refers to associated documentation which on a live project would include the following supporting documents:

Pollution Prevention Plan Traffic Management Plan Construction Phase Plan Site Waste Management Plan BRE SMARTWaste Plan

Appropriate reference has also been made to Plymouth City Council's "Code of Practice: Control of Pollution & Noise from Demolition & Construction Sites".

1.1 Scope of Works

The works are described in Chapter 6 of the Environmental Statement accompanying the planning application.

2.0 Environmental Management

The management systems in place conform to BS EN ISO14001 and all sites comply with these systems. Details of the management system are clearly defined within the management system process maps, which should be followed from tender and prequalification stages, through to project close down. The process maps are available to all personnel. The EMS will be regularly monitored and audited by appropriate personnel, throughout the duration of the works. It is the responsibility of the Project Manager to ensure development, approval and effective implementation of the environmental management system. This should be undertaken with the support of environmental manager, specialists and other suitably qualified personnel. It must also be made clear to all site personnel that each individual has a responsibility to ensure no environmental incidents occur.

The following outlines the processes and plans to be implemented on site to ensure all environmental aspects and impacts are identified and sufficient measures are put in place to reduce risks associated with the works.

2.1 Impacts and Aspects Matrix

In line with procedures, an Impacts and Aspects Matrix has been completed which clearly identifies all applicable legislation in relation to the identified



environmental aspects for this project, reference number EO788. This document can be found in Appendix B.

2.1.1 Environmental Risk Assessment

Using the information obtained through the Impacts and Aspects Matrix, an environmental risk assessment has been undertaken. This assessment will be used to determine the mitigation methodology to be utilised at EO788. This draft document can be found in Appendix C. Where significant risks are identified, specific management plans are to be put into place and details of these will in due course be found within this CEMP. Each management plan will be thoroughly assessed by all project management and method statements will incorporate the mitigation for the assumed risk. Any changes to works packages must be reassessed prior to any commencement of work.

2.2 Nuisance

Nuisance for the purposes of this document is broken into four sections, namely Dust, Noise, Vibration and Lighting. The following sections detail activities and control methods to be implemented on the project.

Sensitive receptors likely to be affected by construction nuisance include the residential properties closest to the development boundary and residential properties along construction traffic routes. There is a stream known as Weston Mill Creek and a small un-named tributary stream located to the north and north east of the site which are also to be classed as sensitive receptors. These discharge into an estuary with the tidal range extending upstream beyond the site.

2.2.1 Dust

Mechanical disturbance of granular material exposed to air creates atmospheric dust, this type of dust generation is termed as 'fugitive' as it is not discharged into the atmosphere in a confined stream. The potential sources of these fugitive dust emissions are outlined below:

- Site clearance
- On site earth moving operations, site levelling, cut and fill etc
- Vehicle movements over haul roads
- Vehicle movements on site during dry periods
- Wind blowing across the site during dry periods
- Stockpiling of excavated materials
- Cutting and grinding
- Accidental spillage and loss of load from vehicles carrying loose material
- Deep excavations

The generation of this fugitive dust required consideration of additional factors such as:

- Prevailing wind (speed, direction)
- Prevailing climate, including rainfall
- Location of sensitive receptors (including residential and commercial properties, habitats and watercourses)



Prevailing winds are specifically important when considering fugitive dust. The speed of winds can determine the dispersion of dust; high winds can increase the initial generation of dust, in addition to carrying the dust over greater distances.

A dust impact assessment has been undertaken and is presented in Chapter 13 of the Environmental Statement accompanying the planning application.

Appropriate preventative measures to control dust emissions can significantly reduce the potential for dust generation. Implementation of the following methods will help to minimise risk.

Risk	Mitigation
Construction	All construction traffic will follow specifically designated
Traffic	routes
	Speed limits will be put into place on site for all vehicular
	movements
	All vehicles carrying loose material will be covered
	Wheel wash facility to be used for vehicles leaving site
Highways	Where appropriate, use of road sweepers will be
	incorporated to ensure highways remain clear of dust and
	mud
	Road edges and pathways will be swept by hand and
	damped down as necessary
Stockpiles	To be sealed or sprayed with chemical bonding agents as
	required
	Location of stockpiles away from any sensitive receptors
	• To be seeded to allow the growth of grass if stockpiled for
	long periods of time
Dust	Mobile bowsers to be deployed on site at regular intervals
Suppression	Activity to be increased during significantly dry and windy
	periods
	Where necessary, use of hoardings to be considered to
	ensure reduction in dust migration
	Deliveries of significantly dusty materials to be sprayed to
	reduce dust potential
	All cutting and grinding operations to conducted in ways to
	reduce risk of dust migration (wet cutting techniques etc)
Monitoring	Ongoing monitoring to be undertaken by site personnel on
	regular basis, both on and off site to ensure no migration of
	dust
	Regular liaison with EHO and Client to be undertaken
	• Regular reviews of mitigation methodology to be undertaken
	by Environmental Manager and Project Manager

2.2.2 Noise

Noise has the potential to cause disturbance, given the nearby location of residential housing. The site is directly adjacent to low-rise flats on Talbot Gardens and visible from housing on Savage Road, Furze Park and Wilkinson Road. The level of the roof of the boiler house is about equal to that of some of the windows in the flats on Talbot Gardens. Therefore, it is essential that the works comply with any conditions which will be laid out by the Local Authority. It is expected that a condition will be attached to the planning permission requiring adherence to Plymouth City Council's "Code of Practice: Control of Pollution & Noise from Demolition & Construction Sites". In particular this specifies that the Council's policy on hours of work is as follows:

E0788/CEMP/003



Monday to Friday 8am - 6pm

Saturday 8.30am - 1pm

No Sunday, Bank holiday or Public holiday working

Work may be permitted outside of these hours in exceptional circumstances and only by prior agreement with the Council and will be conditional on the contractor informing local residents in advance of the proposed activity.

A noise and vibration impact assessment has been undertaken and is presented in Chapter 14 of the Environmental Statement accompanying the planning application.

A noise mitigation plan will be developed which will detail noise limitations to be set on site, drawing on Appendix 2 of Plymouth City Council's "Code of Practice: Control of Pollution & Noise from Demolition & Construction Sites".

Set locations will be identified for noise monitoring and a system in place for recording complaints or concerns from local residents.

In addition our team will embrace best practice with regards noise minimisation. Best practice will include:

- All construction plant and equipment will comply with EU noise emission limits.
- Plant will be serviced regularly to minimise adverse noise impacts.
- All vehicles and mechanical plant used for the purpose of the works will be fitted with effective exhaust silencers and maintained in good efficient working order.
- Selection of inherently quiet plant where appropriate. All major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers.
- Machines in intermittent use will be shut down in the intervening periods between work or throttled down to a minimum.
- Plant and equipment such as flat bed lorries, skips and chutes will be lined with noise attenuating materials. Materials will be handled with care and be placed, not dropped. Materials will be delivered during normal working hours.
- Plant reversing near dwellings have banksmen in place of 'beepers'.
- All ancillary plant such as generators, compressors and pumps will be positioned so as to cause minimum noise disturbance, i.e. furthest from receptors or behind close boarded noise barriers. If necessary, acoustic enclosures and /or shielding will be provided.



Where practical, noise barriers, close in to construction works, when working in the vicinity of properties on Talbot Gardens, will be provided. This will provide additional mitigation for the short-term significant construction noise effects at these properties.

2.2.3 Vibration

A noise and vibration impact assessment has been undertaken and is presented in Chapter 14 of the Environmental Statement accompanying the planning application. It is anticipated that the works should not pose any significant risks in relation to vibration.

Best practice should be utilised at all times, and ongoing monitoring undertaken. Where it is deemed that vibration may pose an environmental risk, this should be fully investigated by the Project Manager and Environmental Manager.

2.2.4 Light Disturbance

Due to the location of properties nearby to the site, especially the low-rise flats on Talbot Gardens which are set at a higher level, but directly adjacent to the site and overlook it, consideration will be given to the location and angle of lighting to ensure minimum potential for disturbance to local residents. Where lighting is not required during night hours, it will be switched off. The impact of lighting on amenity has been assessed in the landscape and visual impact assessment, which is Chapter 8 of the Environmental Statement accompanying the planning application.

Additionally, lighting arrangements will also take into consideration the potential disturbance of wildlife and ecology. The impact of lighting on ecology has been assessed in the ecology assessment, which is Chapter 7 of the Environmental Statement accompanying the planning application. The lighting design will minimise the impacts of light spillage on adjacent retained habitats through the attachment of directional hoods to lights and the use of low pressure sodium lamps. Non-essential lighting will be fitted with automatic cut-off switches.

2.3 Heritage and Archaeology

A cultural heritage assessment has been undertaken and is presented in Chapter 9 of the Environmental Statement accompanying the planning application.

It is not anticipated that there are any archaeological sensitive areas within the site boundaries. However, the following table outlines the procedures which will be followed in the event of such a find or discovery.

The following procedure must be followed in the event of a find:
Immediately stop works in the area of the find
Protect the find and the area surrounding by fencing/blocking off and
immediately contact the site manager
Contact the archaeologist and obtain advice on how to proceed
All significant finds must be reported



2.4 Waste Management System

In line with the Site Waste Management Plans Regulations 2008 an outline Site Waste Management Plan has been completed – see Appendix 15.1 of the Environmental Statement accompanying the planning application. The Site Waste Management Plan format has been agreed as the BRE SMARTWaste (an online tool) and can be accessed at all times on site for the duration of the project. Reviews of Site Waste Procedures and the Site Waste Management Plan will be undertaken at 3 monthly intervals, or less if required. Site personnel will be trained in the use of the SMARTWaste Plan.

2.4.1 Environmental Permitting

Please refer to Appendix D for a concise explanation of the Environmental Permitting Regulations in relation to the works. Any activities within the site which may fall into the Environmental Permitting Regime need clarification and appropriate licences or exemptions. The site will maintain regular contact with the Environment Agency with regards to any issues arising through the Environmental Permitting Regulations.

2.4.2 Segregation of Waste

To ensure maximum potential for reducing waste to landfill, and encouraging reuse and recycling, waste will be segregated. Separate skips will be made available for all types of waste. Each skip will be clearly labelled and site personnel will be informed of procedures within the induction. Regular monitoring will be undertaken to ensure correct procedures are followed at all times. The skips will be emptied at regular intervals to prevent overfilling. Toolbox Talks will be undertaken with all site personnel to ensure full understanding of waste procedures.

2.4.3 Disposal of Non-Hazardous Waste

All non-hazardous waste will be removed from site within strict adherence to all waste legislation requirements, including Duty of Care Regulations. Prior to any agreed use of hauliers or waste disposal sites, the appropriate licences will be thoroughly checked to ensure that particular waste streams can be accepted and carrier licences are valid. This can only be undertaken by authorised personnel and copies of all necessary licences must be retained on site at all time and reviewed for expiry. No waste will leave site without appropriate waste transfer notes. It is essential that all waste transfer notes are inspected for detail and must contain the correct description of waste as well as the correct waste code, in line with the List of Waste Codes Regulations. Only authorised and fully trained personnel may sign waste transfer notes. Regular audits will be undertaken to ensure correct procedures are being followed.

There should not be any significant quantities of inert waste taken off site as the intention is to design the project creating an earthworks balance on site, using all material suitable for re-use on an industrial site (EA guidelines). Surplus material will be used in site reprofiling.



2.4.4 Disposal of Hazardous Waste

Although limited hazardous waste arisings are expected, the site must be registered as a producer of Hazardous Waste. No hazardous waste must leave site without the correctly completed Consignment Note. The consignment notes must contain all necessary information including waste description and hazardous waste registration number. Any carriers removing hazardous waste must have appropriate licences and disposal sites must be verified to be able to accept waste being sent. These checks and signing of consignment notes can only be undertaken by authorised personnel. All hazardous waste must be stored on site in appropriate, covered or locked skips. No mixing of hazardous and non-hazardous waste is authorised.

2.4.5 Waste Reporting and Records

All waste transfer notes will be held on site throughout the duration of the project. Each waste transfer will be fully documented and the Site Waste Management Plan updated accordingly. Each month, a comprehensive waste report will be compiled by the project team, detailing the exact movements of the previous months waste, including destination and treatment. These reports will be forwarded to head office for analysis. Regular auditing will be undertaken of all waste management systems.

2.5 Water

A stream known as Weston Mill Creek and a small un-named tributary stream located along the north and north east boundaries of the site discharge into an estuary with the tidal range extending upstream beyond the site and therefore it is essential that no hydrocarbons, solids or any other contaminants enter this water course.

There are various proposed works which need to be carried out within and adjacent to the watercourses e.g. the demolition of two existing culvert road bridges and construction of their replacement clear span bridge. The design of the new structure has been significantly influenced by the need to ensure protection of the water environment, specifically the span of the new bridge will keep the new abutments clear of the water.

Land Drainage Consent will be required from the Environment Agency under the Land Drainage Act of 1991 well in advance of construction commencing.

Additional planned protection measures include extension of the existing sheet pile abutments and construction of the new abutments behind these so that any loose material cannot enter the watercourse. The excavation will be dewatered an all pumped water will be discharged through a series of 'Siltbuster' settlement tanks before it is allowed to enter the stream. In addition to this, during the more environmentally risky operations such as piling or concrete placement the stream will be continually visually monitored for turbidity and any impending risk of contamination. Plant maintenance checks will also be increased in frequency during these operations.

Short term surveillance monitoring will be undertaken in advance of construction in order to establish a baseline. The short term surveillance monitoring should include specific water quality monitoring for shallow groundwater and surface



water and assessment of existing Water Framework Directive data regarding the ecological status of the watercourse.

Further surveillance monitoring will then be undertaken during construction. Regular weekly monitoring and water sampling will be undertaken at specific points, these inspections should include visual reference, turbidity and pH levels. All records of water monitoring inspections will be kept on site throughout the duration of the project and be readily available for inspection by the Client, Kier or any regulatory body. In periods of heavy rainfall or excessive vehicle movements within the vicinity, monitoring should be increased to reduce risks of pollution incidents.

Spill kits will be made available, and site operatives trained in their use, to deal with any spillages. All spill kits will be fully stocked at all times and an inventory of equipment within the container will be clearly displayed within the lid.

Due care and attention must be made with regards to potential surface run-off affecting the water course, and stockpiling of any materials should ideally not be located within the vicinity of the watercourses. Where stockpiles have to be located in the vicinity of a watercourse a 7 m buffer strip should be in place to reduce pollution risks.

The positioning of fuel storage tanks and other potentially polluting materials and maintenance/refuelling facilities should be on bunded areas of hard standing with dedicated drainage systems. Stored materials on site will be checked regularly for containment integrity (both primary and secondary), quantity stored and security of storage.

A temporary swale will be installed along the eastern side of the site, into which runoff can be directed to reduce silt and suspended solids before discharge into the watercourse.

Construction of concrete structures during the construction phase would be monitored to prevent associated contaminated material entering any watercourses. Pre-cast work or permanent formwork will reduce the amount of in-situ concreting required adjacent and above the watercourses. Washing out of concrete wagons or other equipment used in concreting operations will be undertaken in designated contained washout areas. These will be located away from all watercourses and drains and will be impermeable to prevent infiltration to ground.

Piling activities required for the waste bunker and building foundations may extend down to the Secondary (B) Aquifer (Saltash Formation). A Foundation Works Risk Assessment will be prepared by the Contractor to confirm that the risk of contamination of the Secondary Aquifer through the mobilisation of contaminants within the made ground is low with the proposed use of rotary bored piles. The risk assessment will be agreed with the Environment Agency.

Where overpumping is required, the water should be put through an appropriate sized settlement tank, the flow rate set up must allow appropriate timescales for settlement. If the discharge is still showing as heavily silted, then a 'Siltbuster' settlement tank (or series of) is to be used with flocculants if appropriate.

Permission for any dewatering activities will need to be sought from the Environment Agency under the terms of the Water Act 2003, well in advance of construction commencing.

E0788/CEMP/003



'Betterment' of the aquatic ecological environment will be achieved by removal of a disused culvert with footway over, which lies in Weston Mill Creek and may have caused flow restrictions in the past. The creek bed will be returned to its 'natural' state and an extensive clean-up of the rest of the creek between Wolseley Road and the site will be completed (removing the years' accumulation of rubbish).

2.6 Transportation and Traffic Management

A traffic management plan will be implemented on the site, details will in due course be found in the Construction Phase Health and Safety Plan. The plan will outline timings of deliveries and routes to be taken by hauliers to ensure minimal disruption to local residents and businesses. This will include potential risk for noise disturbance as well as minimising additional traffic during peak periods.

In the initial phase the site will be within the secure boundary of HMNB Devonport and as such, the traffic management plan is likely to affect operations with the dockyard. Close liaison between KCL, the MoD and Babcock marine (dockyard operator) is essential. Early works will involve re-alignment of the boundary fence so as to re-designate the site as outside the boundary of HMNB, although still on leased land owned by HMNB. Close liaison will continue due to this fact and the proximity to HMNB boundary.

Other enabling works affecting traffic management include construction of a new access road along the edge of Camel's Head car park adjacent to Weston Mill Creek and another for Bull Point access for HMNB (as the existing access will be permanently cut-off).

2.7 Ecological Management

An ecological assessment has been undertaken and is presented in Chapter 7 of the Environmental Statement accompanying the planning application.

Good practice should be undertaken during the construction phase in order to avoid or reduce ecological impacts, including:

- Dust minimisation methods (e.g. wetting of dust-producing plant and machinery, covering of all vehicles carrying spoil) to avoid impacts on retained vegetation, in particular Blackies Wood Biodiversity Network Feature (BNF).
- Night working should be avoided wherever possible and all construction lighting should be directed away from retained areas of habitat. Security lighting and non-essential lighting should be fitted with automatic cut-off switches.
- Where works within and in close proximity to watercourses are to be conducted, namely the removal of the culverts and construction of the bridge, pollution prevention controls should be utilised to reduce the risk of sediment pollution resettling further downstream and potentially smothering benthic habitats. Refer to Appendix 6.4 of the Environmental Statement accompanying the planning application for details.



 All clearance works, tree felling and scrub removal should be undertaken outside the bird nesting season (i.e. should be undertaken during the period September – February), although if works cannot be avoided during the nesting season (March – August) then an ecologist should supervise any works.

2.7.1 Bats

The need for a bat activity survey was discussed in a meeting with the Environment Agency and Natural England in November 2010. During this meeting it was agreed that the bare ground, hard standing and aggregate spoil which will be lost as a consequence of the development are unimportant as bat habitat, and since no linear features that bats might use are to be removed as part of the development, a bat activity survey to identify the presence/absence of foraging/feeding and/or commuting bats would not be required.

A tree survey for the potential to support roosting bats was undertaken on two semi-mature oak trees in the southwest of the site that are to be felled as a result of the development. Both trees have negligible potential to support roosting bats.

The linear features of the continuous scrub within Blackies Wood may provide foraging/feeding and/or commuting habitat for bats roosting off the site, since they are well structured and provide potential flight paths or corridors. The mature trees may provide suitable roosting habitat for bats, particularly since some of these trees provide suitable features, such as cracks, crevices, flaking bark and rot-holes.

The site is considered to be of negligible conservation value for roosting bats and low (parish/neighbourhood) value for foraging/feeding and/or commuting habitat for bats.

The lighting design will minimise the impacts of light spillage on adjacent retained habitats through the attachment of directional hoods to lights and the use of low pressure sodium lamps. Non-essential lighting will be fitted with automatic cut-off switches.

2.7.2 Reptiles

A Reptile Survey has been undertaken and can be seen at Appendix 7.5 of the Environmental Statement.

The presence of reptiles within the site will require appropriate mitigation, in the form of translocation, to protect the species in relation to the proposed development. Reptile translocation will be undertaken following best practice guidance prior to the commencement of construction; see Method Statement in Appendix 7.5 for details.

In the unlikely event of the discovery of any reptile during the construction works, immediate surrounding works will cease. The site foreman will contact the project manager, who will in turn contact the site ecologist. No works may commence within the area until the site ecologist has given permission. Species identification training and posters will be available on site to assist all site personnel with identification.



2.7.3 Flora

Site preparation works include the removal of the clutter of activity, levelling of earth mounds and clearance of areas of scrub and trees using specialist contractors. Two trees require removal – refer to Appendix 8.2 of the Environmental Statement accompanying the planning application, for details. Individual trees and tree groups not requiring removal will be protected in accordance with BS5837:2005 – Trees in Relation to Construction. A Tree Protection Zone will be established within which no work could take place without the prior authorisation of a suitably qualified arboricultural consultant. The alignment of proposed protective fencing is shown in Appendix 8.2. Clear signage will be placed on all fencing surrounding the protected tree area. The fencing will be regularly checked and any areas found to be of poor quality or damaged, will be repaired or replaced immediately. All site personnel will be made aware of which areas are not to be entered within the Induction Programme and this will be reinforced throughout the duration of the works through regular toolbox talks.

The existing Blackies Wood habitat will be managed to promote the wildlife which already exists. Landscape design will incorporate native planted woodland and shrubs that will represent the existing landscape character; the creation of wildlife corridors boundaries; the reinstatement of an existing ditch to connect to a newly created freshwater pond; areas of open species-rich neutral grassland and bird, bat and insect boxes. Further detail can be found in the Design and Access Statement accompanying the planning application.

The Japanese knotweed within Blackies Wood BNF and on the slopes of Table Top Mountain (outwith the site boundary but adjacent to the construction compound) will be treated and eradicated to halt the spread of this invasive species.

2.7.4 Unexpected discovery of flora or fauna

Where any unexpected species is located by any personnel on site, all works within that area must cease immediately. Site management must be immediately informed along with the site ecologist. No further work may take place within that area until confirmation has been given by the site ecologist and site management.

2.8 Land contamination

A land contamination assessment has been undertaken and is presented in Chapter 10 of the Environmental Statement accompanying the planning application.

Previous ground investigations at the site have not encountered significant concentrations of contaminated soils and in addition, it is expected that the majority of excavated material should be suitable for re-use across the site. The proposed development will comprise a large proportion of hardstanding, i.e. tarmac and concrete cover. There will, therefore, be a reduced pathway between any contamination and site receptors.

During the site induction all personnel will be made aware of their responsibility to be vigilant regards potential soil contamination. Key personnel are groundworkers, machine operators and their banksmen. They will report any suspicions



of contaminated soil to site management who will then instigate the following actions.

If contamination is encountered during site works, it should be reported to the Local Authority and may require remediation.

Remediation options for contaminated soil typically include removal to a suitable landfill site, remediation on-site or the placement of a 'clean cover system' in areas of soft landscaping. Imported soils for the clean cover system, or other fill materials required for the new development, must be free of contamination. All imported topsoil must comply with the Environment Agency's Soil Guideline Values (SGVs), generated using CLEA software, for residential gardens and with BS 3882: 2007, Specification for Topsoil. In addition, the source and supplier of any imported materials must be provided to the Local Authority together with appropriate analysis certification. Further guidance can be found in report BRE 465.

Any excavated soils removed from site for disposal to a landfill should undergo Waste Acceptance Criteria (WAC) testing in order to correctly classify the material in terms of waste disposal. The results of the WAC testing should be supplied to the chosen waste acceptor at an early stage of the development in order to locate a suitable landfill site.

The risk from contaminated dusts is considered to be low, due to the lack of contamination identified within site soils, and can be controlled with good working practices such as dust control measures during construction works.

2.9 Resource use

Kier will ensure where practicable, the use of recycled or sustainable materials will be utilised. In line with company protocol, all wood should be obtained from a certified sustainable source, such as FSC.

A dedicated area will be maintained for storage of all materials and due care and appropriate handling will be undertaken at all times to reduce any risk of damages and wastage. Packaging of items should not be removed until required, to ensure maximum potential for returning of unused goods.

As much office waste as possible will be sent for recycling and strategies put in place to ensure minimal wastage, for example avoiding unnecessary printing etc.

Where possible, use of local suppliers will be considered to reduce transportation costs and maintain a low carbon footprint.

Waste disposal options will be investigated to ensure minimal transportation requirements where possible.

Onsite crushing and reuse of materials will be incorporated into the project. This will aid reduction in waste going to landfill as well as minimising vehicular movements on the local road systems.



2.9.1 Energy Consumption/Monitoring

Switch it off schemes and other energy saving campaigns will be implemented on site to encourage all personnel to consider their carbon footprint both at work and home. Use of car sharing and buses will be encouraged. Posters will be clearly displayed within the site offices to ensure all personnel are aware. This will also be covered within the site induction and regular toolbox talks held relating to the subject.

2.9.2 Water usage

Within site accommodation, water boilers rather than kettles will be used to encourage water savings. Taps will be switched off when not in use and all staff will be made aware of water saving techniques. Every effort to ensure reduction in water use should be implemented where available. Where possible, consideration will be given to rainwater harvesting on site.

2.10 Visual Amenity

Kier will ensure that the site boundaries are kept clean and tidy at all times. Any hoardings and/or fencing will be well maintained and kept free of graffiti and nonsite specific posters. Damaged or unsightly fencing must be repaired or replaced as soon as possible. Local roads will be kept free of excessive dirt and mud, road sweepers and wheel wash facilities are to be used to prevent build up. It is the responsibility of the site management to ensure the cleanliness of the site is maintained and allocated personnel will be identified to carry out regular checks.

2.11 Considerate Constructors

As part of Kier's Environmental Management System, it is expected that all sites will register the site with the Considerate Constructors Code of Practice. The site will target to maintain a score of no less than 33 on each site monitor's visit. The site will clearly display the associated posters and banners allowing local residents to see clearly all contact numbers.

Kier will ensure all works carried out are undertaken in a manner which not only ensures best practice, but ensures minimal disruption and cause for complaint by the public.

2.11.1 Community Liaison

Kier will actively seek to ensure community liaison is maintained throughout the duration of the works. Site specific activities will be planned which ensure interactivity with local communities, schools, colleges and charities. Events such as family fun days are to form part of the culture of the project and will encourage local residents to participate as well as offer opportunities to meet and discuss the project with site management.

3 Pollution Prevention

A Pollution Prevention Plan will in due course be produced detailing all procedures to be followed on site by all site personnel and sub-contractors. This document will be clearly displayed within the project offices and all site personnel made fully aware of all procedures and methodology detailed within it.



3.1 Pollution Prevention Planning and Emergency Response

In the event of an Environmental Incident, procedures must be followed to ensure risks of further spillages/migration of pollutants are minimised. A subcontractor will be employed to be on standby in the event of a major incident. The Emergency Response will be found within the Pollution Prevention Plan. Contact details will be clearly displayed on site and information clearly explained to all site personnel. The Pollution Prevention Plan will contain a clear detailed plan of the site which indicates the location of sensitive receptors such as watercourse, drainage and bore holes. An appropriate number of spill kits will be located within these areas and clearly marked on the plan. It is the responsibility of the site management to ensure all spill kits are fully stocked at all times, and an inventory of equipment within the container to be clearly displayed within the lid.

4 Project Management

The following section will outline documentation and consents required for the project. Kier will follow all systems as outlined by the Client and internal requirements.

4.1 Licences/Consents/Exemptions

Site management will regularly liaise with the Environment Agency and other regulatory bodies with regards to all consents, exemptions and licences. Any applications will be made with consideration of appropriate timescales. A consents schedule will be completed and held on site files detailing information from date of application. Where specific limitations are set through any licence, consent or exemption, this is to be clearly identified and regularly reviewed to ensure compliance.

Land Drainage Consent will be required from the Environment Agency under the Land Drainage Act of 1991.

Permission for any dewatering activities will need to be sought from the Environment Agency under the terms of the Water Act 2003.

4.2 Site Environmental Documentation

All environmental documentation must be kept on site at all times and be available for inspection by internal and external auditors, as well as the client and management. The folder structures will conform to the Kier Document Control systems. Where any document is amended, previous versions will be superseded and documents transmitted in line with procedures. Site personnel will be made aware immediately, if any significant changes in works procedures are implemented.

Initial start up documentation will include the following:

Site Set Up Checklist Impacts and Aspects Matrix Environmental Risk Assessment Construction Environmental Management Plan Site Waste Management Plan Pollution Prevention Plan Training and Responsibilities Matrix

E0788/CEMP/003



Project Consents Schedule

Ongoing weekly environmental inspections will take place on site by authorised personnel. The findings of these inspections and any associated actions will be appropriately documented in agreed format. Copies will be held on site at all times.

4.3 Reporting

Monthly reporting of waste figures and environmental incidents will be undertaken by the site. This information will form part of KCL's monthly board reporting system.

4.4 Auditing and Monitoring

A regular audit schedule will be set up at project start. This audit schedule will include both internal and external audits for the project. It is the responsibility of the site management to ensure all documentation and evidence required for audit purposes is kept up to date and freely available for inspection at all times. The site environmental management system will be audited to the standards set out by ISO14001. Additional legal compliance audits will also be undertaken. Any system failures will be documented and appropriate corrective actions issued and implemented.

Weekly site inspection will be carried out to ensure environmental risks are being managed appropriately. These inspections will be carried out by suitably qualified personnel and the appropriate SHE Inspection forms will be completed and signed off by site management. All documents will be filed and retained on site for auditing purposes. Any failure to undertake such monitoring will be deemed as a non conformance with procedure and appropriate corrective action will be implemented.

4.5 Training

All Kier site personnel with environmental responsibilities will be suitably trained and qualified. Where it is indicated that additional specific training requirements are needed, it is the responsibility of the site management to ensure these needs are met at the earliest possible opportunity.

The site induction must include a general overview of environmental issues relating to the site, as well as an overview of how these issues will be managed. It is expected that all appropriate site personnel will undertake some basic environmental awareness training.

Environmental Toolbox Talks covering topics relating to site activities must be given to all site personnel and subcontractors at a period of no less than fortnightly.

Environmental Bulletins and Newsflashes must be clearly displayed in all mess/office areas. Any actions relating to these must be implemented immediately, and all site personnel made fully aware of any changes.



APPENDICES

E0788/CEMP/003



Appendix A

Location of Works

E0788/CEMP/003





The image here illustrates the physical proximity and elevations of the watercourse and the construction site. The flats on Talbot Gardens are shown in the background.



Appendix B

Aspects & Impacts

Aspect	Legislation *	Impact	Risk	Mitigation Measures
<u>Nuisance – Dust</u> (ADS 01)	Environmental Protection Act 1990 Clean Air Act 1993	Deposition of dust Reduction in air quality Statutory nuisance	Complaints Legal action Local Authority Action Clean-up costs Risk to Reputation	Monitoring Construction Environme Damping down methods
Heritage/Archaeology (ADS 02)	Ancient Monument & Archaeological Areas Act 1979 National Heritage Act 1983 Planning (Listed Buildings & Conservation Areas) Act 1990 Planning & Compensation Act 1991	Loss of heritage/artefacts	Complaints Legal action Delay and disruption	Awareness training Archaeological Assessm
<u>Nuisance - Noise</u> (ADS 03)	Environmental Protection Act 1990 Clean Neighbourhoods & Environment Act 2005 Control of Pollution Act 1974 Anti-social Behaviour Act 2003	Disturbance to residents. Statutory Nuisance	Complaints Legal action. Delay to works. Risk to Reputation	Planning condition requi "Code of Practice: Contr Demolition & Constructi Communication / Consid Best Practicable Means
<u>Waste</u> (ADS 04)	Environmental Protection Act 1990 Control of Pollution Act 1974 Environment Act 1995 List of Waste Regulations Hazardous Waste Regulations Clean Neighbourhoods & Environment Act 2005 Duty of Care Regulations Site Waste Management Plans Regulations 2008 Environmental Permitting 2010 The Environmental Civil Sanctions Order 2010	Disposal costs, Transportation, Resource use and landfill capacity	Breach in Duty of Care Prosecution Excess costs of disposal. Civil Sanction	Site Waste Management Checks of Carrier licence Minimise waste arising - Segregation of wastes Training, Toolbox Talks
<u>Water</u> (ADS 05)	Water Industry Act 1991 Water Resources Act 1991 Water Act 2003 Groundwater Regulations 1995 Environmental Permitting 2010	Water quality /groundwater quality reduction. Pollution Water Charges, Resource consumption. Groundwater drawdown	Legal Action Clean-up costs Failure to meet consent. Uneconomical us of water Need for Abstraction Licence Enforcement action	Surface water and trade Site operational control Monitoring compliance Environmental Incident
Transportation (ADS 06)	Road Traffic (Vehicle Emissions) Regulations	Traffic disruption Dust and emissions to air.	Complaints Damage Disruption	Considerate Constructor Include delivery/export requirements. Traffic Management Plan
Contaminated Land (ADS 07)	Contaminated Land Regulations 2006 Control of Pollution (Oil Storage) Regulations	Contamination of Land Pollution of Waters	Potential Spillage Prosecution Clean-up Costs	Construction Environme Compliance with Oil Sto Spill kits & Training Appropriate storage and
Ecology - Flora & Fauna (Disturbance & Harm) (ADS 08)	Wildlife & Countryside Act 1981 Environment Act 1995 Conservation (Natural Habitats Etc.) Regulations Wild Mammals (Protection) Act 1996 Protection of Badgers Act 1992 Countryside & Rights of Way Act 2000 The Environmental Civil Sanctions Order 2010	Loss of habitat Loss of valuable species Spreading noxious/invasive species	Legal action Loss of Reputation Reinstatement costs Civil Sanction	Construction Environme Reptile translocation Japanese knotweed trea Species identification tra Protective fencing and s Onsite ecologists during
Resources (ADS 09)	Environmental Protection (Controls on Substances that Deplete the Ozone Layer) Regulations 1996. Control of Substances Hazardous to Health 1999. Environmental Protection Act 1990 Chemicals (Hazardous Information and packaging for Supply) Regulations 1994. Aggregates Tax (Finance Act).	Resource Use/Depletion Global Warming	Cost Un-sustainability Risk to Reputation	Supply chain manageme Use of material from sus Use of FSC Timber
Visual Amenity (Detriment to) (ADS 10)	Town & Country Planning Act 1990 Planning (Listed Buildings & Conservation Areas) Act 1990	Loss of visual amenity	Complaints Legal action Delay and disruption	Planning process Public consultation Considerate Constructor



ental Management Plan
ls appropriate to site

sments

quiring adherence to Plymouth City Council's ntrol of Pollution & Noise from ction Sites" nsiderate Constructors Scheme
ent Plan – Use BRE SMARTWaste Plans nce and disposal facility consents / licences g - Reuse and Recycle s ks
ade effluent consents. rol procedures e ent Procedure, Spill kits/training
tors Scheme ort conditions/limitations in sub-contract
nental Management Plan Storage Regulations
and handling, investigate disposal options mental Management Plan
reatment / eradication training d signage of sensitive areas ing specific works
ment and material control sustainable sources.

tors Scheme



Appendix C

Preliminary Risk Assessment



Environmental	Potential Environmental		Risł	C		Control		Resid	ual				
Aspect (delete	Impact		-	-	Total	Measures		Risk	C	Total	Method Statement	Associated	
as necessary)		ο	+D	хC	Total	(add/delete as	0	+D	хC	Total	/Procedure Number	Toolbox Talk	
DUST	Soiling of flora	4	2	8	48	Pollution	3	2	6	36	To be covered in the Pollution	03 & 21	
	courses Legal Action by Statutory Authorities					Dust sheets/damping down via Bowser ENV08 Environmental Monitoring							
NOISE	Complaints by residents Legal Action by Statutory Authorities Disruption to wildlife	3	2	6	30	PCC Code of Practice ENV08 Environmental Monitoring Low noise plant/ensure no idling engines	2	2	6	24	PCC Code of Practice	04 & 21	
WASTE	Pollution/contaminated land Legal Action by Statutory Authorities	4	3	6	42	Site Waste Management Plan ENV08 Environmental Monitoring Duty of Care/Transfer Notes Training Segregation of waste	2	2	8	32	Site Waste Management Plan	08,09 & 24	
WATER	Contamination of groundwater/surface waters/rivers Impacts on wildlife Potential harm to humans Failure to meet consents Legal Action by Statutory Authorities	4	4	10	80	ENV08 Environmental Monitoring Obtain appropriate licences/consents Spill kits complete and readily available Allow for flooding when positioning	3	3	8	48	Monitoring will be undertaken on a weekly basis, procedures are set out in the Pollution Prevention Plan. An up to date log will be kept in the Environmental file and any findings will be communicated to the relevant persons.	01 02 05 06 16 17 18	



						plant, fuel store etc						
TRANSPORTAT ION	Traffic congestion Complaints from public	4	3	6	48	Traffic Management Plan	3	2	4	20	Traffic Management Plan	04 & 21
CONTAMINAT ED LAND	Impacts on wildlife Legal Action by Statutory Authorities Remediation costs	4	4	8	64	ENV08 Environmental Monitoring Site Waste Management Plan Training, maintain good standards of site housekeeping Work to Control Pollution (Oil storage) Regulations 2001	3	2	6	30	Contaminated land assessment	1 13 23
ECOLOGY	Loss, destruction, harm or disturbance of wildlife or habitat Reduction in endangered species Spreading of invasive plants Legal Action by Statutory Authorities	4	3	10	70	ENV08 Environmental Monitoring Training/Toolbox Talks/Species Identification Information Ecological Assessment Application for appropriate consents/licences Fencing off sensitive areas	2	2	10	40	Ecological assessment	7 10 11 12 19 20 22
RESOURCE USE	Generation of additional waste streams Reduction of fossil fuels Destruction of non- sustainable forests	4	2	6	36	Re-use of materials Prevention of over-ordering Appropriate storage of materials FSC Timber Usage	2	1	4	12	All waste streams have been identified, any additional waste streams will be added to the Site Waste Management Plan Further procedures can be found in the Pollution Prevention Plan	14



						Switch It Off Schemes						
VISUAL AMENITY	Impact on visual amenity Complaints by public	3	3	6	36	Careful use of lighting Hoardings if required Good site housekeeping	2	1	4	12	The site will be registered under the Considerate Constructors Scheme in which procedures will be followed.	21

Likelih Occurre	ood of nce (O)	+ Likeli Detecti	hood of ion (D)	X Severity of Consequence (C)			
Criteria	Rank	Criteria	Rank	Criteria	Rank		
V High	5	V High	1	V High	10		
High	4	High	2	High	8		
Moderate	3	Moderate	3	Moderate	6		
Low	2	Low	4	Low	4		
V Low	1	V Low	5	V Low	2		

Originator:

Dated:



Appendix D

Environmental Permitting Regulations Kier Group Greentop





A GUIDE TO ENVIRONMENTAL EXEMPTIONS & PERMITS

The Environmental Permitting (England and Wales) Regulations 2010 came into force on April the 6^{th} 2010 and, as a result, a number of construction activities which involve the recovery or re-use of "waste" may require a permit or exemption.



Screening waste material at Gt. Yarmouth Police Investigation Centre

The regulations only apply if the "material" that we are dealing with is considered by the Environment Agency (EA) to be "waste".

So what materials in the construction industry is the Environment Agency likely to consider as waste?

It is any material that:

- i. a project has to dispose of, having no further use for it on site
- ii. cannot be re-used onsite without treatment or processing

Therefore, the Environment Agency may consider the following materials to be "waste":

- any excavated material generated by a site, even if it is subsequently used as engineering fill on another adjacent project
- · concrete and other inert materials removed from a site for crushing
- recycled aggregate produced onsite by crushing and screening of concrete and other inert materials
- soil, sand or clay treated onsite to reduce or remove contaminants treatment includes screening to remove stones or fragments of wood or metal
- soil, sand or clay, or crushed concrete and other inert materials, imported from another project for incorporation into the works

A material even after it has undergone onsite treatment or processing, may still, in certain circumstances, be considered by the Environment Agency to be "waste".





However, it is important to be aware that there are a number of instances where, if appropriate steps are taken, the Environment Agency will consider certain materials not to be a waste. If this is the case, there will be no need to have in place an exemption or permit.

Due to the fact that the Environmental Permitting Regulations are new, and what is and what is not waste is open to interpretation, we recommend that, at both the tender and contract stages of a project, the advice of a member of the local Environment Agency team is sought. They should be able to advise you as to whether a permit or exemption is required, and, if so, what type. They can be contacted through the Environment Agency's National Customer Contact Centre on 08708 506 506.

To assist estimating and project teams in determining which construction activities or operations may require an exemption or permit, a number of flow charts have been produced. See figures 1 – 4 at the back of this Greentop.

For activities or operations that would have previously used waste, under a paragraph 19 exemption, for example, a site based permit may now be required and this cannot be issued until planning permission has been granted. The permit can, however, be applied for in parallel with obtaining planning permission. This permit will need to be obtained by the main contractor and can take up to three months to obtain, and cost in the region of £5000.

An environmental permit may be required for any mobile treatment facility/plant brought onto site to produce soil, soil substitutes and aggregates. This is applied for by the plant operator. Planning permission may also be required, so contact your local authority before undertaking any proposed treatment.

The Environment Agency have issued a <u>position statement</u> stating that they will consider recycled aggregate, if produced in accordance with the <u>WRAP quality protocol for</u> <u>aggregates</u>, not to be waste .



At HMP Featherstone placing imported recycled aggregate produced in accordance with the WRAP quality protocol for aggregates





This <u>position statement</u> also considers that excavated material used on the site from which it originated may not be a "waste" if:

- i. It is used in appropriate amounts
- ii. It is suitable for that use without further treatment, and
- iii. Its use will not cause harm to human health or the environment

With regard to meeting condition i), we must ensure that the excavated soil is not used to raise the existing ground level above that required to meet planning, design or flood alleviation requirements, or to create large noise bunds around the site perimeter, or for landscaping not in keeping with the local environment.

Conditions ii) and iii) would be met if:

- i. a site investigation has been carried out
- ii. previous land use, together with any contamination, has been identified
- iii. an appropriate remediation strategy, if required, is agreed with the planning authorities and the Environment Agency
- iv. remediation is undertaken and a verification report issued

Where a contractor proposes to import "waste" onto a site, for use as engineering fill, for example, the Environment Agency, before issuing an exemption or a permit, will need to establish that the "proposal to permanently deposit waste on land is a **recovery** and not a **disposal** activity". The procedure that should be followed is laid down in the Environment Agency's <u>Regulatory guidance series No EPR 13</u>: Defining Waste Recovery: <u>Permanent Deposit of waste on land</u>

Both Estimators and Project Managers should note that sites proposing to use or treat waste will need to apply for a bespoke permit if they are:

- 500m, or less, from a SSSI or similar
- 250m, or less, from any water abstraction point
- 50m, or less, from any spring, well or borehole
- within a groundwater protection zone

A bespoke permit can take up to four months to obtain and costs a minimum of £6500.

If a project is likely to produce/use/treat a significant amount of excavated material, it may be appropriate to produce, and submit to the Environment Agency, a *Materials Management Plan*. If this plan is accepted by the Environment Agency, the material covered by the plan will not be classified as waste and no permit(s) will be required. For further details contact your Environment Manager or refer to <u>Claire: The Definition of Waste: Industry Code of Practice</u>

Anyone applying for a site permit will need to demonstrate that they are "*technically competent"* to hold a permit. To do so they must have registered with an approved competence scheme before the 6th Of April 2011. It has been decided that to ensure that Kier has a sufficient number of technical competent personnel, all Kier Group Environmental Managers, together with a sufficient number of deputies, will have received the necessary training to enable them to apply and hold permits, before the 6th April 2011.

If a project or premises consider they may need to carry out an operation that requires a permit, or are advised by the EA that the operation requires a permit, they should contact their Environmental Manager/Advisor for assistance.





Details of how to apply for a permit can be found on the Environment Agency's website. <u>www.environment-agency.gov.uk</u>

For certain activities an environmental permit will not be required and, instead, a waste exemption will need to be obtained.

Exemptions are relatively straight forward and can be applied for using a simple form that can be downloaded from the Environment Agency's website <u>www.environment-agency.gov.uk</u>.

An exemption for using or treating waste will be granted within 5 working days of the Environment Agency receiving the application and is free.

A copy of a permit and/or exemption should be filed in the project or premises SHE Plan.





Figure 1: Use of recycled aggregate or crushed bricks, concrete, ceramics etc.

Please adhere to this flowchart when intending to use on site, recycled aggregates or crushed bricks, concrete, ceramics etc - this includes materials that have been crushed and / or screened either on or off-site.





KIER

SHE Guidance

ENVIRONMENTAL EXEMPTIONS & PERMITS

Figure 2: Crushing and/or screening demolition or excavation waste on site

Please adhere to this flowchart when intending to crush and / or screen demolition or excavation waste on site











Figure 4: Use of imported clay, sand, sub-soil or topsoil

Please adhere to this flowchart when intending to use imported clay, sand, sub-soil or top soil

