



Severn Road Resource Recovery Centre

Appendix 14.1 - Sustainability Assessment

Viridor

September 2009

SLR Ref 402.0036.00374



Introduction to Sustainability Appraisal

This document appraises the environmental, social and economic impacts of the proposed Severn Road Resource Recovery Centre (SRRRC) at Avonmouth. The term 'sustainable' is usually understood as 'meeting our current needs without compromising the ability of future generations to meet their needs'.

By identifying what the likely effects will be, suitable mitigation measures can be implemented to minimise the negative impacts and maximise the positive ones.

Background

Under the Planning and Compulsory Purchase Act 2004, all new development plans are subject to a sustainability appraisal (SA). The purpose of the SA is to promote sustainable development through the integration of social, environmental and economic considerations into the plan preparation.

Whilst there is no statutory requirement to undertake a sustainability appraisal for specific projects, Local Planning Authorities (LPAs) can ask developers to demonstrate that they have taken sustainable development concepts into consideration, when developing major projects.

In February 2006, Bristol City Council adopted Supplementary Planning Document 5 'Sustainable Building Design and Construction'. As the SPD is an adopted document, it will be material to the consideration of the application. Therefore, this planning application has focused on the 5 sustainable design and construction aims identified by the SPD which are;

- i) reduce overall energy use and maximise potential for renewable energy supply and use;
- ii) minimise waste and maximise re use and recycling during construction and after occupation;
- iii) conserve water resources, enhance water quality, incorporate water sensitive design and minimise vulnerability to flooding;
- iv) minimise polluting emissions to water, air and soil and minimise noise and light pollution;
- v) maximise use of materials from sustainable sources.

Whilst sustainable construction and design have been considered throughout the design and construction of the facility, the SA also considers broader socio economic issues. In summary, the aim of this SA is to;

- appraise the extent to which social, environmental and economic considerations have been integrated into the proposed development; and
- to identify measures by which the proposed development can be enhanced.

THE APPLICANT

The consideration of sustainability in any development is heavily dependant on the operating company. The manner in which the design, construction and operation of a major scheme is undertaken, implemented and managed sets the standards by which environmental issues are taken into account.

In respect of the SRRRC, responsibility for the facility ultimately falls to Viridor.

Viridor's company website states

"Viridor has two primary environmental aims. The first is to maximise efficient use of resources through re-use, recycling and recovery where economically and environmentally beneficial. The second is to safely and efficiently dispose of the wastes produced by householders and businesses in our society in a manner that protects the environment and human health."

The importance of continuous monitoring and improvement in assessing and minimising negative environmental impacts and maximising positive ones is recognised by Viridor. The company has been instrumental in developing the performance indicators of the waste industry as proposed by the Green Alliance, and report their performance against these annually, in addition to their own formal Environmental Management System.

Viridor's sites are registered to EN ISO 14001; the highest international standard for environmental management, this ensures that the company is working to best practice standards in environmental management and is also implementing a programme of continual improvement in environmental performance, providing assurance to customers and communities alike.

The Pennon Group, Viridor's parent company also produces an annual report detailing its impacts, both positive and negative, on the natural and social environment. The 2007 report provides information both on Pennon group as a whole, as well as Viridor's performance in the areas of corporate responsibility in social and environmental issues.

Viridor is fully supportive of the Government's aim to move towards more sustainable waste management through waste minimisation, reuse, recycling and energy recovery. It is also committed to the concept of corporate environmental and social responsibility. Specifically, Viridor's aims are as follows:

- regularly monitor and review performance and set clear objectives and targets to ensure continuous improvement in health and safety, environmental and welfare performance and quality service provision;
- reduce negative impacts on the environment and augment positive impacts whilst taking all necessary steps to prevent pollution;

SUSTAINABILITY APPRAISAL

Appendix 14.1

- identify and implement health and safety, environmental and welfare service quality improvement schemes to the benefit of employees, customers and stakeholders wherever possible;
- use energy and natural resources more efficiently and encouraging the development and use of alternative fuels and recycled products;
- promote and encourage waste awareness and prevention, re-use, recycling and good practice;
- all operating units will have appropriate arrangements and resources in place to implement an Integrated Management System (IMS) with clear management responsibilities and documented procedures;
- identify and comply with all applicable legislation, including environmental, health and safety and other requirements including recognised industry best practice;
- require all employees to be aware of their responsibilities for health and safety, environmental and quality issues;
- proactive consultation and dialogue with the public, stakeholders and employees on the company's environmental, health and safety performance, and service quality;
- continue to support and serve the wider community in which the company operates and the socio-economic groups from which it employs. This includes supporting employees in parish, local or regional government; trusteeships or governorships of local and regional bodies, trusts and institutions; charitable or voluntary work and supporting the armed services (territorial or reservists); and
- effectively communicating this policy to all employees, external resources, members of the public and other stakeholders. This Policy Statement and IMS are periodically reviewed in order to ensure continued suitability and to identify and fulfil opportunities for improving its effectiveness.

Through these specific objectives, Viridor works closely with its public and private sector partners to help achieve the government's targets in respect of waste management and sustainability targets as set out in local policies.

APPROACH TO THE SUSTAINABILITY APPRAISAL

This SA was undertaken in 4 main stages;

- Identify Sustainability Appraisal Objectives;
- Identify Appraisal Questions;
- Appraise Proposal against Objectives and Questions; and
- Make Recommendations.

SUSTAINABILITY APPRAISAL

Appendix 14.1

Stage 1 - Identify Sustainability Appraisal Objectives

The first stage was to identify the relevant objectives against which the SRRRC would be assessed. This allowed assessment of the extent to which the proposed facility complied with wider sustainable development plans and documents.

The following documents were reviewed to provide guidance on the relevant SA objectives;

- UK Government Sustainable Development Framework Indicators (Sustainable Development in Your Pocket DEFRA 2008)
- Planning Policy Statement 10: Planning for Sustainable Waste Management (July 2005); and Companion Guide (June 2006)
- Regional Planning Guidance for the South West (RPG10);
- Strategic Sustainability Assessment Of The Draft South West Regional Spatial Strategy (SWRA, March 2006);
- Bath & North East Somerset, Bristol, North Somerset and South Gloucestershire Joint Replacement Structure Plan: Adopted September 2002;
- Bristol Local Plan 1997 (Saved Policies);
- First Deposit Proposed Alterations to the Bristol Local Plan Feb 2003 (Draft for Consultation); and
- Bristol Development Framework Core Strategy – Preferred Options Review Paper Feb 2009.
- Bristol City Council - Sustainable Building Design and Construction Supplementary Planning Document 5. Feb 2006.

The literature review identified a number of sustainability appraisal objectives which were common to all the documents. These were;

- Sustainable Waste Management;
- Climate Change and Energy;
- Protecting Natural Resources and Enhancing the Environment; and
- Creation of Sustainable Communities.

The key appraisal objectives identified from the above documents are;

SA Objective	Aim of SA Objective
Sustainable Waste Management	Move waste up the waste hierarchy and comply with European, national, regional and local waste legislation and strategy.
Climate change and energy	Reduce greenhouse gas emissions and increase contribution of energy recovered from waste renewable to meet renewable energy targets.
Protecting natural resources and enhancing the environment	Use previously developed land and safeguard natural resources through efficient and appropriate use. Ensure the development does not adversely affect local biodiversity and habitats.

SUSTAINABILITY APPRAISAL

Appendix 14.1

Creation of sustainable communities	Increase wherever possible the number and range of employment opportunities relating to the development of the facility. Prevent facility having an unacceptable impact on amenity of residents and ensure development does not adversely affect health of residents.
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Stage 2 - Identify Appraisal Questions

Having identified the four key relevant sustainability appraisal objectives, a series of appraisal questions were prepared to confirm whether or not the proposed development meets the sustainability appraisal objective.

The sustainability appraisal questions developed for Stage 2 are presented in Table 1.

The proposed SRRC was then assessed against the appraisal questions and given one of the ratings set out below.

√	Positive Compatible
?	Uncertain
∅	Neutral
x	Potential Conflict

SUSTAINABILITY APPRAISAL

Appendix 14.1

Sustainability Appraisal Objective	Appraisal Question	Y/N	Comment	Response to Objective
PROTECTING NATURAL RESOURCES AND ENHANCING THE ENVIRONMENT				
AIM				
Reuse brownfield land and previously used buildings.	Is the development being constructed on brownfield land and can existing buildings be utilised?	Yes	Site is brownfield land in a wider industrial area. The existing plant and buildings on site will have to be demolished as the SRRRC is purpose built facility which cannot adapt existing buildings for use.	√
Minimise the use of raw materials in construction.	Does the proposed development include the reuse of materials in construction?	Yes	Ground granulated blast furnace slag will replace Portland cement in the concrete mixes for the works. Recycled aggregates will be used where practicable and base material for the access road.	√
Minimise the consumption of natural resources.	Are there adequate water supplies for the proposed development which are to be utilised in an efficient manner?	Yes	The SRRRC will include a rainwater collection system. The rainwater will be used in the process plant. It is assumed that all toilet facilities etc will be designed to incorporate water efficient appliances.	√
Flood Risk and Drainage	How will vulnerability to current or future flooding be minimised?		All process equipment is designed to take account of a 1 in 100 year flood, plus 20% to allow for the effects of climate change. This will ensure that in the event of a flood, potential fugitive emissions in the water course are contained. A Flood Management Plan will ensure that the site is rendered safe in the event of a flood, including shutting down the plant, creating a temporary barrier around the waste pit and evacuating the site.	∅
	Has sustainable drainage been	Yes	The ponds around the northeast boundary and	√

SUSTAINABILITY APPRAISAL

Appendix 14.1

	considered and included in the design and how will discharges of polluted waters be minimised?		around the ACC (a part of the pond is for use in the event of fire on site) form an integral part of the green infrastructure and have been designed as surface water attenuation facilities to protect the EfW facility for up to and including the 1 in 100 year storm event (incorporating an allowance for climate change), to allow controlled release of runoff into the local watercourses. Further SuDS provision may be provided as part of a holistic surface water and fluvial flood risk management strategy to be formulated in partnership with the Lower Severn Internal Drainage Board.	
	Does the proposed development increase the flood risk to other developments in the area?	No	See above.	√
Conserve and enhance biodiversity and ensure protection of designated habitats and species.	Do the proposals include avoidance/mitigation measures for any impact on identified ecological features?	Yes	Impact of emissions and deposition on the SSSI has been considered in the Air Quality Assessment and found to be negligible. The site is defined to be of low ecological value. The landscaping proposals include replacing vegetation lost during construction.	√
	Have the air quality impacts arising from the specific development activities been addressed?	Yes	The results are set out in Chapter 7. Potential air quality impacts during construction will be mitigated through appropriate construction management techniques as defined in the Construction Environmental Management Plan. The air quality assessment, as set out in the Environmental Statement, concludes that the mitigation measures included in the EfW facilities design, including the flue gas treatment system, will ensure that air pollution impacts are minimal.	0

SUSTAINABILITY APPRAISAL

Appendix 14.1

		Have any likely sources of water pollution associated with the proposed development been appropriately mitigated?	Yes	More information is set out in Chapter 9 During construction, best practice procedures would be followed to minimise any pollution risk. All materials with a pollution risk would be stored away from areas of risk or in bunded areas. In the event of a flood, the Flood Management Plan would provide sufficient protection to prevent loss of materials to the flood waters.	√
SUSTAINABLE WASTE MANAGEMENT					
Waste Hierarchy		Does the proposed development promote sustainable waste management practices?	Yes	The MRF will recover recyclable waste and the EfW will only incinerate the fraction of the waste that cannot be recycled. This diversion of waste from landfill to be recycled and/or used to produce energy represents a movement of waste up the waste hierarchy. The facility will further increase the amount of material recycled, through the recycling of bottom ash into construction aggregate.	√
Waste Legislation		Does the proposed development contribute to meeting EU Landfill Directive targets for diversion of biodegradable waste from landfill?	Yes	Yes, the EfW will manage commercial and industrial waste, which will include a biodegradable element, which is currently landfilled.	√
CLIMATE CHANGE AND ENERGY					
	AIM				
Reduce overall energy use and maximise potential for renewable		Have energy efficiency measures been incorporated into the design	Yes	The SRRRC has been designed to maximise the production of electricity and useable heat), for export.	√

SUSTAINABILITY APPRAISAL

Appendix 14.1

energy supply and use.	proposals?		The building has been designed to incorporate energy saving measures, including energy efficient lighting and natural heating, cooling, daylight and ventilation.	
	Is the source of energy to be used by the development proposals generated from renewable sources?	Yes	The SRRRC will use electricity generated by the incineration of waste to power operations.	√
	Does the proposed development lead to a reduction in CO2 emissions/other greenhouse gases?	Yes	The Life Cycle Analysis Appendix 5.2) has shown that EfW produces less CO2 than other mass waste management technologies. EfW certainly produces less CO2 than landfill, which is the current disposal point for the waste which will come to the SRRRC. Using waste to generate heat and power instead of fossil fuels also reduces CO2 emissions.	√
Adapt to the potential effects of climate change.	Does the design of new buildings take account of rising temperatures, stronger wind and higher risk of subsidence?	Yes	The development has been designed to adapt to the potential effects of climate change, including reducing heat gain through specification of light coloured roofing and brise soleil installed above the office windows; and retaining/replanting the vegetation within the site to reduce the effects of increased heat in urban areas. Airtightness has been a significant design consideration and will far exceed the required air tightness levels of current Building Regulations standards, avoiding potential infiltration of predicted stronger winds. The foundation design will, as standard practice, take account of potential future risks of subsidence.	√
Reduction of emissions from traffic and travel.	Does the proposed development reduce the distance travelled by road for	Yes	Due to the lack of waste management facilities in the West of England, the majority of the waste	√

SUSTAINABILITY APPRAISAL

Appendix 14.1

	transporting waste and any product generated from the waste?		goes outside of the region to be landfilled. Most of the waste managed at the SRRRC will arise from Bristol and surrounding area so mileage will be reduced.	
	Does the proposed development reduce car use by staff?		The site is accessible by public transport and cycle parking and showers will be provided. A Green Travel Plan will also be devised to encourage car sharing and/or alternative means of travel.	√
CREATION OF SUSTAINABLE COMMUNITIES				
	AIM			
To protect and improve the health of all residents	Do the proposals include avoidance/mitigation measures for any impact on any perceived health risks?	Yes	The potential health impacts of the development have been assessed and set out in Chapter 16	√
	Do the proposals include avoidance/mitigation measures for any nuisance identified through noise or odour?	Yes	The potential noise and odour impacts of the development have been assessed and set out in Chapter 8.	√
Reduce crime and the fear of crime	Does the proposal incorporate design principles to prevent crime?	Yes	The development will be secured by fencing and manned 24 hours a day, 7 days a week.	√
Improve links between society and waste management	Has the local community been involved in the development of the proposals?	Yes	The applicant has carried out consultation in the local area. The Visitor's Centre will enable the public to find out more about the operation and also the importance of sustainable waste management. The Statement of Community Involvement in Volume 1 sets out more detail.	√
Maintain sustainable growth of employment	Will the development create new permanent jobs?	Yes	The development will create in the region of 50 permanent jobs as well as part time and construction jobs.	√

SUSTAINABILITY APPRAISAL

Appendix 14.1

<p>Protect and enhance the landscape/ townscape character</p>	<p>Do the proposals include avoidance/mitigation measures for any visual intrusion?</p>	<p>Yes</p>	<p>Due to the required size of the building and the height of the stack, the SRRC will be visible from the surrounding area. However, the building will be located on an established industrial area and design, landscaping and materials have been considered, to soften the visual impact of the building.</p>	<p>√</p>	
<p>ENVIRONMENTAL ASSESSMENTS</p>					
		<p>Will the design be assessed against an accredited scheme to assess the sustainability of the buildings i.e. BREEAM Assessment?</p>	<p>Yes</p>	<p>The scheme has been BREEAM pre assessed. The Employers Requirements of the Engineering Procurement Contract will require the detailed design to achieve a 'very good' BREEAM rating.</p>	<p>√</p>

Stage 3 - Appraise the proposed development and make recommendations.

The proposed SRRRC has been appraised against the sustainability appraisal questions set out in Table 1 in order to make recommendations for making the proposal more sustainable.

A full Environmental Impact Assessment (EIA) was undertaken to support the planning application and the results are set out in the Environmental Statement (ES). The information used to appraise the development in relation to the sustainability appraisal objectives was derived from the following ES sections;

- BREEAM Assessment
- Health Review
- Transport Assessment
- Travel Plan
- Noise Assessment
- Flood Risk Assessment
- Ecological Assessment
- Land Quality Assessment
- Air Quality Assessment
- Landscape and Visual Impact Assessment
- Carbon Footprint
- Heat Plan

What did these assessments conclude?

16.4 Recommendations

Mitigation Measures

One of the aims of the SA is to identify and eliminate, or where not possible, off set any potential impacts of development. Waste management facilities have the potential for adverse impacts and Table 2 makes recommendations to address potential adverse effects that have been identified through the EIA process.

SUSTAINABILITY APPRAISAL

APPENDIX 14.1

Table 2

Proposed Mitigation Measures for Potential Adverse Impacts.

SA Objective	SA Criteria	Potential Negative Impact	Proposed Mitigation
Protecting Natural Resources and Enhancing the Environment	Water Contamination	Risk of surface water or groundwater pollution occurring during development and operation of the site.	<p>The following management measures are proposed to mitigate against the risk of water contamination;</p> <ul style="list-style-type: none"> • Traffic management system to reduce potential for vehicle collision and potential fuel spillage. • All plant to be regularly maintained and checked daily for fuel/oil spillages. • Refuelling of vehicles restricted to hard surfaced, bunded compound. • Maintenance of vehicles restricted to hard surfaced compound
Climate Change and Energy	Air Acidification	Potential negligible negative impact for EfW	Ensure high quality fluegas treatment system is provided to minimise emissions to air.
Creation of Sustainable Communities. Health and Well	Noise	Construction and operation of the facility has the potential to generate noise.	The development would be located on an industrial estate, adjacent to other industrial uses. There

SUSTAINABILITY APPRAISAL APPENDIX 14.1

Being of Local Communities		However, noise will be localised and temporary during construction	are no residential properties within 1Km of the development. The noise assessment did not consider mitigation measures were necessary,
	Emissions harmful to human health	Emissions	The results of the LCA assessment concluded that the proven technology to be used at the site will ensure that short and long term predicted environmental concentrations are negligible.
	Odour		All waste will be delivered to the MRF and EfW facility in enclosed vehicles prior to discharge in the reception/sorting hall. Air from the EfW waste reception hall will be extracted to serve as combustion air, thus maintaining a negative pressure in this part of the building and achieving containment of generated odours and bioaerosols within the reception area. As waste will only be present in the facility for a few days pending treatment, there is only limited potential for the formation of odour.

CONCLUSIONS

The results of the sustainability appraisal demonstrate that the proposed SRRRC meets many of the identified SA objectives.

The SRRRC represents sustainable waste management practices and the generation of energy from the EfW to power the operations mean the proposal scores high in terms of sustainable development.

SUSTAINABILITY APPRAISAL

APPENDIX 14.1

Other aspects of the development which support the principles of sustainable development are;

- the use of brownfield land;
- the efficient use of natural resources built into the design and material specification;
- the opportunities for travel to the site by public transport and bike;
- the opportunities for local community involvement; and
- supporting the local economy through the creation of jobs and the spin offs for other companies in the area.

The location and limited size of the site mean that new habitats or ecological benefits are difficult to create on this site. However, the site had limited ecological value and as the existing trees will be retained, and a new pond and planting proposed, no habitats would be permanently lost.

The development of the SRRRC accords with a number of objectives set out in the Bristol City Council Preferred Options Review Paper Feb 2009, in particular Objective 1 Ensuring Sustainable Development for Bristol, Objective 9 Effective Waste Management and Objective 10 Adjusting to Climate Change and Promotion of Renewable Energy. In addition, Policy BCS7 identifies Avonmouth and Bristol Port as a priority area for industrial warehousing and development including waste management and environmental technologies.

The concept of sustainable development is intended to consider the relationship between environmental, social and economic systems. Thoughtful design can increase the sustainability of the development and therefore improve the environmental performance of the development, and thus increase the quality of life for the surrounding communities.

The facility has been designed with sustainability principles at the forefront of the design process. Where possible, sustainably sourced, recycled and recyclable materials have been specified and waste minimisation and local sourcing of materials will also be prioritised. This will be done in an effort to reduce the “embodied energy” of the development i.e. the energy associated with the sourcing, manufacture and construction of a facility.

The SRRRC is designed with a sustainable drainage management scheme. It re-uses rainwater following collection in tanks within the building envelope for use in the process plant. The ponds around the northeast boundary and around the ACC (a part of the pond is for use in the event of fire on site) form an integral part of the green infrastructure and have been designed as surface water attenuation facilities to protect the SRRRC for up to and including the 1 in 100 year storm event (incorporating an allowance for climate change), to allow controlled release of runoff into the local watercourses. Further SuDS provision may be provided as part of a holistic surface water and fluvial flood risk management strategy to be formulated in partnership with the Lower Severn Internal Drainage Board.