Project Environmental Plan - Full

Bicester Eco Village

SH20011

For projects that are
Notifiable (under CDM Regulations)

Project Environmental Plan – Full

CONTRACT:	Bicester Eco Village

CONTRACT No:	SH20011

PRE CONSTRUCTION PREPARED BY	Eilean Appleton	**DATE**	
TITLE	Pre Construction Manager		
PRE CONSTRUCTION APPROVED BY		**DATE**	NOT APPROVED
TITLE	ENVIRONMENTAL MANAGER		
CONSTRUCTION PREPARED BY	Kevin Lambert	**DATE**	
TITLE	Construction Manager		
CONSTRUCTION APPROVED BY		**DATE**	NOT APPROVED
TITLE	ENVIRONMENTAL MANAGER		

DISTRIBUTION	A hard copy will be held on site. Further copies are available on request.

CONTENTS:

Project Environmental Plan – Full

INTRODUCTION

This plan, as prepared, details all works and measures to be taken to address the requirements of planning condition 51. This document is to be employed on site as a working document to ensure compliance.

This Project Environmental Plan details the approach and actions we will be undertaking to manage the environmental aspects on this project. The Environmental Management System will be implemented on this project by the Operations team, supported by the Local Company Office (LCO) Environmental Manager and the Divisional Management team.

In Section 5.0, we have reviewed the environmental aspects of all the construction work we will be undertaking on the project. Resulting from this, a number of project specific Action Notes have been developed, which will be managed through the Environmental Management System.

ENVIRONMENTAL PLAN PREPARATION PROCESS

On receipt of tender <u>Pre Construction Team</u> to:	Complete **Section 1** - Project Details and Description This is to include information collected during the site visit.
Before tender submission (2nd stage for 2 stage tenders), or on negotiated projects <u>Pre Construction Team</u> to:	Complete: **Section 2** - Client or Project Specific Requirements **Section 3** – Organisation and Environmental Responsibilities **Section 5** - Environmental Aspects & Impacts Assessment **Section 6** - Relevant legislation and other requirements **Section 7** - Environmental Permits **Section 8.2** – Environmental Objectives & Targets **Section 8.3** – Sustainability Criteria **Section 11** – Client Specified Procedures
Before handover the <u>Pre Construction Team</u> to:	Complete: **Section 12** – Environmental Emergency Planning Arrangements **Section 13** – Site Waste Management Plan, including SWMP Data Sheet
Before issue of CIS <u>Operational Team</u> to:	Review all sections of Environmental Plan and SWMP, Travel plan, and construction management plan to ensure appropriate for project.
Before issue of CIS <u>Environmental Manager</u> to:	Approve Environmental Plan and SWMP and inform LCO MD. ***The CIS is not issued until an approved Environmental Plan and SWMP is in place***
Throughout project <u>Operational Team</u> to:	Review the Environmental Plan and SWMP at least every 6 months. Maintain/ implement all sections as appropriate.
Throughout project <u>Environmental Manager</u> to:	Conduct Site Visits and Audits as per Section 16.
At the end of the project the <u>Building Manager</u> to:	Conduct an Environmental Management Review. Archive the Environmental Plan and SWMP (including SWMP Data Sheet, Final eKPIs, Waste Transfer Notes and Consignment Notes).

REVISION RECORD

Rev	Date	Changes	Initial	
			OM/ CM	EM

1.0 PROJECT DETAILS & DESCRIPTION

Project Title - Bicester Eco Village

Location – Land off B4100, Bicester

Client – A2 Dominion Group

Commencement Date – November 2012

Completion Date - December 2017

1.1 PROJECT DESCRIPTION

The project is to comprise of the construction of 393no residential units made up of a mixture of 1, 2, 3, 4 & 5 bed flats and houses complete with associated garaging and car parking. Infrastructure works to provide an energy centre to serve to entire development, new road junctions on to the existing B4100, Development roads complete with bridges.

Associated landscaping works to provide environmental enhancement to the scheme

A new school and Commercial areas for future premises

1.2 SITE

The site is located off of the existing B4100 and is currently used for agricultural use with exisiting water course running across.

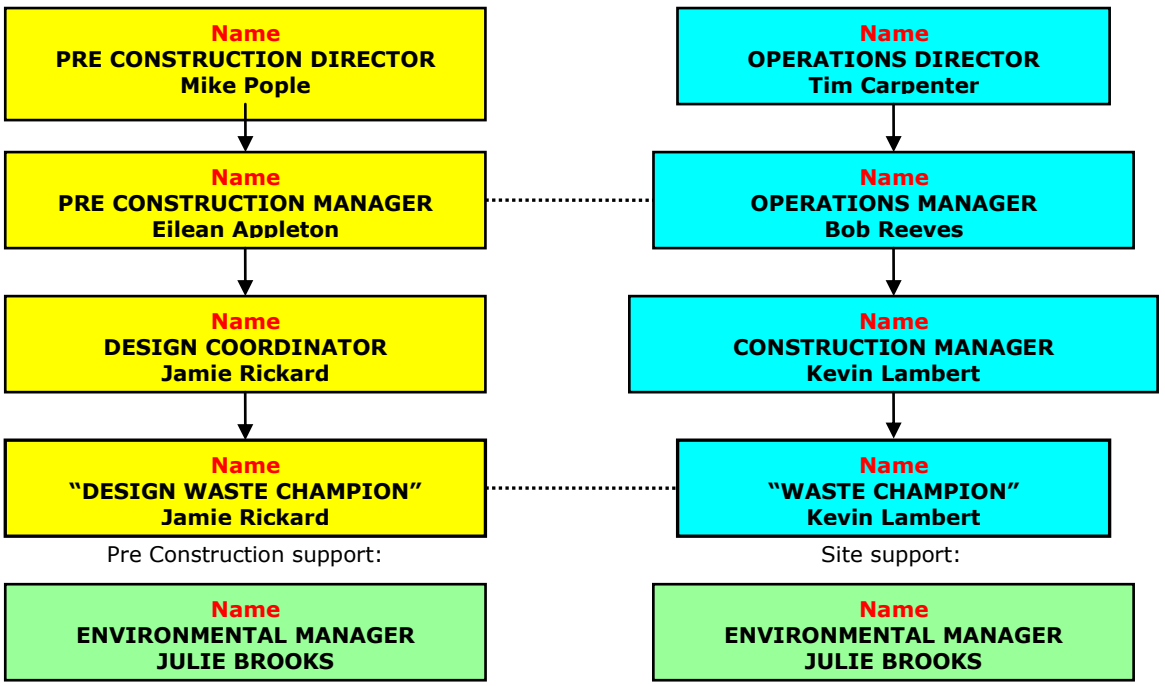
The site is currently used for livestock grazing with the ground currently covered in meadow grass primarily. The field are surrounded with mature native hedgerows interspersed with various mature and semi mature trees. The site is cut in the valley area by two watercourses one of which constantly flows whilst the second route is primarily dry under normal conditions but does run in periods of high rainfall

The underlying strata consists topsoils over clay/gravel mix on a chalk and rock bed
The exisiting site has several existing hedgerows, trees and wild planting. An area of the site shown on the attached ecology report also indicates the existence of a Badger set within the area of the site.

2.0 CLIENT OR PROJECT SPECIFIC CONTRACTUAL REQUIREMENTS

All units are to be constructed in accordance with the Client's brief.

3.0 ORGANISATION AND ENVIRONMENTAL RESPONSIBILITIES



Bid Manager

The Bid Manager is responsible for co-ordinating and ensuring that the Project Environmental Plan is completed during the pre construction stages and signed off before hand over to the construction team. Eilean Appleton can obtain environmental advice and information Philip Harker Hyder

Design Waste Champion

Jamie Rikard is responsible for ensuring that the design team fully consider waste minimisation throughout design development, and is responsible for completing the 'Design Out Waste Decision Record' in section 2 of the SWMP (FM-EM-10) and the Design Section of the SWMP checklist (section 6 of the SWMP).

Operations Manager

The Operations Manager maintains operational control of project activities ensuring that time and quality demands are met in line with budgetary constraints and contract requirements. Kevin Lambert will be checking that the project management team are managing the EMS effectively by monitoring the close out of any issues raised during audits, the production and reporting of project eKPIs and reporting progress to the client/ clients agent on a monthly basis. Kevin Lambert can obtain environmental advice and information from Philip Harker (Hyder Consulting) during the project

"Waste Champion"

Kevin Lambert is responsible for ensuring that the Site Waste Management Plan is followed on site and that site operatives correctly segregate and store wastes. They also ensure that the correct documentation is held for waste contractors using the site and controlled waste transfer notes for waste removed from site are correctly filled in and kept in the SWMP file.

4.0 ENVIRONMENTAL POLICY AND PROCEDURES

The Chief Executive Officer of WDCW has produced an Environmental Policy, which meets the requirements of ISO 14001.

A copy of this policy is included in this file and should be displayed on the site Environmental Noticeboard. All members of staff employed on site should be made aware of the policy and their individual responsibilities.

The policy can be found on the Willmott Dixon Capital Works Intranet. The policy should also be made available to members of the public if requested (See Appendix 15.2).

5.0 PROJECT ENVIRONMENTAL ASPECTS AND IMPACTS (FM-EM-23)

Within the Environmental Aspects and Impacts Assessment form (FM-EM-23) you need to identify the aspects of the operations and activities that have an impact upon the environment and their significance. The environmental aspects assessed include both the activities and operations over which we have direct control and also those supply chain impacts over which we can have a significant influence.

When all environmental aspects and their related impacts have been identified, their significances are summarised within the 'Risk Summary" sheet of FM-EM-23.

Those activities that remain to have a HIGH residual risk should be discussed further and appropriate management should be considered. This information should be communicated to the Pre Construction Project Manager and inserted into PC-FM-07 Project Risk Profile for further review.

Site specific actions (within FM-EM-23) should be completed and amended for any aspects that are rated as significant and detail any preventative and control measures needed.

This document should be regularly reviewed and updated.

This plan should be read in conjunction with the following documents:-

- Ecological Construction Method Statement
- Arboriculture Method Statement
- Site Waste Management Plan

In addition, all works must meet all requirements of the current British Standards. In the case of any uncertainty, the current relevant method statement is to take precedence.

The Risk summary and subsequent comments to the same, have gone through a process already to mitigate risk and reduce where possible to the lowest denominator or remove where possible. This is an internal process and can be seen within the document by colour coding and numbering, reading from right to left, with list of measures to be undertaken to control any risk.

INITIAL ENVIRONMENTAL RISK IDENTIFICATION

Project Name	Bicester Eco Town	**Project Ref**	SH11-010
Completed by	Kevin Lambert	**Date**	Aug 12

Project Summary
Construction of 393 no units + associated infrastructure and commercial buildings and school site.

Ground Conditions				
Land type	Greenfield	X	Brownfield	
Known contamination of ground	No	X	Yes	
Underlying ground/soil type	Clay with Chalk and Limestone Shale			

Site Location				
Within a Groundwater Protection Zone	No		Yes	X
Located near a watercourse	No		Yes	X
Located near residents or neighbours	No		Yes	X
Located near sensitive receptors *(i.e. nature reserves, SSSIs, SPAs, etc)*	No		Yes	X

Project Specifics								
Site location	Residential	X	Industrial		Rural	X	Other	
Planned works	Demolition		New Build	X	Fit Out		Refurb	

Working on a listed building or archaeology on site	No	X	Yes	
Removal of hazardous waste (i.e. asbestos)	No	X	Yes	
Re-use of materials and/or waste planned *(i.e. demolition or excavation material)*	No		Yes	X

Ecology				
Presence of protected species	No		Yes	X
Presence of invasive species	No	X	Yes	

Surveys (Carried out or required plus list key actions/recommendation identified in reports)
Ecology survey carried out along with Soil survey Aborocultural Method Statement Site Waste Management Plan Construction Management Travel Plan Ecological Construction Method statement: These matters are referred to and addressed in the appropriate Plans and Method Statements

Contact your Environmental Manager if any sections have been marked 'Yes'

Any environmental risks identified must be transferred to the Project Risk Profile for this Project

Project: Bicester Eco Village

IMPACT - NOISE AND VIBRATION

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Noise & Vibration, Traffic - Working close to neighbours	Environmental Protection Act 1990 Part III Control of Pollution Act 1974 Noise and Statutory Nuisance Act 1993	✓		5	2	5	* Distribute regular newsletters to neighbours advising them of the planned works and providing contact numbers, including the 24 hour emergency number. * Contact the LA Environmental Health/ Protection Officer prior to the start to commence proactive communications. * Recognise the neighbours' needs and plan works to accommodate these, e.g. school exam times. * Display the permitted working hours at the site entrance and stick to them.	4, 29, 30	2	1	4			
Noise & Vibration, Traffic - Working near schools and colleges	Environmental Protection Act 1991					0	* Restrict deliveries during peak times (e.g. during school pick up and drop off times). * Programme major lorry movements (e.g. muck shifts etc.) during school holidays. * Recognise the schools' needs and plan works to accommodate these, e.g. exam times.	4, 29, 30		0	0			
Noise & Vibration, Traffic - Working outside normal working hours, i.e. Mon: Friday 8.00 - 18.00 Saturday: 8.00 - 13.00	Control of Pollution Act 1974 Noise and Statutory Nuisance Act 1993	✓		1	1	4	* Discuss the requirement for a Section 61 Notice with your Environmental Manager and obtain as appropriate.	4, 29, 30	1	1	4			

Noise & Vibration, Traffic - Vehicles travelling to site, including deliveries/ collections.	Road Vehicles (Construction and Use) Regulations 1986 (as amended)	✓		5	3	6	* Plan timing of deliveries to avoid vehicles waiting. * Establish a designated holding area away from the site and call in vehicles when access is clear. * Have designated personnel on site to receive deliveries, direct vehicles on and off site, and act as a banksman. * Ensure delivery vehicle engines are turned off while waiting to be unloaded. * Ensure lorries carrying dust generating loads (e.g. spoil, aggregate) are sheeted. * Prepare and communicate a Traffic Management Plan detailing: - access routes - weight and width restrictions - parking controls - low head room access routes - accessibility for pedestrians - delivery time restrictions - public transport details - delivery routes to site from trunk roads	4, 30	3	3	7			
Noise & Vibration, Traffic - Carrying out particularly noisy/ disruptive activities, *e.g. driven/ vibration piling, lime stabilisation, Breaking out, Pneumatic drilling, Scabbling of concrete, Falling ball demolition, Disc cutting, Grit blasting, Hydro-demolition, Steel erection.*	Control of Pollution Act 1974 Noise and Statutory Nuisance Act 1993 Environmental Protection Act 1990 Part III					0	* Discuss the requirement for a Section 61 Notice with your Environmental Manager and obtain as appropriate. * Conduct condition surveys of existing properties and establish monitoring points. * Keep neighbours well informed via a newsletter. * Screen off activities where possible. * Monitor noise and vibration: - prior to the start record the ambient noise/ vibration levels - record the ambient noise/ vibration levels regularly during the works	4, 29, 30		0	0			
Noise - Using generators on site	Control of Pollution Act 1974 Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005 Environmental Protection Act 1990 Part III	✓		5	2	4	* Switch to mains power asap. * Locate away from sensitive receptors where possible and screen off . * Use housed 'silenced' generators all the time/ during the night.	4, 30	3	2	4			

Noise & Vibration - Using plant on site	Control of Pollution Act 1974 Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005 Environmental Protection Act 1990 Part III Noise and Statutory Nuisance Act 1993	✓		5	2	4	* Ensure all vehicles and plant on site have a current certification and are regularly serviced. * Ensure vehicles and plant are not left with their engines running when not in use. * Design site layout to minimise plant having to reverse (warning sirens). * Utilise rubber linings in beds of tipper lorries. * Prohibit works vehicles waiting or queuing on the public highway.	4, 29, 30	3	2	4			
Noise & Vibration - All construction activities	Control of Pollution Act 1974 Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005 Environmental Protection Act 1990 Part III Noise and Statutory Nuisance Act 1993 The Control of Noise (Codes of Practice for Con	✓		3	3	5	* Eliminate the noise/ vibration source i.e. prefabricate off site, use alternative methods of construction, (e.g. CFA rather than driven or vibro piles; crushers rather than peckers etc). * Isolate the noise/ vibration source (e.g. position crushers away from sensitive receptors) * Control the noise/ vibration source (e.g. use acoustic covers, construct acoustic enclosures around large plant, erect screens, hoardings, bunds, or position storage containers to screen noise). * Restrict noisy activities to less sensitive time of the day * Address during site induction and deliver TBTs as required. (TBT No.4 - Noise & Vibration, TBT No.21 - Be a Good Neighbour)	4, 30	3	3	4			
Odour - Ground remediation with hydrocarbons or hydrogen sulphide	Environmental Protection Act 1990 Part III					0	* Bearing in mind proximity of neighbours consider utilising fine water sprays and fragrance neutralisers.	4, 30		0	0			
Odour - Working on live foul drainage systems.	Environmental Protection Act 1990 Part III	✓		5	2	4	* Bearing in mind proximity of neighbours consider utilising fine water sprays and fragrance neutralisers.	4, 30	5	1	4			
Odour - Emptying septic tanks	Environmental Protection Act 1990 Part III	✓		2	1	1	* Where very close to neighbours arrange emptying tanks during less sensitive times. (avoid meal times!)	4, 30	2	1	1			
Odour - Asphalt roofing & tanking	Environmental Protection Act 1990 Part III	✓		5	1	1	* Where practicable locate boilers etc away from sensitive receptors.	4, 30	5	1	1			
Odour - Storing waste	Environmental Protection Act 1990 Part III	✓		5	3	8	* Ensure timely disposal, especially during warm summer months.	4, 30	5	3	5			

Mud & Dust - Using Plant on site	Environmental Protection Act 1990 Part III	✓		5	3	5	* Consider laying sub-base and base course as early as possible	4, 30	5	3	5			
Mud & Dust - Vehicles leaving site	Environmental Protection Act 1990 Part III	✓		5	3	15	* Hard surface roads and vehicle movement areas. * Ensure vehicles adhere to the Traffic Management Plan and site speed limits. * Sweep site access roads regularly to minimise the build-up of dust. * Damp down roads and site areas with water, or other alternative products, when sites are dry. * Provide wheel washing facilities to avoid spread of mud on the road (ensure no discharge to drain or water course). * Employ a roadsweeper to clean surrounding roads.	4, 30	5	3	10			
Mud & Dust - Stockpiling	Environmental Protection Act 1990 Part III	✓		5	2	4	* Locate stockpiles away from sensitive receptors such as neighbours, highways and public access. * Where dry material is stockpiled and subject to wind-whipping, ensure it is either sheeted, fenced, seeded or sprayed with water to minimise dust.	4, 30	5	1	1			
Mud & Dust - Demolition	Environmental Protection Act 1990 Part III					0	* Use water spraying during demolition activities to suppress dust. * Where demolition materials are to be crushed on site, obtain a copy of the mobile plant permit for the crusher and ensure that the permit conditions are adhered to. * Locate any crushing or screening plant on site away from any sensitive receptors.	4, 30		0	0			
Mud & Dust - Dusty activities, e.g. block cuttings	Environmental Protection Act 1990 Part III	✓		5	3	6	* Ensure dust suppression systems are utilised at all times. * Locate away from dust sensitive receptors where possible. * Screen off.	4, 30	5	2	4			
Mud & Dust - Crushing, screening, Scabbling, plaining & cutting	Environmental Protection Act 1990 Part III	✓	✓	5	2	4	* Plant and equipment to be fitted with dust suppression equipment or water suppressant systems where required. * Locate mobile plant away from sensitive receptors e.g. residents, schools, hospitals etc.	4, 30	5	2	2			

Light- Temporary site lighting	Environmental Protection Act 1990 Part III	✓		5	1	1	* Point lighting away from sensitive receptors such as neighbours and wildlife, preventing light from spilling onto adjacent properties. * Specify anti glare light fittings. * Turn off lights when not required.	4, 30	5	1	1			
ABNORMAL CONDITIONS														
Strong winds	----	✓		5	2	4	* Be mindful of the distance that any noise will travel. * Increase frequency of dust suppression as detailed above.	----	5	2	3			
Floods	----	✓		2	2	6	* Remove vehicles from site. * Identify access routes that are not flooded. * Arrange swift removal of any sewerage. * Following floods employ a roadsweeper to keep surrounding roads clean.	----	2	2	5			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05	✓		2	2	6	* Move vehicles that could restrict emergency services vehicles. * Remove as much fuel, materials and plant as it is safe to do so.	----	2	2	5			

6.0 ENVIRONMENTAL PERMITS

The project will require the following environmental permits/licences/consents/permissions for its operations:

Environmental Permit - for concrete / Stone crushing previously known as a Part B permit.

Water discharge consent – required to discharge to either groundwater or surface water i.e. discharging back to a borehole following abstraction, pumping dewatering water to a river/ stream. Requires an application to be made to the Environment Agency and the application process can take 4 months.

Section 61 consent – required when noisy works are likely to occur. Requires an application to be made to the local authority giving details of the methods to be used and anticipated noise levels. Can take a number of weeks to be granted.

Headwall agreements – Consent is required from the Environment Agency for headwalls to be altered or built. Consent may take a number of months and the Environment Agency should be consulted during the design of the Headwall.

Water Course Diversion – Consent is required from the Enviromental Agency to divert a water course temporarily or permanently. Consent may take a number of months and the Enviromental Agency should be consulted within the design of the works

Wildlife – There are numerous wildlife permits and will be determined by what wildlife is on the site e.g. badgers, bats etc. For further information please refer to the ecology report and consult with your environmental manager.

7.0 eKPI's AND ENVIRONMENTAL OBJECTIVES AND TARGETS

7.1 eKPI's

The Operations Team are required to collect data on the Constructing Excellence Key Performance Indicators in line with WDCW's environmental objectives. The Operations Team must complete the Project eKPI Performance Log (FM-EM-04) on a monthly basis and forward to the LCO Environmental Manager by the 5th of each month.

7.2 ENVIRONMENTAL OBJECTIVES AND TARGETS

Any project specific environmental objectives identified during the pre construction stage must be recorded within section 2.0 of this Plan. Project specific objectives may reflect the particulars of a project. E.g. A project located in the centre of a residential area may set the objective of eliminating inconsiderate/ nuisance parking. The target may be to have no more than 1 parking related complaint every 6 months. In order to achieve this suitable parking facilities will be identified, communicated to the supply chain during procurement and reiterated in the site induction.

7.3 SUSTAINABILITY CRITERIA

Both during pre construction (Bid Manager) and construction (Building Manager) all projects must identify performance against WDCW's 10-Point Plan for a sustainable project on a monthly basis.

For each criterion, how it will be/ has been satisfied must be recorded using the table on the following page. The 10-Point Plan Satisfaction Criteria identify the compliance criteria for each of the ten points.

A copy of the table must be sent to the LCO Sustainability Manager each month.

Due to the targets changing annually, the project must achieve the targets for the year in which the project CIS will be issued for the main contract works.

Project Environmental Plan – Full

(Project Name) 10-POINT PLAN CRITERIA	COST	PRELIM'S / CLIENT
Client Commitment		
BREEAM / Code for Sustainable Homes		
Sustainability Workshop		
EPC Rating		
Recycled Content by Value		
Waste Diverted from Landfill		
Sustainability health checks and POE		
WLC and LCA		
CCS score		
Community Engagement Plan		

Prepared by: Kevin Lambert **Last Reviewed:**

Title: Construction Manager **Signature:** *K A Lambert*

Checked by: **Signature:**

Title: **Date:**

Approved by: **Signature:**

Title: Sustainability Manager **Date:**

8.0 ENVIRONMENTAL AWARENESS AND TRAINING

We will undertake training of staff and subcontractors to ensure full compliance with the requirements of this and related documents. Matters to be considered could include:

Examples may include:

- Waste Champion
- Biodiversity Champion
- Specific Wildlife toolbox talks (dependent on Ecology Survey)
- Invasive Species toolbox talks
- Site specific induction e.g. to cover community issues picked up during planning or maybe as a result of sensitive receptors nearby, such as a wildlife habitat.

Please also specify any new sustainable materials/ systems you have investigated as part of this project that should be shared within the Pre Construction Department.

WILLMOTT DIXON HOUSING	**CONTRACT TITLE:** **Bicester Eco Village,**	
	METHOD STATEMENT No: Working around Water Courses 001	**Rev :**
PREPARED BY: Kevin Lambert	**DATE: August 2012**	

1.0 Introduction

The purpose of this document is to identify and confirm the general methodology by which Willmott Dixon Homes Limited (Through their contractors) will carry out the work over and around the water courses on the development. Condition 54

WDH recognise the importance of carrying out the work in a safe and controlled manner ensuring that strict supervision and control measures are maintained throughout the work. WDH will therefore provide the necessary project management and site supervision to ensure that the highest quality health and safety standards are implemented and maintained throughout the work. The nature of the work is such that certain specialist activities and operations will be carried out by WDH and their sub contractors. Sub contractors' detailed method statement(s) will be incorporated as required into this document

All WDH and subcontract personnel will be competent to carryout their designated tasks during the work. Before commencing work on site, all personnel will receive a site induction, which will include a briefing on all relevant health, safety and welfare matters

2.0 Scope of Works

The Scope of Work (SoW) covered by this document includes all safety, preparation, planning, task implementation, reporting and close-out to complete the works detailed in the Contract documents.

In general the SoW will involve civil construction works, design and build including associated M&E. When required, this may also include input to all stages of a project, from feasibility, through design and construction.

The range of activities that may be included within this general SoW include:

- Earth embankments for flood defence
- Concrete structures i.e. outfalls, abutments, hard flood banks, retaining walls.
- Revetment works – stone and natural products, channel excavation and geotextile solutions.
- Culverts and drainage
- Bridge construction.
- Minor building works such as telemetry kiosks and building maintenance works.
- Demolition
- Creating habitats for wildlife.
- Detailed design, bending schedules, drawings, etc., for civil works and building services.
- Design of temporary works.

The particular SoW for this development are:

Installation of 4no new bridges (2no Vehicular and 2no Pedestrian) associated diversion of watercourse to enable construction, together with protection to prevent scouring of the embankment and landscaping.

A number of trees will be removed to enable construction to take place.

Re-shaping of flood plain and embankments to suit in line with drawings submitted and approved

Landscaping to create additional habitats for wildlife ion line with details submitted and approved

3.0 References

This document should be referenced with the following:

3.1 Contract Documents

The following Contract Documents applies to work being undertaken within this General Methodology:

Bicester Eco Development – Exemplar Environmental Statement
Bicester Eco Town – Sustainability Statement – Exemplar Site
Drawing Nos:

Site Clearance Sheet 1 of 4	72330	3
Site Clearance Sheet 2 of 4	72331	3
Site Clearance Sheet 3 of 4	72332	3
Site Clearance Sheet 4 of 4	72333	3
Existing Services Sheet 1 of 4	72334	3
Existing Services Sheet 2 of 4	72335	3
Existing Services Sheet 3 of 4	72336	3
Existing Services Sheet 4 of 4	72337	3
General Arrangement Sheet 1 of 4	72338	6
General Arrangement Sheet 2 of 4	72339	6
General Arrangement Sheet 3 of 4	7	6

	240	
General Arrangement Sheet 4 of 4	7241	6
Access Long Sections Sheet 1 of 2	7243	3
Access Long Sections Sheet 2 of 2	7244	2
Cross Section Sheet 1 of 2	7245	5
Cross Section Sheet 2 of 2	7246	5
Surfacing and Kerbing Sheet 1 of 4	7247	3
Surfacing and Kerbing Sheet 2 of 4	7248	3
Surfacing and Kerbing Sheet 3 of 4	7249	3
Surfacing and Kerbing Sheet 4 of 4	7250	3
Foul and Surface Water Drainage Sheet 1 of 4	7253	5
Foul and Surface Water Drainage Sheet 2 of 4	7254	5
Foul and Surface Water Drainage Sheet 3 of 4	7255	7
Foul and Surface Water Drainage Sheet 4 of 4	7256	5
Proposed Services Sheet 1 of 4	7257	3

Proposed Services Sheet 2 of 4	72588	3
Proposed Services Sheet 3 of 4	72599	3
Proposed Services Sheet 4 of 4	72600	3
Typical Drainage Details	72665	1
Road Layout Details Sheet 1 of 4	72667	1
Road Layout Details Sheet 2 of 4	72668	1
Road Layout Details Sheet 3 of 4	72669	1
Road Layout Details Sheet 4 of 4	72670	1
Construction Details Sheet 1 of 2	72671	2
Construction Details Sheet 2 of 2	72672	1
Road Markings and Signs Sheet 1 of 4	72673	4
Road Markings and Signs Sheet 2 of 4	72674	4
Road Markings and Signs Sheet 3 of 4	72675	4
Road Markings and Signs Sheet 4 of 4	72676	4
S38 Suds Type Details Sheet 1 of 2	72677	3

S38 Suds Type Details Sheet 2 of 2	7278	2
Exemplar Site (S38) CS and GL construction details	7279	1
Community streets construction details sheet 2	7280	1
Water Course Crossing 1 General Arrangement	7290	1
Water Course Crossing 2 General Arrangement	7292	1
Proposed Earthworks Strategy Sheet 1 of 2	7315	3
Proposed Earthworks Strategy Sheet 2 of 2	7316	3
Foul and Surface Water Drainage Sheet 1 of 6	7320	1
Foul and Surface Water Drainage Sheet 2 of 6	7321	1
Foul and Surface Water Drainage Sheet 3 of 6	7322	1
Foul and Surface Water Drainage Sheet 4 of 6	7323	2
Foul and Surface Water Drainage Sheet 5 of 6	7324	2
Foul and Surface Water Drainage Sheet 6 of 6	7325	2
Plot Levels Sheet 1 of 2	SK7026A	1

Plot Levels Sheet 2 of 2	SK7026B	1
Foundation Options	SK7027	1
Construction Finishes Sheet 1 of 2	SK7028A	1
Construction Finishes Sheet 2 of 2	SK7028B	1
Typical Drainage Details	SK7029	1
Depth To Rock Level	SK7031	1
Drainage Sheet 1 of 2	SK7033A	1
Drainage Sheet 2 of 2	SK7033B	1
Average Plot Levels	SK7038	2
Typical Gabion Wall Layout Plan	S	1

	K 7 0 4 0 B	
Storm Water Storage Phasing	S K 7 0 4 3	2
Offsite Rising Main General Arrangement	S K 7 0 5 5	1
Foul Drainage Option 1 Longitudinal Sections	S K 7 0 5 6	1
Foul Drainage Option 2 Pump Over Northern Bridge Longitudinal Sections	S K 7 0 5 7	1
Pumping Station General Arrangement	S K 7 0 5 8	-
Hyder Street Lighting Cabling Routes Sheet 1 of 4	S K 7 0 6 1	-
Hyder Street Lighting Cabling Routes Sheet 2 of 4	S K 7 0 6 2	-
Hyder Street Lighting Cabling Routes Sheet 3 of 4	S K 7 0 6 3	-
Hyder Street Lighting Cabling Routes Sheet 4 of 4	S K 7 0 6 4	-

Street Hierarchy & General Arrangement Sheet 1 of 2	7154	3
Street Hierarchy & General Arrangement Sheet 2 of 2	7155	3
Junction Details	7156	3
Off Site High Way Improvements	7157	2
Access Long Sections	7158	3
Access Cross Sections	7159	3
Proposed Development Surface Water Drainage Layout Sheet 1 of 2	7160	3
Proposed Development Surface Water Drainage Layout Sheet 2 of 2	7161	3
Typical Drainage Details	7163	3
Planning Application Boundary	7165	3
Existing Topography Sheet 1 of 2	7166A	2
Existing Topography Sheet 2 of 2	7166B	2
Proposed Site Levels - School Area	7170	3
Water Course Crossing 2 Typical Street Lighting Details	7171	1
Hedge Translocation Sitting Out Information	72	1

	80	
Community Street Layout Sheet 1 of 2	72809	2
Community Street Layout Sheet 2 of 2	72811	2
Proposed and Existing Contours Sheet 1 of 2	73008	2
Proposed and Existing Contours Sheet 2 of 2	73009	2
Public Realm Design and Legibility Strategy - Bus Routes and Stops		1
Public Realm Design and Legibility Strategy - Boundary Treatments		1
Public Realm Design and Legibility Strategy - Signage		1
Hardscape - Recycled Glass Aggregate Paving		1
Sketch - Boundary Tree Pits		5.4.12
Materials Palette Tracker - Materials		30.4.2
Materials Palette Tracker - Furniture		30.4.2
Email from Addagrip		1
Email from Hyder Cresswell, re bird, bat and invertebrate boxes (28 06 12)		1
Hyder Highway Details & Specifications	75122	-
Primary Road Design Principles - minimum dimensions	701-001	1
Vial Energi DH Layout	P-1	D

	39-C-01	
Siemens Toucan Crossing Layout - A4095	8540854779_a	A
Siemens Toucan Crossing Layout - B3100	8540854779_b	B
Siemens Toucan Technical Proposals	85408547 79	A
Energy Centre Steel Frame Arrangement		-
Energy Centre Steel Estimate		-
Landscape Masterplan	80001	4
Biodiversity Net Gain	80002	4
Planning Scheme Sheet 1 of 3	80003	4
Planning Scheme Sheet 2 of 3	80004	4

Planning Scheme Sheet 3 of 3	8005	4
Lighting Strategy	8006	3
Green Infrastructure Typology	8045	2
Primary Road Design Principles - minimum dimensions	701-001	1
Community Streets 1&5	701-202	2
Community Streets 2&4	701-203	1
Community Streets 3	701-204	1
Play Provision Strategy		06-11
River Corridor NEAP	8010	3
Bure Bridge and River Corridor Section (View North from NEAP)	8011	3
Bure Bridge and River Corridor Section (View North from NEAP) Sections Wider Span	8011	3
Sustainable Drainage System : Detail and Precedent Images	802	2

	4	
Streetscape Proposals Examplar Sections	8026	2
Streetscape Proposals South Boulevard	8028	2
Streetscape Proposals East of Energy Centre	8029	2
River Corridor Proposals	8043	3

3.3 Project Quality Plan

In accordance with the WDH Operating Procedures a WDH Project Quality Plan will be operated on this project.

3.4 WDH Health & Safety Policy

WDH Health and Safety Policy.
This document is included within the WDH Project Quality Plan. Also it has been issued to every Company Employee. Copies are made available to all subcontractors and copies will be available on site.

4.0 Health & Safety / Environmental

4.1 Supervision and management of the Works.

We will be appointing an experienced and competent team to undertake this project. We have built up a team of experienced and competent staff and management who are well versed in the standards,, requirements, expectations and policies of the Environment Agency.

This project will be overseen by our Construction Manager, Mr Kevin Lambert who will report to our Project Director – Mr Bob Reeves.

Kevin lambert will be appointed to administer these works. He has previous experience on environmentally sensitive schemes at Romsey, Hampshire, Warwick, Warwickshire and Anchor Quay, Lincoln, Lincolnshire

A dedicated, experienced Engineer TBA will also be appointed.

This work will be administered from our office based on site.

4.2 General

WDH takes health, safety and the environment extremely seriously, recognising that it is the primary responsibility of the Company to maintain the health and well being of its employees, subcontractors and others who may be affected by its operations, as well as protecting the environment from undue damage or degradation.

All Company employees receive a Company Induction on joining, which encompasses the requirements of the Health and Safety at Work etc Act 1974 and other relevant legislation.

All personnel employed on this project will hold CSCS or equivalent qualification cards before being permitted to work on site.

All personnel (employees, subcontractors and visitors) will undergo a site induction prior to accessing the works.

All operatives engaged on these works will have already received or will receive 'Working Near Water' and Manual Handling' Training at the commencement of this project.

WDH has determined the minimum level of safety equipment and PPE required for these types of works. This ensures that the operatives have the necessary equipment, tools, first aid provisions and other facilities on site at all times to meet the operational requirements of their tasks.

The Company H&S Department will be carrying out regular site inspections and monitoring of the workforce and their works to ensure compliance with current legislation, the WDH Health and Safety Policy, Operating Procedures, Health & Safety Plan and Quality Plan. They will also offer advice and best practice suggestions as well as carrying out specific training.

Copies of HASLE Notices received from the EA, together with other relevant industry Safety Alerts will be circulated to Site Supervisors and Team Leaders.

4.3 Lifting Operations

There are a number of lifts required for this contract. The majority of these will be repetitive routine lifts.
The main items to be lifted include:

- Reinforcement
- Pipes
- Other Plant and equipment

Generally we will be using tracked excavators for lifting operations. The excavator operators will all be trained in lifting operations and the appropriate chains, slings and lifting devices will be on site, together with valid calibration and test certificates.

A Mechanical Lifting Assessment will be undertaken and the lift plans produced accordingly. Use will be made of the Sub contractors Method statement and risk assessments to ensure compliance on all lifts

There will be some minor manual lifting operations. The weight of these items will be maintained below 20kg wherever possible. A Manual Handling Risk Assessments will be undertaken for non-routine lifts. All the operatives engaged on this project will be given or will have successfully completed a Manual Handling training course.

4.4 COSHH

The WDH COSHH Assessments are to be included in the Health & Safety Plan. These cover the normal substances that will be used on this project, i.e. Petrol and Diesel. Oil, Hydraulic Fluid.

Substances, such as herbicides, will be subject to site specific COSHH Assessments

4.5 First Aid

There will be a qualified First Aider on site at all times.
A First Aid Kit will be provided in the welfare facilities on site at all times.

The site will also be provided with Emergency Plans detailing who to contact in an emergency. This plan will detail the emergency access points together with the route to the nearest A&E Hospital.

4.6 Fire

A Fire Risk Assessment and Plan will be undertaken for the site. This will include the site accommodation, storage and

compound areas as well as the work area.

The Fire Plan will highlight any particular fire risks, identify the trained Fire Marshall, detail the position and type of fire extinguishers, and contain any emergency evacuation procedures as well as detailing the position of the Assembly Point.

4.7 Accident / Incident Reporting including RIDDOR

All reporting of accidents and incidents will be in accordance with WDH Company procedures. A copy of the Incident Reporting Procedure will be available in on site.

All Accidents and Incidents, including Near Miss Events are to be reported immediately to the WDH Site Supervisor, who will report these to the EA Project Manager..

Where appropriate, the H&S Department will carry out an investigation into the incident and produce a written report which will identify the causes of the incident (immediate, base and root), make recommendations or implement revisions to practices and procedures to prevent re-occurrence. The H&S Department will also communicate the facts and recommendations throughout WDH and provide information to the EA for use in their HASLE Notices,

4.8 Welfare

Welfare facilities will be provided in the designated compound area. 7no cabins as per details sunbmitted in Construction plan. This will be in the form of steel security cabins consisting of an office, canteen, toilet and drying units. There will be a supply of both drinking and washing water, a means for heating food and water and washing and drying facilities.

4.9 Training

All personnel employed on this project will hold CSCS or equivalent qualification cards. A Training Register is maintained and each operative will be referenced against this Register to ascertain that the correct and appropriate qualifications have been achieved for the tasks to be assigned

All plant operators working on site will be required to hold valid industry standard training certificates for the plant and equipment they are required to operate on site. WDH will inspect all operators' original training certificates prior to operators commencing work on site. Copies of operators certificates will be held in a site register for independent inspection

4.10 PPE

All personnel (employees, subcontractors and visitors) will be required to wear eye protection, steel toe and mid-sole cap safety boots, high visibility jacket or high visibility vest. The wearing of protective headwear will be mandatory. Gloves will be required for certain operations and ear protection will be required when the piling operation is on-going.

Self inflating life jackets will be available for working near or over water if required, however in normal conditions it has been risk assessed that this will not be required

Specific PPE requirements will also apply for certain tasks – e.g. use of chainsaw. herbicide spraying, etc. Specific Risk Assessments and Method Statements will detail the specific PPE that must be worn when carrying out these tasks.

4.11 Access

Access to the works will be via the designated access to be agreed with EA prior to commencement, then onto designated haul routes across the site.

Trackway may be laid along the access route to distribute the load and to minimise damage to the existing surface.

Segregation of pedestrians from plant and machinery will be in place on haul routes and within the compound. All visitors, workforce and delivery drivers will report to the site office upon arrival.

4.12 General Public and other site users

The works entail minimul interface with the general public, however all operatives are instructed at induction to ensure if there is ant interface then they are to behave in a polite and courteous manner at all times. They are not allowed to swear, whistle or make antagonising comments to any member of the public.

Access arrangements will be agreed with EA so that they can access and attend to their assets and facilities.

Any hostile comments or actions from a member of the public must be immediately reported to the WDH Site Supervisor.

4.13 Hazards & Risk Assessments

Various hazards have been identified as associated with the works and risk assessments have been carried out to determine the control measures required reduce the risk to an acceptable level.

A Risk Register (WDH002) has been prepared for this project. The principal risks identified for this project include:

- Working near water
- Slips, trips and falls,
- Lifting operations
- Failure of the reservoir embankment or adjacent structures
- Cuts, scratches, bites, stings, etc from insects and plants
- Working with plant and equipment, especially piling and cutting equipment
- Leptosprosis –(Weils Disesase), Lyme's Disease and other infections
- Working with the general public
- Manual Handling
- Existing overhead and underground services, including land drains, electricity and gas services
- Lone working
- Effects of weather (sun, wind and temperature)

Detailed Risk Assessments are produced by the sub contractor for the specific works they are to undertake

4.14 Environmental Issues

A number of Environmental risks have been identified for this project and these are included in the Risk Register (WDH 002) The principal risks identified for this project include:

- Contamination of land or watercourse by oils or hydraulic fluids
- Disturbance to wildlife
- Damage to flora and fauna, including nesting birds and water voles
- Noise
- Spread of invasive species / cross contamination
- Vandalism, resulting in fire, contamination or damage

Detailed Environmental Risk Assessments are produced for specific tasks and are an integral part of each Method Statement.

5.0 Resources

5.1 People

Willmott Dixon Homes Limited employs a large directly employed labour force which is supplemented by local or specialist subcontractors.

The operatives proposed for these works are all long term employees and subcontractors to WDH. They have been employed on previous contracts for the EA, so they are experienced and competent.

Operatives will be trained and qualified for specific tasks.
General training will be given for:

- Working near Water
- Manual Handling.
- Environmental Awareness

Specific task trained operatives will be deployed for:

- Banking and slinging, crane supervision and preparation of Lift Plans
- Excavations
- Temporary works
- Tree works – surgery and felling

5.2 Plant

- 360 tracked excavator
- 360 tracked excavator complete with piling attachment
- Tracked dumpers
- Track way

5.3 Materials

- Concrete Pre cast and Ready mix
- Steel Re bar
- Natural / Re constituted stone
- Tarmac

6.0 Methodology

6.1 Programme Narrative

The programmed start date has been initially set for commencement mid January 2013

Upon Contract Award we will develop the Construction Phase Health & Safety Plan and submit this to the CDM Co-ordinator for recommendation of approval by the Client, as required by the CDM 2007 Regulations.

Prior to commencement of works full MS and RA will be submitted to the EA for approval rpior to commencement of works on site

The initial period programmed for the works relating to the infrastructure and associated landscaping works is 52 weeks. An overall programme for infrastructure and phases 1 – 4 inclusive is envisaged to be 200 weeks

6.2 Pre- Contract

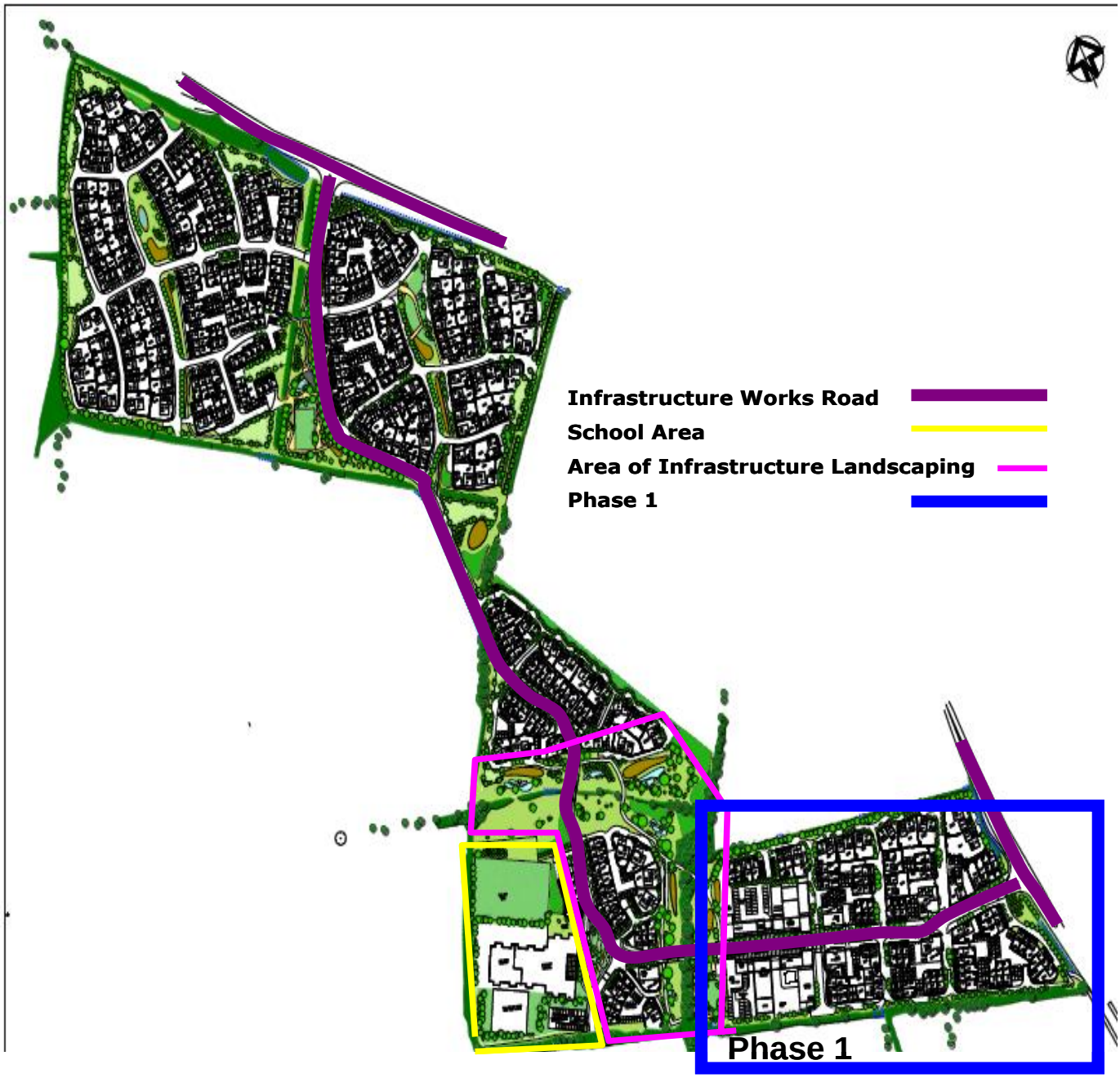
A meeting is to be held on site with the EA and all parties associated with carrying out the works to introduce all parties and fully ensure that all parties are clear on the requirements within the works

Following this meeting, a period of mobilisation will then commence, during which time the necessary contract documentation, health, safety, environmental and quality information will be produced and submitted to the Project Manager for acceptance. Once this information is accepted works on site will commence.

Prior to undertaking any task on site, a joint condition survey will be undertaken between the EA Project Manager and Kevin Lambert of the site, the access thereto and any areas that may be used or affected by the works. This survey is to provide a permanent record of the condition of the site and surrounding area before works commenced and will be in the form of a photographic survey.

6.3 Site Set up

The site office set up will be clear of the working area as shown on the drawing below


Infrastructure Works Road
School Area
Area of Infrastructure Landscaping
Phase 1
Phase 1

Phase 1 Layout

Local residents will be issued with a contact name and number with whom they can discuss any issues/concerns with site vehicles and deliveries or make specific agreements and this will also be displayed at all site entrance points

After establishment of the compound area, the office/welfare units will then be delivered to site on lorries fitted with hiab-cranes for unloading. Following a site dynamic risk assessment, the units will be lifted into place and positioned by an experienced lorry driver/crane operator and trained banksman.

A protective oil absorbent boom will be placed across the stream to contain any spill of fuel or hydraulic oil.

6.4 Pre-commencement

Any access points onto and into the site or parts thereof that may be accessed by the general public will be securely fenced off using 2m high Herras type fence. The fence panels will be clipped together with locking clips, preventing unauthorised removal. The fence will sit on the proprietary bases and will be braced with raking supports every third panel on long runs, to prevent the fence being blown or pushed over. At certain points within the fence line, designated access points will be created, by the insertion of a fully lockable gate.

Once the fence is in place, signs warning of the site dangers will be erected and will be kept clean throughout the duration of the contract.

The locations of all services within the site confines will then be sought. In the first instance, the existing utility drawings obtained from the relevant utility company will be obtained and checked. This information will then be transferred onto the ground, by spraying the indicated position using a line marking paint. Where possible, contact will be made with the utility company and their representative will be requested to attend site to confirm the positions shown on their drawing.

Once these the known services are marked, a full scan with a cable detecting device (CAT and Genny) will be

undertaken by a trained operative to prove the positions already known and locate any unchartered devices. Finally, trial holes will then be dug by hand on the known services to verify the depth, position and condition of the service.

Once the service is located or its location verified, it will be recorded on a drawing before the trial hole is backfilled and marked with an identifying peg. The results of this process will also confirm whether the installation of the temporary or permanent works will interfere with the service

The WDH permit system will be employed at times when working in sensitive areas as a permit to work system in order that tight controls are maintained when works are to be carried out where there is a risk associated environmentally.

In respect to overhead services, the utility company will be contacted and the safe lateral and vertical clearances sought. With these known, fencing to prevent access by plant and machinery to the specific distance will be erected or where passage underneath the service is required, designated crossing points with full goal posts and warning signs will be erected.

The site will be inspected for signs of wild-life. In particular we will be looking for nesting birds or water vole activity. If nests or voles are observed, we will discuss this with the EA Project Manager and either suspend operations until the young have fledged or agree other courses of action.

All operatives, whether directly employed WDH or subcontractors' personnel will be suitable trained and experienced. PPE, will be worn at all times and anyone not complying with the requirements will be removed from site.

The haul roads around the site will need to be upgraded to cater for vehicle movements. Either temporary trackway will be laid, or where this is inappropriate due to the angle of slopes, etc a temporary surface will be created by stripping the topsoil and stock-piling for reinstatement on completion of the works. Geotextile will be laid on the excavated surface before a layer of recycled crushed type 1 material is laid down.

In areas where there are trees that need protecting and there is evidence of plant/tree roots that may be damaged, protective boarding will be laid down rather than granular material in order to better protect the root systems.

The trees on the banks which are to be removed embankments will be removed by specialist qualified subcontract tree surgeons using chainsaws.

The trees will be felled to ground level with the branches being taken away for recycling, retained on site as habitat for wild-life or chipped and used as mulch. The roots will then be ground out using a root grinder and the root voids carefully and thoroughly filled with suitable fill material so as not to weaken the embankment structure. Trees that are to remain, but will be within the works, will be trimmed where necessary and protected with tree protection fences.

A Site Hazard Board will be displayed outside the site office which will state the main health and safety risks present on site for each day. This will be reinforced at the Daily Briefings and Task Instructions. All visitors must report to site and be escorted at all times.

6.8 Completion.

Upon completion but before demobilisation of the site, a joint final inspection of the works will be undertaken with the EA Project Manager to ensure that all works are complete, any defects have been rectified and that the works comply with all requirements set out initially. Any additional works or defects will be addressed immediately or at an agreed time.

9.0 ENVIRONMENTAL GUIDANCE AND SITE PROCEDURES

Please be aware that there are a number of guidance notes and site procedures that must be considered and implemented during the planning of the project. In addition to the Willmott Dixon Guidance, the Environment Agency has also produced a number of Pollution Prevention Guidelines (PPG's) that can be found at:

http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx

10.0 CLIENT SPECIFIED PROCEDURES

The Environmental Management System procedures will apply unless otherwise stated. Client procedures, that will override ours, and non-standard documentation to be used or produced is identified here.

11.0 ENVIRONMENTAL EMERGENCY PLANNING

Pollution prevention planning is the key to avoiding environmental incidents on site and the following actions should be taken to ensure risks are minimised:

- Prepare a good site layout plan
- Identify all drains and watercourses
- Ensure best practice in storage of diesel, oils, chemicals and cement based materials
- Locate polluting materials and skips AWAY from receptors
- Plan for control of concrete wash out water
- Plan to prevent silt run off
- Obtain appropriate spill kits for the site
- Maintain site security

Regular training will also increase awareness and encourage best practice in every day environmental management on site.

All sites are required to complete Environmental Emergency Plans using FM-EM-05.

PRE CONSTRUCTION - To assist the site teams in completing the emergency plans the pre construction team are required to provide the following:

Site Layout plan including the following:

- Site drainage arrangements, including surface water drains, foul sewers, soakaways and oil interceptors if present
- The location and contents of any storage tanks, including underground tanks
- The location of any adjacent watercourses or ditches

Name and Contact numbers for:

- Local Authority – including out of hours
- Gas provider
- Water provider
- Sewage provider
- Electric provider

CONSTRUCTION – The site team must ensure that the plan FM-EM-05 is completed and stored within a separate section at the back of the red H&S emergency procedures folder.

The list of emergency contact telephone numbers should be displayed on the environmental noticeboard in the site offices along with a site plan showing:

- Site drainage arrangements, including surface drains, foul sewers, oil interceptors and soakaways, if present
- Any fire hydrants present on site
- The location and contents of any storage tanks
- The location of any designated drum storage areas
- The locations of any adjacent watercourses or ditches
  The location of spill kits

The Environmental Emergency Planning Arrangements are to be tested annually on each site. The test may take the form of a desktop exercise or a mock spillage and the format should be agreed with your Environmental Manager. A record of the test should be kept at the back of the Environmental Emergency Planning Arrangements file.

Whilst the provision of environmental control procedures is expected to avoid environmental emergency incidents arising, the following precautions should be taken to minimise the impacts of any environmental emergency situations that do occur:

- As part of their initial site induction, all staff will be briefed on actions to be taken in the event of an environmental emergency.

- Spill kits will be provided adjacent to any oil or diesel storage tank or any drum storage areas where a significant spill risk exists. The spill kit materials provided will be of an appropriate amount, bearing in mind the potential quantity of the stored material that might be spilled, and of a suitable nature for the type of oil or chemical to be contained.

- Where environmental emergencies occur with the potential for pollution to escape from site, the Environmental Manager will be informed immediately to allow them to notify the appropriate regulatory body so that additional preventive action can be taken if possible.

- Any environmental incidents of a serious nature will be reported to the Environmental Manager and Group Safety Inspectors by the quickest possible means.

Further guidance on emergency planning can be found in the Environment Agency Pollution Prevention Guidance Note PPG 21.

Appendix 15.1 Ecological Construction Method Statement

Appendix 15.2 NW Bicester Eco Town Exemplar Site Supplementary Combined Ground Investigation

12.0 SITE WASTE MANAGEMENT PLANNING

PRE CONSTRUCTION

A Site Waste Management Plan (SWMP) Wrap SWMP template and SWMP Data Collection (FM-EM-09) must be produced for the project during the pre construction stages. The SWMP must predict the potential waste from the project, consider the options for reducing this waste (especially through design), and determine the best waste management options in accordance with the waste hierarchy (eliminate, reduce, reuse, recycle, recover energy, landfill responsibly). The SWMP must also include a Site Plan, and the Policy, Design Stage and Planning Stage of the SWMP Checklist is to be completed.

A record of design decisions made (from the point of project inception) which will influence the potential waste created on site is to be maintained. This record includes any such decisions made before WDCW became involved in the project.

The SWMP is a legal requirement. It must be signed up to by the client and Willmott Dixon.

CONSTRUCTION

Prior to starting on site the Operations Team must:

- Review the SWMP and SWMP Data Sheet to ensure they are appropriate for the works. This will include completing the Procurement section of the SWMP Checklist in the SWMP
- Obtain approval sign-off of the SWMP and SWMP Data Sheet by the LCO Environmental Manager
- As the project progress the Operations Team must:
- Complete the Construction section of the SWMP Checklist in the SWMP
- Obtain and validate licenses for all waste carriers and management centres being used by WDCW or our sub-contractors, and maintain the 'Duty of Care' section of the SWMP Data Sheet
- Maintain records of materials reused/ recycled on and off site in the 'Re-Used Materials' section of the SWMP Data Sheet
- Obtain details of waste diverted from landfill from the waste management centres being used and maintain the 'Waste Contractor Details' section of the SWMP Data Sheet
- Check all Waste Transfer Notes and Consignment Notes and enter the details onto the 'Waste Data Sheet' section of the SWMP Data Sheet
- 'Refresh' the data on the 'Output' section of the SWMP Data Sheet and transfer the 'Waste eKPI Data' to the Project eKPI Performance Log (FM-EM-04) on a monthly basis
- At the end of the project the Building Manager must complete the final 'Report & Review' of the SWMP.

13.0 WEEKLY SITE INSPECTIONS (FM-EM-13)

Day to day compliance with environmental legislation and best practice on site should be maintained at all times and will be audited by the Environmental Manager, or trained auditors, at regular intervals.

Weekly checks should also be carried out by WDCW site staff using the Site Inspection Checklist (FM-EM-13) included in this section. This should be completed and retained in the file or on the Environmental Noticeboard.

If applicable:

Due to the proximity of the site to residential/ sensitive properties and the potential for dusty conditions to arise on site, the Daily Diary sheet (FM-OP-09) should also be completed to demonstrate that dust levels on site are being checked and actions taken to reduce levels when necessary.

14.0 ENVIRONMENTAL INCIDENTS AND COMPLAINTS (FM-EM-15)

Any environmental incidents occurring on site such as spillages, adverse effects on wildlife or significant dust emissions should be recorded on the Environmental Incident Report form (FM-EM-15) in this section. Actions taken to prevent a reoccurrence should also be completed. A copy of the form should be forwarded to the Environmental Manager and the Operations Manager.

The Environmental Emergency Planning Arrangements (FM-EM-05) should be followed when serious incidents occur.

Where complaints are received regarding statutory nuisances such as noise and dust or possible pollution incidents, the Environment Manager must be informed as these could result in enforcement action being taken against the company. All other complaints from external parties about the site should be addressed through the Considerate Constructors Scheme and recorded on a log sheet displayed in the site offices.

Any communications from regulatory bodies regarding complaints about the site or possible enforcement action should be copied to the Business Unit Environment Manager. The Environmental Manager should immediately convey the details of the incident to the Divisional Systems Manager who will maintain the central Environmental Incident Log (FM-EM-22) on behalf of the whole company. The log is published on the Willmott Dixon Intranet.

15.0 ENVIRONMENTAL SITE VISITS AND AUDITS (FM-EM-17)

Site Visits and Audits of the environmental management system, including annual environmental legal compliance audits, are carried out by the Environmental Manager, or trained auditors, at each site.

Environmental Site Audit Reports (FM-EM-17) are issued to the site with details of any corrective actions, which need to be carried out and any observations noted. Unless otherwise specified, actions should be completed before the next visit (usually one month) and each action signed off and dated when complete.

Copies of completed audit forms should be kept in this section. A blank form is included for information on what will be checked during an audit.

Appendices

15.1 Hyder Supplementary Combined Ground Investigation Factual & Interpretative Report Bridges & Pumping station

15.2 Environmental Policy

15.3 FM-EM-04 Project eKPI Performance Log

15.4 FM-EM-05 Environmental Emergency Planning Arrangements

15.5 FM-EM-10 Site Waste Data Record

15.6 FM-EM-13 Weekly Site Inspection Checklist

15.7 FM-EM-15 Environmental Incident and Complaint Report

15.8 FM-EM-17 Environmental Site Visit Report

15.9 FM-EM-22 CIS Approval Environmental Documentation

15.10 FM-EM-23 Environmental Aspects & Impacts Assessment

NW Bicester Eco-Town - Exemplar Site

Supplementary Combined Ground Investigation Factual & Interpretative Report Bridges & Pumping Station

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NW Bicester Eco-Town - Exemplar Site

Supplementary Combined Ground Investigation Factual & Interpretative Report Bridges & Pumping Station

Author	R.Scammell	
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Approver	C. Plumb	

Report No	5005-UA003072-UP33R-01
Date	October 2011

This report has been prepared for A2Dominion Housing Group Ltd & P3 Eco Ltd in accordance with the terms and conditions of appointment for the Supplementary Combined Ground Investigation Factual & Interpretative Report Bridges & Pumping Station dated July 2011. Hyder Consulting (UK) Limited (2212959) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party.

CONTENTS

Figures and Appendices

1 INTRODUCTION

Hyder Consulting (UK) Limited (HCL) has been instructed by A2Dominion Housing Group Ltd. (A2Dominion) and P3Eco Ltd. (P3Eco) in August 2011 to undertake a supplementary ground investigation at a site on the north western periphery of the town of Bicester, Oxfordshire. The purpose of which was to provide supplementary factual and interpretative information at the proposed NW Eco development know as the Exemplar site.

The predominant use of the site is currently agricultural, principally arable cropping and rotational grassland. This report discusses the Exemplar site only, which is solely owned by Mr. Phipps. The aim of the supplementary ground investigation was to target the ground conditions at the proposed access road, pumping station and bridges. This will provide information for the future foundations, excavations, drainage and contamination issues regarding development at the Exemplar site.

1.1 Previously Available Information

Background information to the site comprises of a HCL desk study dated July 2010 (Ref. 1), a HCL Factual Report dated September 2010 (Ref.2) and a HCL Geotechnical Interpretative Report dated November 2010 (Ref.3.) all of which should be read in conjunction with this report.

1.2 Proposed Development

The proposed development at the Exemplar site is part of a larger 345 ha Eco-Town project for a proposed 5,000 new homes with associated infrastructure.

The purpose of the supplementary ground investigation (during August 2011) was as outlined below:

- To provide geotechnical parameters of the superficial deposits and solid geology for the construction of a proposed access route, pumping station and bridges; and
- To provide an indication of potential contamination on-site.

1.3 Consultants and Sub-Contractors

Table 1.1 details all parties involved with the completion of the supplementary ground investigation at the Bicester Eco Town, Exemplar Site.

Table 1.1: Ground Investigation Parties

Consultants	Hyder Consulting (UK) Ltd Fortran Road St Mellons Business Park Cardiff CF3 0EY
Contractors	Hyder Consulting (UK) Ltd Fortran Road St Mellons Business Park Cardiff CF3 0EY
Sub-Contractors (where applicable)	CJ Associates King Road Avenue Avonmouth, Bristol, Avon BS11 9HF 0117 982 1473

1.4 Site Location and Description

The town of Bicester lies approximately 24 km to the north / east of Oxford and 28 km to the south / east of Banbury.

The Exemplar site is located within the north / west of Bicester approximately 1.5km from the town centre and 130m north of the A4095 main road. The M40 motorway lies 2km to the south / west, with ready access to the town from Junction 9.

The National Grid Reference (NGR) for the centre of the site is 457816,225127.

The site is primarily comprised of agricultural land and grazing fields within a rural area of Oxfordshire. The site boundaries are identified as Caversfield village to the north and north-east, agricultural land to the east and west with residential properties associated with the fringes of Bicester town to the south.

A site location plan of the site is presented in Figure 1.

1.5 Geology

The published 1:50,000 scale British Geological Survey map (BGS) Sheet 85 of Buckingham (Drift 1970, Solid 1975) (Ref. 4), and information provided as part of the BGS borehole logs obtained as part of the phase 1 desk study (Ref 1) as well as the previous ground investigation data obtained within the geotechnical Factual and interpretative reports (Ref 2 and Ref 3) indicates that the site is underlain by Drift deposits comprising Alluvium typically with sandy, calcareous clay overlying gravelly clay. Head deposits are also expected near the streams.

The solid geology was shown to comprise of the Cornbrash Formation (CB) overlying the Forest Marble Formation (FMB) and the White Limestone Formation (WHL).

2 FIELDWORK

2.1 Site Works

The scope of the ground investigation, location and depth of boreholes, site supervision and geotechnical logging of the samples was carried out by the HCL geotechnical engineer.

The site works were undertaken between the 5th September and 7th September 2011 with the scope of works as followed:

- 5 no. rotary boreholes to a maximum depth of 8.0 m bgl; and
- 6 California Bearing Ratios (CBR) tests.

An exploratory hole location plan is presented in Figure 2.

2.1.1 Rotary Boreholes

Five rotary boreholes were completed across the site at locations shown within the exploratory hole plan (Figure 2) for the proposed development. BH01 was undertaken to provide information relating to the proposed pumping station whereas BH02 and BH03 provided information for bridge 2 and BH04 and BH05 for bridge 1.

Boreholes were commenced with dynamic sampling techniques within superficial deposits between GL and 1.0 m bgl, and then followed by alternating rotary core and open hole drilling techniques with in-situ standard penetration testing every metre until the hole was terminated.

Table 2.1 details the final depths achieved within the boreholes, with the geotechnical engineering logs presented in Appendix A.

All boreholes were sampled and logged as per the Standard Procedures described in Section 2.2. Upon completion of the drilling works, the exploratory hole locations were reinstated to match existing ground conditions using approved materials.

Table 2.1: Boreholes Termination Depths

Exploratory Hole ID	Termination Depth (m bgl)
BH01	8.00
BH02	4.00
BH03	4.00
BH04	4.00
BH05	4.30

Photography

Photographs of the recovered cores during the investigation are included within Appendix B.

2.1.2 California Bearing Ratio (CBR)

Six CBR tests were completed at the locations shown within the exploratory h

ole location plan (Figure 2). Table 2.2 outlines the recorded CBR readings and average results as well as test termination depths.

The CBR tests were undertaken using a hand held mexi probe from surface to 0.10m bgl. The probe is pushed through the soil using a constant force enabling the technician to read the estimate CBR value from the dial.

This variant of the CBR test is only used for cohesive or sandy materials and reads CBR values up to 15% only.

The tests were undertaken in accordance with BS 5930 (1999) A2 (2010) "Code of Practice for Site Investigations" (Ref.5).

Table 2.2: CBR Results and Termination Depths

Exploratory Hole ID	Minimum CBR Value %	Maximum CBR Value %	Average CBR Value %	Termination Depth (m bgl)
CBR01	6	9	7.5	0.10
CBR02	4.5	9	6.75	0.10
CBR03	4.5	7	5.75	0.10
CBR04	5	8	6.5	0.10
CBR05	5	6	5.5	0.10
CBR06	5	7	6	0.10

2.2 Investigative Procedures

All ground investigation field work was carried out in general accordance with the recommendations of EN-1997-2 'Geotechnical Design Part 2' (Ref.6) and its related standards, together with the relevant sections of BS5930:1999 'Code of Practice for Site Investigation' (Ref.5) and BS10175 'Investigation of Potentially Contaminated Sites: Code of Practice' (Ref.7).

2.3 Routine Sampling

Representative bulk samples of differing strata encountered were taken as part of the site works. These samples were taken in accordance with the recommendations set out in BS5930-A2 'Code of Practice for Site Investigation' (Ref.5) and BS EN ISO 22475-1:2006 Geotechnical investigation and testing - Sampling methods and groundwater measurements (Ref. 8). The samples were stored in sealed plastic bags and tubs for logging and laboratory testing.

A Hyder Consulting Ltd (HCL) Geotechnical Engineer logged all exploratory holes in accordance with the recommended procedures provided within:

- EN-1997-2 'Geotechnical Design Part 2' (Ref.6).

  This International Standard partially supersedes document BS5930-A2 'Code of Practice for Site Investigation' (Ref.5).

- BS EN ISO 14688-1:2002 Geotechnical investigation and testing – Identification and Classification of soil – Part 1: Identification and Description (Ref. 9);

- BS EN ISO 14688-2:2004 Geotechnical investigation and testing – Identification and Classification of soil – Part 2: Principles for a classification (Ref. 10).

2.4 In-Situ Testing

All in-situ testing was carried out in accordance with BS EN ISO22475-1:2006 Geotechnical investigation and testing - Sampling methods and groundwater measurements (Ref. 8) and EN ISO22476-2:2005 Geotechnical Investigation and Testing – Field Testing (Ref. 11).

2.4.1 California Bearing Ratio

In situ CBR testing was conducted in soils commencing from ground level to 0.10m bgl using a hand held mexi probe as instructed by the Engineer. The tests were undertaken in accordance with BS 5930: 1999 -A2: (2010) “Code of Practice for Ground Investigations” (Ref.5).

2.5 Groundwater

Where groundwater was encountered, measurements and samples were taken in accordance with BS EN ISO22475-1:2006 Geotechnical investigation and testing - Sampling methods and groundwater measurements (Ref. 8). Groundwater conditions observed in excavations and boreholes are those appertaining to the period of the investigation. It should be noted that groundwater levels are subject to diurnal, tidal, seasonal, and climatic variations and are solely dependent on the time the ground investigation was carried out and the weather before and during the investigation. However no groundwater was identified during the ground investigation.

2.6 Buried Services

Throughout the works the Hyder Consulting Safe Working Practice 01 – Buried Services (SWP01), (Ref 12) was adhered to. This document details the methods and safe working practices used to undertake excavations safely. Prior to breaking ground, services plans are consulted and the area scanned using a Cable Avoidance Tool (CAT) with detected signals marked. Hand excavated inspection pits are completed to 1.20mbgl prior to the use of drilling equipment.

2.7 Exploratory Hole Locations

The exploratory hole locations were set out by HCL from local ground and topographical features. The exploratory hole locations are shown on the exploratory hole location plan (Figure 2) with the corresponding borehole logs presented within Appendix A.

3 LABORATORY TESTING

Geotechnical and chemical laboratory testing was undertaken on selected samples obtained from the exploratory holes with the full results included in Appendix C and D.

Testing of all samples was scheduled by a HCL Geotechnical and Geo-environmental Engineer with testing undertaken by a HCL approved laboratory.

3.1 Geotechnical Laboratory Testing

The geotechnical tests detailed in Table 3.1 were carried out in accordance with BS1377:1990 Methods of test for soils for civil engineering purposes parts 1 to 8 (Ref. 13) and BRE Special Digest 1:2005 Concrete in Aggressive Ground (Ref. 14). Results of the geotechnical laboratory testing are presented in Appendix C.

Table 3.1: Geotechnical Testing Scheduled

Type of Test	Standard	Number of Samples
Moisture Content	BS1377:1990 Part 2	2
4 Point Liquid and Plastic Limit	BS1377:1990 Part 2	2
BRE Suite SD1	BS1377:1990 Part BRE Special Digest 2005	5
*One-dimensional Consolidation	BS1377:1990 Part 5	2
Uniaxial Compressive Strength of rock	ISRM suggested methods of rock characterization	2
*Quick Undrained Triaxial Tests	BS1377:1990 Part 7/8	2
Determination of Point Load Value	ISRM suggested methods of rock characterization	5

* No results provided for these scheduled tests. Tests could not be completed due to the gravelly nature of the material and no alternative samples could be found.

3.2 Geo-Environmental Laboratory Testing

Table 3.2 details all chemical testing undertaken on samples obtained during the ground investigation. Results of the chemical laboratory testing are presented in Appendix D.

Table 3.2: Chemical Testing Scheduled on Soils

Type of Test	Standard	Number of tests
Metals (arsenic, cadmium, chromium, nickel, lead, copper, zinc, mercury and selenium)	MCERTS Accredited	4
Total Organic Carbon	MCERTS Accredited	4
pH	MCERTS Accredited	5

4 GROUND CONDITIONS

4.1 Introduction

The general stratigraphic sequence for the Exemplar site generally comprises topsoil overlying soft to very stiff silts and clays above limestone deposits. This stratigraphy is confirmed by the results of the intrusive ground investigation. A summary of the general succession of strata encountered is presented in Table 4.1.

A summary of the general succession of strata is presented in Table 4.1 below.

Table 4.1: Summary of Ground Conditions

Stratum	Average Depth to Top of Stratum m.bgl	Maximum Stratum Thickness (m)	Average Stratum Thickness (m)
Topsoil	GL	0.60	0.37
Drift Deposits Alluvium (Soft very Stiff gravely silt/ clays)	0.34	3.80 (not proved in locations BH02 & BH03)	2.02
Bedrock Cornbrash Formation (Limestone)	3.13	4m proven (8m bgl within BH01)	Not proven

4.1.1 Topsoil

Topsoil was encountered within all borehole locations and was recovered between ground level and a maximum depth of 0.60m bgl, being comprised of soft slightly gravely, silt / clay.

4.1.2 Alluvium

Soft to very stiff clays were recovered from all boreholes and was soft to very stiff, noted between 0.30m bgl to 0.60m bgl. Standard penetration tests were undertaken within this stratum returned N value readings increasing with depths ranging from 6 to >50 (refusal) which are indicative of soft to Very stiff clays. It was noted from the exploratory hole logs that the clays were notably within BH02 and BH03 located within the western locations and was not proved past 4.00m bgl.

Atterberg limits and moisture content testing were undertaken on two samples recovered from within the clays. The results indicated that the clays have an intermediate to high plasticity and a low to medium volume change potential, with natural moisture content of between 28% and 33%.

4.1.3 Cornbrash Formation

The Cornbrash Formation was recovered from the majority of exploratory holes locations within the site from an average depth of 3.13m bgl to a depth of 8.00m bgl, though the full extent of this stratum was not proven.

The stratum was recorded as strong light grey limestone with closely spaced sub horizontal rough clean fractures with intermittent bands of silt /clay material. Standard penetration testing undertaken within this strata was returned with > 50 (refusal).

Limestone was also recovered from BH05 as non intact sandy gravels and cobbles which maybe a weathered horizon. Standard Penetration Tests (SPT) undertaken within this returned N values of refusal, indicative of a very dense, granular material.

The amount of total core recovery and solid core recovery within BH04 and BH05 was noted as low and maybe attributed to the fractured nature of the material and the amount of weaker clay bands.

Two core samples were sent for uniaxial compressive strength (UCS) testing at depths between 5.75 – 6.00m bgl and 3.16 – 3.35m bgl. Ten samples were also sent for point load testing at depths ranging between 2.80mbgl and 7.70m bgl.

The point load tests indicate the Is (50) strength range from 0.3 MPa to 6.4MPa within the competent limestone, recorded with an Is (50) value between 4.1 and 4.4 MPa within the limestone gravels.

Using a standard conversion of 21.9 multiplied by the Is (50) value for limestone rocks as indicated within “Using the point load test to determine the uniaxial compressive strength of coal measure rock” (Ref 15) the results can be correlated to a UCS strength range of between 6.57MPa and 140.16 MPa with an average of 54 MPa within the banded limestone. The UCS testing undertaken within the banded limestone returned a UCS strength range between 21.6 MPa and 88 MPa.

Point load tests were converted for the limestone gravels with results of between 89 MPa and 96 MPa recorded. No UCS testing was undertaken within the limestone gravels for comparison purposes.

Groundwater

No groundwater was encountered during the ground investigation.

4.2 General

Geotechnical Parameters for each principal stratum type encountered within the boreholes are summarized in Table 4.2. These are based on available test results or published data. It is important that the accompanying notes and previous reports are read in detail when using this data for design and the construction process.

Table 4.2 – Summary of geotechnical properties

	Plasticity Indices			Natural Moisture Content	Undrained Cohesion	Effective angle of Shearing Resistance	Unconfined Compressive Strength	Standard Penetration Test	Concrete Class	Coefficient of volume compressibility/Coefficient of Consolidation
Strata	LL (%)	PL (%)	PI (%)	%	Cu (kPa)	Phi' (degrees)	UCS (MPa)	('N') value	DC/ACEC	(m^2/MN)/(m^2/year)
Superficial deposits cohesive	81 -63	54-38	25- 27	28 -33	130 -150 based on description	23 based on PI value	-	6 - >50	AC-1	N/A
Inter-bedded Limestone Rock	-	-	-	-	N/A	40 (based on values published by Hoek and Bray)	21.6 - 88	>50	AC-1	N/A

5 GROUND ENGINEERING

5.1 Proposed Access Road

At the time of writing this report no information was made available relating to the approximate levels of the access road, however the proposed route of the access road was provided.

In situ mexi probe results within natural soils across the proposed access route ranged from an average of 5.5% to 7.5% at a depth of 0.10m bgl within the topsoil material.

Should the topsoil material be stripped during construction an assumed CBR value of 5% should be achievable within the natural clay material, although this is to be confirmed during construction. Removal of soft spots and proof rolling maybe necessary in isolated areas.

The roads on site should be constructed in accordance with Design Manual for Roads and Bridges (DMRB) Volume 4, Section 1, Part 1 (HA44/91), (Ref 16) and Volume 7, Section 2, Part 2 (HD25/94).

Particular care should be taken to avoid excessive trafficking in areas of proposed roads, and pavements should be constructed soon after excavation in order to limit deterioration and softening of the formation.

5.2 Pumping Station

At the time of writing this report it is understood that the location of the pumping station will be within the area surrounding BH01 as shown within Figure 2. No further information relating to the size, approximate loadings of foundation levels have been confirmed at the time of writing this report.

5.3 Bearing Pressures

With reference to log descriptions, SPT values and laboratory tests results, the following bearing pressures for static loading are proposed as summarized in Table 5.1.

The bearing pressure for the bedrock has been calculated with reference to point load tests, UCS tests and using descriptions of logs, fracture spacing and reference to BS8004:1986 “Code of Practice for Foundations” (Ref 17).

For the clays, reference has been made to Stroud’s correlation between SPT N value and cohesive strength for clays as outlined in CIRIA 143 “SPT: Methods and Use” and to Table 2.1 of Tomlinson Foundation Design and Construction”, fifth edition for correlation of cohesive strength to bearing pressure.

Table 5.1 - Net Allowable Bearing Pressure at borehole BH01

Stratum	Average Depth to top of stratum (m bgl)	Net Allowable Bearing Pressure
Firm to very Stiff silt /clay	0.34	150 - 300 KN/m2
Inter-bedded Limestone	3.13	*2500 KN/m2

*Assumes a square pad with settlement not exceeding 0.5% of foundation width.

5.4 Foundations

Based upon exploratory hole logs it is considered that mass excavation at depth would be should be suitable for the proposed development.

As stated within section 4.1.2 atterberg testing generally returned results with low and medium volume change potential. It is recommended that the foundation design should be carried out in accordance with the guidance provided in NHBC chapter 4.2 (Ref. 18) to ensure that no damage to foundations results from shrinkage/swelling of clays.

Due to the potential presence of medium volume change potential Clay beneath the Superficial Deposits, it is recommended based on NHBC chapter 4.2 that foundations are located at a minimum of 0.9m below ground level (where roots are noted / present then foundations should be extended below the level of the roots). However it is recommended that the pumping station be founded within consistent strata to reduce the effect of differential settlement. It is therefore considered that foundations are founded upon the limestone bedrock encountered in excess of 4m bgl.

Inter-bedded limestones found across the site containing bands of silt / clay material, when considering foundation types and loadings, consideration of differential settlement should be taken between those areas where limestone might lie directly beneath the foundation and where foundations are underlain by cohesive weathered limestone or Clays.

No made ground was recorded in any of the exploratory holes, however if made ground or soft material is encountered in any of the excavations for foundations then this material should be excavated and replaced with suitably compacted, granular fill. All shallow foundations should be inspected by a suitably qualified Geotechnical Engineer, to confirm that a suitable founding stratum is available.

5.5 Settlement

Differential settlement is not considered to be an issue provided the structure is founded entirely on competent Cornbrash Limestone bedrock at depths of between 4 to 6m bgl. In the event of any soft spots being identified during the excavation at the proposed founding depth, these soft areas must be removed down to the rock and replaced with compacted granular material. In order to minimise the potential for differential settlement across the pumping station base, it is recommended that any irregularities within the rock are removed and a blinding layer is laid to obtain the flattest surface possible for the pumping station base.

5.6 Swelling

In order to ensure that the structures are not affected by swelling of any clay / alluvium material, it is recommended that this material is removed and replaced where necessary to ensure that the founding material is within the Limestone bedrock, and where necessary the ground foundling levels built back up and replaced with granular fill. Elastic rebound of the limestone will occur immediately upon removal of the overburden via the release of pressure and subsequent expansion of fracture planes, and will not impart post-construction upward pressure on the finished base of the structures.

5.7 Buoyancy

At present the founding depth of the pumping station is not known. However no groundwater was encountered within any of the exploratory holes during the ground investigation to a maximum depth of 8.00 m bgl. It is therefore considered that the effect of buoyancy upon the

proposed structure is unlikely to pose a significant effect. However if the founding depth of the pumping station is greater than 8.00m bgl then the risk of groundwater and buoyancy will be proportionally increased.

5.8 Excavations

The foundations for the proposed pumping station are expected to be entirely within Cornbrash Limestone bedrock at 4 to 6m bgl. Overlying the bedrock is a thick layer of alluvium (typically 4m in thickness) and this will be easily excavatable by a conventional backhoe excavator. Laboratory UCS and point load strength testing on the Cornbrash Limestone rock at 5 to 8mbgl provided strength values ranging from 20 to 59 MPa. The fracture and discontinuity spacing of the limestone in borehole BH01 at 4 to 5m bgl ranged from 30, 100 and 180mm.

During excavations it is expected that once the Cornbrash Limestone rock is encountered, advancement through the rock mass can be facilitated by exploiting natural fractures and will require ripping with and hydraulic breaking prior to excavation by conventional means.

The sides of the excavation within the alluvial overburden will be unstable and it is considered that sheet piles or similar will be required for excavation support during the construction works, or alternatively if there is sufficient space available, the side slopes within the alluvium could be battered back to a safe angle (less than a 45° vertical: horizontal slope).

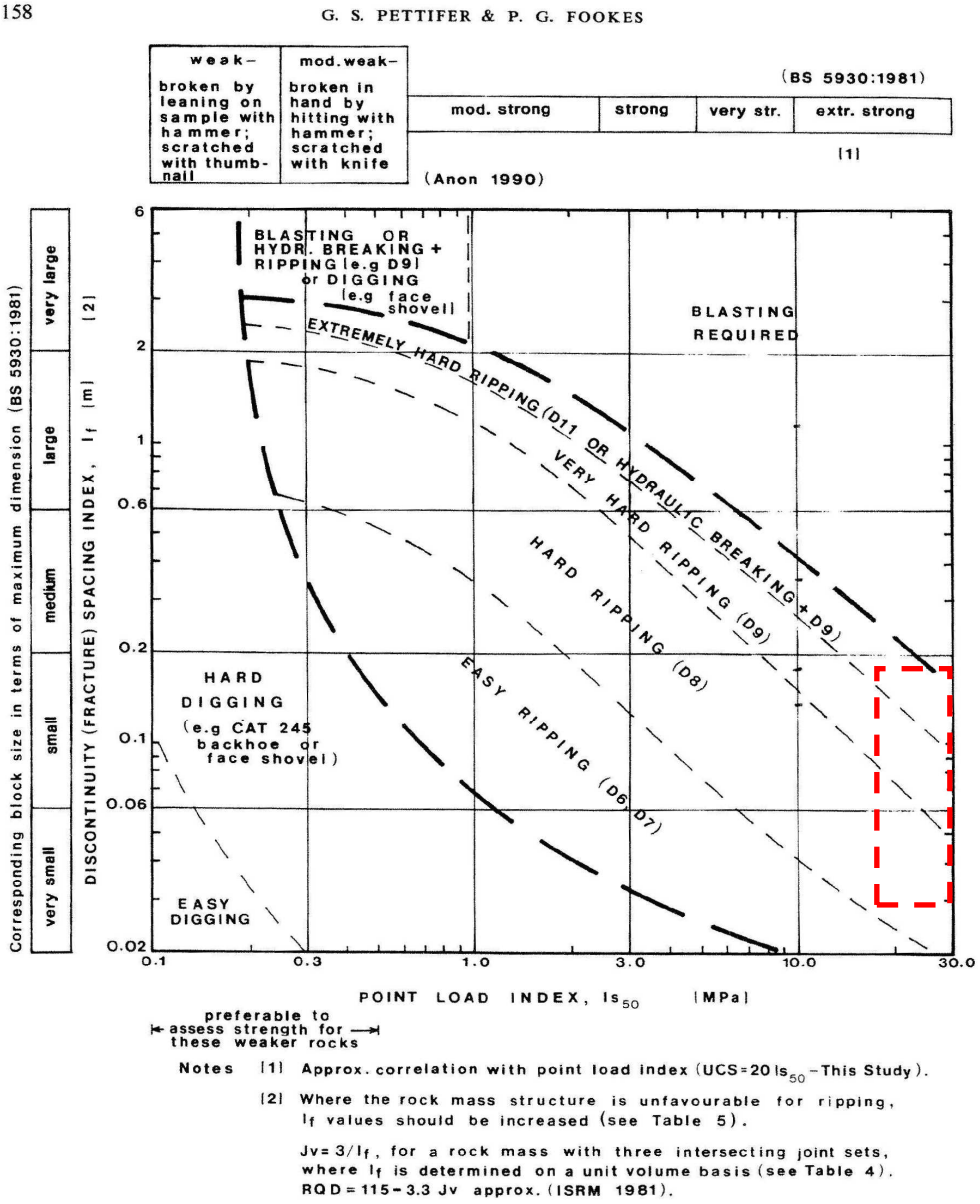
Based on information gained from the ground investigation, an assessment of the excavatability of the bedrock found on site has been made utilising the paper by Pettifer and Fookes (Ref. 19). Refer to the red dashed square in Table 5.2 for an expected range of rock excavatability.

The discontinuity spacing index of the Cornbrash Limestone bedrock ranges from 0.03mm to 0.18m. It should be noted that the assessment of discontinuity spacing, which to a large extent controls excavation, is difficult to assess from vertical boreholes. Excavatability assessments based on boreholes tend to underestimate the spacing of discontinuities or fractures in rock as fracture spacing in the vertical plane only is measured.

As a precaution, an excavator with a diamond rotating bit attachment or other alternative rock grinding or breaking equipment will be required to excavate the competent Cornbrash Limestone bedrock. Due to the sensitive nature of the site setting and close proximity with the road and residential properties, care must be taken by the contractor to keep the noise and dust levels to a minimum during the rock excavation.

No groundwater was encountered during the ground investigation. Although unexpected, if groundwater ingresses occurs, together with any rainwater infiltrations, dewatering may be required and should be dealt with by conventional methods.

Table 5.2: Excavation methods, based on Qualitative Rock Strength and Fracture Properties (Ref. 19)



5.9 Bridges

At the time of writing this report the proposed development contains the construction of two bridges in the locations of BH02, BH03 and BH04 and BH05 as shown within Figure 2 with current design plans attached as Figure 3.

The proposed details for construction of the bridges are to comprise the following;

- Foundation arrangement to be a strip footing of width 2.2m (1.5m deep);
- Nominal Bearing Pressures 230kN/m2; and
- Retaining walls likely to be reinforced earth so bearing pressures will be those resulting from the embankment vertical loads.

5.9.1 Bearing Capacity

With reference to log descriptions, SPT values and laboratory tests results, the following bearing pressures for static loading are proposed as summarized in Table 5.3.

The bearing pressure for the bedrock has been calculated with reference to point load tests, UCS tests and using descriptions of logs, fracture spacing and reference to BS8004:1986 “Code of Practice for Foundations”.

For the clays, reference has been made to Stroud’s correlation between SPT N value and cohesive strength for clays as outlined in CIRIA 143 “SPT: Methods and Use” and to Table 2.1 of Tomlinson Foundation Design and Construction”, fifth edition for correlation of cohesive strength to bearing pressure.

Table 5.3 - Net Allowable Bearing Pressure

Stratum	Average Depth to top of stratum (m bgl)	Net Allowable Bearing Pressure
Soft silt / clay	0.60	<75KN/m2
Firm to very Stiff silt /clay	0.34	150 - 300 KN/m2
Inter-bedded Limestone	3.13	*2500 KN/m2

*Assumes a square pad with settlement not exceeding 0.5% of foundation width.

A review of the ground investigation borehole data has shown for bridge 2 (BH02 and BH03) that at current proposed foundation depths of 1.50m bgl the bridge would be founded within the soft clays which will have a bearing capacity of <75kN/m2 which would be insufficient to support the structure.

It is therefore recommended that this material be excavated to a maximum of 3.20m bgl and replaced with a suitable granular fill material so the proposed bridge maybe founded at current design levels.

A review of the borehole information related to bridge 1 (BH04 and BH05) indicates that foundation levels would be suitable at 2.80m bgl founded within limestone with anticipated bearing capacity in excess of 2500kN/m2 based upon UCS results.

Current design drawings for both bridge 1 and 2 are attached as Figure 3.

5.9.2 Settlement

As stated within section 5.7.1 above there is not sufficient bearing capacity of the soils at 1.50m bgl to support the imposed loading of bridge 2 of 230KN/m2. Therefore the soft clay material should be replaced with a suitable granular fill. Once this has been completed the following settlements for the proposed structure are anticipated:

At the location of bridge 2 no suitable laboratory testing was undertaken to provide an approximate mv value for compressible soils at the founding depth. Therefore an assumed mv value of 0.1 M^2/MN has been calculated based upon log descriptions, standard penetration results and plasticity index of the soils for moderate compressible soils.

Assuming an mv of 0.1 M^2/MN for a bridge with the loading of 230KN founded at a depth of 1.50m bgl with a compressible layer below terminating at 4.00m bgl, an expected settlement of less than 25mm is anticipated with a differential settlement of approximately 10mm.

However it should be stated that should the compressible layer extend past 4.00m bgl then a higher amount of settlement should be expected.

It is recommended that foundations are inspected by an experience Geotechnical Engineer to confirm suitable ground conditions.

5.10 General Construction Issues

5.10.1 Excavations

Should significant changes in ground level be required as part of the proposed development, the excavatability of the limestone must be considered, as the ground investigation proved that this material can be strong and relatively difficult to dig by conventional means.

Excavations using conventional plant equipment should be achievable. Where foundations are based at shallow level on top of the limestone, some water inflow may be expected following heavy rain where the water is perched above the limestone, and some form of dewatering during temporary works may be required.

If any excavations for other infrastructure are required to greater depth then ripping and breaking of the limestone rock will be required, plus there is an increased possibility of encountering groundwater and shoring and dewatering processes may then be required.

5.10.2 Re-Use of material

Any gravel encountered should be appropriate for re-use subject to the conformation of grading of compaction characteristics as a general granular fill.

5.10.3 Ecology

Badger setts were identified within the adjacent land areas and therefore any badger setts found in close proximity to the development must follow current guidelines, and the recommendations of the appointed ecologist when constructing in the vicinity of this habitat.

5.10.4 Building Near Trees

Where the development is proposed adjacent to existing or proposed planting, foundations should comply with the requirements of NHBC Guidelines Chapter 4.2 (Ref. 18). In which case, it may be necessary to extend the foundation depths quoted in Section 5.

5.10.5 Solution Cavities/Swallow Holes

Although no evidence of solution cavities or swallow holes were recorded during the supplementary ground investigation, these features may be present within the site, particularly in the limestone deposits. Any evidence of such features discovered during excavations should be investigated further by an experienced Geotechnical Engineer, and an appropriate remediation scheme adopted if deemed necessary.

5.10.6 Radon Protection

As part of a Desk Study Report undertaken for the adjacent Exemplar site area (Ref. 1), a detailed BR 211 Radon Report was obtained from the British Geological Survey (BGS), which states that basic radon protection measures are required for the site area as the estimated probability of a property being above the Action Level for radon is 3-5%.

Details on the technical specifications for basic radon protection measures are given in document BRE Report BR211 (Ref.1 9).

5.10.7 Protection of Buried Concrete

Substances often involved in the attack on building structures and foundations are present on the site, primarily sulphate bearing strata.

Consideration should be given to the presence of sulphates in the selection of building materials and services. The presence of sulphate can have a damaging effect on concrete. Sulphate and pH testing was undertaken upon five samples recovered at depths ranging from 1.00m bgl to 3.00m bgl within alluvium material. The sulphate concentrations returned ranged from 18 mg/l to 21mg/l, and corresponding pH values were returned between 7.8 and 8.3 corresponding to neutral to alkaline ground conditions.

With reference to guidance outlined within BRE document SD1" Concrete in aggressive ground"(2005), the test values correspond to a Design Sulphate Class of DS-1 and an Aggressive Chemical Environment for concrete class of AC -1.

6 CONTAMINATION ASSESSMENT

The contamination assessment sets out an appraisal of the results of the soil analyses undertaken on samples obtained during the ground investigation. A Tier 1 (comparative) approach has been applied to the results, which uses site-specific data compared to available CLEA SSVs (soil screening values). Where these are not available, HCL in-house generic assessment criteria, derived using the CLEA model, have been used.

The current philosophy to the assessment and remediation of contaminated land in the UK is to adopt an 'end use' approach whereby the significance of contamination at a site is evaluated according to either the existing use or a proposed development. The relevant scientifically based authoritative criteria to access soils against are the Soil Guideline Values (SGVs) which were derived using the Contaminated Land Exposure Assessment (CLEA). To date, SGVs for eleven contaminants (arsenic, nickel, mercury, selenium, cadmium, benzene, toluene, ethylbenzene, xylene, polychlorinated biphenyls, and phenol) have been published.

Where SGVs are not available Hyder have utilised the LQM/CIEH Generic Assessment Criteria (GAC) for Human Health (2009), derived in accordance with UK legislation. These values have been derived using the Environment Agency software 'CLEA 1.06' which allows generic assessment criteria to be derived that are consistent with current government policy on contaminated land. The reader is referred to the LQM/CIEH document for full details on the derivation of each GAC.

SGVs and LQM/CIEH GACs have been derived for three generic land uses, namely; Residential, Allotments and Commercial/Industrial. The reader is referred to the Environment Agency's Updated Technical Background to the CLEA Model (2008) for full details on the various land uses scenarios. The commercial/industrial land use scenario is considered to be relevant to the land use at Bicester for the proposed pumping station. Therefore, for the purposes of the assessments at the site, SGVs and GACs for a commercial/industrial land use have been adopted as the Tier 1 screening values

The LQM/CIEH GACs have been derived for three Soil Organic Matter (SOM) contents (1%, 2.5% and 6%) for organic contaminants including petroleum hydrocarbons. The SOM of the soils underlying the site range from <0.1% to 0.8% therefore the most stringent GACs (1% SOM) have been used as a precautionary approach.

6.1.1 General

This report a soil quality assessment has been undertaken for the areas associated with the pumping station and location of bridges only based upon the targeted ground investigation of these areas. For a full site wide human health risk assessment reference is made to section 6 within the Geotechnical Interpretative Report undertaken by Hyder Consulting Limited, titled " NW Bicester Eco Development Geotechnical Interpretative Report - Exemplar site" dated November 2010 (Ref:3).

6.2 Soil Quality

In total, four samples were taken from natural clay soils between 1.00m bgl and 3.00m bgl across the site and analysed for organic and inorganic contaminants, with the results compared to the SSVs for the 'Commercial/Industrial' land use scenario. For organic contaminants, where relevant, a Soil Organic Matter of 3% has been used to derive the SSVs as this is considered a conservative value. A summary of the results is included within Tables 6.1 to 6.2 with the full laboratory test results included within Appendix D.

Table 6.1 Summary of Analytical Chemical Testing Results (Inorganic)

Determinand	Number of Samples Tested	Minimum Concentration (mg/kg)	Maximum Concentration (mg/kg)	SSV (mg/kg) Commercial/ Industrial	No. of Exceedances
Arsenic	4	<5	8.4	640(1)	0
Barium	4	15	47	22000(2)	0
Beryllium	4	<5	<5	420(2)	0
Boron (H_2O Sol.)	4	<5	1.4	192000(2)	0
Cadmium	4	<0.5	<0.5	230(1)	0
Chromium	4	9	13	30400(2)	0
Copper	4	5	10	71700(2)	0
Lead	4	7	11	750(3)	0
Mercury	4	<0.5	<0.5	3600(1)	0
Nickel	4	10	18	1800(1)	0
Selenium	4	0.6	2.1	13000(1)	0
Vanadium	4	13.9	26.7	3160(2)	0
Zinc	4	19	45	665000(2)	0
Cyanide (Total)	4	<0.1	0.8	53(2)	0

1) EA published Soil Guideline Values
2) LQM/CIEH published values (2nd Edition)
3) Previous EA published Soil Guideline Value (currently withdrawn)

6.3 Hazard Assessment – Choice of Pipeline Material

A summary of test results for soils encountered on the site versus the threshold limits published by the Water Regulations Advisory Scheme (WRAS 2002) (Ref 20) is provided in Table 6.2 below.

Table 6.2: Zone 2 Effect of Contaminants on Choice of Pipeline Material

Contaminant	Threshold (mg/kg)	Concentrations (mg/kg)	Threshold Exceeded?
		Range (mg/kg)	Yes/No
Corrosion			
Sulphate (SO^4)	2000	18 - 28	No
Sulphur	5000	N/A	-
Sulphide	250	N/A	No

Contaminant	Threshold (mg/kg)	Concentrations (mg/kg)	Threshold Exceeded?
		Range (mg/kg)	Yes/No
pH	5 – 8	7.8 – 8.3	**Yes**
Toxic Substances			
Antimony	10	N/A	-
Arsenic [3]	10	<5 - 9.5	No
Cadmium	3	<0.5 – 0.5	No
Chromium (VI)	25	9 – 13	No
Chromium (Total)	600	N/A	-
Cyanide (free) [3, 4]	25	N/A	-
Cyanide (complex) [3]	250	N/A	-
Lead	500	7 – 11	No
Mercury	1	<0.5	No
Selenium	3	0.60 – 2.1	No
Thiocyanate	50	N/A	-
Organics			
Coal Tar [5]	50	N/A	-
Cyclohexane Extractable [5]	50	N/A	-
Phenol	5	N/A	-
PAH	50	N/A	-
Toluene Extractable	50	N/A	-
Petroleum Hydrocarbons [6]	50	N/A	**-**

Notes:

1) Exceedances in bold

2) n/a – not analysed

3) It is recommended that water pipes should not be laid in sites where these substances are identified or suspected.

4) For this assessment Total Cyanide is assumed to equate to Free Cyanide.

5) Use specific marker compounds. See PAHs.

6) “Petroleum Hydrocarbons” is taken as the Aliphatics and Aromatics C12-C35.

6.3.1 Soil Quality Summary

All soil samples recorded metals and inorganics contaminant concentrations below the appropriate screening values for the ‘Commercial/Industrial’ land use scenario and therefore do not require further consideration.

Choice of Pipeline Material

Exceedances were seen for pH only when tested samples were screened against relevant WRAS thresholds for pipeline material selection for corrosive, toxic and organic compounds.

However a review of the laboratory results identified that the pH levels within the area of the proposed pumping station (BH01) were below the screening values and therefore no further action may be required. Should any services be required in the vicinity of any of the remaining borehole locations consultation with the water supplier and/or further testing and risk assessment maybe required.

6.4 Protection of Workers

Whilst construction workers are considered receptors the use of appropriate Health and Safety measures including personal protective equipment and adopting good site hygiene practices should mitigate any risks from acute exposure to a very low level. Construction workers are therefore no longer considered in this report.

For further information, it is advisable to utilise document HSG 66: “Protection of Workers and the General Public During Development of Contaminated Land” published by the HSE (1991) (Ref. 9) to ensure that a suitable health and safety scheme is adopted and all construction workers are adequately protected during all site activities. Additionally, contamination from materials brought on to site (e.g. fuel and lubricating oils for plant) during the construction phase must be considered harmful to human health as well as the environment and controlled waters. The risks posed from all imported substances and materials must be adequately addressed within a comprehensive site management plan.

7 WASTE MANAGEMENT

7.1 Background

In general, material removed from an excavation will not normally be regarded as waste if:

- It is intended to be reused on site;
- It is suitable for use as backfill; and
- It does not need to be processed before it can be reused.

In such cases, the material would not be subject, at that point in time, to the duty of care for waste and environmental permitting.

If it is not possible to reuse excavated material on site, then off-site disposal to an appropriately licensed landfill may be required. In this case, due consideration should be given to the UK Landfill Directive. Furthermore, any materials without a defined use on site can be considered as waste.

As of July 2009, the final phase of the landfill regulations from 2002 came into force and developers should be aware of the impact that it could have on their developments.

With measures already in place, the final phase of the regulations means that specified wastes can no longer be disposed off site to landfill and all wastes intended for landfill must receive prior treatment. Options for treatment (which include chemical, biological, mechanical separation and sorting) exist for most wastes and exemptions to this requirement are only limited to: inert wastes where treatment is not technically possible and wastes where viable treatment would not reduce the quality or the hazard(s) posed to human health or the environment.

The basic Government policy applies in the management of waste, and sites should adhere to the following protocol:

I. Reduction of the waste generated by managing the development to keep the amount of 'waste soil' to a minimum;

II. Re-use or re-distribution of soil on site (this will require the necessary authorisation);

III. Recovery or recycling by way of treatment on site (this will require the necessary authorisation); and finally

IV. Disposal, following pre-treatment (with necessary authorisation) to landfill.

If, having followed the above hierarchy, off-site disposal of soil is necessary; there is a requirement to determine whether the waste soil is “hazardous” or “non-hazardous”. This is undertaken by means of CATWASTE^{SOIL}, as described in Section 7.2 below.

7.2 CATWASTE^{SOIL}

The results of the investigation have been input into CATWASTE^{SOIL}, which has determined from the total contaminant concentrations in the soil, that the natural clay material is not hazardous.

Waste Assessment & Disposal

An assessment of the solid analysis was undertaken and screened for concentrations over 0.1% (1000mg/kg) as a guide to the presence of hazardous levels of contamination. This assessment was undertaken according to guidance outlined in the Environment Agency document WM2 “Interpretation of the definition and classification of hazardous waste”, second edition.

A screening of the solid analysis did not identify any exceedences of the 0.1% screening concentration (1000mg/kg) within any of the determinands tested indicating that the waste is likely to be classified as non hazardous.

7.2.1 General

According to the Landfill Directive, material that can undergo decomposition (e.g. topsoil) cannot be classified as inert waste and is therefore recommended that topsoil / organics are stripped and stored separately to the underlying subsoil.

It is also recommended that a screen of organic material be undertaken and checked with the selected suitably licensed landfill for confirmation of classification to comply with the Duty of Care Regulations of the Environmental Protection Act 1990 to ensure that contaminated soil and water is disposed of off-site to a suitably licensed waste management facility in a safe and approved manner.

It should be stated that information obtained is assessed on the screening assessment and thus if provided as guidance only. It should be necessary to confirm the actual classification with prospective landfill operators prior to disposal.

It is recommended that classification is confirmed with the receiving landfill which may require further specific testing to validate the material before acceptance to landfill.

REFERENCES

1 Hyder Consulting Ltd, Desk Study Report No: 2501-UA001881-UP33R-01: July 2010.

2 Hyder Consulting Ltd, Factual Ground Investigation Report No: 2504-UA001881-UP33R-01: September 2010.

3 Hyder Consulting Ltd, Geotechnical Interpretative Report. Report No: 2505 UA001881 UP33R -01 November 2010.

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5 British Standards Institution (BSi). BS5930:1999 – A2 (2010) Code of Practice for Site Investigations. BSi, London.

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14 BRE Special Digest (2005). Concrete in aggressive ground, Special Digest 1:2005, 3rd Edition, The Concrete Centre, BRE Construction Division.

15 John Rusak & Christopher Mark: Using Point Load to Determine the UCS of Coal Measure Rock.

16 Highways Agency (HA) Volume 4 Section 1 Part 1 HA 44/91.

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18 NHBC, 2010. NHBC Standards, Part 4: Foundations and 4.2 building near trees.

19 BRE Report BR211: Radon – Guidance on Protective Measures for New Buildings

20 Water Regulations Advisory Scheme (WRAS) Selection for water supply materials to be laid in contaminated land: 2002.

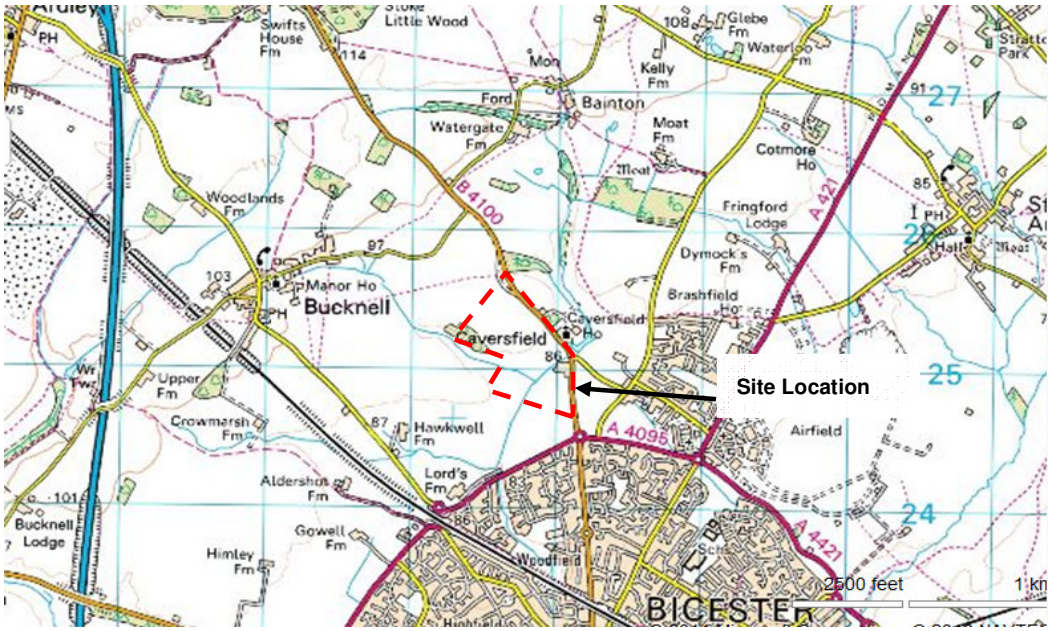
Figures

Figure 1 – Site Location Plan

Figure 1: Site Location Plan

Project Name:	NW Biscester Eco-Town, Exemplar Site
Client	A2dominion Housing Ltd & P3Eco Ltd

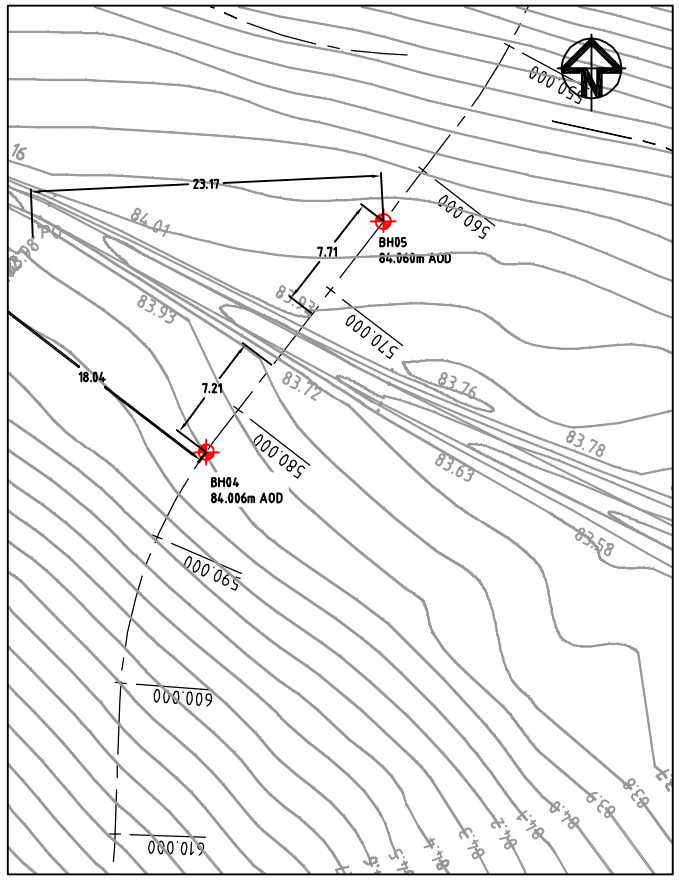
Project Location:	**Project Code**	**Scale**
Bicester	UA003072	NTS



Address	**Ordnance Survey Grid Coordinates**	
Banbury Road Caversfield Bicester Oxfordshire OX6 9TG	OS (Eastings) OS (Northings)	457816 225127

Figures

Figure 2 – Exploratory Hole Location Plan



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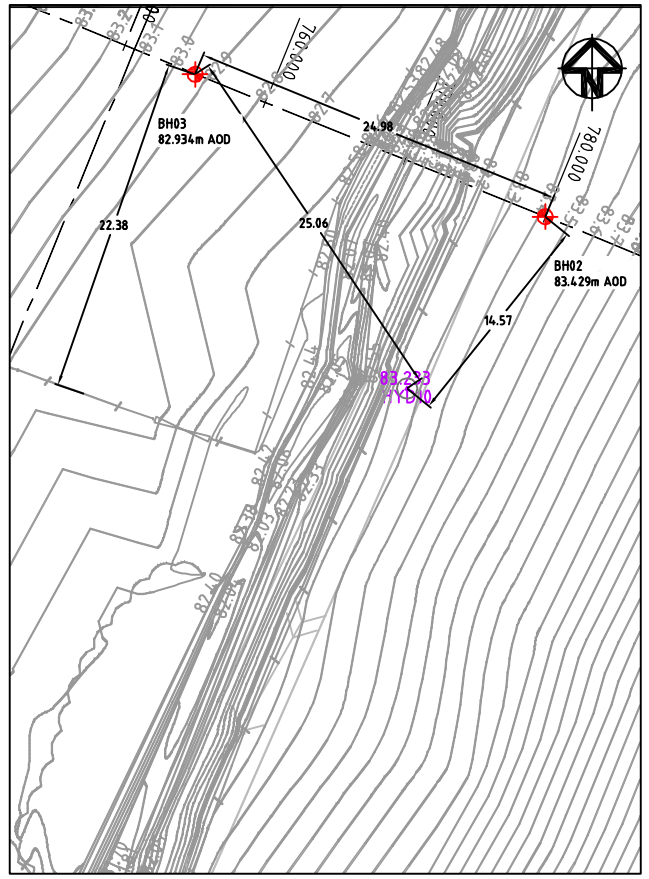

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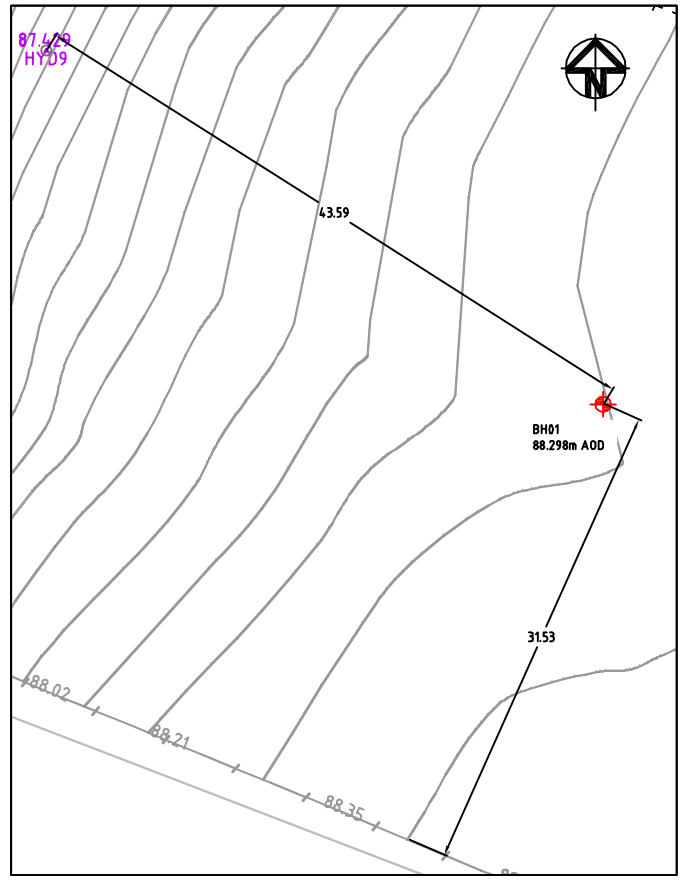

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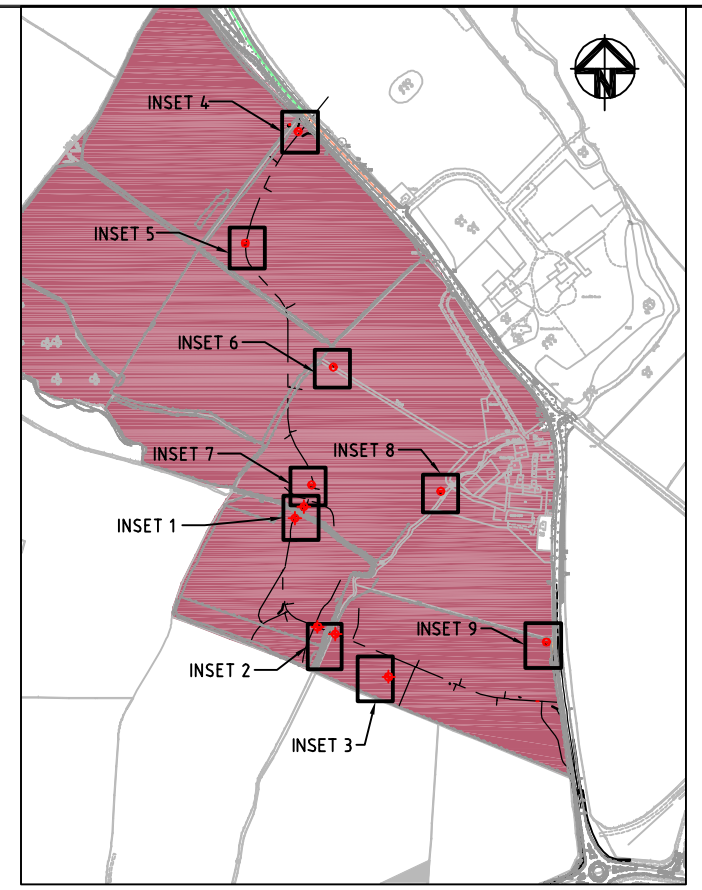

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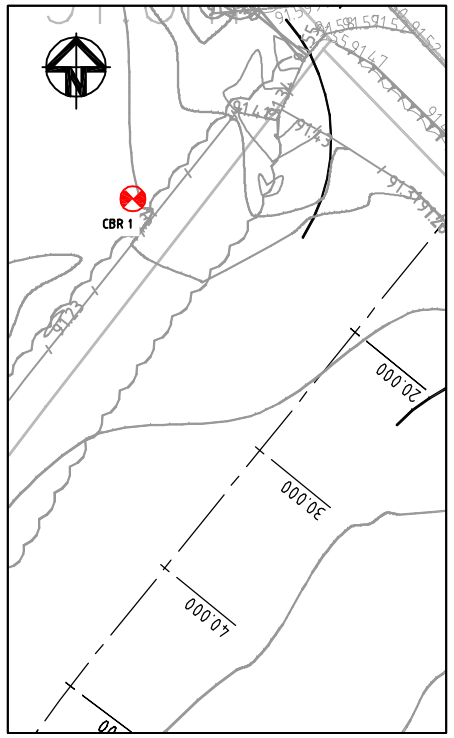

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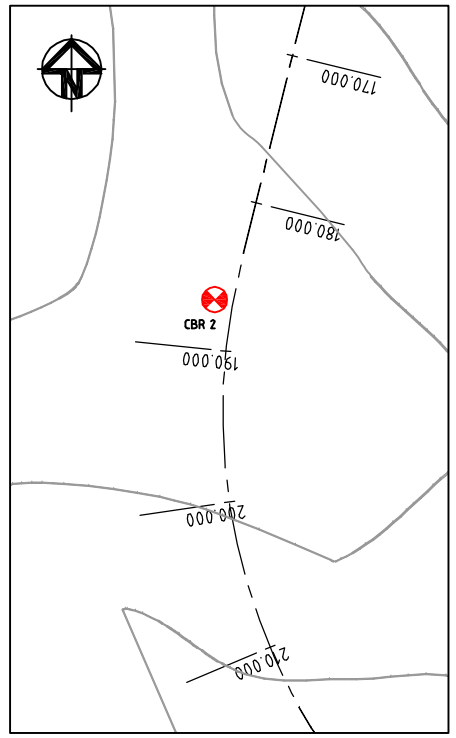

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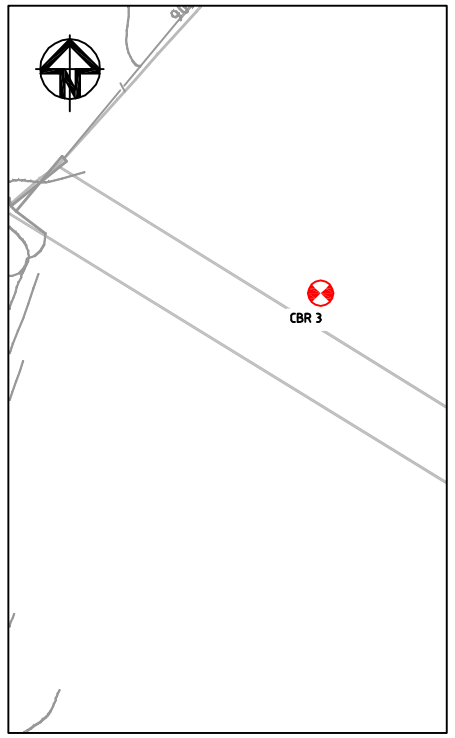

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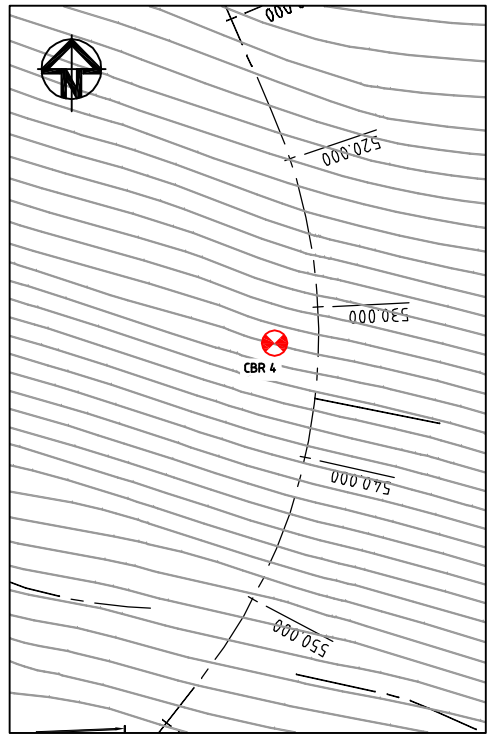

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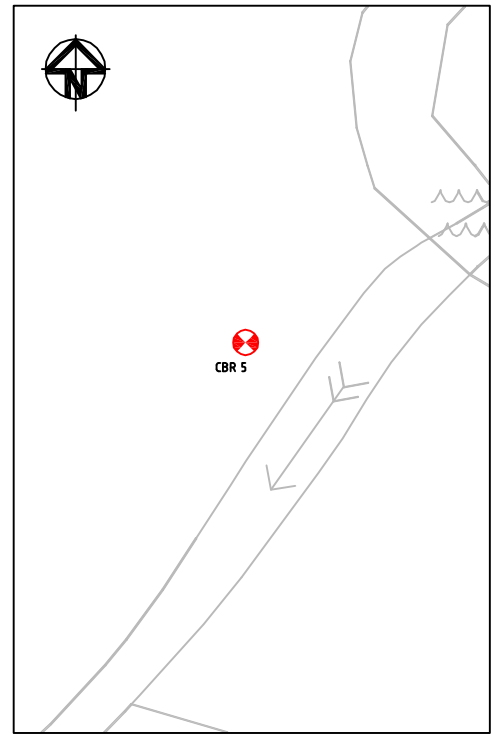

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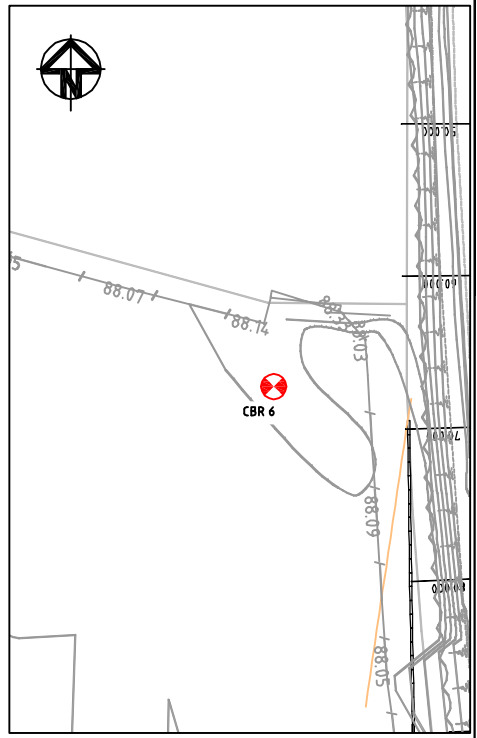

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Issue	Description	Date
02	BOREHOLES RENUMBERED AND GROUND LEVELS ADDED	31/08/11
01	FIRST ISSUE	18/08/11

KEY

- SITE BOUNDARY
- PROPOSED ROUTE CENTERLINE
- CBR1 — CBR LOCATION
- BH01 — BOREHOLE LOCATION
- 87.429 HYD9 — HYDER SURVEY STATION LOCATION
- MR PHIPPS LANDOWNERSHIP

Client: a2dominion / P3Eco Ltd

Status

Scales	1:10,000 1:500	Current Issue Signatures
Original Size	A3	Author M.LLEWLLIN
Height Datum	-	Checker M. PEARSON
Grid	OS	Approver S.A. DAVIES

2006-UA001881-UP33D-03-EXEMPLAR AREA BH LOCATIONS.DWG

Project: BICESTER ECO DEVELOPMENT EXEMPLAR SITE

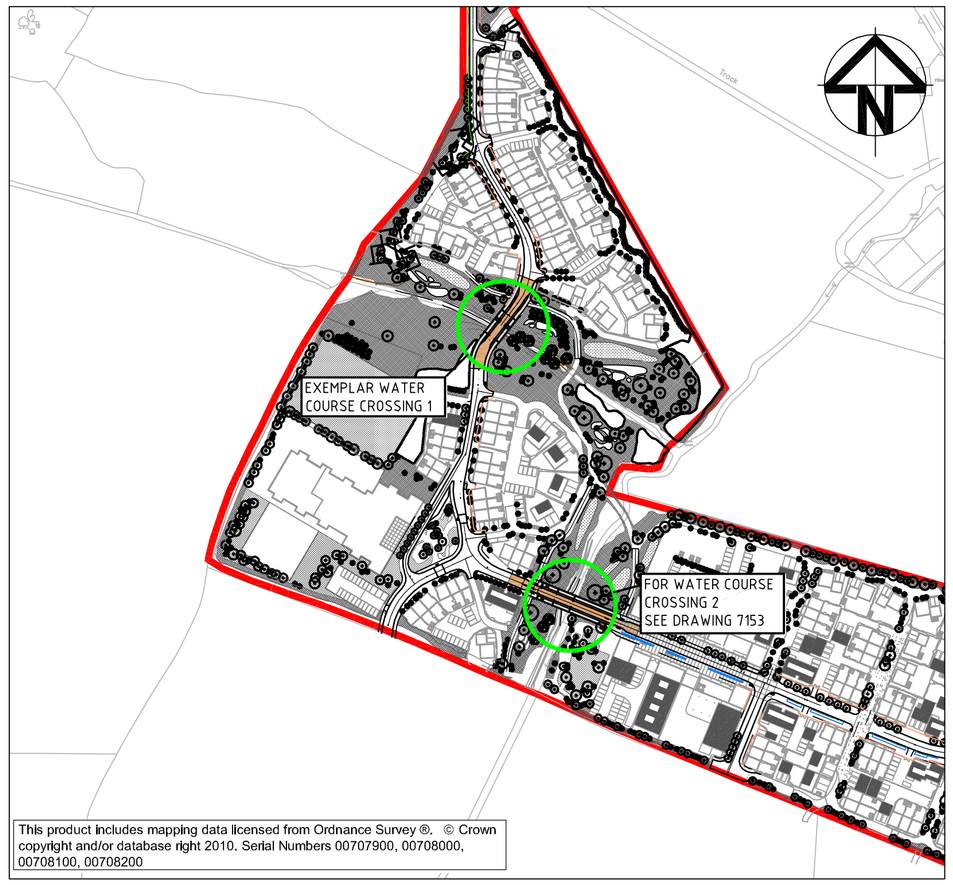
Title: EXPLORATORY HOLE LOCATION PLAN

Hyder Consulting (UK) Limited
29, Bressenden Place
London
SW15 5DZ
Tel: +44 (0)870 000 3006
Fax: +44 (0)870 000 3906

Drawing No.	Project No.	Issue
2006	— UA003072 —	02

Figures

Figure 3 – Bridge 1 & 2 Design Drawings



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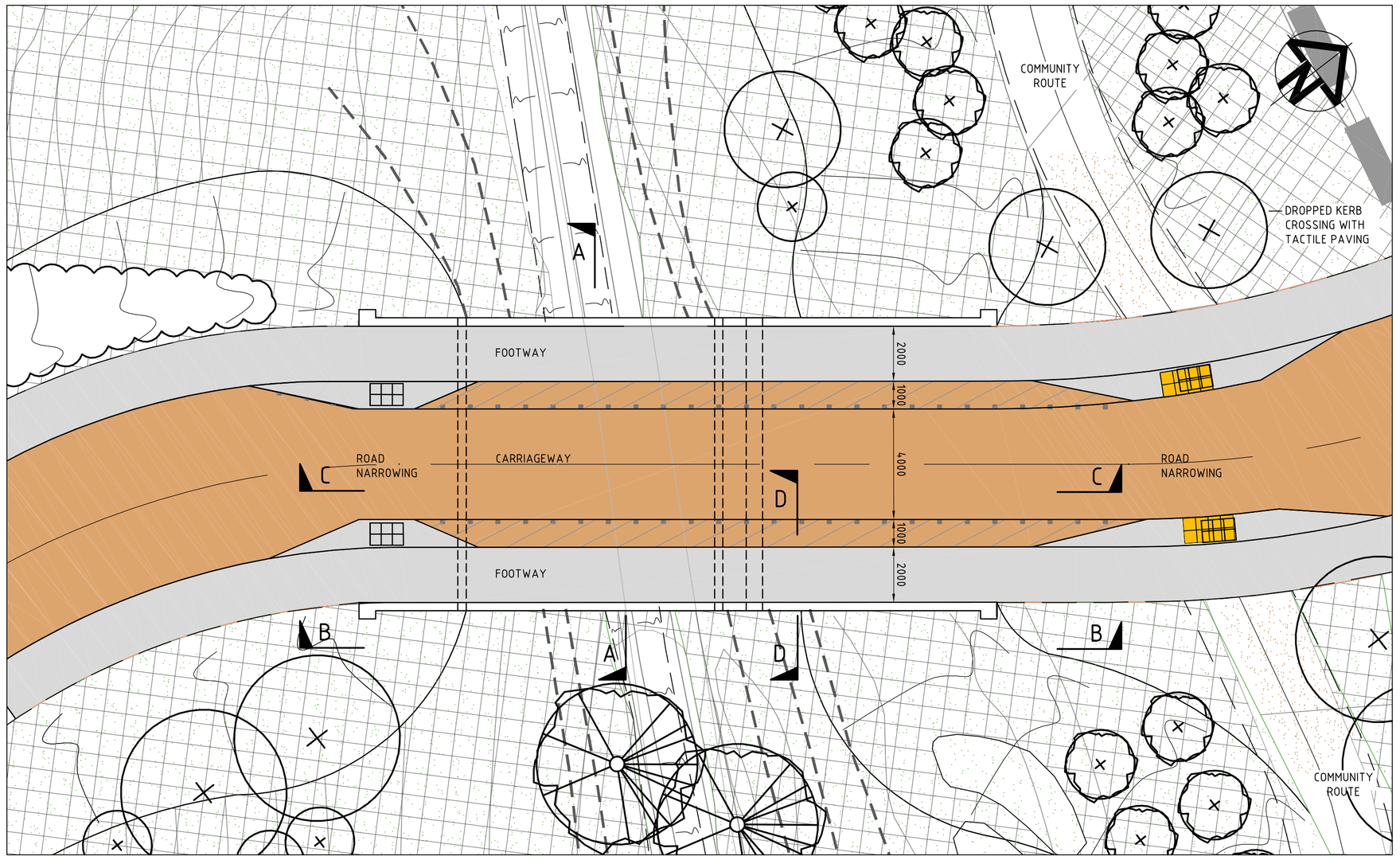

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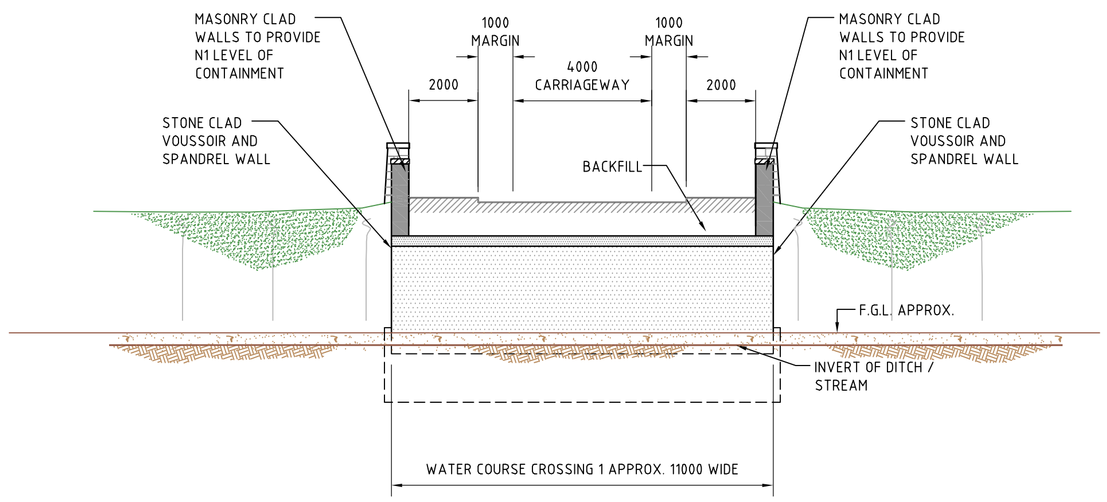

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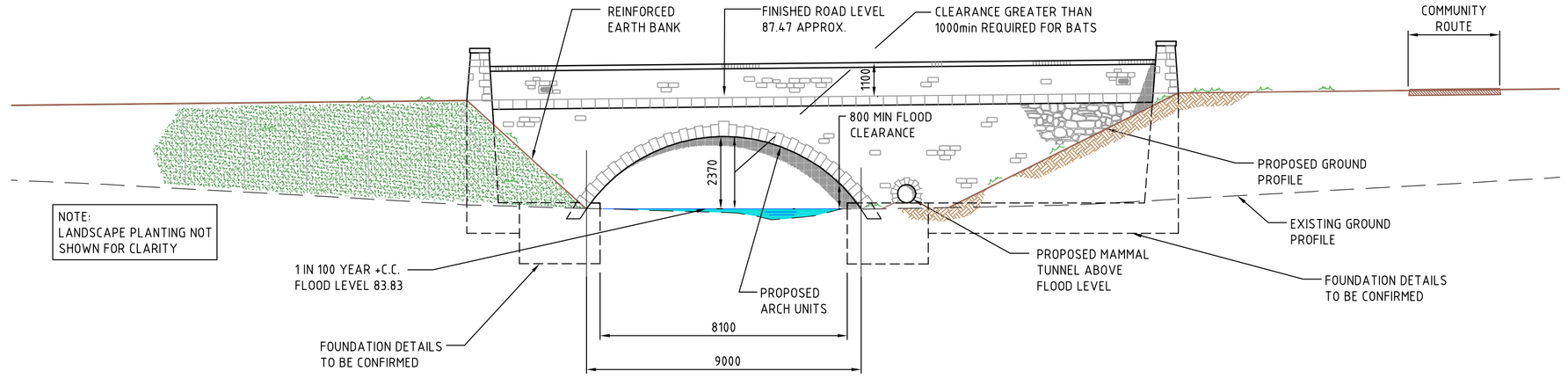

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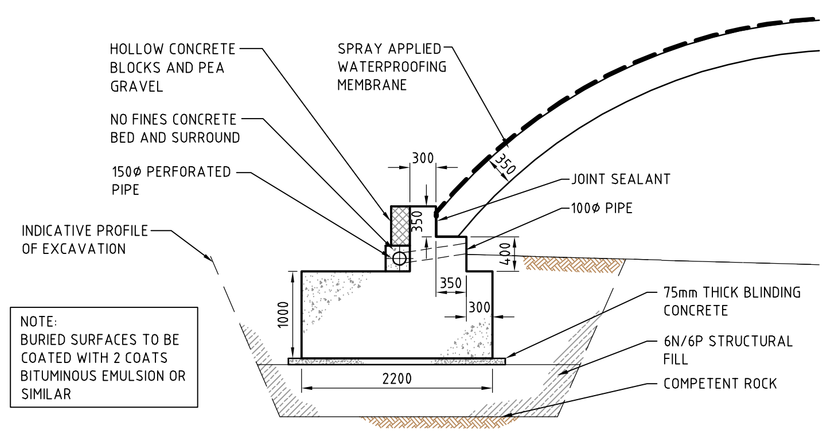

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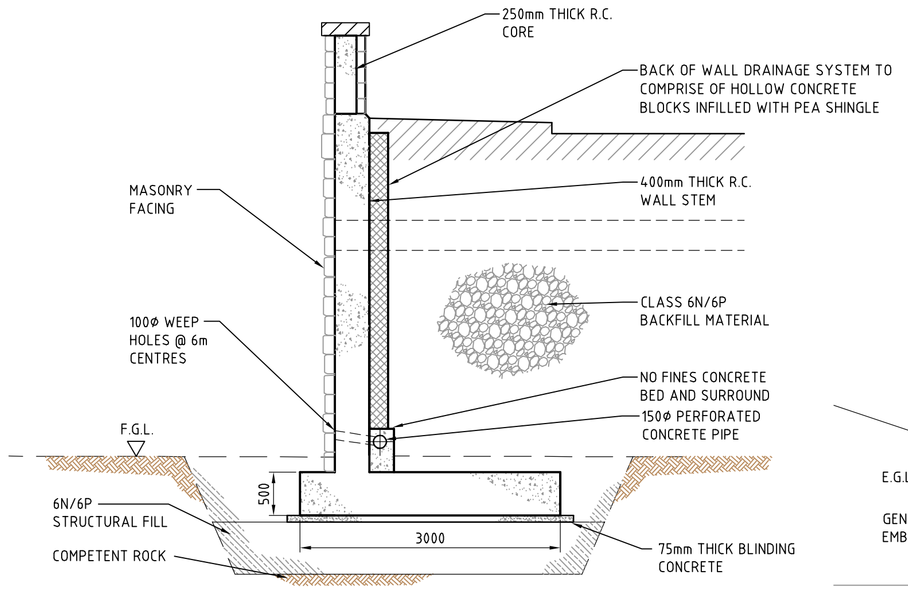

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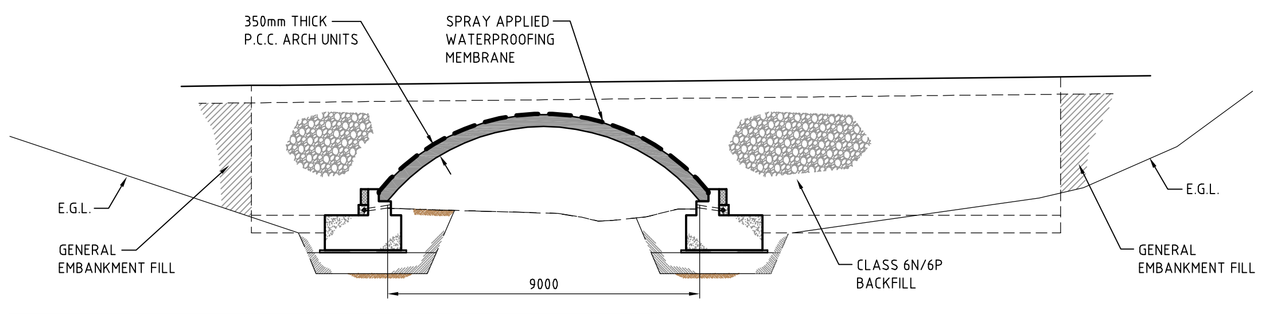

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KEY

PLANNING APPLICATION BOUNDARY

Issue	Description	Date
01	FIRST ISSUE	25-08-11

Status

Scales	AS SHOWN	Author P.SWEENEY
Original Size	A1	Checker J.LYNN
Height Datum	-	Approver S.A.DAVIES
Grid	O.S.	© Copyright reserved

Filename: 7290-UA001881-UP21D-01-WATER COURSE CROSSING 1 GA.DWG

Client

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Hyder Consulting (UK) Limited
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Tel: +44 (0)870 000 3006
Fax: +44 (0)870 000 3906

Project

BICESTER
ECO DEVELOPMENT

Title

EXEMPLAR SITE
WATER COURSE CROSSING 1
GENERAL ARRANGEMENT

Drawing No.	Project No.	Issue
7290 —	UA001881 —	01

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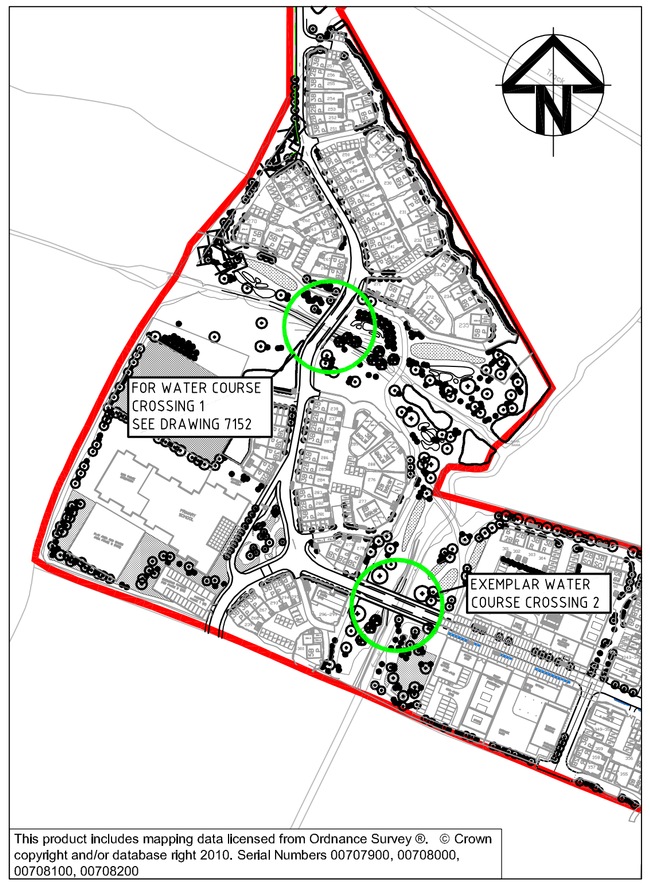

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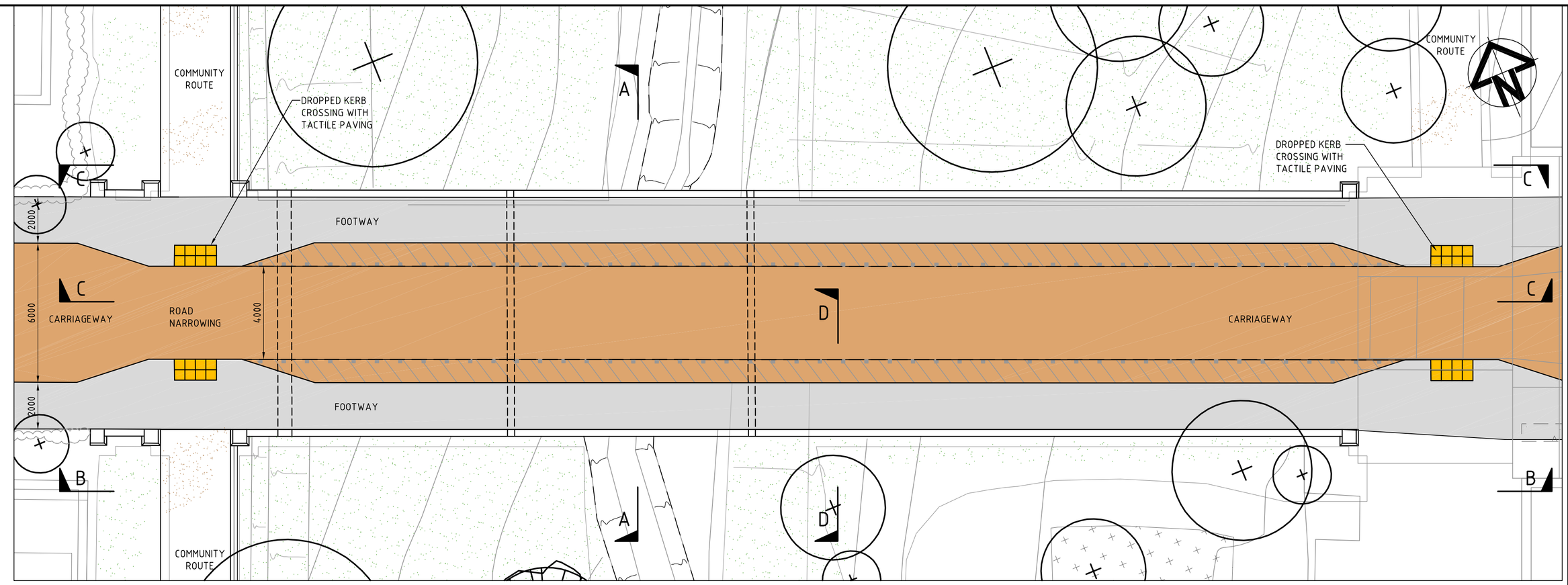

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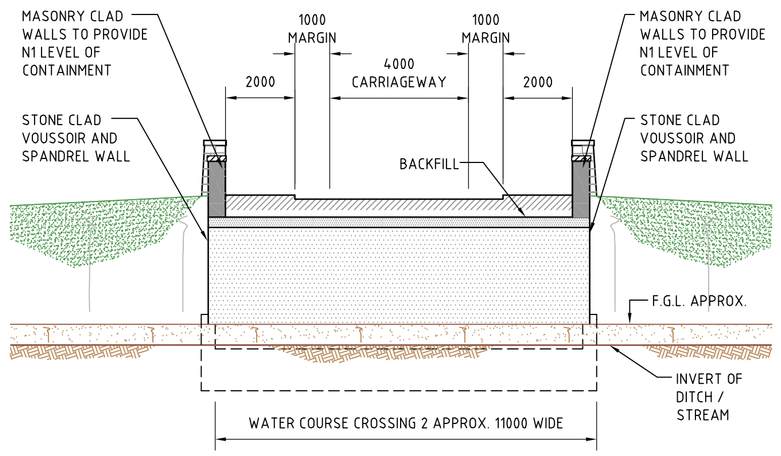

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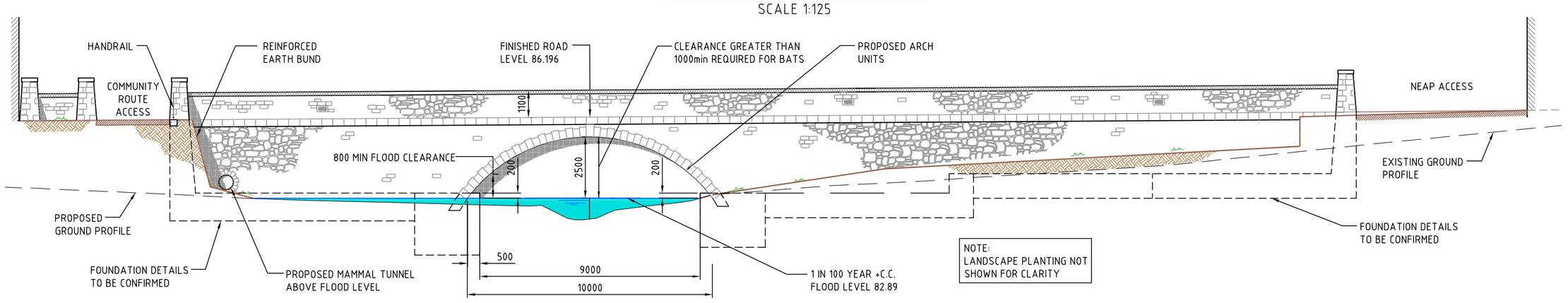

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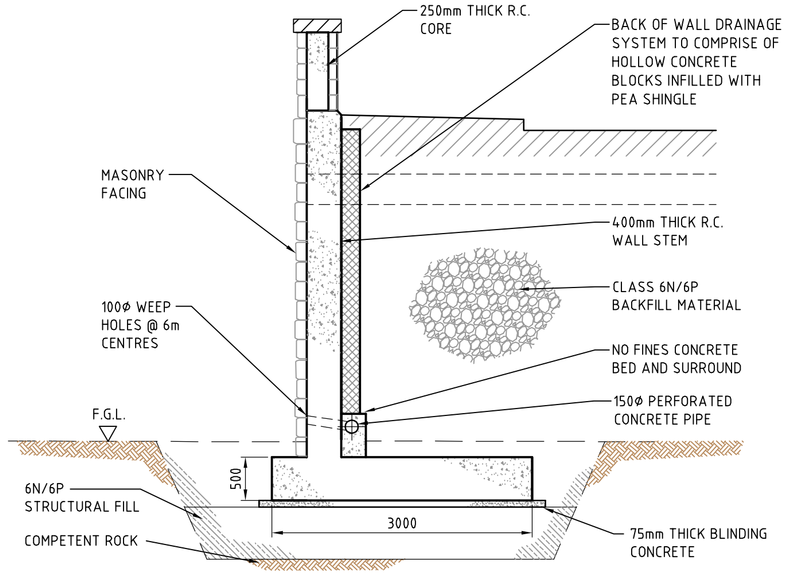

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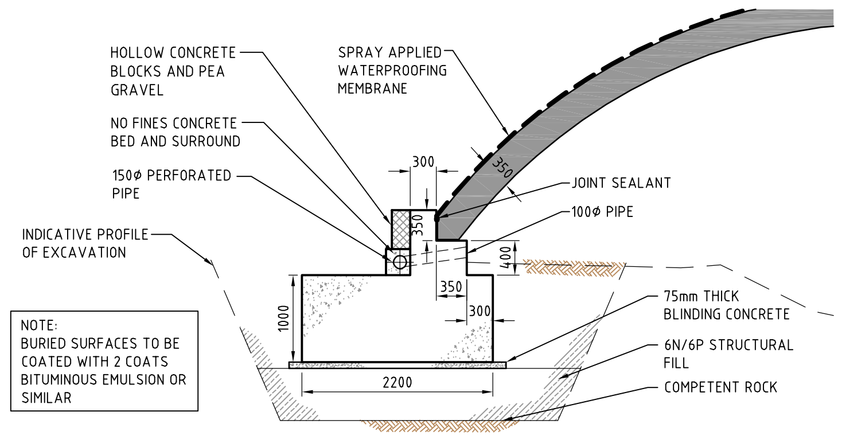

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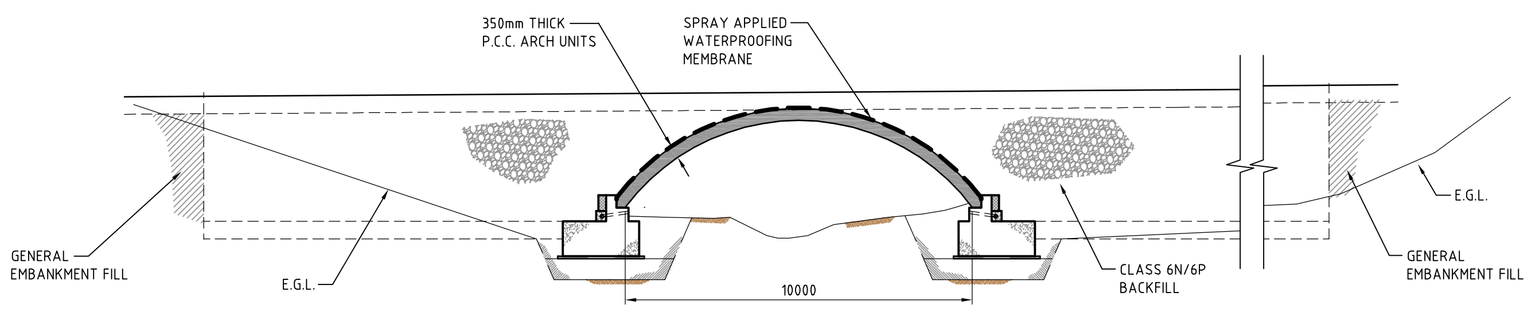

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KEY

PLANNING APPLICATION BOUNDARY

Issue	Description	Date
01	FIRST ISSUE	25-08-11

Status

Scales	AS SHOWN	Author P.SWEENEY
Original Size	A1	Checker J.LYNN
Height Datum	-	Approver S.A.DAVIES
Grid	O.S.	© Copyright reserved

Filename: 7292-UA001881-UP21D-01-WATER COURSE CROSSING 2 GA.DWG

Client

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Fax: +44 (0)870 000 3906

Project

BICESTER
ECO DEVELOPMENT

Title

EXEMPLAR SITE
WATER COURSE CROSSING 2
GENERAL ARRANGEMENT

Drawing No.	Project No.	Issue
7292	UA001881	01

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Appendix A

Rotary Cored Borehole Logs

DRILLHOLE LOG

Project				DRILLHOLE No
NW Bicester EcoTown, Exemplar Site				**BH01**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
UA003072	05-09-11			
Contractor				Sheet 1 of 2
Hyder				

RUN DETAILS						STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Geology	Instrument/ Backfill
					0.20			TOPSOIL: Turf over soft brown slightly gravelly SILT/CLAY with rootlets. Gravel is subangular fine to coarse of limestone.		
1.00								Very stiff yellow brown and grey slightly sandy slightly gravelly SILT/CLAY with occasional subangular cobbles of limestone. Gravel is angular to subangular fine to coarse of limestone.		
05-09	48 (10) 10				(1.90)					
2.00		N>50			2.10					
3.00								Very stiff blue grey slightly gravelly SILT/CLAY. Gravel is subangular fine to coarse of limestone.		
05-09	100 (80) 50	1,2/ 5,8,8,26 (150/300) N=47			(1.90)					
4.00		N>50			4.00			Strong light grey LIMESTONE with closely spaced (30/100/180mm) subhorizontal, rough and clean fractures.		
5.00		N>50						END OF BOREHOLE		
05-09	90 (60) 30					5.30 - 5.40 : Band of yellow brown SILT/CLAY.				
6.00		N>50			(4.00)					
7.00		N>50								
05-09	90 (80) 40					7.60 - 7.65 : Band of yellow brown SILT/CLAY.				
8.00					8.00					

Drilling Progress and Water Observations						
Date	Time	Depth	Casing	Core Dia mm	Water Strike	Water Standing
05-09-11	00.00	8.00	2.00	100		

Rotary Flush			
From	To	Type	Returns
1	8.00	Mist	100

GENERAL REMARKS

1. Borehole terminated at 8.00m.
2. No Grounwater encountered.
3. Dynamic Sampling between GL - 1.00m bgl.
4. Open Hole drilling techniques between 2.00 - 3.00 m bgl, 4.00 - 5.00m bgl and 6.00 - 7.00m bgl

All dimensions in metres Scale 1:50	Client a2dominion Housing Ltd & P3Eco Ltd.	Method/ Plant Used Commachio 300 Rig	Logged By T.Booth

AGS3 UK DH UA003072-NW BICESTER ECOTOWN, EXEMPLAR SITE.GPJ AGS 3_1.GDT 9/16/11

DRILLHOLE LOG

Project				DRILLHOLE No
NW Bicester EcoTown, Exemplar Site				**BH01**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
UA003072	05-09-11			
Contractor				Sheet 2 of 2
Hyder				

RUN DETAILS					STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
		N>50								

Drilling Progress and Water Observations						
Date	Time	Depth	Casing	Core Dia mm	Water Strike	Water Standing

Rotary Flush			
From	To	Type	Returns

GENERAL REMARKS

1. Borehole terminated at 8.00m.
2. No Grounwater encountered.
3. Dynamic Sampling between GL - 1.00m bgl.
4. Open Hole drilling techniques between 2.00 - 3.00 m bgl, 4.00 - 5.00m bgl and 6.00 - 7.00m bgl

All dimensions in metres Scale 1:50	Client a2dominion Housing Ltd & P3Eco Ltd.	Method/ Plant Used Commachio 300 Rig	Logged By T.Booth

AGS3 UK DH UA003072-NW BICESTER ECOTOWN, EXEMPLAR SITE.GPJ AGS 3_1.GDT 9/16/11

DRILLHOLE LOG

Project				DRILLHOLE No
NW Bicester EcoTown, Exemplar Site				**BH02**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
UA003072	05-09-11			
Contractor				Sheet 1 of 1
Hyder				

RUN DETAILS						STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Geology	Instrument/ Backfill
					(0.60) 0.60			TOPSOIL: Turf over soft brown slightly gravelly SILT/CLAY with rootlets. Gravel is subangular fine to coarse of limestone.		
		1,1/ 1,1,2,2 (150/300) N=6 2,2/ 2,3,3,2 (150/300) N=10			(2.30) 2.90			Soft becoming firm brown and grey slightly sandy slightly gravelly SILT/CLAY. Gravel is angular to subangular fine to coarse of limestone.		
		2,5/ 11,10,9,10 (150/300) N=40			(1.10) 4.00			Very stiff yellow brown and grey slightly sandy slightly gravelly SILT/CLAY with occasional subangular cobbles of limestone. Gravel is angular to subangular fine to coarse of limestone. END OF BOREHOLE		
		3,5/ 6,6,8,13 (150/300) N=33								

Drilling Progress and Water Observations

Date	Time	Depth	Casing	Core Dia mm	Water Strike	Water Standing
05-09-11	00.00	4.00	3.00	100		

Rotary Flush

From	To	Type	Returns
0	4.00	air	100

GENERAL REMARKS

1. Borehole terminated at 4.00m.
2. No Grounwater encountered.
3 .Dynamic Sampling between GL - 4.00 m bgl.

All dimensions in metres Scale 1:50	Client a2dominion Housing Ltd & P3Eco Ltd.	Method/ Plant Used Commachio 300 Rig	Logged By T.Booth

AGS3 UK DH UA003072-NW BICESTER ECOTOWN, EXEMPLAR SITE.GPJ AGS 3_1.GDT 9/16/11

DRILLHOLE LOG

Project				DRILLHOLE No
NW Bicester EcoTown, Exemplar Site				**BH03**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
UA003072	05-09-11			
Contractor				Sheet 1 of 1
Hyder				

RUN DETAILS						STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Geology	Instrument/ Backfill
					0.30			TOPSOIL: Turf over soft brown slightly gravelly SILT/CLAY with rootlets. Gravel is subangular fine to coarse of limestone.		
		1,1/ 1,2,2,2 (150/300) N=7			(1.90)			Soft brown and grey slightly sandy slightly gravelly SILT/CLAY. Gravel is angular to subangular fine to coarse of limestone.		
		4,5/ 5,5,7,7 (150/300) N=24			2.20	1.80 m: Becoming Stiff.				
		5,5/ 6,14,12,10 (150/300) N=42			(1.80)			Very stiff yellow brown and grey slightly sandy gravelly SILT/CLAY with occasional subangular cobbles of limestone. Gravel is angular to subangular fine to coarse of limestone.		
		N>50			4.00			END OF BOREHOLE		

Drilling Progress and Water Observations						
Date	Time	Depth	Casing	Core Dia mm	Water Strike	Water Standing
05-09-11	00.00	4.00	3.00	100		

Rotary Flush			
From	To	Type	Returns
0	4.00	Air	100

GENERAL REMARKS

1. Borehole terminated at 4.00m.
2. No Grounwater encountered.
3. Dynamic Sampling between GL - 4.00 m bgl.

All dimensions in metres Scale 1:50	Client a2dominion Housing Ltd & P3Eco Ltd.	Method/ Plant Used Commachio 300 Rig	Logged By T.Booth

AGS3 UK DH UA003072-NW BICESTER ECOTOWN, EXEMPLAR SITE.GPJ AGS 3_1.GDT 9/16/11

DRILLHOLE LOG

Project				DRILLHOLE No
NW Bicester EcoTown, Exemplar Site				**BH04**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
UA003072	06-09-11			
Contractor				Sheet 1 of 1
Hyder				

RUN DETAILS						STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Geology	Instrument/ Backfill
					0.30			TOPSOIL: Turf over soft brown slightly gravelly SILT/CLAY with rootlets. Gravel is subangular fine to coarse of limestone.		
		1,2/ 2,2,3,3 (150/300) N=10			(1.30) 1.60			Stiff brown and grey slightly sandy slightly gravelly SILT/CLAY. Gravel is angular to subangular fine to coarse of limestone.		
2.80		6,8/ 7,6,5,7 (150/300) N=25			(1.10) 2.70			Very stiff yellow brown and grey slightly sandy gravelly SILT/CLAY with occasional subangular cobbles of limestone. Gravel is angular to subangular fine to coarse of limestone.		
06-09 4.00	48 (15) 0	N>50			(1.30) 4.00			Strong light grey and brown LIMESTONE with closely spaced (25/40/90mm) subhorizontal, rough and clean fractures. END OF BOREHOLE		
		N>50								

Drilling Progress and Water Observations

Date	Time	Depth	Casing	Core Dia mm	Water Strike	Water Standing
06-09-11	00.00	4.00	3.00	100		

Rotary Flush

From	To	Type	Returns
0	3.00	Air	100
3	4.00	Mist	100

GENERAL REMARKS

1. Borehole terminated at 4.00m.
2. No Grounwater encountered.
3. Dynamic Sampling between GL - 1.00m bgl.
4. Open Hole drilling techniques between 1.00 - 2.70 m bgl.
5.Rotary core drilling between 2.70 - 4.00m bgl.

All dimensions in metres Scale 1:50	Client a2dominion Housing Ltd & P3Eco Ltd.	Method/ Plant Used Commachio 300 Rig	Logged By T.Booth

AGS3 UK DH UA003072-NW BICESTER ECOTOWN, EXEMPLAR SITE.GPJ AGS 3_1.GDT 9/16/11

DRILLHOLE LOG

Project				DRILLHOLE No
NW Bicester EcoTown, Exemplar Site				**BH05**
Job No	Date	Ground Level (m)	Co-Ordinates ()	
UA003072	06-09-11			
Contractor				Sheet 1 of 1
Hyder				

RUN DETAILS						STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities	Detail	Main	Geology	Instrument/ Backfill
					0.30			TOPSOIL: Turf over soft brown slightly gravelly SILT/CLAY with rootlets. Gravel is subangular fine to coarse of limestone.		
		1,1/ 2,2,2,1 (150/300) N=7			(1.35) 1.65			Soft brown and grey slightly sandy slightly gravelly SILT/CLAY. Gravel is angular to subangular fine to coarse of limestone.		
2.80		9,10/ 10,3,5,9 (150/300) N=27			(1.05) 2.70			Stiff yellow brown and grey slightly sandy gravelly SILT/CLAY with occasional subangular cobbles of limestone. Gravel is angular to subangular fine to coarse of limestone.		
06-09	78 (35) 20	N>50			(0.90) 3.60			Strong light grey and brown LIMESTONE with closely spaced (20/70/180mm) subhorizontal, rough and clean fractures.		
3.70		N>50			(0.70) 4.30			Very dense yellow brown slightly sandy clayey gravel and cobbles of non-intact LIMESTONE. Gravel is angular to subangular fine to coarse of limestone. END OF BOREHOLE		

Drilling Progress and Water Observations

Date	Time	Depth	Casing	Core Dia mm	Water Strike	Water Standing
06-09-11	00.00	4.30	3.00	100		

Rotary Flush

From	To	Type	Returns
0	3.00	Air	100
3	4.00	Mist	100

GENERAL REMARKS

1. Borehole terminated at 4.30m.
2. No Grounwater encountered.
3. Dynamic Sampling between GL - 1.00m bgl.
4. Open Hole drilling techniques between 1.00 - 2.70 m bgl.
5. Rotary core drilling between 2.70 - 4.00m bgl.

All dimensions in metres Scale 1:50	Client a2dominion Housing Ltd & P3Eco Ltd.	Method/ Plant Used Commachio 300 Rig	Logged By T.Booth

AGS3 UK DH UA003072-NW BICESTER ECOTOWN, EXEMPLAR SITE.GPJ AGS 3_1.GDT 9/16/11

Appendix B

Rotary Core Photographs

Plate 1: Borehole 1. Box cores from 1 to 6.00m bgl.

Plate 2: Borehole 1: Box Cores 6.0 m bgl to 8.0m bgl.

Plate 3:Borehole 4: Box core 2.80m bgl to 4.00m bgl

Plate 4: Borehole 5: Box cores between 2.80m bgl and 3.7m bgl.

Appendix C

Geotechnical Laboratory Test Results

Index Property Test Results

Site **Bicester**

Client **Hyder Consulting**

Job Number Z0728

Lab Number

UKAS Testing Laboratory 1429

Hole	Sample	Depth (m)	Method	History	MC (%)	LL (%)	Ret (%)	PL (%)	Pa (%)	PI (%)	Class	Description
BH02	D6	3.00	1	2	28	81	69	54	31	27	MV	Refer to log sheets
BH03	D2	1.00	1	2	33	63	5	38	95	25	MH	Refer to log sheets

Key

MC - Moisture content
LL - Liquid Limit
Ret - Percentage retained on 425 micron test sieve
PL - Plastic limit
Pa - Percentage passing the 425 micron test sieve
PI - Plasticity Index

History

(1) Sample was tested from the natural state. Particles greater than 425 microns removed by hand (BS1377:Part2:1990:4.2.3)
(2) Sample was wet sieved through 425 micron test sieve (BS1377:Part2:1990:4.2.4)
(3) Sample was air dried at less than 50 degrees Centigrade and passed through the 425 micron sieve
(4) Unknown

Methods

[1] BS1377:Part2:1990: Methods 3.2/4.4/5.3 - Liquid Limit by One point Cone Penetrometer
[2] BS1377:Part2:1990: Methods 3.2/4.4/5.3 - Liquid Limit by Four Point Cone Penetrometer

Samples were prepared in accordance with BS1377:Part1:1990

Classification is based on the plasticity chart - Fig 2.6 of Manual of Soil Laboratory Testing - Volume 1 by K.H.Head.
NOTE - 'O' is added to the symbol for soils containing a significant amount of organic material (determined by visual inspection) e.g. MHO

Checked

Approved

Point Load Test Results

cjassociates

Site:	Bicester	**Job No:**	Z0728
Client:	Hyder Consulting	**Date:**	26.9.2011

BH / Sample Reference	Sample Depth (m below G.L)	Test Type (d, a, b or i - see key below)	Platen Separation (d) (mm)	Sample Width (w) (mm)	Load at Failure (P) (kN)	Equivalent Core Diameter ² (De^2) (mm^2)	Uncorrected Point Load Strength (Is) (MPa)	Corrected Point Load Strength (Is50) (MPa)*	Specimen Description
BH1	5.10	D	86	64	6.9	7396	0.9	**1.2**	Limestone
BH1	5.10	A	65	42	6.7	3476	1.9	**2.2**	Limestone
BH1	7.70	D	70	53	10.2	4900	2.1	**2.4**	Limestone
BH1	7.80	D	70	54	11.3	4900	2.3	**2.7**	Limestone
BH4	2.95	D	70	60	1.4	4900	0.3	**0.3**	Limestone
BH4	2.95	A	30	15	4.6	573	8.0	**6.4**	Limestone
BH5	2.80	A	60	47	8.6	3591	2.4	**2.6**	Limestone
BH5	2.85	I	50	48	6.3	3056	2.1	**2.1**	Limestone
BH5	4.15	A	45	20	4.9	1146	4.3	**4.1**	Limestone
BH5	4.10	I	50	39	11.0	2483	4.4	**4.4**	Limestone

Notes:
Point load strength calculated in accordance with: E.L.E International, Point Load Apparatus, Operating Instructions.
* Ref. Norbury D.R, in *Site Investigation Practice: Assessing BS 5930* , Geological Society, Engineering Geology Special Publication No. 2, 1986, P.58.

Key to test types: d=Diametral, a=Axial, b=Block, i=Irregular lump.

C.J. Associates Geotechnical Ltd., King Road Avenue, Avonmouth, Bristol, BS11 9HF.
Tel 0117 982 1473 Fax 0117 982 8200

Laboratory Report

LABORATORY TESTING SERVICES LIMITED

Contract Number: 13628

Client's Reference: Z0728/L9363/S3860

Report Date: 12-10-2011

Client Name: C J Associates
King Roads Avenue
Bristol
BS11 9HF

Contract Title: Bicester

For the attention of: Vince Simmonds

Date Received: 21-09-2011
Date Commenced: 21-09-2011
Date Completed: 12-10-2011

Test Description	Quantity	Checked	Approved
Part 1 - SM for Determination of the Uniaxial Compressive Strength of Rock Materials ISRM Suggested Methods for Rock Characterization	2		
Extra over items 12.4 to 12.6 for specimen preparation. ISRM / BS 1377/2/3.3	2		

Notes: **Observations and Interpretations are outside the UKAS Accreditation**
*** - Denotes test included in laboratory scope of accreditation**
 # - Denotes test carried out by approved contractor

Approved Signatories:
D V Edwards (Managing Director), Paul Evans (Technical Manager), E Sharp (Technical Co-Ordinator).

LABORATORY TESTING SERVICES LIMITED

Unit 24-26. Delta Lakes The Avenue Llanelli
Carmarthenshire .SA15 2DS
tel: +44 (0)1554 757734
fax: +44 (0)1554 775107
e-mail: vedwards@geolab.org.uk

Date: 12-Oct-11
Contract Number: 13628-210911
Location: Bicester
Sample Type: Core
Sample Preparation: Capping and Grinding
Operator: Vincent Williams

Determination of Unconfined Compressive Strength.

ISRM Suggested Methods Vol 16, No. 2, pp. 135-140 1979..

Borehole Number	Depth (m)	Diameter (mm)	Length (mm)	Initial mass g	Bulk Density Mg/m3	MC %	Dry Density Mg/m3	Load Failure	MCS(MPA)	Mode OF FAILURE	Date Tested	Remarks
BH1	5.75-6.00	72.70	207.60	2051.2	2.38	2.2	2.33	89.5	21.6	Brittle	28-Sep-11	
BH5	3.16-3.35	72.70	189.10	2045.6	2.61	1.4	2.57	365.2	88.0	Expolosive	28-Sep-11	

Approved Signatories:

D V Edwards (Managing Director) ..... Date 12/10/11

E Sharp (Laboratory Co-odinator Processor) ..... Date 12/10/11

Appendix D

Chemical Laboratory Test Results

Unit A2
Windmill Road
Ponswood Industrial Estate
St Leonards on Sea
East Sussex
TN38 9BY
Telephone (01424) 718618
Facsimile (01424) 729911

2683 2683

THE ENVIRONMENTAL LABORATORY LTD

F.A.O. Vince Simmonds
CJ Associates Geotechnical Ltd
King Road Avenue
Avonmouth
Bristol, BS11 9HF

Reporting Date: 27/09/11

ANALYTICAL REPORT No. AR34966

Samples Received By:-	Courier
Samples Received:-	21/09/11
Your Job No:	Z0728
Lab No:	L9363
Subcontract No:	S3859
Site Location:	Bicester
No Samples Received:-	9

Report Checked By:-

Steve Knight
Director

Authorised By:-

Mike Varley BSc, CChem, CSci, FRSC
Chief Chemist

Any comments, opinions, or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

THE ENVIRONMENTAL LABORATORY LTD

Unit A2, Windmill Road, Ponswood Industrial Estate, St Leonard's on Sea, East Sussex, TN38 9BY
Tel: 01424 718618 Fax: 01424 729911

ANALYTICAL REPORT No. AR34966

Location: Bicester

2683 2683

Your Job No: Z0728
Lab No: L9363
Subcontract No: S3859
Reporting Date: 27/09/11

F.A.O. Vince Simmonds
CJ Associates Geotechnical Ltd
King Road Avenue
Avonmouth
Bristol, BS11 9HF

Soils

	Characteristic	Clay loam	Sandy silt loam	Sandy silt loam	Silty clay loam	Silty clay loam	Silty clay loam	Silty clay loam	Silt Loam	Silt Loam
	TP/BH	BH01	BH03	BH04	BH04	BH05	BH01	BH01	BH02	BH02
	Depth (m)	3.00	2.00	1.00	2.00	2.00	2.00[(1)]	3.00	1.00	2.00
	Our ref	14230	14231	14232	14233	14234	14235	14236	14237	14238
Stone Content	(%)	<1	16	15	12	12	13	<1	<1	<1
Arsenic**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	8.4	<5	9.5	6.5
Cadmium**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	<0.5	<0.5	<0.5	<0.5
Chromium**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	11	9	13	10
Lead**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	10	11	10	7
Mercury**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	<0.5	<0.5	<0.5	<0.5
Nickel**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	11	10	18	13
Copper**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	7	5	10	9
Zinc**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	19	24	42	45
Selenium**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	0.6	0.8	1.4	2.1
Barium**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	16	15	47	45
Beryllium*	(mg/kg)	n/t	n/t	n/t	n/t	n/t	<5	<5	<5	<5
Vanadium**	(mg/kg)	n/t	n/t	n/t	n/t	n/t	18.6	13.9	26.7	17.5
Water Soluble Boron	(mg/kg)	n/t	n/t	n/t	n/t	n/t	<0.5	<0.5	1.2	1.4
pH Value**	(Units)	7.8	8.3	8.1	8.3	8.3	n/t	n/t	n/t	n/t
Total Cyanide	(mg/kg)	n/t	n/t	n/t	n/t	n/t	<1	<1	<1	<1
Total Organic Carbon	(%)	n/t	n/t	n/t	n/t	n/t	0.1	<0.1	0.8	0.7
Water Soluble Sulphate	(mg/l as SO_4)	18	20	28	25	21	n/t	n/t	n/t	n/t

[(1)] = Labelled @ 1.00
All results expressed on dry weight basis
** - MCERTS accredited test
* = UKAS accredited test
GM

Unit A2
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2683 2683

THE ENVIRONMENTAL LABORATORY LTD

SAMPLE RECEIPT AND TEST DATES

Our Analytical Report Number	AR34966
Your Job No:	Z0728
Sample Receipt Date:	21/09/11
Reporting Date:	27/09/11
Registered:	21/09/11
Prepared:	22/09/11
Analysis complete:	27/09/11

TEST METHOD SUMMARY

PARAMETER	Analysis Undertaken on	Date Tested	Method Number	Technique
Arsenic**	Air dried sample	26/09/11	118	ICPMS
Cadmium**	Air dried sample	26/09/11	118	ICPMS
Chromium**	Air dried sample	26/09/11	118	ICPMS
Lead**	Air dried sample	26/09/11	118	ICPMS
Mercury**	Air dried sample	26/09/11	118	ICPMS
Nickel**	Air dried sample	26/09/11	118	ICPMS
Copper**	Air dried sample	26/09/11	118	ICPMS
Zinc**	Air dried sample	26/09/11	118	ICPMS
Selenium**	Air dried sample	26/09/11	118	ICPMS
Barium**	Air dried sample	26/09/11	118	ICPMS
Beryllium*	Air dried sample	26/09/11	118	ICPMS
Vanadium**	Air dried sample	26/09/11	118	ICPMS
Water Soluble Boron	Air dried sample	23/09/11	202	Colorimetry AA3
pH Value**	Air dried sample	23/09/11	113	Probe
Total Cyanide	As submitted sample	23/09/11	204	Colorimetry
Total Organic Carbon	Air dried sample	27/09/11	210	Automated IR Adsorption
Water Soluble Sulphate	Air dried sample	26/09/11	209	Colorimetry

* = UKAS Accredited test

** - MCERTS Accredited test

Determinands not marked with * or ** are non accredited

MCERTS accreditation covers samples which are predominantly sand, clay, loam or combinations of these three soil types

Any comments, opinions, or interpretations expressed herein are outside the scope of UKAS accreditation (Accreditation Number 2683)

Environmental Policy Statement

Document Owner: WDCW CEO

Willmott Dixon Capital Works (WDCW) recognises that its operations have a direct impact on the natural and human environment. Services that we provide include major construction, building fabric maintenance, interior design and fit-out, as well as building repair/care and community regeneration. We actively consider the environmental risk and implications of all our activities and services, and commit to initiatives that lead to a positive contribution to the environment and communities we serve. We provide and actively review to continually improve our environmental systems and procedures that will fulfil the intentions of this statement; in doing so we ensure continued compliance with our ISO 14001:2004 accreditation.

We endeavour to deliver all our operations sustainably, efficiently and safely with due consideration of the environment and community, promoting beneficial activities and improvements throughout our business. In doing so, we aim to minimise any adverse impacts of our activities, as far as reasonably practicable. We are committed to actively seeking the cooperation of our clients, sub-contractors, suppliers, the community and our employees to help us to achieve our aims.

We use processes to ensure our ISO14001:2004 compliance that will support us to:

- Comply, as far as reasonably practicable, with applicable environmental legislation and industry schemes in which we participate.
- Prevent pollution through risk management and action planning to mitigate identified risks for projects and tasks.
- Protect wildlife habitats, conservation areas and archaeological sites that may be affected, aiming to leave a positive legacy.
- Reduce water use, waste creation and emissions through improved design and delivery on site.
- Improve our energy efficiency, reduce energy consumption and reduce the carbon footprint of our projects and sites.
- Liaise with our clients, partners and local community to minimise disturbance and keep them informed of our operations.
- Encourage our Supply Chain to employ sound environmental practices and behaviours.
- Work with our clients and their teams to constructively challenge for environmentally positive design and construction solutions.
- Continue environmental improvement by setting targets and regularly reviewing our progress, communicating our achievements.
- Ensure that all our employees, sub-contractors and clients are aware of this policy and our environmental risks posed by our operations, through training and briefings, actively seeking their feedback and involvement for continual improvement.

This policy applies to all WDCW Local Company Office (LCOs) and site activities, and is available on the company website.

Signed:

JOHN FRANKIEWICZ
Chief Executive Officer
WILLMOTT DIXON CAPITAL WORKS

WILLMOTT DIXON

PLEASE COMPLETE ALL YELLOW BOXES BEFORE PROCEEDING

EVERYBODY PLAYS A PART

Environmental Key Performance Indicators (eKPIs)

Contract Number e.g. E00406, G00502, M00249, K00032, T01373, H434	
Contract Name e.g. Oasis Academy, Shenley Wood	
Contract Value Full numerical value	
Local Company Office Select from list	
Business Sector Select from list	
Operations Director Select from list or type name	
1st Reporting Month e.g. March 2011	
Project Description	
Gross Internal Floor Area	m^2

Version 4.2

		Unit	Start Reading	Jan 00	Feb 00	Mar 00	Apr 00	May 00	Jun 00	Jul 00	Aug 00	Sep 00	Oct 00	Nov 00	Dec 00	Jan 01	Feb 01	Mar 01	Apr 01	May 01	Jun 01	Jul 01	Aug 01	Sep 01	Oct 01	Nov 01	Dec 01	Jan 02	Feb 02	Mar 02	Apr 02	May 02	Jun 02	Jul 02	Aug 02	Sep 02	Oct 02	Nov 02	Dec 02	Jan 03	Feb 03	Mar 03	Apr 03	May 03	Jun 03	Jul 03	Aug 03	Sep 03	Oct 03	Nov 03	Dec 03
CLIENT SCORES																																																			
Impact on Environment		Client Rating (1 to 10)																																																	
Impact on Biodiversity		Client Rating (1 to 10)																																																	
ENERGY USE	**Site/Cabin/ Combined**	**Unit**	**Initial Reading**																																																
Electricity Meter 1	Combined	kWh																																																	
Other Electricity Use	Combined	kWh																																																	
Gas Meter 1	Combined	m^3																																																	
Gas (LPG)	Combined	47 kg cylinders																																																	
Diesel	Combined	Litres																																																	
WATER USE	**Site/Cabin/ Combined**	**Unit**	**Initial Reading**																																																
Water Meter 1	Combined	m^3																																																	
Other Water Use	Combined	m^3																																																	
WASTE		**Unit**																																																	
Total Waste		m^3																																																	
Waste to Landfill		m^3																																																	
VALUE																																																			
Cumulative Certified Value		£																																																	

WILLMOTT DIXON

0

EVERYBODY PLAYS A PART

eKPI Performance January 1900

Since this site has...

Here's how the project measures up against the eKPI targets:

Meeting Target / Not Meeting Target	**eKPI 1** Impact on the Environment	**eKPI 3** Energy Use (kg CO^2/£100k)	**eKPI 5** Water Use (m^3/£100k)	**eKPI 6** Waste (m^3/£100k)	**eKPI 6b** Waste to Landfill (m^3/£100k)	**eKPI 8** Impact on Biodiversity
SITE SCORE	N/A	N/A	N/A	N/A	N/A	N/A
Willmott Dixon Target	7.5	900	9.0	43	0.0	7.5

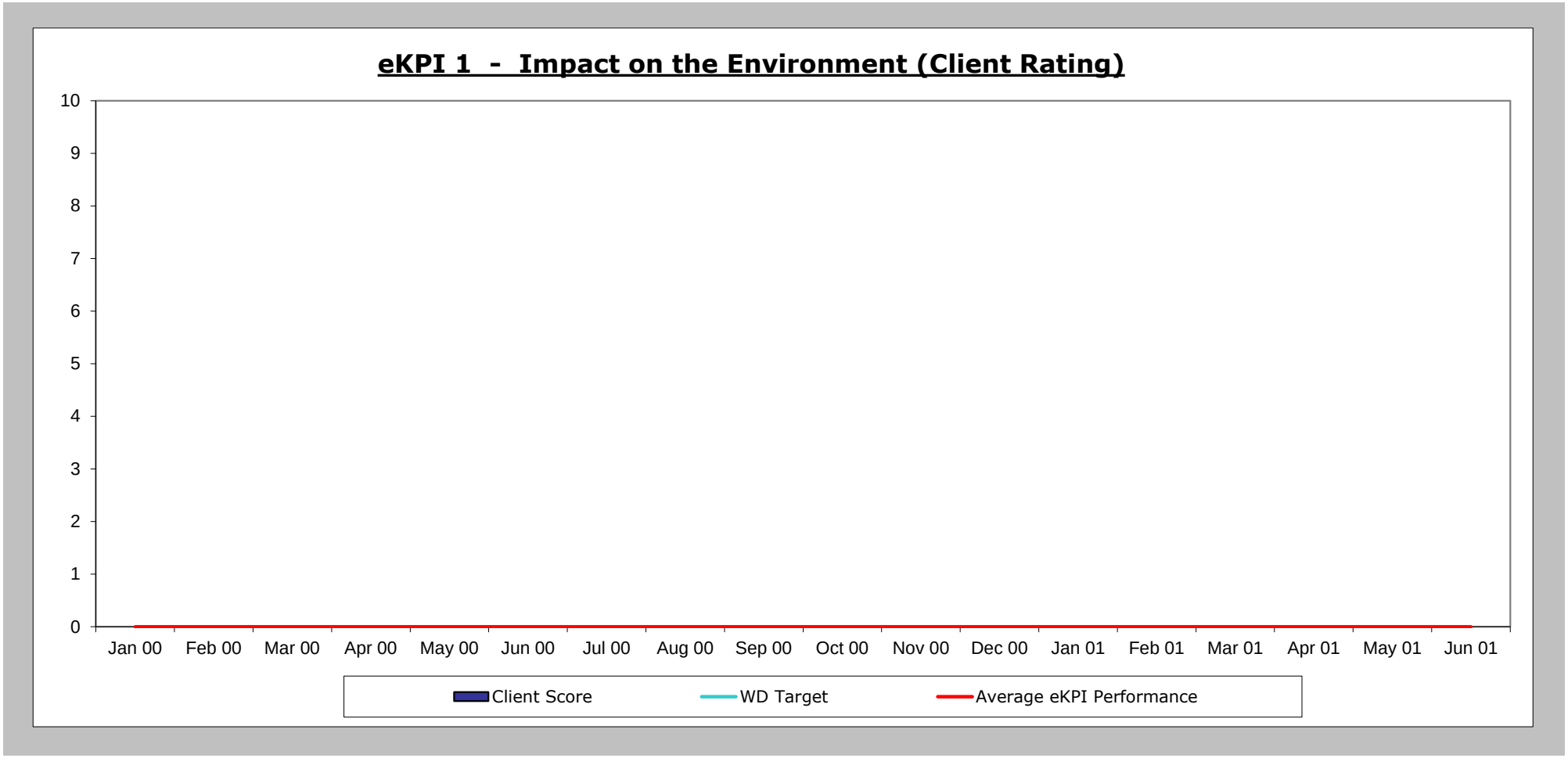
WILLMOTT DIXON

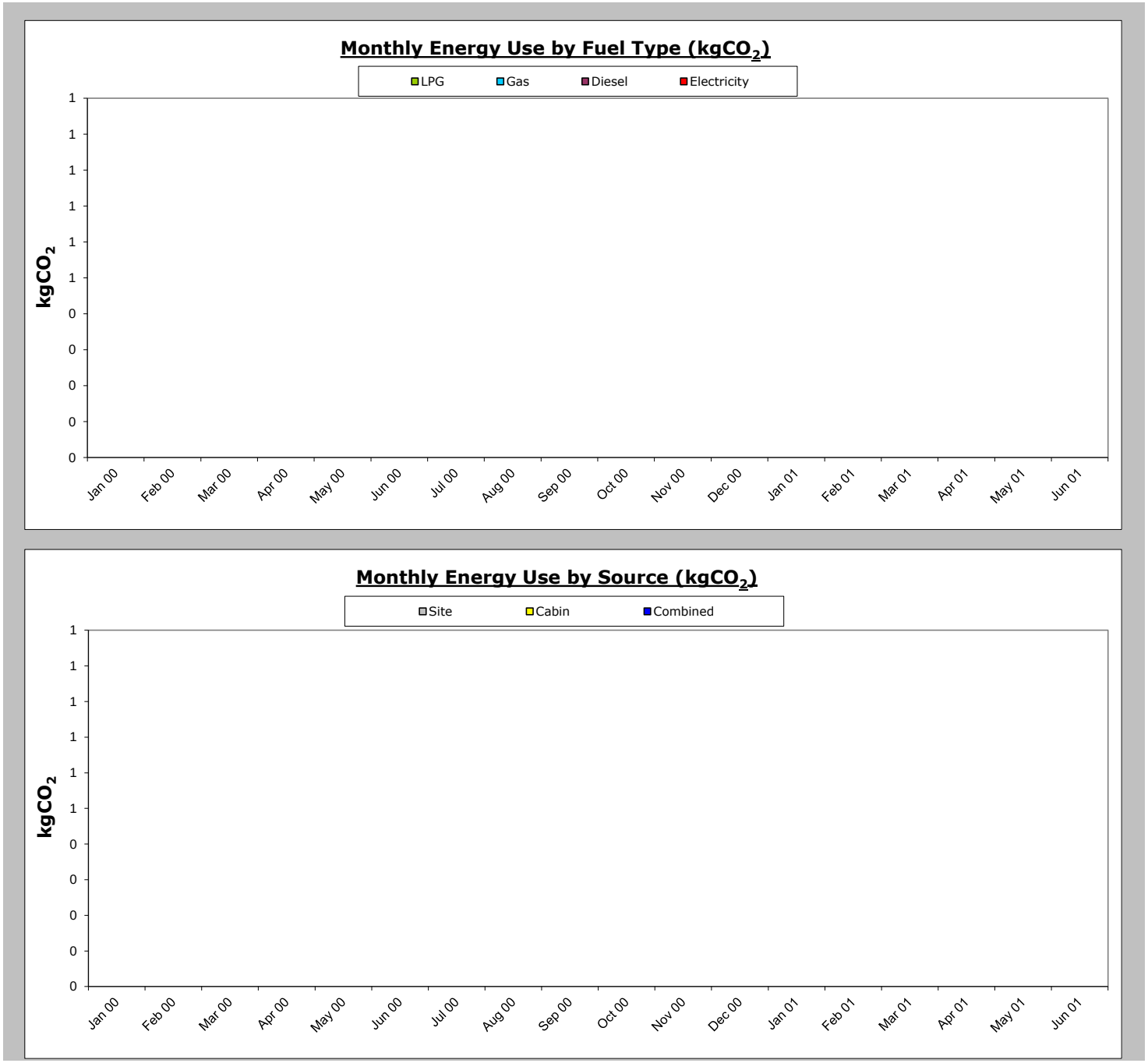
Use the cells below to provide commentary on performance figures achieved. Details should be provided on extreme and inconsistent figures, and initiatives undertaken to improve performance.

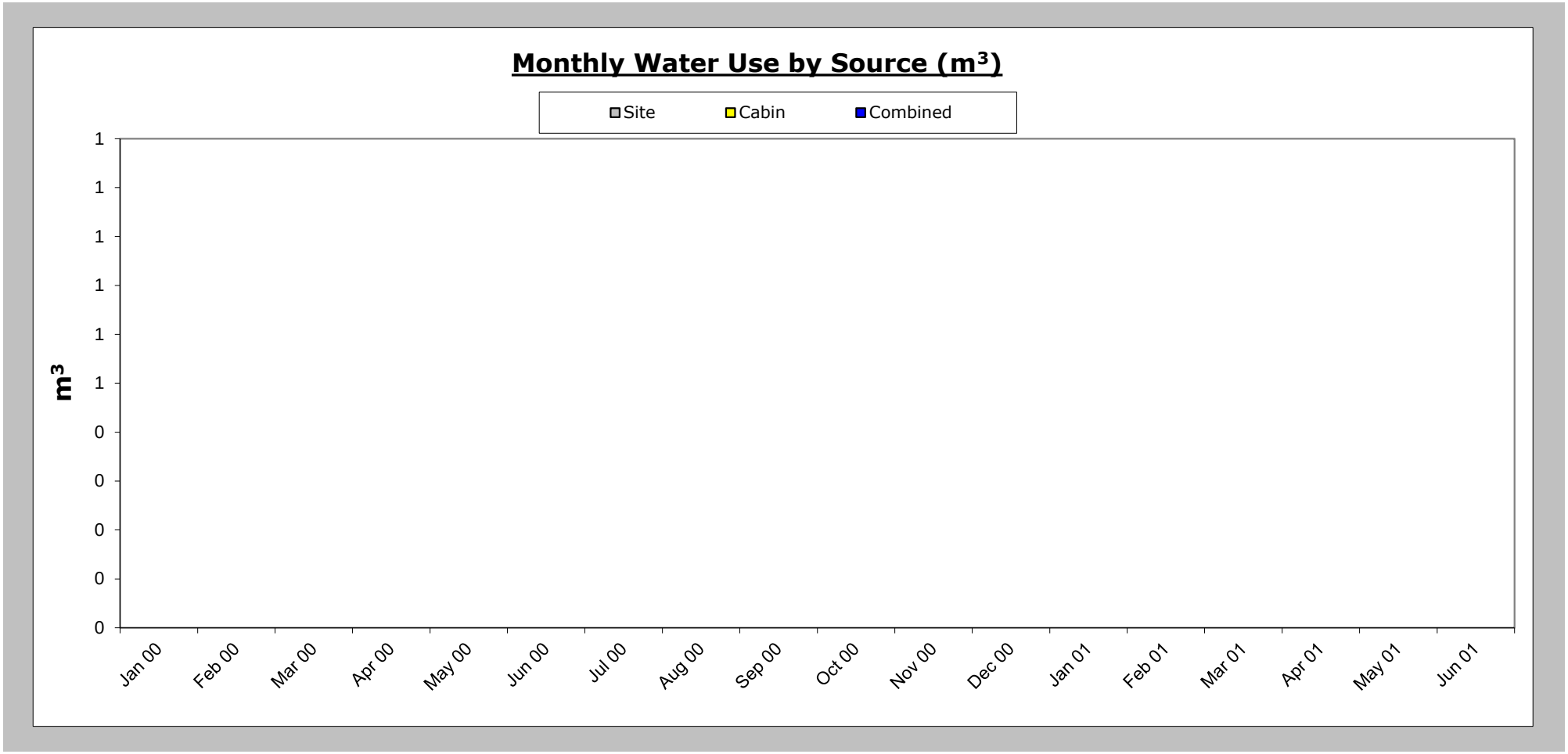
EVERYBODY PLAYS A PART

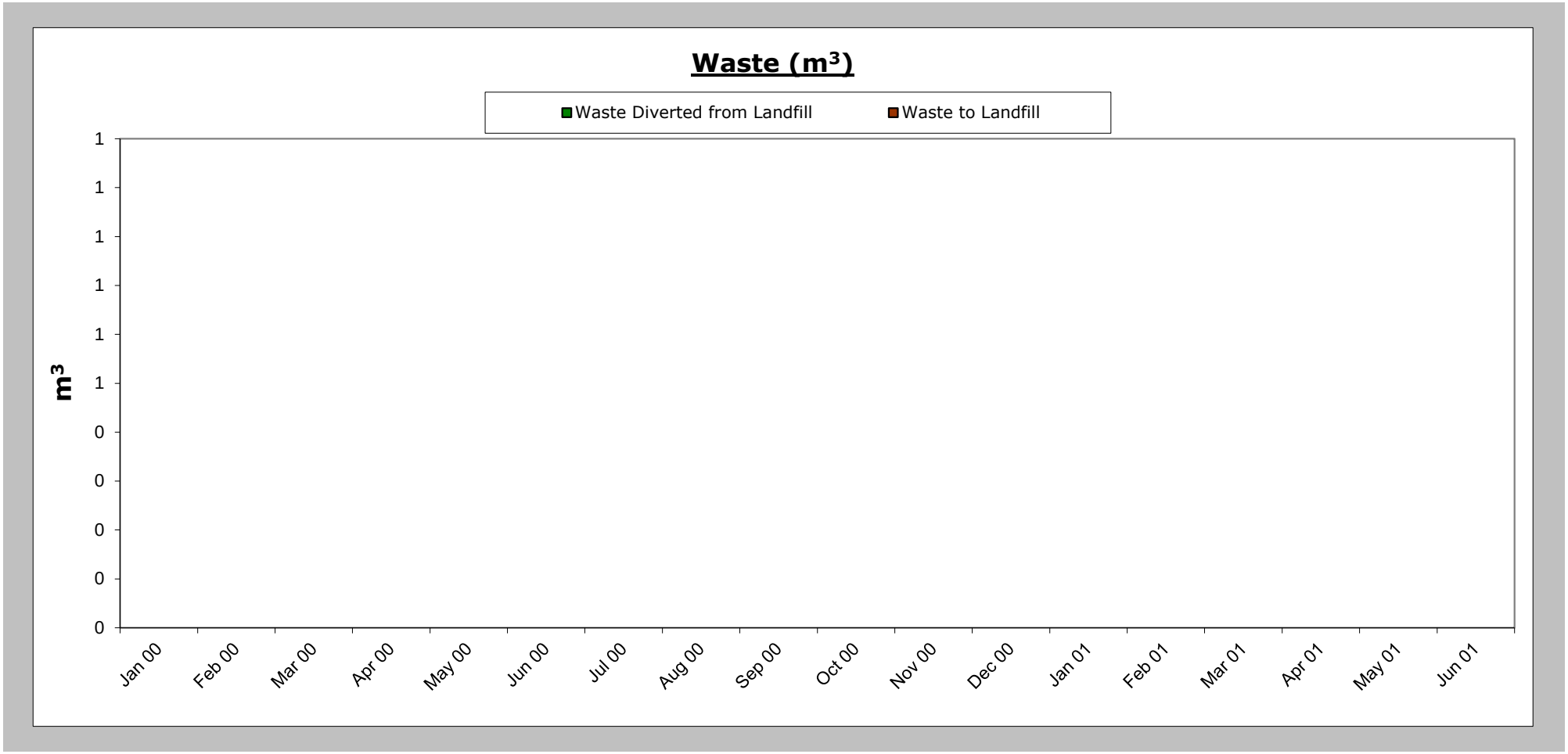
Month	Commentary
e.g. Feb-11	e.g. **eKPI 3:** Diesel generator in use to provide energy to cabins prior to site electric installation. **eKPI 6:** High overall waste figures due to large excavation (5000m3) during first month on-site.

	Contract Value		£0.00	Jan 00	Feb 00	Mar 00	Apr 00	May 00	Jun 00	Jul 00	Aug 00	Sep 00	Oct 00	Nov 00	Dec 00	Jan 01	Feb 01	Mar 01	Apr 01	May 01	Jun 01	Overall
	Monthly Value			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cumulative Value			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
eKPI 1	**Impact on the Environment**		Client Score																			
			Average																			**0.00**
	Targets	**eKPI 1**	WD Target	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
eKPI 8	**Impact on Biodiversity**		Client Score																			
			Average																			**0.00**
	Targets	**eKPI 8**	WD Target	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
Electricity	Electricity Use (Meter	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Electricity Use (Meter	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Electricity Use (Meter	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Electricity Use (Meter	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Electricity Use (Meter	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Electricity Use (Other)	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Combined Electricity Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cabin Electricity Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Site Electricity Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Monthly Electricity Use		**kWh**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	
	Combined Electricity Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Cabin Electricity Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Site Electricity Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Electricity Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Electricity Emissions/£10		**kg CO2/£100k**																			
	Cumulative Electricity Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Cumulative Electricity Emissions/£		**kg CO2/£100k**																			
Gas	Gas Use (Meter 1)	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Gas Use (Meter 2)	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Gas Use (Meter 3)	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Combined Gas Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cabin Gas Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Site Gas Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Monthly Gas Use		**kWh**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Combined Gas Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Cabin Gas Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Site Gas Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Gas Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Gas Emissions/£100k		**kg CO2/£100k**																			
	Cumulative Gas Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Cumulative Gas Emissions/£100k		**kg CO2/£100k**																			
LPG	LPG Use 1	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	LPG Use 2	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Combined LPG Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cabin LPG Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Site LPG Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Monthly LPG Use		**kWh**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Combined LPG Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Cabin LPG Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Site LPG Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly LPG Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly LPG Emissions/£100k		**kg CO2/£100k**																			
	Cumulative LPG Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Cumulative LPG Emissions/£100k		**kg CO2/£100k**																			
Diesel	Diesel Use 1	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Diesel Use 2	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Diesel Use 3	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Diesel Use 4	Combined	kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Combined Diesel Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cabin Diesel Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Site Diesel Use		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Monthly Diesel Use		**kWh**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Combined Diesel Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Cabin Diesel Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Site Diesel Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Diesel Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Diesel Emissions/£100k		**kg CO2/£100k**																			
	Cumulative Diesel Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Cumulative Diesel Emissions/£10(		**kg CO2/£100k**																			
	Total kWh		kWh	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
eKPI 3	Total Combined Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Total Cabin Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Total Site Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Total Monthly Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Total Monthly Emissions/£100k		**kg CO2/£100k**																			
	Total Cumulative Emissions		kg CO2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Total Cumulative Emissions/£100l		**kg CO2/£100k**																			**0.0**
	Targets	**eKPI 3**	WD Target	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
eKPI 5	Water Use (Meter 1)	Combined	m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Water Use (Meter 2)	Combined	m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Water Use (Meter 3)	Combined	m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Water Use (Meter 4)	Combined	m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Water Use (Meter 5)	Combined	m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Water Use (Other 1)	Combined	m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Water Use (Other 2)	Combined	m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Combined Water Use		m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Cabin Water Use		m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Site Water Use		m^3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Total Water Use		**m^3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Monthly Water Use		m^3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Water Use/£100k		**m^3/£100k**																			
	Cumulative Water Use		m^3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Cumulative Water Use/£100k		**m^3/£100k**																			**0.0**
	Targets	**eKPI 5**	WD Target	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
eKPI 6	Monthly Waste		m^3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Waste/£100k		**m^3/£100k**																			
	Cumulative Waste		m^3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Cumulative Waste/£100k		**m^3/£100k**																			**0.0**
	Targets	**eKPI 6**	WD Target	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
eKPI 6b	Waste to Landfill		m^3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Monthly Waste to Landfill/£100k		**m^3/£100k**																			
	Cumulative Waste to Landfill		m^3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Cumulative Waste to Landfill/£10(		**m^3/£100k**																			**0.0**
	Targets	**eKPI 6b**	WD Target	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	
	Waste Diverted From Landfill			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Waste Diverted From Landfill/£100k																					
	Cumulative Waste Diverted From Landfill			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	CumulativeWaste Diverted From Landfill/£100k																					
eKPI 7	Vehicle Movements		No.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Vehicle Movements/£100k		**No./£100k**																			
	Cumulative Vehicle Movements			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Cumulative Vehicle Movements/£100k																					**0.0**
	Targets	**eKPI 7**	60% CE Target	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	


eKPI 1 - Impact on the Environment (Client Rating)
10
9
8
7
6
5
4
3
2
1
0
Jan 00
Feb 00
Mar 00
Apr 00
May 00
Jun 00
Jul 00
Aug 00
Sep 00
Oct 00
Nov 00
Dec 00
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01
Client Score
WD Target
Average eKPI Performance


Monthly Energy Use by Fuel Type (kgCO2)
LPG
Gas
Diesel
Electricity
kgCO2
1
1
1
1
1
1
0
0
0
0
0
Jan 00
Feb 00
Mar 00
Apr 00
May 00
Jun 00
Jul 00
Aug 00
Sep 00
Oct 00
Nov 00
Dec 00
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01
Monthly Energy Use by Source (kgCO2)
Site
Cabin
Combined
kgCO2
1
1
1
1
1
1
0
0
0
0
0
Jan 00
Feb 00
Mar 00
Apr 00
May 00
Jun 00
Jul 00
Aug 00
Sep 00
Oct 00
Nov 00
Dec 00
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01


Monthly Water Use by Source (m³)
Site
Cabin
Combined
m³
1
1
1
1
1
1
0
0
0
0
0
Jan 00
Feb 00
Mar 00
Apr 00
May 00
Jun 00
Jul 00
Aug 00
Sep 00
Oct 00
Nov 00
Dec 00
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01


Waste (m³)
Waste Diverted from Landfill
Waste to Landfill
m³
1
1
1
1
1
1
0
0
0
0
0
Jan 00
Feb 00
Mar 00
Apr 00
May 00
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Jul 00
Aug 00
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Nov 00
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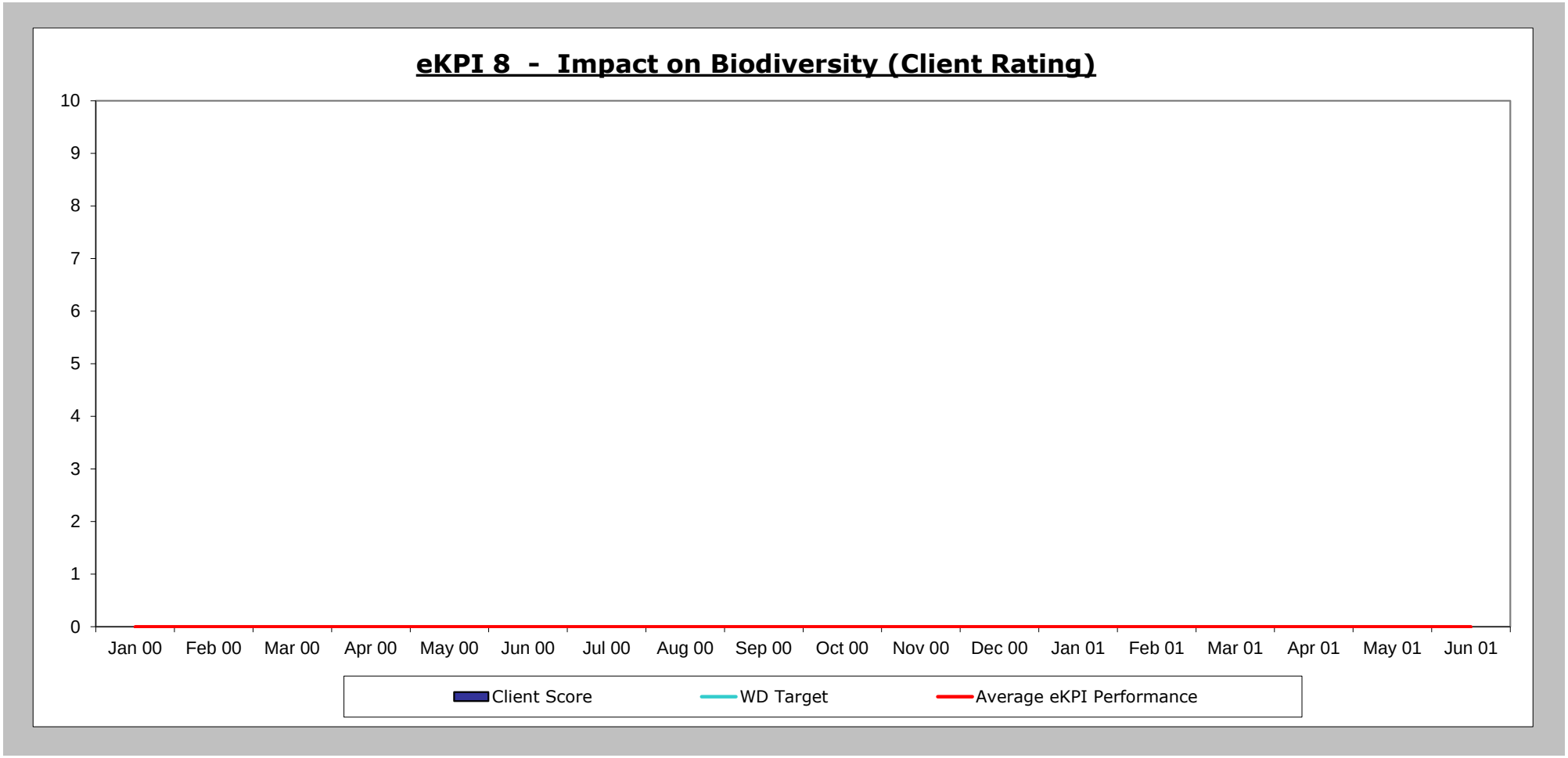
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01


eKPI 8 - Impact on Biodiversity (Client Rating)
10
9
8
7
6
5
4
3
2
1
0
Jan 00
Feb 00
Mar 00
Apr 00
May 00
Jun 00
Jul 00
Aug 00
Sep 00
Oct 00
Nov 00
Dec 00
Jan 01
Feb 01
Mar 01
Apr 01
May 01
Jun 01
Client Score
WD Target
Average eKPI Performance

Environmental Emergency Planning Arrangements

SITE DUTIES

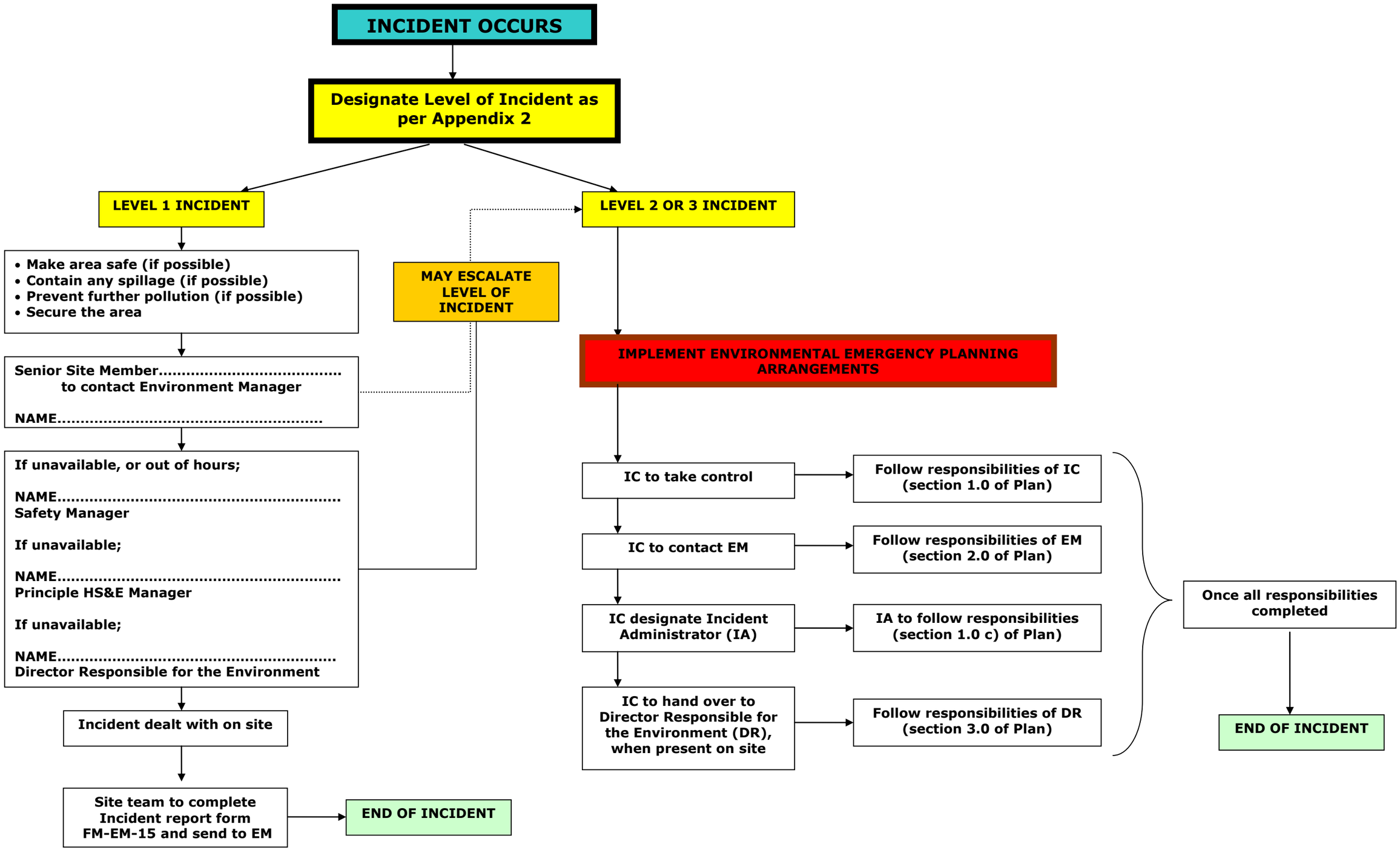
BICESTER ECO VILLAGE

Project No. here

WILLMOTT DIXON
SINCE 1852

PROCEDURE TO BE FOLLOWED – TO BE READ IN CONJUNCTION WITH THE ENVIRONMENTAL EMERGENCY PLANNING ARRANGEMENT ROLES

APPENDIX 1



INCIDENT LEVEL MATRIX

APPENDIX 2

Note: The lists are NOT exhaustive as other incidents types of may occur.

Scale of Emergency	Example Environmental Incidents	Contacts (In order of Priority)	Escalation/ Actions
LEVEL 1 - MINOR **CLASSIFIED AS:** Site incident or emergency which is contained on site and can be managed by onsite personnel and resources.	• Oil or other hazardous substance spills of less than 10 litres AND/ OR requiring use of spill kit. • Failure of equipment – e.g. cement tank pipework during unloading. • Minor disturbance to wildlife – birds nesting but not affecting works. • Unauthorised work in a Tree Protection Zone. • Breach of Planning Conditions. • Discovery or damage to archaeological artefacts. • Discovery of unknown contaminated land on site. • Nuisance – noise, vibration, dust and odour issue.	• Site Management Team • Operations Manager • Environment Manager **Environment Manager may decide to inform:** • Principal HSE Manager • Site Receptionist	**ACTION:** Site team to complete Incident form **FM-EM-07** and submit to Environment Manager. **If required;** Investigation and/ or a Written Report by: • Site Management Team • Principal HSE/ Environmental Manager **POTENTIAL TO MOVE TO LEVEL 2**
LEVEL 2 - SERIOUS **CLASSIFIED AS:** Site incident or emergency which requires assistance from off site third parties and resources to manage or contain the situation, e.g. Oil spill response contractors, Fire Service, etc.	• Oil or other hazardous substances spills which have or may leave the site, over, underground or in pipes (of more than 10 litres). • Disturbance to wildlife – birds nesting and affecting works/ schedule. • Unauthorised discharge to sewer/ environment about to occur or already occurring. • Waste has or is about to leave site but not fully documented. • Containment of contaminated material/ land on site. • Fire or Flood - Dependent on Severity, e.g. skip fire. • Terrorism/ public disorder.	All of the above as listed for Level 1 incident, plus: • Operations Director • Director Responsible for the Environment • Managing Director **Environment Manager to determine requirement to contact the following:** • Environment Agency • English Nature/ CCW • Specialist Contractors etc **Director Responsible for the Environment to determine requirement to contact the following:** • Insurers • Specialist Legal Advisors	**ACTION:** **IMPLEMENT ENVIRONMENTAL EMERGENCY PLAN** Potential Investigation and/ or a Written Report by: All the above as listed for Level 1 incident, plus: • Media interest (Press, Television, etc) • Utility Companies • EHO/ Noise Officer • Environment Agency • Local Planning Authority • Other Agencies/ Authorities **Additional Consequences:** • Legal process started by any of the above • Bad Publicity • Increased Insurance Premiums • Loss of Revenue/ Increased Cost • Client Dissatisfaction • Community concern **POTENTIAL TO MOVE TO LEVEL 3**
LEVEL 3 – SERIOUS **CLASSIFIED AS:** Worksite Incident or Emergency which requires assistance from off site third parties e.g. As per Level 2 plus: Police, Bomb Disposal, Air Ambulance, Local Authority, etc.	• Oil or other hazardous substances spills which has left the site or contaminated shallow groundwater (of more than 100 litres) OR loss of control of the incident. • Serious damage to wildlife e.g. protected species/ habitats. • Contamination that may or has caused damage to public health. • Waste illegally dumped – disposed at location other than documented or expected. • Fishkill. • Fire or Flood - Dependent on Severity. • Terrorism/ public disorder.	All the above as listed for Level 2 incident, plus: • CEO • Head of Communications • Company Secretary • All Regional Managing Directors	**ACTION:** **IMPLEMENT ENVIRONMENTAL EMERGENCY PLAN** Investigation and/ or a Written Report by: All the above the above as listed for Level 2 incident, plus: • Police • Media Coverage (Press, Television, etc) • Willmott Dixon Main Board

INTRODUCTION

This document is intended to be a source of guidance and reference for site teams that become involved in an environmental incident, such as a diesel/ oil/ chemical spillage, or any other incident causing contamination of land or water (surface or ground), especially where the Environment Agency and/ or Local Authority need to be notified.

The following arrangements (which are not exhaustive as different incidents may require specific responses) are to be actioned where such an incident occurs.

This procedure is an aide to ensuring that Willmott Dixon staff have an awareness of the requirements and a clear strategy for managing circumstances as they unfold.

The Level of incident is classified within Appendix 2. This determines the extent of the incident, and states the appropriate actions to be taken.

The arrangements must be tested at least annually on each site. The test may take the form of a desktop exercise or a mock spillage and the format should be agreed with your Environmental Manager. Details of the test should be recorded in Appendix 8.

Since the Environmental Damage Regulations 2009 came into force in England on 1 March, a prosecution is no longer necessary before it is necessary to undertake remedial action or compensation work to deal with the long-term pollution caused by our business. This means that if our activities threaten to damage, or have damaged, water, land, natural habitats or species, we must alert the authorities and do whatever is necessary to prevent or repair the damage. In effect this is a direct admission of guilt and each incident must be considered carefully and an appropriate and credible response made in each case.

REVISION RECORD

Rev	Date	Changes		
			Ops Mgr/Con Mgr	Env Mgr

CONTRACT:	

CONTRACT No:	

CONTENTS:

PREPARED BY: **DATE:**

TITLE: Operations/ Construction Manager

DISTRIBUTION

This document when completed (together with all Appendices and associated attachments) **MUST** be stored with your RED emergency folders **in a separate environmental section at the back of the file.**

In addition the following documents must be displayed on the site Environmental Noticeboard:

- **Appendix 1 - Emergency Arrangements – Flow Chart**
- **Appendix 3 - Site Plan** (together with associated attachments)
- **Appendix 4 - Emergency Contact Numbers**

1.0 ROLE OF THE INCIDENT COMMANDER

At the first notification of an incident the following action is to be taken by the following designated individuals (following the process within **Appendix 1)**.

1. **Senior Site Employee (SSE)**
The first task is to designate a classification of Level of Incident, and take the appropriate action from that point **(see Appendix 2)**.

The **SSE** will become the **Incident Commander (IC)** until a more senior member of Willmott Dixon staff attends, this would be expected to be the **LCO Director Responsible for Environment (DR).**

The **SSE** is to designate the following areas of responsibility:
a) Control of incident area, if possible
b) Contact Environment Manager (EM)
c) Document the event

a) Control of Incident

The **IC** is to assess the incident area, where possible taking action to isolate the area and prevent further pollution.

The **IC** is to maintain the area as secure until relieved by the **Director Responsible for the Environment (DR).** Until relieved of their duties the **IC** will become the main Willmott Dixon contact for request for further control measures.

At this stage it would be advisable to ask for witnesses to the incident to identify themselves.

b) Contact Environment Manager

The **IC**, or other designated person, is to contact the **Environment Manager (EM)**. Where the **EM** is not available, or the incident is out of hours, the **IC** is to contact the **Safety Manager (SM).** Contact is also to be made with those individuals as listed in the Incident Level Matrix **(Appendix 2)**.

c) Documentation of event

The **IC** should designate an **Incident Administrator (IA)** to document the events. The incident should be documented using **Appendix 5** (Names of those people contacted), **Appendix 6** (minutes of meetings) and **Appendix 7** (the Incident Log recording decisions or actions taken including times). The **IC** or **DR** should sign them as a true record of the discussions.

When an incident occurs emergency services, Environment Agency, Incident Response Contractors, specialists, etc., may hold meetings to determine how they plan to:

- Investigate the incident
- Clear away any spill
- Isolate areas
- Interview witnesses

The **IC** should be prepared to carry out risk assessments and method statements as requested by the emergency services/ investigating agencies/ specialist contractors.

2.0 ROLE OF THE ENVIRONMENT MANAGER

The **Environment Manager (EM)** as soon as possible, once on site, is to:

1. Investigate and classify the incident as level 1, 2 or 3 according to the Environmental Incident Matrix **(Appendix 2)** and determine whether the incident falls into the categories of incident covered by the Environmental Damage Regulations 2009.

   Environmental Damage only refers to:

   Wildlife - Adverse effects on the integrity of a Site of Special Scientific Interest (SSSI) or on the conservation status of species and habitats protected by EU legislation outside SSSIs, for example plants, birds, bats, reptiles and amphibians. In Schedules 2 and 4 of the Wildlife and Countryside Act 1981 (as amended). (Contact English Nature or CCW in Wales). Examples would be deaths of species or physical damage to habitat.

   Water and Groundwater - Adverse effects on surface water or groundwater that lead to a deterioration in the status of that water (under the Water Framework Directive), for example oil, silt and mud, cement wash, pesticide spills/ drift or sewage spills. (Contact Environment Agency) Most incidents would not fall into this category.

   Contaminated Land - Contamination of land that results in significant risk of adverse effects on human health. E.g. the accidental discovery of contaminants that may be odorous, toxic or otherwise damaging to human health. (Contact Local Authority).

2. Contact the **Director Responsible for the Environment (DR)**, if required.

3. Report incidents of a serious nature to the Group Safety Inspectors by the quickest possible means, following the procedure documented in **Section 3.01** of the **H&S Policy**.

4. Liaise with the **IC** to make suitable decisions regarding the incident.

5. Ensure that the incident is/ has been reported to the relevant individuals as listed in the Environmental Incident Matrix **(Appendix 2)** i.e. Operations Manager, Director Responsible for Environment, Managing Director, and all relevant bodies if deemed necessary (e.g. Environment Agency).

5. Ensure that ALL photographs, method statements and any paperwork that is relevant to the incident are collated in an incident file identified as the Master File, including incident log form FM-EM-07 and any documentation that the Incident Administrator produces.

6. Maintain the Master File with all the original paperwork.

7. Collate with the **DR** a summary incident report for the **Master File only.**

8. Ensure that the Willmott Dixon Company Secretarial team has been informed of the incident, if required.

9. Ensure, with the **DR**, that Willmott Dixon staff who have any information regarding the incident have communicated it to the IC.

10. Liaise with the **DR** to ensure that Willmott Dixon staff are aware of the need to make no comments regarding the incident.

11. Offer help assistance and guidance where and as required.

12. Produce an Incident Report, as directed by the Company Secretary for Level 2 or 3 incidents, if required.

3.0 ROLE OF THE NOMINATED DIRECTOR RESPONSIBLE FOR ENVIRONMENT

The **Director Responsible for Environment (DR)** will, as soon as possible, once on site:

1. Receive a briefing from the **Incident Commander (IC)** as to the current situation.

2. Take control of the incident.

3. Discuss progress of the incident with the **Environment Manager (EM).**

4. Arrange for orders for specialist contractors or equipment to deal with the incident.

5. Liaise with the Emergency Services/ Environment Agency/ Local Authority as the Willmott Dixon representative.

6. Ensure that the application of these procedures is carried out.

7. Ensure that Willmott Dixon staff make no comment to anyone regarding the incident including any of the emergency services, Environment Agency, Local Authority or Press, unless given prior authorisation.

8. Ensure that where Willmott Dixon staff are requested to submit statements to the emergency services/ Environment Agency, these are not under the Police and Criminal Evidence Act (PACE) and that a Willmott Dixon witness is present, preferably the EM. If a statement under PACE is required then a solicitor should be present.

9. Maintain responsibility for the site and if necessary hand-over control to the emergency services. Willmott Dixon remains totally responsible for planning and acting on all site activities following the incident.

10. While responding to the incident, the **DR** must take steps to prevent damage or further damage and,

    - notify the Environment Agency, English Nature or CCW.

    - Provide information and undertake preventive and remedial measures, as requested by the authority

    - Submit proposals for remediation.

11. Understand the requirements to pay costs claimed by the authority in respect of "environmental damage".

4.0 ROLE OF THE SAFETY MANAGER

The **Safety Manager (SM)** has the following responsibilities:

1. When the incident occurs either;

    a. during working hours, if the **Environmental Manager** is not available, or
    b. outside of working hours,

2. The **SM** resumes the responsibility of the **Environmental Manager**, given in Section 2.0.

    In such circumstances the **SM** is to contact the **Director Responsible for Environment** who will provide/ co-ordinate technical support for the **SM**.

APPENDIX 3

5.0 SITE PLAN

A copy of the site plan is to be filed here.

This should show, where applicable:

- Site drainage arrangements, including surface water drains, foul sewers (including direction of flow) and soakaways if present,
- Any oil interceptors present
- The location and contents of any storage tanks
- The location of any designated COSHH areas
- The location of any adjacent watercourses or ditches
- The location of any sensitive neighbours
- The location of any sensitive wildlife, protected species or Tree Protection Order trees
- The location of any sensitive habitats (e.g. SSSIs, SINCs, SACs, etc)
- The location of any known or suspected archaeology
- The location of any skips or waste storage

APPENDIX 4

6.0 EMERGENCY PROCEDURES TELEPHONE NUMBERS

LCO Environment Manager –	*Name* *Contact Number*
Senior Safety Manager –	*Name* *Contact Number*
Director Responsible for Environment –	*Name* *Contact Number*
LCO Buyer - (To produce orders for contractors/ equipment)	*Name* *Contact number*
* Managing Director * Company Secretary * Chief Executive Officer * Head of Communications * All Regional Managing Directors	**Contact Numbers issued to DR from Regional HR*
Group Environment Manager –	Martin Ballard 07772 137594
Environment Agency –	National Call Centre 08708 506506
English Nature -	National Call Centre 0845 600 3078
Countryside Commission for Wales -	National Call Centre 0845 130 6229
Local Authority –	*Name* *Contact Number* *Out of Hours Contact Number*
Gas –	*Name* *Contact Number*
Water -	*Name* *Contact Number*
Electric –	*Name* *Contact Number*
Waste Service Provider –	*Name* *Contact Number*
Incident Response Service Provider –	Braemar Howells 08700 73 77 66 73
Willmott Dixon Communications Manager -	Andrew Geldard 07968 406134

APPENDIX 5

EMERGENCY INCIDENT - DETAILS OF EXTERNAL PARTIES CONTACTED

Project Name:	
Brief Nature of Incident:	
Designated Level of Incident:	
Date:	

NAME	ADDRESS/ COMPANY/ AGENCY	TELEPHONE NO.

APPENDIX 6

EMERGENCY INCIDENT - RECORDS OF MEETING MINUTES

Project Name:	
Brief Nature of Incident:	
Designated Level of Incident:	
Date:	

ATTENDEES	**COMPANY/ AGENCY**

ITEM	**ACTION**	**PERSON RESPONSIBLE**
Signature of Incident Commander/ Director Responsible for the Environment		

APPENDIX 7

INCIDENT LOG

This document is a **'Record'** of the incident and **'Subsequent Chain of Events'**. It is to include the following about the incident: (see 'Brief Nature of Incident' below) *what happened, who or what was involved, when and where it occurred, decisions & actions taken, details of all communications (received & sent) i.e. telephone calls, e-mails, etc arrival & departure of WDC Staff (job titles only) Emergency Services, Agencies, Local Authorities, etc;* and any other event!

Project Name:				**CIS No:**		**Incident Report No:**
Brief Nature of the Incident:						
Designated Level of the Incident:		**Date:**		**Construction Manager:**		

Time	Action/ Communication Completed, Received, Sent or Made	Entry By Whom	Remarks
Example			
10.20	*Incident verbally reported to Construction Manager by ABC Brickwork.*	*John Smith*	*WDC Emergency Planning Arrangements instigated*
10.22	*Incident reported to Op's Director, Principal HSE Manager by the IC.*	*Tom Jones*	*Phoned - DD, EE, & FF*
10.23	*Initial investigation commenced*	*John Smith*	*Site Team – AA, BB & CC*
10.10	*Source of pollution was stopped and contained.*	*John Smith*	
10.40	*Technical details of Hydraulic Pump requested from DEF Engineering*	*John Smith*	*E-mal from BE Site Engineer*
11.00	*WDC Environment Manager arrived.*	*John Smith*	*Briefed by IC*

Notes:

APPENDIX 7 cont'd

INCIDENT LOG cont'd

Continuation Sheet No: **Date:**

Project Name:		**CIS No:**		**Incident Report No:**	

Time	Action/ Communication Completed, Received, Sent or Made	Entry By Whom	Remarks

Notes:

APPENDIX 8

DRILL LOG

Project Name:		**CIS No:**	

Date	Actions undertaken or Communications Made	Persons Attending	Remarks
Example: 07/03/11	*Mock spillage setup outside cabins using washing up liquid. Subcontractors were given a toolbox talk on spillages, a copy of the spill procedure and asked to respond appropriately.*	*Groundworkers - A.Smith/B.Jones/ C.Michaels Steel - D.Philips/ E.Martin/F.Douglas*	*Spillage was successfully cleared with no issues.*
Or: 07/03/11	*Telephone numbers in emergency procedures contact list (Appendix 4) were all called and checked.*	*B. Manager*	*Local Authority out-of-hours number wrong/ D.V.Howells has changed name to Braemar Howells. Both updated.*

WASTE CARRIER _____

Date: _____ Ticket Ref: _____

Activity
___ Construction
___ Demolition
___ Excavation

Waste Container
___ Skip
___ Lorry
___ Tanker
___ Wheelie Bin
___ Bag
___ Barrel

Size/Quantity:
_____

Density
Estimated Void: ____ %

Segregation
___ Segregated
___ Mixed

Waste Type(s)	%
Ceramic/Brick:	____
Concrete:	____
Electrical:	____
Furniture:	____
Inert:	____
Insulation:	____
Metals:	____
Office/Ad-Hoc:	____
Packaging:	____
Plaster/Cement:	____
Plastics:	____
Timber:	____
Vegetation:	____
Liquids & Oil:	____
Hazardous:	____

WASTE CARRIER _____

Date: _____ Ticket Ref: _____

Activity
___ Construction
___ Demolition
___ Excavation

Waste Container
___ Skip
___ Lorry
___ Tanker
___ Wheelie Bin
___ Bag
___ Barrel

Size/Quantity:
_____

Density
Estimated Void: ____ %

Segregation
___ Segregated
___ Mixed

Waste Type(s)	%
Ceramic/Brick:	____
Concrete:	____
Electrical:	____
Furniture:	____
Inert:	____
Insulation:	____
Metals:	____
Office/Ad-Hoc:	____
Packaging:	____
Plaster/Cement:	____
Plastics:	____
Timber:	____
Vegetation:	____
Liquids & Oil:	____
Hazardous:	____

WASTE CARRIER _____

Date: _____ Ticket Ref: _____

Activity
___ Construction
___ Demolition
___ Excavation

Waste Container
___ Skip
___ Lorry
___ Tanker
___ Wheelie Bin
___ Bag
___ Barrel

Size/Quantity:
_____

Density
Estimated Void: ____ %

Segregation
___ Segregated
___ Mixed

Waste Type(s)	%
Ceramic/Brick:	____
Concrete:	____
Electrical:	____
Furniture:	____
Inert:	____
Insulation:	____
Metals:	____
Office/Ad-Hoc:	____
Packaging:	____
Plaster/Cement:	____
Plastics:	____
Timber:	____
Vegetation:	____
Liquids & Oil:	____
Hazardous:	____

WASTE CARRIER _____

Date: _____ Ticket Ref: _____

Activity
___ Construction
___ Demolition
___ Excavation

Waste Container
___ Skip
___ Lorry
___ Tanker
___ Wheelie Bin
___ Bag
___ Barrel

Size/Quantity :
_____

Density
Estimated Void: ____ %

Segregation
___ Segregated
___ Mixed

Waste Type(s)	%
Ceramic/Brick:	____
Concrete:	____
Electrical:	____
Furniture:	____
Inert:	____
Insulation:	____
Metals:	____
Office/Ad-Hoc:	____
Packaging:	____
Plaster/Cement:	____
Plastics:	____
Timber:	____
Vegetation:	____
Liquids & Oil:	____
Hazardous:	____

WASTE CARRIER _____

Date: _____ Ticket Ref: _____

Activity
___ Construction
___ Demolition
___ Excavation

Waste Container
___ Skip
___ Lorry
___ Tanker
___ Wheelie Bin
___ Bag
___ Barrel

Size/Quantity:
_____

Density
Estimated Void: ____ %

Segregation
___ Segregated
___ Mixed

Waste Type(s)	%
Ceramic/Brick:	____
Concrete:	____
Electrical:	____
Furniture:	____
Inert:	____
Insulation:	____
Metals:	____
Office/Ad-Hoc:	____
Packaging:	____
Plaster/Cement:	____
Plastics:	____
Timber:	____
Vegetation:	____
Liquids & Oil:	____
Hazardous:	____

WASTE CARRIER _____

Date: _____ Ticket Ref: _____

Activity
___ Construction
___ Demolition
___ Excavation

Waste Container
___ Skip
___ Lorry
___ Tanker
___ Wheelie Bin
___ Bag
___ Barrel

Size/Quantity:
_____

Density
Estimated Void: ____ %

Segregation
___ Segregated
___ Mixed

Waste Type(s)	%
Ceramic/Brick:	____
Concrete:	____
Electrical:	____
Furniture:	____
Inert:	____
Insulation:	____
Metals:	____
Office/Ad-Hoc:	____
Packaging:	____
Plaster/Cement:	____
Plastics:	____
Timber:	____
Vegetation:	____
Liquids & Oil:	____
Hazardous:	____

ENTERED ELECTRONICALLY ☐

Weekly Site Environmental Inspection Checklist

WILLMOTT DIXON
SINCE 1852

Project:	

Confirm the following arrangements are in place <u>at time of inspection</u> or detail the action(s) taken or required.

	Inspection observations recorded by:	Date & Signed	
	Environmental Management Arrangement	**Y or N/A**	**Actions or improvements made**
<u>Pollution Prevention: Land, Air & Water</u>	**Fuel & Hazardous Liquids:** • Stored in 110% capacity bunds (or fuel cubes) which are damage free and empty • Containers are labelled with content and capacity • Located on hard standing, away from drains (or drains protected) and with impact protection (fenced) • Have appropriate spill kit (oil or chemical) & drip tray • Refuelling and Spillage procedures in close proximity • Fixed down in the event of floods		
	Materials: • Fixed down in the event of high wind or floods		
	Spills: • Appropriately dealt with in a timely manner • Spill kit replaced • Incident Report produced (FM-EM-15)		
	Concrete & Mortar Washout, Site Run Off: • Contained and allowed to evaporate where possible • Directed to a foul sewer and temporary Trade Effluent Discharge Consent in place		
<u>Nuisance Avoidance</u>	**Mud/ Dust:** • Site dampened down when dusty; record kept • Roads swept when muddy. Drains protected by membranes to catch silt (kept free of leaves/silt) • Stock piles located away from boundaries and covered/ seeded. • Dusty loads are covered. Dusty activities (e.g. block cutting) are screened off or dust suppression used		
	Noise & Vibration: • Sticking to working hours • Neighbours informed of upcoming disruptive activities, e.g. piling/significant site activities		
	Traffic & Access: • Clear access around site is maintained, e.g. footpaths are kept clear • No inconsiderate parking around site		
<u>Materials & Waste</u>	**Materials & Waste:** • Materials are stored tidily, away from access routes and under cover as appropriate • Skips are labelled, in good condition and on hard standing where possible • Waste is minimised and disposed of in the correct skip, with hazardous waste kept separate • Waste transfer notes are being correctly completed		
<u>Wildlife Heritage</u>	**Wildlife & Archaeology/Heritage:** • Tree roots and branches are protected • Wildlife is protected & allowed to leave of own accord • Archaeology/ historical artefacts are protected and appropriate parties informed/records & plans kept		
<u>Comms</u>	**Environmental Hazards & Comms boards:** • Boards are current, up to date and reflect site hazards at point of project stage delivery		
<u>CCS</u>	**Considerate Constructors:** • CCS poster & 24 hour emergency number displayed • Notice boards show current/relevant information • Hoarding is in good condition and free from graffiti • Footpaths immediately around site litter free		

Weekly Site Environmental Inspection Checklist

Project:	

Confirm the following arrangements are in place <u>at time of inspection</u> or detail the action(s) taken or required.

	Inspection observations recorded by:	Date & Signed	
	Environmental Management Arrangement	**Y or N/A**	**Actions or improvements made**
Pollution Prevention: Land, Air & Water	**Fuel & Hazardous Liquids:** • Stored in 110% capacity bunds (or fuel cubes) which are damage free and empty • Containers are labelled with content and capacity • Located on hard standing, away from drains (or drains protected) and with impact protection (fenced) • Have appropriate spill kit (oil or chemical) & drip tray • Refuelling and Spillage procedures in close proximity • Fixed down in the event of floods		
	Materials: • Fixed down in the event of high wind or floods		
	Spills: • Appropriately dealt with in a timely manner • Spill kit replaced • Incident Report produced (FM-EM-15)		
	Concrete & Mortar Washout, Site Run Off: • Contained and allowed to evaporate where possible • Directed to a foul sewer and temporary Trade Effluent Discharge Consent in place		
Nuisance Avoidance	**Mud/ Dust:** • Site dampened down when dusty; record kept • Roads swept when muddy. Drains protected by membranes to catch silt (kept free of leaves/silt) • Stock piles located away from boundaries and covered/ seeded. • Dusty loads are covered. Dusty activities (e.g. block cutting) are screened off or dust suppression used		
	Noise & Vibration: • Sticking to working hours • Neighbours informed of upcoming disruptive activities, e.g. piling/significant site activities		
	Traffic & Access: • Clear access around site is maintained, e.g. footpaths are kept clear • No inconsiderate parking around site		
Materials & Waste	**Materials & Waste:** • Materials are stored tidily, away from access routes and under cover as appropriate • Skips are labelled, in good condition and on hard standing where possible • Waste is minimised and disposed of in the correct skip, with hazardous waste kept separate • Waste transfer notes are being correctly completed		
Wildlife Heritage	**Wildlife & Archaeology/Heritage:** • Tree roots and branches are protected • Wildlife is protected & allowed to leave of own accord • Archaeology/ historical artefacts are protected and appropriate parties informed/records & plans kept		
Comms	**Environmental Hazards & Comms boards:** • Boards are current, up to date and reflect site hazards at point of project stage delivery		
CCS	**Considerate Constructors:** • CCS poster & 24 hour emergency number displayed • Notice boards show current/relevant information • Hoarding is in good condition and free from graffiti • Footpaths immediately around site litter free		

Environmental Incident Report

Incident No. (to be completed by EM)		**Level**	
	*FM-EM-05 Incident escalation operates by three Levels: **L1** = Minor; **L2** = Major; **L3** = Serious*		
Contract No. and Title			
Responsible Manager			
Date of Incident		**Time**	
Incident identified by...			
Contact Details for Notifier (Address and telephone number)			
Authorities Notified (Date & Time)			
Contact Details for Authority (Address and telephone number)			

Short Summary Description of Incident

Details of Incident

Actions taken to address problem and prevent a reoccurrence

	Action to be taken	Individual	Completion Date	Signed Off
1				
2				
3				
4				

Person completing this form	**Contact Details**

ENVIRONMENTAL SITE VISIT REPORT

Appendix 15.10

WILLMOTT DIXON

CONTRACT TITLE:						
CONTRACT No:				**DATE:**		
Date of last Environmental Site Visit:						
Actions completed from last visit?	**YES**		**NO**		**N/A**	
Outstanding actions:						

Compliance Codes: ✓ Compliant × Minor Non-conformance ☒ Major Non-conformance
+/- Observation **NC** Not checked **NA** Not applicable
R – Recommended **S** - Suggested

ENVIRONMENTAL MANAGEMENT SYSTEMS					
1. Environmental Policy		7. Site Objectives		13. Community Liaison	
2. Environmental Noticeboard		8. Training (WD Staff)		14. Emergency Plan	
3. Environmental Plan		9. Training (Contractors)		15. Audits	
4. Environmental Aspects		10. Inductions		16. eKPIs	
5. Action Notes		11. Weekly Site Inspections		17. SWMP	
6. Legal Register		12. Incidents and Complaints			
POLLUTION PREVENTION					
18. Fuel Storage & Handling		20. Material Storage		22. Drainage	
19. Liquid Storage		21. Spillages		23. Discharges	
SITE ENVIRONMENT					
24. Dust		27. Signs and Labels		30. Wildlife	
25. Traffic and Roadways		28. Site Security		31. Tree Protection	
26. Noise		29. Housekeeping		32. Nesting Birds	
WASTE					
33. Waste Storage		38. Waste Documentation		41. Duty of Care Checks	
34. Segregation		39. Waste Transfer Notes		42. EA Public Register Checks	
35. Reuse and Recycling		40. SWMP Data Collection Sheet		43. Latest % Diversion from landfill for total site waste	
36. Waste Minimisation					
37. Hazardous Waste					
OTHER					
44. CCS		48. Energy Use		52. WRAP Quality Protocol	
45. BREEAM		49. Water Use		53. Noise Monitoring	
46. Environmental Permits - Claire CoP		50. Playing Cards for the Future		54. Vibration Monitoring	
47. Ecological Surveys		51. Environmental Blitz		55. Dust Monitoring	

Action Codes: **I**=immediately stop work and rectify situation/ condition,
A=within 24 hours, **B** = within 7 days, **C** = within period specified
R=Recommended, **S** = Suggested

ITEM	COMMENT	ACTION REQUIRED BY (Action Code)	DATE COMPLETED	SITE RESPONSE

Action Codes:	**I**=immediately stop work and rectify situation/ condition, **A**=within 24 hours, **B** = within 7 days, **C** = within period specified **R**=Recommended, **S** = Suggested			
ITEM	**COMMENT**	**ACTION REQUIRED BY (Action Code)**	**DATE COMPLETED**	**SITE RESPONSE**

Signed: _____ Signed: _____

Environmental Manager: _____ Site Manager: _____

SEND A COPY OF THIS REPORT WITH DETAILS OF THE ACTIONS TAKEN AND COMPLETED WITHIN 7 DAYS OF THE SITE VISIT TO THE ENVIRONMENTAL MANAGER AND THE OPERATIONS DIRECTOR

REPORT TO FILE IN THE PROJECT ENVIRONMENTAL PLAN

EMS	
1) Environmental Policy	Is the WDC Environmental Policy displayed on the Environmental Notice Board or in a prominent position on site? Are WDC staff aware of the key requirements? Can a copy be supplied to the public if requested?
2) Environmental Notice Board	Is all of the required information displayed? Is the BSI ISO 14001 certificate displayed on site? Latest eKPIs? Up to date site layout plan?
3) Environmental Plan	Has the Project Environmental Plan been completed? Is it available on site and up-to-date? Are site staff aware of the Plan? Have all Planning Conditions been discharged?
4) Environmental Aspects	Have the Environmental Aspects Score sheets and associated Action Notes been completed? Have there been any changes in operations on site, legislation or environment which may affect the assessment?
5) Action Notes	Have the Action Notes completed as part of the Aspects assessment been actioned?
6) Legal Register	Has the Legal Register for the site been completed? Have there been any changes in operations on site, legislation or environment which should be included?
7) Site Objectives	Have site specific objectives been set for the site taking into account any significant environmental aspects and legal requirements? Have these been completed by the target date?
8) Environmental Training (WD Staff)	Have the site personnel had sufficient environmental awareness training? Are records kept of training received?
8) Environmental Training (Contractors)	Have the relevant environmental toolbox talks been delivered to site staff? Are records kept of training received?
9) Environmental Inductions	Are environmental inductions given to all contractors using the site? Are signed records kept?
10) Environmental Procedures	Does the site have spillage and fuel delivery procedures displayed on the Environmental Notice Board and at high risk locations such as fuel delivery points?
11) Site Inspection Checklists	Are any environmental inspections carried out by site staff of high risk aspects of site such as fuel storage areas? Are contents of spill kits regularly checked to ensure adequate supplies of materials? Are records of any checks kept on site?
12) Incidents and Complaints	Has the site had any environmental incidents such as spillages or potentially polluting discharges? Have these been recorded on the correct forms and communicated internally? Has the site received any complaints under the CCS? Have any complaints been addressed?
13) Community Liaison	Is the site liaising with the local community to inform them of the progress of works which may affect them? Does the site have a Community Engagement Plan? Are the actions being implemented?
14) Emergency Plan	Is there a copy of the WDC Environmental Emergency Planning Arrangements on site? Is the Environmental Emergency Planning flowchart displayed on the Environmental Notice Board along with a list of up-to-date contact numbers? Have the emergency procedures been tested in the form of a drill?
15) Audits	Have all actions identified in previous audits and inspections been addressed?
16) eKPIs	Is data for eKPIs recorded and the eKPIs completed when required? Are they displayed on the Environmental Notice Board and sent to the Environmental Manager?
17) SWMP	Has the SWMP been completed? Is it available on site and up-to-date? Are site staff aware of the Plan? Are the actions being implemented?
POLLUTION PREVENTION	

18) Fuel Storage and Handing	Is liquid fuel being stored in tanks within suitable bunds which contain all filling and delivery points and can hold 110% of the capacity of the tank? Is the bund impermeable and structurally sound with no drain points? Is it located on a surfaced area protected from vehicle collisions? Is the tank kept locked when not in use? Is the tank labelled with its contents and capacity? Does the site have a copy of EA Pollution Prevention Guidance Note 2? Is there a copy of the Fuel Delivery Procedure (GN-EM-11) and Spillage Procedure (GN-EM-12) Guidance Notes on display either directly on the fuel store tank or on fencing surrounding it? Is there a spill kit and hazardous waste drum located nearby? Have staff been trained in their use?
19) Liquid Storage	Are all drums and containers of liquid being stored upright and with their lids on when not in use? Are they being stored inside a covered, bunded area away from surface water drains and high risk locations? Are they labelled with their contents?
20) Materials Storage	Are materials stored adequately in areas where they are unlikely to be damaged? Are potentially polluting materials stored inside contained areas, away from high risk locations? Are deliveries of bulk materials supervised?
21) Spillages	Is there any evidence of spillages on site? Are there any visible signs of pollution, i.e. oil in drains, staining of the ground? Are drip trays available when re-fuelling? Are any items of plant leaking fuel or oil? Are any spillages cleared up and disposed of appropriately? Is a copy of the Spillage Procedure (GN-EM-12) Guidance Note on display in other high risk locations listing the locations of spill kits on site?
22) Drainage	Is there a copy of the site drainage plan on the Environmental Noticeboard with surface and foul water drains clearly identified? Is there any possibility that polluting substances on site may enter site surface water drains or a nearby watercourse? Or that liquid waste such as solvents or wash water from construction activities may be discharged into the foul sewerage system? Are control measures in place to prevent this from occurring?
23) Discharges	Is the site making a connection to any controlled waters? Has permission from the EA or water company been obtained where necessary? Have measures have been put in place to ensure effects on the environment are prevented or minimised?
24) Dust	Is the site dusty? Are vehicle movements giving rise to excessive amounts of dust from the site roadways? Are measures in place on site to control the amount of dust? Are lorries properly sheeted before leaving site?
25) Traffic and Roadways	Is site traffic causing congestion, parking problems or accidents? Are measures in place on site to control this? Are site roads in good condition? Is the road outside the site free from mud and deposits? Are measures in place to control the amount of mud deposited on the road?
26) Noise	Are noise levels at the site boundary likely to cause nuisance to neighbours? Are noise control measures in place on site? Are vehicles and plant in good working order and have silencers been fitted? Are noise levels controlled by planning conditions? Where noise restrictions apply, are these being complied with? Have any surveys been carried out to assess noise levels outside the site?
27) Signs and Labels	Is site signage up-to-date and does it display relevant environmental information? Are all storage containers and tanks labelled with their contents and capacity?
28) Site Security	Is boundary fencing in good condition and are gates kept locked outside operating hours? Are fencing and gates checked for signs of unauthorised access? Are site cabins and vehicles kept locked when not in use? Are other security measures in place on site?
29) Housekeeping	Is the tidiness of the site giving a good impression to the local community? Is the site managed well to enable adequate movement and access around the site? Are unwanted materials, litter and spillages cleared promptly to avoid contamination of the underlying ground? Are Fairtrade products being used on site?
30) Wildlife Protection	Are any ecological features on site being adequately protected during the works? Are measures in place to prevent operations affecting local wildlife? Are there any invasive plant species on site? Are these being dealt with appropriately?
31) Tree Protection	Are any trees on site being adequately protected during the works? Are site staff aware of those covered by a TPO? Are any materials being stored within the protected area?

32) Nesting Birds	Are there any nesting birds on site? Are any trees due to be removed during the nesting bird period? Have nesting bird surveys been planned/ completed? Are the recommendations being implemented?
WASTE	
33) Waste Storage	Is the storage of waste adequate? Is all waste stored inside skips or containers? Are they in good condition, well maintained and watertight? Are covers used for skips containing lightweight materials or for preventing rainwater accumulating inside where possible? Are skips stored on unsurfaced ground or near drains?
34) Segregation	Is waste being segregated as far as possible on site to enable easy recycling? Are all skips and containers labelled with the wastes which may be deposited inside?
35) Reuse and Recycling	Is any waste from onsite activities being reused or recycled on site, e.g. the use of a concrete crusher? Are any waste recycling activities carried out on site which may require registering with the EA? Is waste paper being recycled? Is any waste being reused or recycled off site? Has this been recorded in the SWMP Data Collection Sheet?
36) Waste Minimisation	Is the site making use of recycled materials? Does inadequate materials storage contribute to damage and wastage? Are any sub-contractors producing unnecessary waste?
37) Hazardous Waste	Is the site registered with the EA as a hazardous waste producer? Are all hazardous wastes stored separately from non-hazardous wastes inside secure containers? Are consignment notes kept on site for all loads of hazardous waste removed? Are they complete (i.e. include Part E completion)? Are these retained for 3 years?
38) Waste Documentation	Are copies of Waste Carriers Certificates held for all companies collecting waste from site? Are they all valid? Are copies of final disposal site licences or exemptions for all sites receiving the waste held on site?
39) Waste Transfer Notes	Does the site have copies of DoC waste transfer notes for each load of waste (including sewage effluent) leaving the site? Do they contain all the correct details including the EWC code? Are copies of DoC transfer notes retained for 2 years?
40) SWMP Data Collection Sheet	Does the SMWP Data Collection sheet include the estimated waste stream data? Have the details regarding the waste contractors that the site is using been entered (i.e. percentage recycling rates)? Have all waste transfers been entered into the SWMP Data Collection Sheet? Is it up to date? Have the transfers been entered accurately?
41) Duty of Care Checks	Have any spot checks been made on those companies removing waste from site to ensure that they are taking the waste to the correct waste management site and that it is being treated of as specified?
42) EA Public Register Checks	Have all of the Waste Carriers been checked on the Environment Agency Public Register? Are there copies of these checks stored with the corresponding certificate? Have all of the disposal facilities been checked on the Environment Agency Public Register? Are there copies of these checks stored with the corresponding licence? Have these been done within the last 12 months?
43) Latest % Diversion from landfill for total site waste	From the SWMP Data Collection Sheet, what is the latest waste % diversion from landfill figure that the site is achieving? Is this achieving the WD targets?
OTHER	
44) Considerate Constructors Scheme	Is the site registered on the Considerate Constructors Scheme? Has a CCS audit taken place? What score was achieved?
45) BREEAM	Is a BREEAM assessment being carried out on this project? What is the likely rating? Is all of the evidence that the site teams are expected to record being stored? Is sustainably sourced timber documentation being recorded (Chain of Custody documents)?
46) Environmental Permits / CL:AIRE Code of Practise	Does the site require any environmental permits, consents, licences or exemptions? If so, have they been obtained before works have commenced? Does the planning permission for the site include environmental conditions? Is the site operating according to any conditions imposed? As an alternative to the environmental permit application route is the CL:AIRE Code of Practise going to be used for excavated soil reuse where the amounts exceed that of the U1 permit exemption requirements?

47) Ecological Surveys	Has an ecological survey been carried out prior to works starting? What are the outcomes? Is a copy available on site?
48) Energy Use	Is energy use on site being minimised wherever possible? Are Burco boilers, timers or door closers being used? Is heating left on when not required or where doors are left open? Are lights on in unoccupied areas? Are window shutters closed in good daylight? Is IT equipment left on standby overnight? Are vehicles or plant left running when not in use?
49) Water Use	What is being done to conserve water on site? Are urinals on constant flush?
50) Playing Cards for the Future	Is the site implementing the Playing Cards for the Future initiative? What score has the site achieved so far?
51) Environmental Blitz	Is the current Environmental Blitz poster on display in the required locations? What have the site done to increase awareness of the Blitz items? Are planned actions/ requirements being implemented?
52) WRAP Quality Protocol	Where there is intention to recover aggregates from demolition processes and either reuse or sell them as products (recycled aggregates), has the WRAP Quality Protocol been complied with?
53) Noise	Noise monitoring to be undertaken to meet Section 61 application.
54) Vibration	Vibration monitoring to be undertaken to meet Section 61 application.
55) Dust	Dust monitoring to be undertaken to meet requirements submitted by WDCW.

Environmental Documentation Approval for CIS

Environmental Documentation required before the Contract Information Sheet (CIS) is issued;

Document	Team Responsible	Complete?	Approved?	EM Signature
FM-EM-02/03 Project Environmental Plan *- including handover of all surveys undertaken (ecology, bat, nesting bird, geotechnical, tree protection, etc.)*	* Pre Con team * Ops team			
FM-EM-23 Environmental Aspects & Impacts Assessment	* Pre Con team * Ops team			
FM-EM-06/07/08 Site Waste Management Plan	* Pre Con team * Ops team			
FM-EM-09 Site Waste Data Collection	* Pre Con team * Ops team			
FM-EM-05 Emergency Planning Arrangements	* Ops team			
FM-EM-04 Project eKPI Performance Log	* Ops team			
Site Layout Plan	* Pre Con team * Ops team			
Register site as a Hazardous Waste Producer via EA website	* EM/LCO Buyer			

Project Number ……

Project Name ……..

Environmental Documents approved for CIS issue

Environment Manager Name……..

Signature……..

ENVIRONMENTAL ASPECTS AND IMPACTS ASSESSMENT

Project:		
Prepared by:	**Date:**	
Approved by:	**Date:**	

WILLMOTT DIXON

TABLE 1 - Identify the activities that are applicable to the project
(hover over cell to see tasks within activity)

		Occuring during project
ACTIVITY	**Demolition**	
	Earthworks	
	Crane Work	
	Concrete Work	
	Carpentry	
	Flooring	
	Roofing	
	Windows & Glazing	
	Plumbing	
	M&E	
	Internal Finish Prep	
	Coatings	
	Building Clean	
	General Site Control	
	Design	
	Transport	
	Purchasing	
	Procurement of Services	

TABLE 2 - Identify the project receptors that may be affected by the project

POTENTIAL RECEPTORS	**Land** - always applicable	Yes
	Air - always applicable	Yes
	Water - applicable due to the presence of ground water	
	Neighbours - e.g. residents, businesses, shops, schools etc.	
	General Public - not applicable when working in areas with restricted access	
	Wildlife - e.g. birds, bats, badgers , newts	
	Vegetation - e.g. trees	
	Archaeology/ Heritage - e.g. burial grounds, monuments, listed features	

PROCESS FOR COMPLETION OF WORKSHEETS

1 - Review the activities within each of the following worksheets. Hide any activities that are not applicable and add any that are project specific.
2 - For each activity identify if WDCW have direct or indirect control.
3 - For each activity establish the significance of the inherent risk using the risk rating system below.
4 - For those activities that are of High or Medium significance review the corresponding mitigating actions and ensure appropriate.
5 - Calculate the significance of the residual risk using the risk rating system below, taking into account to mitigating actions.
6 - For each mitigating action identify who is responsible and when it must be completed by.
7 - Indicate that a mitigating action is complete as appropriate.

GUIDANCE ON ASSIGNING RISK (LIKELIHOOD AND CONSEQUENCE)

Likelihood	Description	Score
Inevitable	Inevitable consequence of activities on site.	5
Likely	Frequent potential occurrence. Frequent experience of situation occurring.	4
Possible	Situation may occur more than once per year. Experience shows occurrence once per year.	3
Remote	Situation may occur with warning. Less than once in 5 years frequency.	2
Improbable	Almost impossible to occur. No instances of situation occurring.	1

Consequence	Description of environmental impact	Score
Catastrophic	Major damage on & off site, national reputation damaged and/ or prosecution possible	5
Permanent	Considerable environmental damage and/ or national reputation damage likely	4
Moderate	Moderate impact, recoverable contamination or damage and/ or local reputation damage	3
Minor	Slight impact, small scale event contained on site, possible local media interest, prosecution unlikely	2
Slight	No measurable environmental consequence, no reputation damage, zero likelihood of prosecution	1

Significance	Action to be taken
High (16-25)	Work can only continue if control measures reduce the risk rating to an acceptable level
Med (5-15)	Introduce control measures to reduce risk as low as reasonably practicable
Low (1-4)	Risk broadly acceptable, but situation needs to be monitored for changes and action to reduce risk

Project:

IMPACT - DESIGN

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Design - Use of Materials in construction	The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only)	✓				0	* During the pre-construction phase, ensure that WRAP's Net Waste Tool has been utilised in design to minimise residual wastes during the construction of the building and its eventual afterlife. * Consider Design Impact Measures for total carbon footprint and life-cycle assessment / whole life costing of any resource used. * Consider modular design in construction for ease of disassemby of materials during maintenance and afterlife of the structure. * Consider off-site prefabrication in design. * Design for quality and durability: longer-lasting and better-functioning products will have to be replaced less frequently, reducing the impacts of producing replacements. * Consider Renewability: materials should come from nearby (local or bioregional), sustainably managed renewable sources that can be composted when their usefulness has been exhausted. * Consider the concept of Biomimicry: "redesigning industrial systems on biological lines ... enabling the constant reuse of materials in continuous closed cycles. * Use low impact materials: choose non-toxic sustainably produced or recycled materials which require little energy to process. * Source materials with the greatest recycled content.	37		0	0			

Design - Use of energy from fossil fuel sources	The Building Regulations 2000 – the 2006 edition of Part L – Conservation of fuel and power (L1A,L2A,L2A &L2B) Water Resources Act 1991					0	* Where practicable, choose biofuels over fossil fuels * Consider the use of low energy consuming (energy efficient) technology. * Consider the use of wind turbines, solar panels etc to supply renewable energy. * Consider the installation of geo-thermal (ground sourced heating) technology and biomass burning boilers. * Improve insulation of cabins. * Maximise passive design opportunities i.e. natural lighting, ventilation and solar heating.	37, 19		0	0			
Design - Use of Water						0	* Where practicable, use rainwater recovery technology for uses such as toilet flushing and dust suppression. * Install dual flush toilets in cubicles. * Use EcoCubes in the toilets and turn off the cisterns. * Ensure taps turn off automatically in around 20 seconds. * Carry out periodic checks for leaks. * Control water usage with ball cocks on plastic water drums and by fixing leaks. * Ensure fitting of stopcocks.	37, 47		0	0			
Installation of ventilation systems	The Building Regulations 2000 - the 2006 editions of Part F - Ventilation The Building Regulations 2000 - the 2006 edition of Part L - Conservation of fuel and power (L1A, L2A, L2A & L2B)					0	* Ensure ventilation systems are rates are compliant with Building Regulations as a minimum. * Ensure all testing is carried out and that it meets, at least, the required parameters of Building Regulations.	-----		0	0			
Construction of a commercial or public building	The Energy Performance of Buildings (Certificates and Inspections) (England and Wales) Regulations 2007 SI 2007/991 and SI 2007/1669 Background					0	* Ensure that EPCs are produced for all projects upon completion of the project. (Failure to do so will result in a fine of £5000). * Ensure EPC cost is budgeted for in cost plan.	-----		0	0			

ABNORMAL CONDITIONS														
Floods	----					0	* Ensure that the design of the building accounts for the possibility of localised flooding i.e. raise the ground on which the building is to be built on. * Install soakaways and maximise surface water drainage in general.	-----		0	0			
Strong winds	----					0	* Consider forms of screening around the building. * Ensure that the building is designed in such a way to withstand strong wind impacts especially in exposed areas such as rooftops.	-----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Ensure that the building is designed with adequate fire protection such as sprinkler systems, fire doors and other means of isolation.	-----		0	0			

Project:

IMPACT - USE OF RESOURCES

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Consumption of a Resource - Use of resources in office operations	----	✓				0	* Nominate one person responsible for the stock control of stationary supplies. * Turn off lights and IT equipment when not in use. * Avoid printing documents where possible. * Print on both sides of the paper. * Ensure that paper recycling facilities are set up, and staff are aware of the recycling strategy in place. * Improve insulation of cabins. * Utilise wind turbines, solar panels etc to supply renewable energy. * Turn off heaters and air conditioning units in office areas not used.	11, 46		0	0			
Consumption of a Resource - Use of Materials in Construction	The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only)					0	* Store materials so as to prevent damage, vehicle impact and provide cover where susceptible to water damage. * Utilise off-cuts where possible. * Minimise wastage rates.	-----		0	0			
Consumption of a Resource - Use of Cleaning Agents	Control of Substances Hazardous to Health Regulations 2002 (COSHH) (as amended) Control of Substances Hazardous to Health (Amendment) Regulations 2004					0	* Ensure COSHH data is held for cleaners and store in the cleaners cupboard. * Health & Safety Management to ensure that all relevant risks are assessed and kept up-to-date.	18		0	0			

Consumption of a Resource - Use of water	Water Resources Act 1991					0	* Where practicable, use lower water consumption flush function on dual flush toilets. * Where practicable, use rainwater recovery technology for uses such as toilet flushing and dust suppression. * Use EcoCubes in the toilets and turn off the cisterns. * Ensure taps turn off automatically in around 20 seconds. * Carry out periodic checks for leaks. * Control water usage with ball cocks on plastic water drums and by fixing leaks. * Ensure fitting of stopcocks. * Where appropriate, ensure that dishwashers are only used when it has a full load.	-----		0	0			
Consumption of a Resource - Use of Fuel	----					0	* Switch off all vehicles and plant when not in use. * Consider biofuel over fossil fuels. * Car share where practicable on business journeys. * Locate materials and stockpiles to avoid double handling.	-----		0	0			
Use of Labour	----					0	* Use supply chain registered labour as far as practicable. * Ensure as far as practicable that local labour is sourced. * Ensure that all labour are fully aware of requirements and obligations at site induction and monitor. * Ensure subcontractor training is kept continuously under review. * Encourage car share amongst subcontractors.	-----		0	0			

ABNORMAL CONDITIONS														
Floods	----					0	* Remove all liquids and materials from the flood zone, starting with those that are hazardous and/or destroyed by water. * If liquids or materials cannot be removed, secure down to prevent them floating away/leaving site.	-----		0	0			
Strong winds	----					0	* Secure down all materials, liquids and waste to prevent them blowing away/leaving site.	-----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Remove as much fuel, material and plant as it is safe to do so and direct fire water to foul drains where possible.	-----		0	0			

Project:

Project:

IMPACT - PURCHASING

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Purchasing - Materials in Construction	----	✓				0	* Consider overall waste management costs of materials. * Ensure that materials purchased have come from sustainably managed sources backed with certified eco-labels. Obtain evidence. * Use supplies provided by supply chain registered partners. * Consider product's Life Cycle and Whole Life Costing assessment. * Ensure materials purchased contain low embodied carbon (energy). Obtain evidence. * Consider the energy and water efficiency of the material. * Purchase materials with minimal packaging and ensure take-back schemes for packaging and unused amounts of materials are in place. * Where practicable source materials from exchange initiatives. * Ensure materials purchased are highly durable and require minimal maintenance. * Purchase materials that are suitable for modular construction.			0	0			

Purchasing - Electrical Equipment including office equipment such as Computers, Printers, Fax Machines and Copiers	----					0	* Look for the Energy Rating of electrical appliances. Where possible, buy only goods with and A+, A, or B rating. * Consider products with eco-labels (i.e. "Energy Star") and obtain evidence. * Consider how large the appliance will need to be. In refrigeration products, the capacity can have dramatic effects on the energy consumption. * Source products with multi-functional capabilities and built in energy saving functions such as "auto power down" when not in use. * Consider product's Life Cycle and Whole Life Costing assessment. * Consider overall waste management costs of materials.		3	0	0			
Purchasing - Batteries, General Stationary and Toner Cartridges	The Waste Batteries and Accumulators Regulations 2009 The Hazardous Waste (England and Wales) Regulations 2005					0	* Where possible, buy NiMH or Lithium rechargeable batteries. Most are available in AAA, AA, C, D and 9V as well as specialist sizes. * When purchasing batteries try to avoid those containing Mercury (Hg), Cadmium (Cd) or Lead (Pb). * Where possible, purchase from sustainable sources. * Purchase recycled products. * Try to reduce the amount of paper bought that has been bleached using traditional methods. Try buying paper that has been bleached through the ECF method. * Look out for the environmentally friendly logo in suppliers' catalogues. * Where possible, purchase refillable stationary. * Try purchasing remanufactured cartridges. Make sure they are from a reputable supplier. * Consider using manufacturers and distributors that will take back old cartridges which were purchased from them. * Consider overall waste management costs of materials.		3	0	0			

Purchasing - Refridgeration Equipment	Fluorinated Greenhouse Gases Regulations 2009 Environmental Protection (Controls on Ozone-Depleting Substances) (Amendment) Regulations 2008					0	* Make sure the appliance is CFC-free. * Are the refrigerants environmentally friendly? (Du Pont has a very good website for this information at: http://www.refrigerants.dupont.com/Suva/en US/index.html * Consider product's Life Cycle and Whole Life Costing assessment. * Where possible try to use the smallest capacity appliance that meets your requirements. * Make sure the appliance been insulated to a satisfactory standard. * Consider overall waste management costs of materials (in particular in relation to the recovery / disposal of refrigerants).	11		0	0			
Purchasing - Lighting	The Hazardous Waste (England and Wales) Regulations 2005					0	* Choose fluorescent lighting over incandescent lighting. * Consider product's Life Cycle and Whole Life Costing assessment. * Consider energy efficiency of lighting purchased. * Consider overall waste management costs of materials (in particular in relation to the safe removal of Mercury and other potentially harmful substances).	11		0	0			
Purchasing - Office Furniture	----					0	* Where possible, rather than buying new furniture, find out whether someone else has what you are looking for, or buy recycled furniture. * When buying timber furniture see if it originated from a sustainably managed forest. * Avoid buying wood furniture that is made from tropical hardwood, stick to domestic softwoods instead. * Ask if the finishes or glues used in manufacturing the product were solvent free, formaldehyde free and have low VOC emissions.			0	0			

ABNORMAL CONDITIONS														
Floods	----					0	* Protect all materials and liquids from flood damage i.e. in secure dry storage with bunding.	-----		0	0			
Strong winds	----					0	* Secure down all materials, liquids and waste to prevent damage and dispersal and ensure liquids are bunded.	-----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Keep all materials away from potential fire hazards in secure, cool and dry storage with bunding.	-----		0	0			

Project:

IMPACT - BIODIVERSITY

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Review surveys provided by Client or commission surveys	----	✓				0	1. Phase One Ecological and Arboricultural Survey 2. Review recommendations and executive summaries and if necessary commission further surveys to fully understand risk. 3. Discuss findings with your Environmental Manager. 4. Devise a schedule of actions to be undertaken on site in construction. 5. Include a summary of all surveys and actions in the Project Environmental Plan.	------		0	0			
Works near animals identified as being at risk during construction works, in Ecology reports or from direct observation.	The Wildlife and Countryside Act 1981 (as amended) The Conservation (Natural Habitats etc.) Regulations 1994 (as amended) The Conservation of Habitats and Species Regulations 2010 Protection of Badgers Act 1992 The Wild Mammals Protection Act 1996					0	* Follow guidance in Ecology Reports/ Ecology Management Plans, but in summary, and in order of priority: 1. Clear potential habitat to discourage coming onto site. 2. Isolate and work around 3. Delay works until species have moved 4. Employ licensed ecologist to remove It is an offence to: - Intentionally kill, injure or take the animals - Intentionally disturb animals - Damage, destroy or obstruct nests/ breeding places	03, 28		0	0			

Works near animals that have moved onto site during construction works	The Wildlife and Countryside Act 1981 (as amended) The Conservation (Natural Habitats etc.) Regulations 1994 (as amended) The Conservation of Habitats and Species Regulations 2010 Protection of Badgers Act 1992 The Wild Mammals Protection Act 1997					0	* Seek guidance from Env Manager or project Ecologist, but in summary, and in order of priority: 1. Isolate and work around 2. Delay works until species have moved 3. Employ licensed ecologist to remove It is an offence to: - Intentionally kill, injure or take the animals - Intentionally disturb animals - Damage, destroy or obstruct nests/ breeding places	03, 28		0	0			
Works near plants/ trees/ hedgerows identified as being at risk during construction works	The Hedgerows Regulations 1997 The Town and Country Planning (Trees) Regulations 1999 Planning (Listed Buildings and Conservation Areas) Act 1990					0	* Seek guidance from Environmental Manager or Project Ecologist. * Ensure that notification in writing for any tree works is goven to the Local Planning Authority at least 6 weeks in advance for any work on trees within conservation areas. * Ensure any trees subject to TPOs and those not being felled, lopped or pruned are clearly identified in the PEP and on site inline with construction site best practice.	40		0	0			
Works near plants/ trees/ hedgerows identified as a result of/ or during construction works	The Hedgerows Regulations 1997 The Town and Country Planning (Trees) Regulations 1999 Planning (Listed Buildings and Conservation Areas) Act 1991 Such works must comply with: BS5837 (1991) Trees in Relation to Construction.					0	Seek guidance from Environmental Manager or Project Ecologist: - isolate and work around - delay works until species have moved - employ licensed ecologist to remove	40		0	0			
Works in and around trees and hedgerows, within the Crown or Root Protection Zone	The Hedgerows Regulations 1997 Such works must comply with: BS5837 (1991) Trees in Relation to Construction.					0	* Develop a method statement in line with BS5837-Tree Protection and obtain approval from Environmental Manager, a licensed arboriculturalist and/ or Tree Protection Officer. * Work in accordance with the approved method statement.	40		0	0			

Invasive plant species identified by Ecology report or from on-site observation, for example; - Himalayan Balsam - Japanese Knotweed	The Wildlife and Countryside Act 1981 (as amended) Weeds Act 1959 Control of Ragwort Act 2003 Code of Practice for Using Plant Protection Products					0	* Discuss with Environmental Manager prior to works taking place. * Do not disturb. * Remove in accordance with ecologists recommendations. Seek specialist advice from a suitably qualified contractor, to prevent inadvertent spread of the weeds. * Where using pesticides follow the manufacturer's instructions. * As appropriate dispose of as hazardous waste under the cover of a consignment note.	24, 25		0	0			
Nuisance species on site - pigeons, foxes etc. ("Vermin" is not a legal term and does not permit inhumane action to any bird, mammal, reptile or amphibian. Some insect species are also protected due to rarity).	The Wild Mammals Protection Act 1996 Wildlife and Countryside Act 1981 (as amended)					0	* Humane methods of discouragement/ removal to be used. * Discourage presence by removal of potential habitat or use barriers to separate animals from habitat.	28		0	0			
Works where developments contain, or are adjacent to, SACs or SPAs	The Conservation of Habitats and Species Regulations 2010					0	* Consider the implications in development plans to ensure that no degredation or damage occurs to the designated site. * Ensure any protection measures, licences, etc are sought and are in place prior to development. * Ensure all staff and site operatives are aware of any responsibilities relating to protected sites and species. * Ensure all site staff receive relevant toolbox talks.	------		0	0			

Use of imported timber on project	Control of Trade in Endangered Species (Enforcement) Regulations 1997 (as amended)					0	* Ensure materials supplied to WDCW projects - essentially imported timber - are not in breach of the regulations. * Where possible specify native UK or European grown timbers. * Ensure that they are FSC certified (or another recognised accreditation scheme, e.g. PEFC). * Where tropical hardwoods are specified ensure that Chain of Custody documentation is supplied (FSC or similar certificates/permits) and as an absolute minimum confirmation that species supplied are not those listed in the Annexes to EC Regulation 338/97. * Comply with requirements of GN-EM-20	38		0	0			

ABNORMAL CONDITIONS														
Spillages	Ref: Environmental Emergency Planning Arrangements FM-EM-05 The Environmental Damage (Prevention and Remediation) Regulations 2009 The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009					0	* Comply with actions stated in GN-EM-34. 1. Stop work immediately and identify the source of the spillage. 2. Prevent further spillage if possible without endangering yourself. 3. Contain or limit the spill using absorbent materials from a spill kit or sand/ earth. 4. Protect sensitive areas such as rivers, ditches or surface water drains with bunds or drain covers. 5. The Environmental Emergency Planning Arrangements should be followed for major spillages or where the spillage is likely to enter a watercourse or surface water drainage system. 6. Bag up all material used to contain and clean up the spill and dispose of appropriately. Materials contaminated with hazardous substances such as oil must be disposed of as hazardous waste under the cover of a Consignment Note.	34, 20		0	0			
Floods	----					0	* Remove all liquids and materials from the flood zone, starting with those that are hazardous and/or destroyed by water. * If liquids or materials cannopt be removed, secure down to prevent them floating away/leaving site.	------		0	0			
Strong winds	----					0	* Secure down all materials, liquids and waste to prevent them blowing away/leaving site.	------		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Remove as much fuel, material and plant as it is safe to do so and direct fire water to foul drains where possible.	------		0	0			

Project:

IMPACT - ARCHAEOLOGY & HERITAGE

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Review surveys provided by Client or commission surveys	----	✓				0	* Archaeological Desk Top Study or Physical Survey. * Review recommendations and executive summaries and if necessary commission further surveys to fully understand risk. * Discuss findings with your Environmental Manager. * Devise a schedule of actions to be undertaken on site in construction. * Include a summary of all surveys and actions in the Project Environmental Plan.	2		0	0			
Work on a listed building or a building with a Building Preservation Notice	Planning (Listed Buildings and Conservation Areas) Act 1990					0	* Review the planning conditions and work in partnership with the local Planning Authority. * Develop method statements to reflect any requirements of the Planning Authority and work in accordance with them.	2		0	0			
Work that may disturb human burials. E.g. Topsoil strip; Drainage; Excavating/ cut & fill exercise; Ground remediation, e.g. lime stabilisation	Burial Act 1857 Disused Burial Grounds Act 1981					0	* Obtain a licence from the Secretary of State (Ministry of Justice) and work in accordance with any stipulated conditions. * Report any findings to the police and local coronor immediately.	2		0	0			
Work that may disturb ancient monuments and/ or archaeological areas. E.g. Topsoil strip; Drainage; Excavating/ cut & fill exercise; Ground remediation, e.g. lime stabilisation	Ancient Monuments and Archaeological Areas Act 1978					0	* Use mini excavator where archaeological/ historical features are thought to be present and work in a vigilant manner. * If an archaeological/ historical feature is discovered stop work, fence/ block off and inform the Environmental Manager. * Report any findings to English Heritage and Local Planning Authority.	2		0	0			

Unexpected discovery of treasure (coins, precious metals, etc)	Treasure Act 1996					0	* If treasure is discovered stop work, fence/ block off and inform the Environmental Manager. * Treasure should be left in place and a Coronor notified, particularly if the indication is that the object(s) found form part of a larger haul. * Finds are also likely to be of archaeological value so the County Archaeologist should also be notified. * Refer to and comply with GN-EM-02.	2		0	0			
ABNORMAL CONDITIONS															
Discovery of human remains	Burial Act 1857 Disused Burial Grounds Act 1981					0	* Stop work, leave the remains in place and inform site management. * Contact the local police immediately.	2		0	0			
Floods	----					0	* Protect features as much as possible.	----		0	0			
Strong winds	----					0	* Protect features as much as possible.	----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Protect features as much as possible. * Direct fire water to foul drains where possible.	----		0	0			

Project:

IMPACT - LAND

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Review surveys provided by Client or commission surveys	----	✓				0	* Review Site Soil & Geotechnical Survey for issues related to contamination. * Review recommendations and executive summaries and if necessary commission further surveys to fully understand risk. * Discuss all findings with your Environmental Manager. * Devise a schedule of actions to be undertaken on site in construction. * Include a summary of all surveys and actions in the Project Environmental Plan.	-----		0	0			
Storing and/or using environmentally hazardous liquids (e.g. fuel, oils, chemicals).	Control of Pollution (Oil Storage) (England) Regulations 2001 Water Resources Act 1991 For further information refer to the Env Agency's Pollution Prevention Guidelines 2 - Above Ground Oil Storage Tanks.					0	* Show storage area on site plans. * Store in accordance with GN-EM-18. * Locate an appropriate spill kit in an accessible location. * Display PR-EM-07 and PR-EM-08 at all storage locations.	18		0	0			
Storing diesel or oil in bowsers/tanks or drums over 200 litres	Control of Pollution (Oil Storage) (England) Regulations 2002 Water Resources Act 1991 For further information refer to the Env Agency's Pollution Prevention Guidelines 2 - Above Ground Oil Storage Tanks.					0	* Store in accordance with GN-EM-18. * Locate on an impermeable surface atleast 10m from any watercourses and surface water drains. * Locate to avoid high traffic areas and to prevent vehicle impact. * Show storage area on site plans. * Locate an appropriate spill kit in an accessible location. * Display GN-EM-17 and GN-EM-34 at all storage locations.	18, 17, 34		0	0			
Fuel Delivery	----					0	* Comply with GN-EM-17. * Check that the refuelling equipment and bowser are in good working order, and repair as required. DO NOT PROCEED IF UNABLE TO REPAIR. * Check the current content of the bowser and adjust the delivery so that it doesn't exceed the spare capacity. * Use a drip tray, empty nozzle into bowser on completion and replace all caps.	17		0	0			

Refuelling Plant	----					0	* Ensure drip tray is used. * Locate an appropriate spill kit in close proximity. * Drain all fuel from nozzle into the plant, replace the nozzle within the fuel bowser	17		0	0			
Concrete/mortar washout	Water Industry Act 1991 Water Resources Act 1991					0	* Identify and implement a designated, contained washout area atleast 10m from any watercourses or surface water drains. * Comply with actions and requirements stated in GN-EM-05. * If disposal of washout water is required, a) obtain temporary Trade Effluent Discharge Consent from sewerage undertaker to allow pumping of washout water down FOUL sewer, in accordance with consent conditions (with help from your Environmental Manager) b) have the washout water tankered away. Ensure collection of appropriate Waste Transfer Note for removal.	5		0	0			
Groundworks	The Contaminated Land (England) Regulations 2006					0	* Observe the uncovered for visual signs of contamination ground during boring, digging, excavating and similar activities. The release of noxious fumes, petrol, oils, solvents, chemical residues and smells may indicate contamination. * If ground is suspected as being contaminated stop work in that area while a	7		0	0			
Groundworks - Knowledge of contaminated land on site (from surveys / Pre Construction)	The Contaminated Land (England) Regulations 2006 Environmental Protection Act 1990 Environmental Damage (Prevention and Remediation) (England) (Wales) Regulations 2008					0	* Obtain all of the required information from the Client to ensure we have all the knowledge to manage the contaminated land on site. *It is the Client's responsibility to conduct a good quality site investigation to determine the potential for contamination on site. As the Contractor, we have the duty to ensure we are given all the background information and understand the history of the site and the actions we have to take to fulfil the requirements of the remedial plan.* * Ensure relevant permits are in place for any remedial works required.	7		0	0			

Groundworks - Discovery of unexpected contaminated land	The Contaminated Land (England) Regulations 2006 Environmental Protection Act 1990 Environmental Damage (Prevention and Remediation) (England) (Wales) Regulations 2009					0	1. Stop work immediately 2. Report the discovery to the Environmental Manager 3. Seal off the area to contain the spread of contaminants 4. Clear the site to ensure there is nothing that could cause fire or explosion 5. Contact a specialist soil testing contractor to take a sample for analysis **If contamination is confirmed:** 6. Contact the Environment Agency or Local Authority 7. Ensure that the suspected contamination is tested and characterised 8. Follow good practice guidance to remediate the land/ manage the area/ comply with the recommended actions.	7		0	0			
Storing contaminated soil on site	Environmental Protection Act 1990 as amended by s.57 of the Environment Act 1995 The Contaminated Land (England) Regulations 2006 Environmental Damage (Prevention and Remediation) (England) (Wales) Regulations 2009 Environmental Permitting (England & Wales) Regulations 2010					0	* Do not stockpile contaminated soil unless it can be avoided. If it is necessary, stockpile only on a hardstanding area to prevent contamination of underlying ground. * Cover stockpiled material to prevent wind-blown dust (potentially contaminated) and to prevent ingress of rainwater. * Control surface drainage from stockpiled area. Water draining from the stockpile may be contaminated and need controlled off-site disposal. * Assess the amount to determine whether a U1 Exemption or and Environmental Permit is required.	7		0	0			

ABNORMAL CONDITIONS														
Spillages	Ref: Environmental Emergency Planning Arrangements FM-EM-05 The Environmental Damage (Prevention and Remediation) Regulations 2009 The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009					0	* Comply with actions stated in GN-EM-34. 1. Stop work immediately and identify the source of the spillage. 2. Prevent further spillage if possible without endangering yourself. 3. Contain or limit the spill using absorbent materials from a spill kit or sand/ earth. 4. Protect sensitive areas such as rivers, ditches or surface water drains with bunds or drain covers. 5. The Environmental Emergency Planning Arrangements should be followed for major spillages or where the spillage is likely to enter a watercourse or surface water drainage system. 6. Bag up all material used to contain and clean up the spill and dispose of appropriately. Materials contaminated with hazardous substances such as oil must be disposed of as hazardous waste under the cover of a Consignment Note.	20, 34		0	0			
Floods	----					0	* Remove all liquids and materials from the flood zone, starting with those that are hazardous and/or destroyed by water. * If liquids or materials cannopt be removed, secure down to prevent them floating away/leaving site.	----		0	0			
Strong winds	----					0	* Secure down all materials, liquids and waste to prevent them blowing away/leaving site.	----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Remove as much fuel, material and plant as it is safe to do so and direct fire water to foul drains where possible.	----		0	0			

Project:

IMPACT - WATER

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Working in a watercourse (e.g. ditch, river, stream, etc).	Water Resources Act 1991 Land Drainage Act 1991	✓				0	* Discuss working method with Environment Agency. * Obtain appropriate consents as necessary (THIS MAY TAKE UP TO 4 MONTHS).	8		0	0			
Constructing an outfall into a watercourse (e.g. ditch, river, stream, etc).	Water Resources Act 1991					0	* Discuss working method with Environment Agency at an early stage of the project. * Ensure any drainage outfalls to surface water are approved by the Environment Agency.	----		0	0			
Temporarily discharging to controlled waters (e.g. ditch, stream, river, storm drain or groundwater).	Water Resources Act 1991					0	* Obtain temporary Trade Effluent Discharge Consent from the Environment Agency and comply with consent conditions (THIS MAY TAKE UP TO 4 MONTHS).	8, 46		0	0			
Temporarily discharging to sewer (e.g. foul drain).	Water Industry Act 1991					0	* Obtain temporary Trade Effluent Discharge Consent from the relevant Water Company and comply with consent conditions. * Ensure that no discharges are made to sewer other than domestic sewage (from sinks, showers and toilets) unless a Trade Effluent Consent has been obtained.	8, 46		0	0			
Constructing drainage	Water Industry Act 1991					0	* Keep a marked up Drainage Plan on site (red for foul, blue for surface water/storm). * Take care not to cross-connect foul and surface drains.	----		0	0			
Working near drainage	Water Industry Act 1991 Water Resources Act 1991					0	* Mark up drain covers as foul (red) or surface water/storm (blue). * Protect drains to prevent pollutants from entering drains.	8		0	0			
Storing and/or using environmentally hazardous liquids (e.g. fuel, oils, chemicals).	Control of Pollution (Oil Storage) (England) Regulations 2001 Water Resources Act 1991 Environmental Protection Act 1990 as amended by s.57 of the Environment Act 1995					0	* Show storage area on site plans. * Store in accordance with GN-EM-18. * Locate an appropriate spill kit in an accessible location. * Display GN-EM-17 and GN-EM-34 at all storage locations.	18		0	0			

Storing diesel or oil in bowsers/tanks or drums over 200 litres	Control of Pollution (Oil Storage) (England) Regulations 2002 Water Resources Act 1991 Environmental Protection Act 1990 as amended by s.57 of the Environment Act 1995 For further information refer to the Env Agency's Pollution Prevention Guidelines 2 - Above Ground Oil Storage Tanks.					0	* Store in accordance with GN-EM-18. * Locate on an impermeable surface atleast 10m from any watercourses and surface water drains. * Locate to avoid high traffic areas and to prevent vehicle impact. * Show storage area on site plans. * Locate an appropriate spill kit in an accessible location. * Display GN-EM-17 and GN-EM-34 at all storage locations.	18		0	0			
Fuel Delivery	----					0	* Comply with GN-EM-17. * Check that the refuelling equipment and bowser are in good working order, and repair as required. DO NOT PROCEED IF UNABLE TO REPAIR. * Check the current content of the bowser and adjust the delivery so that it doesn't exceed the spare capacity. * Use a drip tray, empty nozzle into bowser on completion and replace all caps.	17		0	0			
Refuelling Plant						0	* Ensure drip tray is used. * Locate an appropriate spill kit in close proximity. * Drain all fuel from nozzle into the plant, replace the nozzle within the fuel bowser	17		0	0			
Storing environmentally hazardous materials or waste (e.g. cement)	Environmental Protection Act 1990 as amended by s.57 of the Environment Act 1995 Water Resources Act 1991					0	* Keep contained. * Cover those that are made mobile by the addition of rainwater. * Do not store within 10m of a watercourse or drain.	5		0	0			
Concrete/mortar washout	Water Industry Act 1991 Water Resources Act 1991					0	* Identify and implement a designated, contained washout area atleast 10m from any watercourses or surface water drains. * Comply with actions and requirements stated in GN-EM-05. * If disposal of washout water is required, a) obtain temporary Trade Effluent Discharge Consent from sewerage undertaker to allow pumping of washout water down FOUL sewer, in accordance with consent conditions. b) have the washout water tankered away. Ensure collection of appropriate Waste Transfer Note for removal.	5		0	0			
Disposing of site run off	Water Industry Act 1991 Water Resources Act 1991					0	* Comply with actions and requirements of GN-EM-08 and GN-EM-46. * Treat silty site run off by passing through an APPROPRIATE silt removal system. * If disposal of run off water is required, a) obtain temporary Trade Effluent Discharge Consent from sewerage undertaker to allow pumping of run off water to FOUL sewer, in accordance with consent conditions.	8, 46		0	0			
Exposing ground and/or removing vegetation	----					0	* Avoid unnecessary stripping of topsoil. * Plan optimum timing for stripping - as late as possible. * Employ a road sweeper if necessary to clean surrounding roads.	----		0	0			
Stockpiling excavated material on site	Environmental Protection Act 1990					0	* Position stockpiles away from drains and control run off with ditches, settlement areas, etc. * For longer term storage of material, seed or cover stockpiles.	51		0	0			

Plant and/or wheel washing	----					0	* Wash in a designated area on hard standing ground at least 10m away from any watercourses and surface water drains. * If a hard landscaped area is not available, wash out into unsurfaced ground at least 10m from watercourses and surface water drains. * If possible, collect run off water, filter and re-use. * If disposal of run off wash water is required, a) obtain temporary Trade Effluent Discharge Consent from sewerage undertaker to allow disposal of wash water down FOUL sewer, in accordance with consent conditions.	8, 46		0	0			
Washing paint brushes, rollers, etc	Water Industry Act 1991					0	* Consider the use of a controlled cleaning system, such as Safety Kleen or Dulux solutions. * Do NOT allow washing into storm drains * Do NOT allow discharge of solvent based liquids down sinks or toilets. * For water based paints, wash in warm water and dispose of down a foul sewer. * For oil based paints and hazardous liquids, wash brushes in white spirit and dispose of white spirit as hazardous waste.	46		0	0			
Dewatering excavations	Water Resources Act 1991					0	* Speak to your Environmental Manager for advice before dewatering operations commence. * If water is to be disposed of solely to prevent interference with building works, water can be pumped to overground area. * If you intend to use the water from the dewatering operation (i.e. for dust suppression, pressure testing, etc) on site, you may need an abstraction licence.	46		0	0			
Dewatering service ducts						0	* Follow the Environment Agency's Pollution Prevention Guidance PPG 20 'Dewatering underground ducts and chambers'	----		0	0			

ABNORMAL CONDITIONS														
Spillages	Ref: Environmental Emergency Planning Arrangements FM-EM-05 The Environmental Damage (Prevention and Remediation) Regulations 2009 The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009 Water Resources Act 1991					0	* Comply with actions stated in GN-EM-34. 1. Stop work immediately and identify the source of the spillage. 2. Prevent further spillage if possible without endangering yourself. 3. Contain or limit the spill using absorbent materials from a spill kit or sand/ earth. 4. Protect sensitive areas such as rivers, ditches or surface water drains with bunds or drain covers. 5. The Environmental Emergency Planning Arrangements should be followed for major spillages or where the spillage is likely to enter a watercourse or surface water drainage system. 6. Bag up all material used to contain and clean up the spill and dispose of appropriately. Materials contaminated with hazardous substances such as oil must be disposed of as hazardous waste under the cover of a Consignment Note.	20, 34		0	0			
Floods	Water Resources Act 1991					0	* Remove all liquids and materials from the flood zone, starting with those that are hazardous and/or destroyed by water. * If liquids or materials cannopt be removed, secure down to prevent them floating away/leaving site.	----		0	0			
Strong winds	----					0	* Secure down all materials, liquids and waste to prevent them blowing away/leaving site.	----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Remove as much fuel, material and plant as it is safe to do so and direct fire water to foul drains where possible.	----		0	0			

Project:

IMPACT - EMISSIONS TO ATMOSPHERE

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Use of vehicles and plant on site	Non-Road Mobile Machinery (Emission of Gaseous and Particulate Pollutants) Regulations 1999 (as amended 2008) Sulphur Content of Liquid Fuels (England and Wales) Regulations 2007 Road Vehicles (Construction and Use) Regulations 1986 (as amended)	✓				0	* Ensure all vehicles and plant on site have a current certification and are regularly serviced in accordance to WDG Safety Policy. * Ensure vehicles and plant are not left with their engines running when not is use.	----		0	0			
Removal, upgrading or servicing of air conditioning / refridgeration units or fire protection systems (which contain ozone depleting sustances - ODS).	Environmental Protection (Controls on Ozone-Depleting Substances) (Amendment) Regulations 2008 Environmental Protection (Controls on Ozone-Depleting Substances) (Qualifications) (Amendment) Regulations 2008 Environmental Protection Act 1990 Ozone-Depleting Substances (Qualifications) Regulations 2009 EU Regulation 842/2006 on certain fluorinated greenhouse gases Fluorinated Greenhouse Gases Regulations 2009					0	* Complete task in accordance with GN-EM-16. * Ensure thatqualified contractors recover, reuse ot dispose of ODS. * Practicable actions must be taken to prevent the escape of ODS.	16		0	0			
Use of solvent based products	----					0	* Ensure all containers containing volatile solvents, e.g. solvent-based adhesives, paint thinners, etc are kept closed unless in active use.	----		0	0			
All activities	Clean Air (Emission of Dark Smoke) (Exemption) Regulations 1969 Environmental Protection Act 1990					0	* NO materials or wastes must be burnt on any site. * Comply with BRE's Control of Dust from Construction and Demolition Activities.	----		0	0			

ABNORMAL CONDITIONS													
Spillages	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Comply with actions stated in GN-EM-34. 1. Stop work immediately and identify the source of the spillage. 2. Prevent further spillage if possible without endangering yourself. 3. Contain or limit the spill using absorbent materials from a spill kit or sand/ earth. 4. Protect sensitive areas such as rivers, ditches or surface water drains with bunds or drain covers. 5. The Environmental Emergency Planning Arrangements should be followed for major spillages or where the spillage is likely to enter a watercourse or surface water drainage system. 6. Bag up all material used to contain and clean up the spill and dispose of appropriately. Materials contaminated with hazardous substances such as oil must be disposed of as hazardous waste under the	20, 34		0	0			
Floods	----					0	* Remove all liquids and materials from the flood zone, starting with those that are hazardous and/or destroyed by water. * If liquids or materials cannot be removed, secure down to prevent them floating away/leaving site.	----		0	0			
Strong winds	----					0	* Secure down all materials, liquids and waste to prevent them blowing away/leaving site.	----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Remove as much fuel, material and plant as it is safe to do so and direct fire water to foul drains where possible.	----		0	0			

Project:

IMPACT - NOISE AND VIBRATION

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Noise & Vibration, Traffic - Working close to neighbours	Environmental Protection Act 1990 Part III Control of Pollution Act 1974 Noise and Statutory Nuisance Act 1993	✓				0	* Distribute regular newsletters to neighbours advising them of the planned works and providing contact numbers, including the 24 hour emergency number. * Contact the LA Environmental Health/ Protection Officer prior to the start to commence proactive communications. * Recognise the neighbours' needs and plan works to accommodate these, e.g. school exam times. * Display the permitted working hours at the site entrance and stick to them.	4, 29, 30		0	0			
Noise & Vibration, Traffic - Working near schools and colleges	Environmental Protection Act 1991					0	* Restrict deliveries during peak times (e.g. during school pick up and drop off times). * Programme major lorry movements (e.g. muck shifts etc.) during school holidays. * Recognise the schools' needs and plan works to accommodate these, e.g. exam times.	4, 29, 30		0	0			
Noise & Vibration, Traffic - Working outside normal working hours, i.e. Mon: Friday 8.00 - 18.00 Saturday: 8.00 - 13.00	Control of Pollution Act 1974 Noise and Statutory Nuisance Act 1993					0	* Discuss the requirement for a Section 61 Notice with your Environmental Manager and obtain as appropriate.	4, 29, 30		0	0			

Noise & Vibration, Traffic - Vehicles travelling to site, including deliveries/ collections.	Road Vehicles (Construction and Use) Regulations 1986 (as amended)					0	* Plan timing of deliveries to avoid vehicles waiting. * Establish a designated holding area away from the site and call in vehicles when access is clear. * Have designated personnel on site to receive deliveries, direct vehicles on and off site, and act as a banksman. * Ensure delivery vehicle engines are turned off while waiting to be unloaded. * Ensure lorries carrying dust generating loads (e.g. spoil, aggregate) are sheeted. * Prepare and communicate a Traffic Management Plan detailing: - access routes - weight and width restrictions - parking controls - low head room access routes - accessibility for pedestrians - delivery time restrictions - public transport details - delivery routes to site from trunk roads	4, 30		0	0			
Noise & Vibration, Traffic - Carrying out particularly noisy/ disruptive activities, *e.g. driven/ vibration piling, lime stabilisation, Breaking out, Pneumatic drilling, Scabbling of concrete, Falling ball demolition, Disc cutting, Grit blasting, Hydro-demolition, Steel erection.*	Control of Pollution Act 1974 Noise and Statutory Nuisance Act 1993 Environmental Protection Act 1990 Part III					0	* Discuss the requirement for a Section 61 Notice with your Environmental Manager and obtain as appropriate. * Conduct condition surveys of existing properties and establish monitoring points. * Keep neighbours well informed via a newsletter. * Screen off activities where possible. * Monitor noise and vibration: - prior to the start record the ambient noise/ vibration levels - record the ambient noise/ vibration levels regularly during the works	4, 29, 30		0	0			
Noise - Using generators on site	Control of Pollution Act 1974 Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005 Environmental Protection Act 1990 Part III					0	* Switch to mains power asap. * Locate away from sensitive receptors where possible and screen off . * Use housed 'silenced' generators all the time/ during the night.	4, 30		0	0			

Noise & Vibration - Using plant on site	Control of Pollution Act 1974 Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005 Environmental Protection Act 1990 Part III Noise and Statutory Nuisance Act 1993					0	* Ensure all vehicles and plant on site have a current certification and are regularly serviced. * Ensure vehicles and plant are not left with their engines running when not in use. * Design site layout to minimise plant having to reverse (warning sirens). * Utilise rubber linings in beds of tipper lorries. * Prohibit works vehicles waiting or queuing on the public highway.	4, 29, 30		0	0			
Noise & Vibration - All construction activities	Control of Pollution Act 1974 Noise Emission in the Environment by Equipment for Use Outdoors (Amendment) Regulations 2005 Environmental Protection Act 1990 Part III Noise and Statutory Nuisance Act 1993 The Control of Noise (Codes of Practice for Con					0	* Eliminate the noise/ vibration source i.e. prefabricate off site, use alternative methods of construction, (e.g. CFA rather than driven or vibro piles; crushers rather than peckers etc). * Isolate the noise/ vibration source (e.g. position crushers away from sensitive receptors) * Control the noise/ vibration source (e.g. use acoustic covers, construct acoustic enclosures around large plant, erect screens, hoardings, bunds, or position storage containers to screen noise). * Restrict noisy activities to less sensitive time of the day * Address during site induction and deliver TBTs as required. (TBT No.4 - Noise & Vibration, TBT No.21 - Be a Good Neighbour)	4, 30		0	0			
Odour - Ground remediation with hydrocarbons or hydrogen sulphide	Environmental Protection Act 1990 Part III					0	* Bearing in mind proximity of neighbours consider utilising fine water sprays and fragrance neutralisers.	4, 30		0	0			
Odour - Working on live foul drainage systems.	Environmental Protection Act 1990 Part III					0	* Bearing in mind proximity of neighbours consider utilising fine water sprays and fragrance neutralisers.	4, 30		0	0			
Odour - Emptying septic tanks	Environmental Protection Act 1990 Part III					0	* Where very close to neighbours arrange emptying tanks during less sensitive times. (avoid meal times!)	4, 30		0	0			
Odour - Asphalt roofing & tanking	Environmental Protection Act 1990 Part III					0	* Where practicable locate boilers etc away from sensitive receptors.	4, 30		0	0			
Odour - Storing waste	Environmental Protection Act 1990 Part III					0	* Ensure timely disposal, especially during warm summer months.	4, 30		0	0			

Mud & Dust - Using Plant on site	Environmental Protection Act 1990 Part III					0	* Consider laying sub-base and base course as early as possible	4, 30		0	0			
Mud & Dust - Vehicles leaving site	Environmental Protection Act 1990 Part III					0	* Hard surface roads and vehicle movement areas. * Ensure vehicles adhere to the Traffic Management Plan and site speed limits. * Sweep site access roads regularly to minimise the build-up of dust. * Damp down roads and site areas with water, or other alternative products, when sites are dry. * Provide wheel washing facilities to avoid spread of mud on the road (ensure no discharge to drain or water course). * Employ a roadsweeper to clean surrounding roads.	4, 30		0	0			
Mud & Dust - Stockpiling	Environmental Protection Act 1990 Part III					0	* Locate stockpiles away from sensitive receptors such as neighbours, highways and public access. * Where dry material is stockpiled and subject to wind-whipping, ensure it is either sheeted, fenced, seeded or sprayed with water to minimise dust.	4, 30		0	0			
Mud & Dust - Demolition	Environmental Protection Act 1990 Part III					0	* Use water spraying during demolition activities to suppress dust. * Where demolition materials are to be crushed on site, obtain a copy of the mobile plant permit for the crusher and ensure that the permit conditions are adhered to. * Locate any crushing or screening plant on site away from any sensitive receptors.	4, 30		0	0			
Mud & Dust - Dusty activities, e.g. block cuttings	Environmental Protection Act 1990 Part III					0	* Ensure dust suppression systems are utilised at all times. * Locate away from dust sensitive receptors where possible. * Screen off.	4, 30		0	0			
Mud & Dust - Crushing, screening, Scabbling, plaining & cutting	Environmental Protection Act 1990 Part III					0	* Plant and equipment to be fitted with dust suppression equipment or water suppressant systems where required. * Locate mobile plant away from sensitive receptors e.g. residents, schools, hospitals etc.	4, 30		0	0			

Light- Temporary site lighting	Environmental Protection Act 1990 Part III					0	* Point lighting away from sensitive receptors such as neighbours and wildlife, preventing light from spilling onto adjacent properties. * Specify anti glare light fittings. * Turn off lights when not required.	4, 30		0	0			
ABNORMAL CONDITIONS															
Strong winds	----					0	* Be mindful of the distance that any noise will travel. * Increase frequency of dust suppression as detailed above.	----		0	0			
Floods	----					0	* Remove vehicles from site. * Identify access routes that are not flooded. * Arrange swift removal of any sewerage. * Following floods employ a roadsweeper to keep surrounding roads clean.	----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Move vehicles that could restrict emergency services vehicles. * Remove as much fuel, materials and plant as it is safe to do so.	----		0	0			

Project:

IMPACT - WASTE

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Use of Materials in Office operations	The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only)	✓				0	* Minimise waste generation through efficient use of materials, e.g. printing on both sides of paper. * Provide means of reuse, recycling and composting where practicable.	35		0	0			
Use of Materials in Construction	The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only)					0	* Store materials away from access routes in a safe, tidy and secure manner, with those susceptible to water damage under cover. * Follow 'Waste Management Options' in the project SWMP Data Sheet.	23, 35		0	0			
Demolition	Waste (England & Wales) Regulations 2011 The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only) Control of Asbestos Regulations 2006 Control of Substances Hazardous to Health Regulations 2002 (COSHH) (as amended) Control of Substances Hazardous to Health (Amendment) Regulations 2004.					0	* Conduct a demolition audit to identify waste types suitable for reuse, recycling and energy recovery as well as those unsuitable for anything else other than disposal. (Quantities or Subcontractor Estimates used in pricing work). * Where known of or suspected, conduct an asbestos survey to determine types and likely amounts. * Appoint specialist contractors to remove any asbestos identified and / or other sensitive, potentially harmful substances.	35, 43, 44		0	0			

Asbestos removal	The Control of Asbestos Regulations 2006 Hazardous Waste (England and Wales) Regulations 2005 The Hazardous Waste (Wales) Regulations 2005 Hazardous Waste (England and Wales) (Amendment) Regulations 2009 The Hazardous Waste (Wales) (Amendment) Regulations 2009 The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only) Control of Substances Hazardous to Health Regulations 2002 (COSHH) (as amended) Control of Substances Hazardous to Health (Amendment) Regulations 2004					0	* Ensure that asbestos regulations are strictly observed and that applicable monitoring is carried out. * Discuss with Health and Safety Manager, and Environmental Manager. * Employ a licensed asbestos removal firm. * Ensure that Hazardous Waste Consignment Note is obtained for waste transfer, stating registered Premises Code (from EA registration). * Ensure the asbestos is disposed of at a licensed asbestos disposal facility.	20, 35, 44		0	0			
Breakage of glass and damage to other materials	The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only)					0	* Ensure separate and secure storage of glass from other materials.	23		0	0			
Handling plasterboard waste	The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only) Environmental Permitting (England & Wales) Regulations 2010 Waste (England & Wales Regulations 2011 Landfill (England &Wales) Regulations 2002					0	* Remove all plasterboard in the strip out phase of the demolition process and store seperately in secure and dry conditions. * Store all plasterboard offcuts arising from construction activities seperately in secure and dry conditions. * Ensure that the Waste "Duty of Care" is adhered to in full in regard to storage, transfer and disposal.	35, 44		0	0			

Storage of hazardous wastes	Hazardous Waste (England and Wales) Regulations 2005 The Hazardous Waste (Wales) Regulations 2005 Hazardous Waste (England and Wales) (Amendment) Regulations 2009 The Hazardous Waste (Wales) (Amendment) Regulations 2009 The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only) Waste (England & Wales) Regulations 2011 Environmental Protection Act 1990 Part II Control of Substances Hazardous to Health (COSHH) Regulations 2002					0	* Register the site as a Producer of Hazardous Waste with the Env Agency. * Segregate hazardous waste from non hazardous waste. * Provide sound, secure storage containers on hard landscaped ground where possible. * Label all containers with correct waste types. * Separate hazardous waste types that may pose a H&S risk if mixed.	20, 44 35		0	0			
Storage of non hazardous wastes	Environmental Protection Act 1990 Part II The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only) Waste (England & Wales) Regulations 2011					0	* Provide sound, secure storage containers on hard landscaped ground where possible. * Label all containers with correct waste types. * Ensure that containers are not over filled and covered on removal from site.	35		0	0			
Waste compaction						0	* Ensure that containers are not over filled. * Ensure that materials to be compacted can undergo the process safely and without risk of damage to equipment.	35		0	0			

Inert material crushing (with a view to re-use on site)	Environmental Permitting (England and Wales) Regulations 2007 (SI 3538) The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only) *Ref:* *Local Authority Pollution Prevention and Control Scheme (LAPPC)* *WRAP Quality Protocol for the production of Inert Aggregates*					0	* Ensure that either a Permit Exemption or an Environmental Permit (determined by the amount to be crushed) is in place for the activity prior to its undertaking and that the conditions are adhered to. * Ensure that all hazardous materials and substances have been removed beforehand. * If the material to be crushed for reuse is asphalt, seek WAC testing of a sample to determine whether the material is suitable for reuse. * Ensure that the crusher is appropriately licensed with a Local Authority and that the conditions are adhered to. * If the amount to be crushed for reuse on site is 5000 tonnes or less, apply for a U1 Permit Exemption from the Environment Agency. Any other amount will require compliance with the respective WRAP Quality Protocol throughout aggregate production.	48, 54		0	0			
Inert material crushing (with a view to remove from site)	Environmental Permitting (England and Wales) Regulations 2007 (SI 3538) The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only) *Ref:* *Local Authority Pollution Prevention and Control Scheme (LAPPC)* *WRAP Quality Protocol for the production of Inert Aggregates*					0	* Explore opportunities for off site reuse of crushed material as far in advance of works as possible. * Ensure that either a Permit Exemption or an Environmental Permit (determined by the amount to be crushed) is in place for the activity prior to its undertaking and that the conditions are adhered to. * Ensure that the crusher is appropriately licensed with a Local Authority and that the conditions are adhered to. * Ensure that all hazardous materials and substances have been removed beforehand. * Ensure that the Waste "Duty of Care" is adhered to in full in regard to storage, transfer and disposal.	48, 54, 43, 44		0	0			

Reusing excavated material (on or off site)	Environmental Permitting (England and Wales) Regulations 2007 (SI 3538) The Environmental Permitting (England and Wales) Regulations 2010 The REACH Enforcement Regulations 2008, implementing; EC Regulation 1907/2006, on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)					0	* Determine whether the place of origin of the material to be excavated (the site) is on Greenfield or Brownfield Land. *Geotechnical Report for the project should confirm this.* * If Brownfield ascertain cost effectiveness of remediation. If worthwhile and amounts for reuse are 1000 tonnes or less, apply for the U1 Permit Exemption from the Environment Agency. Any other amount will require compliance with the CL:AIRE Code of Practice. Your Environmental Manager must be informed in any case. * Refer to and comply with GN-EM-51. * Discuss with Environmental Manager to ensure all required Permits and applications are obtained.	51, 52, 53, 55		0	0			
Disposal of wastes (This includes demolition and excavated material)	Environmental Protection (Duty of Care) Regulations 1991 (as amended) The Environmental Protection (Duty of Care) (Amendment) (England) Regulations 2003 Controlled Waste (Registration of Carriers ands Seizure of Vehicles) Regulations 1991 and the Control of Pollution (Amendment) Act 1989 Deregulation and Contracting Out Act 1994 Waste Management - the Duty of Care: a Code of Practice 1996 Clean Neighbourhoods and Environment Act 2005 List of Waste (England) Regulations 2005 and List of Wastes (Wales) Regulations 2005 Waste Management Licensing Regulations 1994 (as amended) Environmental Permitting (England and Wales) Regulations 2007 (SI 3538) Waste Electrical and Electronic Equipment (WEEE) Regulations 2006 (as amended) The Site Waste Management Plans (SWMP) Regulations 2008 SI 314 (England only) Environmental Protection Act 1990 Part II					0	* Ensure that opportunities for reuse on and off site have been considered beforehand. * Employ a licensed waste carrier and management centre that will optimise reuse, recycling and energy recovery opportunities. * Ensure that the Waste "Duty of Care" is adhered to in full in regard to storage, transfer and disposal. * Obtain a correctly completed Waste Transfer Note/ Consignment Note for transfers of non-haz./ haz. waste respectively. * Ensure that all Waste Transfer Notes and Hazardous Waste Consignment Notes are entered into site document FM-EM-09 of the Site Waste Management Plan. * Keep Waste Transfer Notes for a minimum of two years and Hazardous Waste Consignment Notes for a minimum of three years.	35, 42, 43, 44		0	0			

ABNORMAL CONDITIONS														
Spillages	Ref: Environmental Emergency Planning Arrangements FM-EM-05 The Environmental Damage (Prevention and Remediation) Regulations 2009 The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009					0	* Comply with actions stated in GN-EM-12. 1. Stop work immediately and identify the source of the spillage. 2. Prevent further spillage if possible without endangering yourself. 3. Contain or limit the spill using absorbent materials from a spill kit or sand/ earth. 4. Protect sensitive areas such as rivers, ditches or surface water drains with bunds or drain covers. 5. The Environmental Emergency Planning Arrangements should be followed for major spillages or where the spillage is likely to enter a watercourse or surface water drainage system. 6. Bag up all material used to contain and clean up the spill and dispose of appropriately. Materials contaminated with hazardous substances such as oil must be disposed of as hazardous waste under the cover of a Consignment Note.	20, 34		0	0			
Floods	----					0	* Remove as much waste as possible from site/flood zone, starting with those that are hazardous and/or destroyed by water.	----		0	0			
Strong winds	----					0	* Secure down all wastes to prevent them blowing away/leaving site.	----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Remove as much waste as it is safe to do so.	----		0	0			

Project:

IMPACT - BUSINESS TRANSPORT

Activity being carried out	Applicable Legislation	Control		Inherent Risk			Actions to be completed	Applicable Guidance Notes to reference	Residual Risk			Person Responsible	When applicable	Complete?
		Direct	Indirect	Likelihood	Consequence	Significance			Likelihood	Consequence	Significance			
Use of Resources	----	✓				0	* Where possible, choose preference to locally sourced resources (i.e. plant, materials and labour). * Engage subcontractors and suppliers in Willmott Dixon sustainable transport policies. * Where possible and design allows, use pre-fabrication methods in construction to minimise on the number of deliveries to site. * Devise plans that optimise resources used. * Maximise reuse of materials on site.	48		0	0			
Use of Transportation	Road Traffic Act 1991					0	* Devise a green travel plan. * Where possible, encourage the use of pedal bikes by providing suitable storage/bike stands. * Where practicable, choose public transportation over car use. * Maximise use of tele/video conferencing to avoid unnecessary journeys for meetings. * Ensure that journeys are planned so as to minimise distances travelled and number of vehicles used. * Do not drive at excessive speeds as doing so will increase fuel consumption and therefore CO2 emissions. * Ensure that tyres are inflated to the correct pressure and regularly checked so that fuel consumption is optimised.	----		0	0			
Use of Fuel						0	* Switch off all vehicles and plant when not in use. * Consider biofuel over fossil fuels. * Car share where practicable on business journeys. * Locate materials and stockpiles to avoid double handling.	----		0	0			

ABNORMAL CONDITIONS														
Floods	----					0	* Remove all liquids and materials from the flood zone, starting with those that are hazardous and/or destroyed by water. * If liquids or materials cannot be removed, secure down to prevent them floating away/leaving site.	----		0	0			
Strong winds	----					0	* Secure down all materials, liquids and waste to prevent them blowing away/leaving site.	----		0	0			
Fire	Ref: Environmental Emergency Planning Arrangements FM-EM-05					0	* Remove as much fuel, material and plant as it is safe to do so and direct fire water to foul drains where possible.	----		0	0			

	POTENTIAL IMPACT										
ENVIRONMENTAL RISK (Residual Risk, following mitigating actions)	**Design**	**Use of Resouces**	**Purchasing**	**Biodiversity**	**Archaeology & Heritage**	**Land**	**Water**	**Air**	**Nuisance**	**Waste**	**Business Transport**
High											
Medium											
Low											

Significance	**Action to be taken**
High (16-25)	Work can only continue if control measures reduce the risk rating to an acceptable level
Med (5-15)	Introduce control measures to reduce risk as low as reasonably practicable
Low (1-4)	Risk broadly acceptable, but situation needs to be monitored for changes and action to reduce risk