

GENERAL INFORMATION

PETUS description of tool in use						
Name of the case		Gowerton Outfall				
Name of the tool		<p>Main tools:</p> <ul style="list-style-type: none"> • AMP 3 Process Map. Controlled Document. • Environmental section of company integrated management Manual – Environmental Impact/Aspect Register and Risk Assessment; <p>Other tools implemented to support the project development:</p> <ul style="list-style-type: none"> • Ecological Toolbox talks and botanical surveys; • Two year monitoring strategy; • Salt Marsh Restoration Method – devised by the National Soil Studies Institute at Cranfield; • Health and Safety Procedure Method Statements/Safety Critical Operations. 				
Country		Loughor, Swansea, South Wales				
City / region		Population of wards of lower Loughor and Upper Loughor = 4,991 (Source: 2001 Census, ONS)				
Tool user's profile		<p>a. The repair of the outfall was managed and undertaken by Morrison Construction who are one of the partners of the Welsh Water Capital Alliance Partnership.</p> <p>b. The Welsh Water Capital Alliance Partnership is a strategic team formed between Dŵr Cymru Welsh Water, a UK water utility company and strategic design/construction partners, cost managers, a partnering facilitator and a supply chain advisor. The partnership will deliver around 60% of Welsh Water's capital investment programme during 2000-05.</p> <p>c. Trudi Bowen, Morrison Construction. http://www.morrisonplc.com/</p>				
Reviewer, date		AL/JP, Visit date: December 18 th 2003.				
Short description of the case						
<p>The Gowerton Outfall project involved emergency replacement of a section of collapsed sewage effluent outfall pipe on a tidal saltmarsh located near Loughor in Swansea, South Wales. This is a Natura 2000 site comprising Site of Special Scientific Interest, cSAC (candidate Special Area of Conservation) SPA (Special Area of Protection) and Ramsar site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971 (Ramsar Convention) 1972). It is therefore a highly protected area and required special attention. Consideration of the effects of the works on the site which involved excavation of two 430m length 1350mm diameter pipes at a depth of 4.5m was necessary. Particular concern related to the reinstatement of the soil profile, ground levels and vegetation was essential.</p> <p>A range of tools were used to assess the impacts and ensure sustainability of the project including a company wide project management process to ensure a consistent approach to project management and environmental risk assessment tool. This company wide management process assisted the decision making process through the duration of the project.</p> <p>This case study is linked to the key issue management and conception of urban water infrastructure.</p>						
Sector	Waste	Energy	Water	Transport	Green/blue	Building & Land Use
			X			
Scale of project	Component	Building	Neighbourhood	City	Region	
		X infrastructure				
Status of project	Starting up	Ongoing	Finished	Start date	End date (exp.)	
			X	June 2003	October 2003	
Key words						
Water, sewage, pipe replacement, ecological monitoring, Environmental Impact Assessment, partnership, restoration.						

<p>Project</p> <p>a. Object (building, city park, wind farm, etc.)</p> <p>b. Type of activity (regeneration, renovation, new development, etc.)</p> <p>c. Type of product (plan, scheme, design project)</p>	<p>a. Sewage outfall pipe.</p> <p>b. replacement of a section of pipe.</p> <p>c. scheme.</p>
<p>Tool</p> <p>a. Character (according to WP3final0704.doc)</p> <p>b. Benchmarks (qualitative or quantitative)</p> <p>c. Availability (paid/ free)</p>	<p><i>AMP 3 Process map;</i></p> <p>a. This is a process map in the style of a flow chart demonstrating the overarching decision making process for the South West team of the Welsh Water Capital Alliance.</p> <p>b. No benchmarks have yet been included in the map – but this is being considered.</p> <p>c. This is an internal tool, that has raised interest from outside parties. Copies have been distributed for information for others to develop/adapt their own version.</p> <p><i>Environmental Manual – Environmental Impact/Aspect Register and Risk Assessment;</i></p> <p>a. This is an assessment method with guidelines for assessing the potential environmental impacts of a project. This is a company wide tool and is completed prior to commencing works on site to ensure environmental concerns are noted and mitigated . This register is reviewed regularly to ensure relevance or if site conditions or design change.</p> <p>b. A comprehensive list of mitigation actions are included in the manual that could be considered a form of qualitative benchmark, for example one of the measures to mitigate the impact of direct and indirect contribution towards global warming and acid rain through release of exhaust gases traffic is to implement a management scheme which restricts routing of vehicles both on and off site and also to avoid the use of vehicles and plant where possible. The mitigation measures are associated with guides of additional information presented in procedures and guidelines.</p> <p>c. This is an internal tool used by the parent company of Morrison Construction Services Ltd.. Further information on Environmental Impact Assessments can be found within Directive 85/337/EEC.</p>
<p>Decision-making process</p> <p>a. Stage of the tool implementation (preliminary, midterm, etc.)</p> <p>b. Level (political, technical, etc.)</p> <p>c. Public participation</p>	<p>a. The AMP3 Process Map is a continuous process that provides guidance throughout a projects life from outline approval to contract review. The Environmental Manual is part of the AMP3 Process listed within the ‘Detail Design/Construction Delivery’ stage of a project. The AMP3 process is a guide to decision making, the Environmental Manual is a checklist for assessment.</p> <p>b. The decision to use the AMP3 Process Map and Environmental Manual is made at a high decision making level. Both procedures are part of company policy and it is therefore essential that the tools are used. The manual is mandatory, the process map is a guide document.</p> <p>c. Public participation was not a main consideration in this project, although the AMP3 Process Map suggests that public relations should be considered during the costing stage. Public Relations is currently being integrated into the process map on the current revision of the model.</p>

DETAILED INFORMATION

A. Detailed description of project and tool	
<p>1. Description of context (existing strategies, laws, policy, action plans, etc.): EU,</p>	<ul style="list-style-type: none"> • Section 121 of the Government of Wales Act made it a legal duty for the National Assembly for Wales to pursue sustainable development in all it does. • Planning Policy Wales (March 2002) states that “The Assembly will

<p>national, regional, municipal</p>	<p>ensure that international responsibilities and obligations for conservation are fully met, and that, consistent with the objectives of the designation [e.g. Sites of Scientific Interest (SSSI), sites designated under the Ramsar Convention, and those designated by EC Directives – Special Protection Areas (SPAs) or Special Areas of Conservation (SACs)], statutorily designated sites are protected from damage and deterioration, with their important features conserved by appropriate management”.</p> <ul style="list-style-type: none"> • The Welsh Assembly Governments Technical Advice Note 5 considers Nature Conservation and Planning. TAN 5 deals with, among other issues, Development Control for Special Protection Areas (SPAs) and Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSIs), Statutory Framework for Nature Conservation, Sites Statutorily Designated for Nature Conservation and Designated Sites. • Water related companies are affected by a list of legislations (regulations specific to Wales): <ul style="list-style-type: none"> ○ The Water Act 2003 works towards improving water conservation, protecting public health and the environment; ○ The Water Industry Act 1991 covers the appointment and regulation of undertakers, protection of customers, general duties, supply duties and the domestic connection of water, as well as for sewerage-services, provision of service and general issues concerned with sewerage; ○ The Water Industry Act 1999 set new water company charges; ○ The Water Resources Act 1991 outlined the legislation for the control of the pollution of water resources and the land and works powers; ○ The Anti-Pollution Works Regulations 1999, SI 1006 deals with compensation or notices to be served on works that are polluting; ○ Water Resources (Environmental Impact Assessment) (England and Wales) Regulations 2003, SI 164 includes details on what projects need to have an Environmental Impact Assessment completed. ○ The Water Supply (Water Quality) Regulations 2000, SI 3184 covers Regulatory Impact Assessment, the monitoring of water supplies, water treatment and legislation for enforcement; ○ The Water Supply (Water Quality) Regulations 2001, SI 3911 looks at water supply, water treatment and enforcement. • The third Asset Management Programme (AMP 3) is part of an investment programme known as the National Environment Programme (NEP) and lasts from 2000 to 2005. AMP3 is the third phase in the programme since UK water privatisation and has been agreed by the Government following discussions with the Environment Agency, water companies and OFWAT (the UK water regulator). • Dwr Cymru Welsh Water is the regulated company that provides water supply and sewerage services to over three million people living and working in Wales. The company has an Environment Management Group and a Quality and Environment Committee at board level. This committee reviews the performance of the Company (and its contractors) against key performance measures with particular regard to public health, health and safety and environmental impact. This ensures the environmental practices of the company and those contractors working on behalf of Dwr Cymru Welsh Water.
<p>2. Description of project a. Background (What caused the initiation of the project?; What was the problem? Who initiated the project?); b. Objectives/aims (sustainability)</p>	<p>a. The Gowerton Outfall project involved the emergency replacement of a section of collapsed sewage effluent outfall pipe on a tidal saltmarsh located near Loughor in Swansea, South Wales. This is a Natura 2000 site comprising SSSI, cSAC, SPA and Ramsar. It is therefore highly protected and required special attention.</p>

- statement – what issues of sustainability were attacked);
- c. Time interval and stages of project realization;
 - d. Financing – amount, sources, institutions involved, partnerships, levels.
 - e. Other sectors involved in the particular project/problem (conflicts and/or links)



Figure 1 – Location of the Gowerton Outfall and its proximity to the River Loughor

The repair of the outfall was undertaken by Morrison Construction as part of the Welsh Water Capital Alliance Partnership. The Welsh Water Capital Alliance is a strategic partnership team formed between Dŵr Cymru Welsh Water, a UK water utility company and strategic design/construction partners, cost managers, a partnering facilitator and a supply chain advisor. The partnership will deliver around 60% of Welsh Water's capital investment programme during 2000-05.



Figure 2 – Installation of replacement outfall at Gowerton.

A multi-agency team approach was implemented to work on and restore the ecology the site. The team comprised staff from Morrison Construction (ecologist and an engineer), the National Soil Resources Institute at Cranfield University, Landmark Ecological Site Works, The Countryside Council for Wales and David Lewis Civil Engineering.

b. The main focus of this project was emergency works to the collapsed outfall pipe. However sustainable issues, guided by the tools used, were taken into consideration as a matter of procedure to minimise the impact of the excavation works these were guided by the tools. Attention to the effects of works on the statutorily protected site was led by the EC Habitats and Species Directive (as implemented in the UK by the Conservation (Natural Habitats & regulations 1994). Morrison Constructions ecologist obtained formal Assent for the works under the terms of the Regulations from the Countryside Council for Wales, the Government's statutory nature conservation advisors in Wales.

	<p>As indicated earlier, it is a Natura 2000 site with part of the Burry Inlet and Loughor Estuary SSSI (Site of Special Scientific Interest) and Carmarthen Bay and Estuaries cSAC (candidate Special Area of Conservation). It is also a SPA (Special Area of Protection) and Ramsar site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971 (Ramsar Convention) 1972).</p> <p>Glamorgan-Gwent Archaeological Trust Ltd considered the site to be an archaeologically sensitive area requiring a watching brief.</p> <p>c. Remedial works took place between June and October 2003.</p> <p>d. Funding came from Dŵr Cymru Welsh Water, the utility company responsible for public water in the area.</p>
<p>3. Description of tool</p> <p>a. Character (according to WP3final0704.doc) - calculation tools, process tools, assessment methods, generic tools, simulation tools, guidelines, framework tools, schemes, indicators and monitoring, checklists, case-specific tools;</p> <p>b. Availability of the tool (web-based / paper, paid / free, etc.)</p> <p>c. Based on existing tool or newly elaborated;</p> <p>d. Adaptation of the tool to the local context (are there local experts involved in tool's development?)</p> <p>e. Other tools implemented to support the project development</p>	<p><i>AMP 3 Process map</i></p> <p>a. This is a process map in the style of a flow chart. This provides a process guide for all projects involved within the South West Team of the Capital Alliance programme which is led by Morrison Construction. The AMP3 Process is part of the existing Capital Investment Programme.</p> <p>The Process is a comprehensive step by step guide for investigating requirements at each stage of a project. The framework includes:</p> <ul style="list-style-type: none"> • Process Inputs - such as manhole survey, environmental appraisal and land referencing, • Delivery Process – team activity includes formal and informal reviews of progress, • Process Outputs – relating to Budget release and Risk meetings, • Morrison Activity – specifies role for various staff within the organisation, • Morrison Process Responsibility - who is ultimately responsible for each phase, • Morrison Quality Assurance records – this lists the outputs that have to be released from the process such as minutes from a particular meeting that has to have taken place, Design validation report etc.. <p>The AMP3 Process Map is a clear framework that ensures consistency in the use of selected tools to improve sustainability of all Morrison Construction projects. The AMP 3 Process Map reflects an overall approach to working in an integrated environment by setting out different phases within a development and the outputs, activities and staff who should be involved at the different stages. This is the key tool in ensuring that issues relating to sustainability are considered at the earliest opportunity and integrated throughout the process.</p> <p>The process is used by the South West Team of the Capital Alliance programme which is led by Morrison Construction. All members of the team have to use the process. The process has won a number of awards including an internal award for Business Excellence. These internal company business awards are for projects or initiatives across three categories - Safety, Quality and Sustainability - which represent a significant contribution towards achievement of the group's values.</p> <p>b. The tool originated from a basic commercial process when it was decided that an auditable process map/tool was required due to the method of working on the AMP3 framework contract. Is it based on other processes.</p> <p>c. The tool has been designed to be adapted to local circumstances and individual projects. Parts of the process can be excluded if they are not appropriate and other sections can be revisited if necessary, for example, revisions to design may require replication of an earlier step in the process to identify the impacts of the change.</p> <p><i>Environmental Manual – Environmental Impact/ Aspect Register and Risk</i></p>

Assessment;

a. This is an assessment (Checklist) method with guidelines for assessing the potential environmental impacts of a project. This tool requires a 'specific risk rating' - low, medium and high - to be given to many potential impacts through a tick box format. Mitigation measures are provided in order for potential impacts to be rectified. For example to mitigate the impact of contamination of watercourses with fuels, oils, chemicals and silt etc a number of measures are specified including ensure plant entering the watercourse is well maintained and scrupulously clean and pollution prevention equipment such as oil booms and silt blankets must be available throughout the duration of the works, among others. Additional information is available in the form of procedures, forms and guidance.

Fifteen aspects are included within the tool, for example, Release of solid, liquid and gaseous wastes; waste generation and disposal; nuisance; land use; water usage which are each divided into many potential impacts that should be considered.

b. This tool based in Microsoft Word.

c. This is a generic tool that was designed by AWG Construction Services Ltd, the parent company of Morrison Construction who are involved in all types of construction projects from highways to housing.

d. Not all impacts outlined in the tool will necessarily apply to every project, however those issues that are of relevance to the project can be modified if possible.

Other tools implemented to support the project development:

Ecological Toolbox talks and botanical surveys

Ecological Toolbox talks are a form of educational process, while the related *botanical surveys* involve monitoring. Ecological Toolbox talks are used for all sites which have (or may have) a wildlife or habitat interest, these involve information being given to the relevant personnel on the types of habitats/species present on site and any species/site legal protection also conditions of any licenses, consents, assents etc.. The purpose of the talks is to ensure that personnel are complying with any conditions attached to licenses etc..

All AWG/Morrison Construction SW Region toolbox talks are based on 'Working with Wildlife, compliance and beyond in construction'. This is a training and information pack on 'knowing your site and its wildlife'. It is produced by CIRIA (the Construction Industry Research and Information Association) and endorsed by the Department of Trade and Industry. The 'Working with Wildlife, compliance and beyond in construction' (paper based) pack is a resource and training pack for the construction industry available from CIRIA at a cost (reduced for members). The tool is a form of educational talk, and therefore dependent on the site as to the contents, but is more of a learning process than a tool that requires input.

The information contained within the talk will vary according to the site and situation.

Two year monitoring strategy

This monitoring tool, is used to assess the *Salt Marsh Restoration Method* which was devised by the National Soil Studies Institute at Cranfield University, Mike Oxford of Consultancy Landmark Ecological Siteworks and Judy Shorrocks, ecologist at Morrison Construction, The monitoring strategy will include further Phase 2 botanical surveys in 2004 and 2005. The tools used are designed in such a way to allow for specific project requirements to be taken into consideration, on the understanding that no two projects are the same.

Health and Safety Procedure Method Statements/Safety Critical Operations;

This tool provides guidelines to divisions, sites and facilities as part of the AWG/Morrison Constructions management. The tool is an internal paper

	based guidance and is based on standard safety information plus AWG/Morrison Construction safety regulations. The procedure applies to all operating units involved in construction activities throughout AWG Construction Services, although the site method statements change to reflect key issues on individual projects.
B. Tool implementation	
1. Argumentation for choosing the tool a. What were the reasons for the implementation of the tool? (voluntary or requested by what local, national, etc regulation) b. Who took the initiative for choosing /elaboration the tool? c. What were the criteria for choosing the tool? d. Was there knowledge of other tools and were they considered?	All of the tools were implemented on the project at Gowerton because: <ul style="list-style-type: none"> • Morrison Construction believe that the tools incorporate the current 'best practice' industry techniques relevant to the work the organisation does. • Every Morrison site uses the tools included. • The tools used are generally legislation driven, the result of industry best practice guidelines or devised by the company ecologist. • The tools/processes used are constantly evolving to fulfil the necessary requirements. This process highlights the requirements to those that might not be aware of such requirements. Continual improvement is therefore achieved in a controlled manner through Morrison Constructions Quality Improvements System, which ensures the sharing of information as well as the improvement of procedures. <p>A key driver for the design and use of the Process Map is to achieve the International Standards of ISO 9000 (Quality), 14000 (environment) and 18 (safety).</p>
2. Barriers for the tool implementation What were the main problems in the tool implementation? (Regulation, information available, public awareness, lack of clear SD definitions and benchmarks, communication etc.)	As the tools have been implemented on other projects by members of the project team there were limited problems. <p>It was stated that only benchmarks that are really needed want to be used in the process.</p>
C. Influence of the tool on the decision-making process	
1. Description of the decision-making process/ procedures a. Stages b. Levels (political, technical, etc.) c. Sources of information used during the dmp; d. Who are the decision-makers? e. Who made the final decision for the project implementation? Was it political or technical decision?	The AMP3 Process chart separates the project process into four decision making parts. <p>The first two parts: the modelling/feasibility and scheme definition are the responsibility of the design manager. Target cost and detail design/construction delivery sections are the responsibility of the catchment manager.</p> <p>Each of these parts of the decision making process are broken down into sections and sub sections that are monitored by different members of the project team including cost consultant, estimator, environmental ecologist, specialist contractor, land agent, designer, sewage operator, client, planning supervisor, contract administrator, environment agency, Third party designer. It is impossible to specify the project team for each individual project as this will vary depending on the scale and nature of the project.</p> <p>The crucial part of the process is the first part as it is easier to design out sustainability problems rather than mitigation at the construction stage.</p> <p>The decision making process evolved from experience and best practice. It was decided that the best way to avoid costly design mistakes was to include all interested parties/stakeholders to become involved at the earliest stages. This also ensures that stakeholders & customer / end user requirements are firmly established at the outset.</p>

	<p>Generally the process is a guide tool but it is picked up at internal audits where evidence may be asked to demonstrate that certain processes have been carried out and documented.</p> <p>Overall decision making is made at the higher technical level, either by the design manager or the catchment manager. Each level of responsibility relating to the process are indicated in the flow chart.</p> <p>Sustainability issues are discussed right from the very beginning of a process with all stakeholders including the company ecologist involved. Feasibility and modelling issues are discussed to ensure not only sustainability but 'buildability' and cost effectiveness. This can only be achieved by involving all stakeholders at the very beginning of the process as shown on the AMP3 process chart.</p> <p>Morrison Constructions ecologist obtained formal Assent for the works under the terms of the Regulations from the Countryside Council for Wales, the Government's statutory nature conservation advisors in Wales.</p> <p>All sources of information are contained and referred to within the AMP3 process, including a reference to fulfil the Environmental Manual.</p> <p>A key driver for the design and use of the Process Map is to achieve the International Standards of ISO 9000 (Quality), 14000 (environment) and 18 (safety).</p>
<p>2. Tool in decision-making process</p> <p>a. At what stage was the tool implemented? By whom? (experts, politicians, etc.)</p> <p>b. How did the tool output influence the process (added or skipped levels/stages in the existing decision-making process, etc.)?</p> <p>c. Quantitative goals or benchmarks defined? (If YES, which – and what were they compared to?)</p> <p>d. Was the tool used to support argumentations?</p>	<p>a. The AMP3 Process Map is a continuous process that follows and provides guidance throughout the projects life. The Environmental Manual is indicated within the AMP3 Process as to when it should be used, and is listed within the 'Detail Design/Construction Delivery'.</p> <p>b. The use of the AMP3 Process Map, provides a clear decision making process for all to follow.</p> <p>c. The process is a framework that tools are contained within. It was suggested that only benchmarks that are really needed are used. The Key performance Indicators specified by Constructing Excellence are currently being considered to provide benchmarks, particularly those relating to the environment and waste.</p>
<p>3. Transparency of decision-making process</p> <p>a. How was the information of the dmp disseminated? - directly (decision makers – public) or indirectly (decision makers - NGO, PR company, etc. - public); sources of dissemination used (mass media, internet,</p>	<p>a/b/c. Community consultations and letter drops are used for all projects which might have an impact on residents, communities and/or the public. A public consultation did not occur for this project although the effect of dust and noise on a local residential area were considered as part of the Environmental Manual document.</p> <p>Morrison Construction believe that transparency of the decision making process is essential for good project management.</p>

<p>brochure, etc.)</p> <p>b. How was the public involved?</p> <p>c. Was there a public discussion over the project and at what stage of the project development?</p>	
D. Expert assessment/analysis/comment of the tool effectiveness	
<p>1. Assessment by tool users</p> <p>a. Were there measurable improvements as a result of the tool implementation? If YES, what? If no: why not?</p> <p>b. Were there any spin-off's or unintended consequences?</p> <p>c. General view on the tool? Lessons learned?</p> <p>d. Potentials for further use of the tool?</p> <p>e. Will the actors recommend it or use it in other cases - why / why not?</p>	<p>a. The implementation of an integrated approach and the application of construction best practice techniques have been the key to securing a sustainable solution on the Gowerton Outfall project. This approach is applied on all AMP 3 projects throughout South West Wales and is the foundation for the AMP 3 Process Map.</p> <p>b. Each step of the process may now have a sub process to explain each step in detail. For example, the construction process is shown in one stage on the process map, a "construction Process Map" is currently being designed based on the same principles of the main AMP3 Process Map, i.e. a guide to carrying out the construction process.</p> <p>c. A similar restoration technique could be employed for other saltmarsh sites if the Loughor restoration proves to have been successful. This will not be known until after the monitoring period (at least 2 years).</p> <p>All staff of Morrison Construction have to attend an induction course when they join the company – responsibilities relating the Process Map and the tools within it are highlighted at this meeting.</p> <p>d /e. The Process map has been accepted by Morrison Construction and the South West team within Capital Alliance as a company procedure to be followed by all projects. There are plans to incorporate a feedback loop throughout the procedure to ensure that modifications are made wherever possible to allow for projects to sustainably improve over time. Information from previous projects is not used as much as it could be.</p>
<p>2. Reviewer's assessment of the tool (usefulness, sustainability relevance, who are the actors excluded? etc.)</p> <p>Suggestions and needs for further development of the tool</p>	<p>The production of the Process Map within Morrison Construction has indicated a real commitment to information sharing and the incorporation of sustainability issues into the process of each infrastructure job. This enables all staff to have a clear view of the decision making process involved within a project. This is supported by training to introduce the concept to new members of staff at all levels.</p> <p>More emphasis should be placed on recording the actual pathway taken throughout the process i.e. where modifications are made and this should be fed back to management groups to ensure that good practice is maintained and transferred between projects.</p> <p>The Environmental Impact/Aspect Register and Risk Assessment provides a comprehensive list of environmental issues that should be considered when carrying out works. This tool takes a step further from other tools that are similar in that it provides mitigation measures. The negative side is that this assessment is only carried out on one occasion at the detail design/ construction planning stage of a development.</p>
E. Additional information on the case study available	
<p>Websites</p>	<p>http://www.morrisonplc.com/</p>
<p>References concerning the case but also the key words or problem (papers, articles, reports, laws, etc.)</p>	<ul style="list-style-type: none"> • Morrison Construction (2004) AMP3 PROCESS – MORRISON CONSTRUCTION (SUMMARY OF RESPONSIBILITIES). • AWG Construction Services Ltd (2000) Environmental Manual – Environmental Impact/ Aspect Register and Risk Assessment. • Morrison Construction Staff (2004) Summary report provided by Judi

	<p>Shorrocks.</p> <ul style="list-style-type: none"> • CIRIA (the Construction Industry Research and Information Association) (2004) Working with wildlife. A resource and training pack for the construction industry - training pack (C587), CIRIA.
<p>Other sources (Interviews, conferences, discussions, etc.)</p>	<p>Meeting held on Thursday 18th December 2003 between Joanne Patterson and Anna Leron of the Welsh School of Architecture and Morrison Construction staff at the Baglan Office, South Wales.</p> <p>Meeting held on Thursday 14th October 2004 between Joanne Patterson and Anna Leron of the Welsh School of Architecture and Trudi Bowen and Ian James of Morrison Construction at the WSA.</p>