Biowaste (Wastewater) Briefing Paper

1.0 This paper summarises the Biowaste (Wastewater) opportunities in Hampshire required to meet the Vision of the MRS. The waste stream overlaps with waste streams covered in the other biowaste **(food, residual and green)** papers and the **agricultural waste** paper.

1.1 The main opportunities to meet the MRS Vision

1.2 Locally

- The MRS partners and Water companies in Hampshire should work in a complementary way to develop new markets for products recycled from sewage sludge. The MRS partners can use their procurement policies to strengthen markets for sewage sludge based fertilisers and publicise their use of them.

1.3 Nationally:

- The MRS partners should lobby Government to provide tax breaks for products recycled from sewage sludge to encourage the wider take up of products and practices and to develop the market. Tax breaks should be on a tiered basis to ensure a competitive advantage is achieved for higher quality products.
- The MRS partners and key players in the wastewater management sector should lobby government for changes in policy to set out demands on recycling of biowastes from the treatment of wastewater more clearly and should lobby for the reclassification of fertiliser products derived from wastewater treatment processes as products rather than wastes.

1.4 European:

- The MRS partners should monitor and support the European Union in their efforts to help industry to find ways of using biowastes in recycled and re-usable forms.

Current biowaste (wastewater) resources in Hampshire

2.0 Biowastes associated with wastewater management consist of sewage sludge from wastewater treatment works, and waste collected from septic tanks serving homes, farms and businesses. The remaining waste is treated water which is cleaned sufficiently to be discharged back into the environment. Sewage sludge is defined in Article 2(a) of the Sewage Sludge Directive 86/278/EEC as “(i) residual sludge from sewage plants treating

domestic or urban waste waters and from other sewage plants treating waste waters of a composition similar to domestic and urban waste waters; (ii) residual sludge from septic tanks and other similar installations for the treatment of sewage; (iii) residual sludge from sewage plants other than those referred to in (i) and (ii)"

2.1 Sources and types of biowaste arisings

2.2 Data arisings on sewage sludges in Hampshire are not available at the current time. We are currently waiting on data from the Environment Agency and Southern Water and this will be included at a later date.

2.3 Current Legislation

2.5 Use of sewage sludge as a product is much more heavily regulated than many other types of waste. European Union laws govern water and wastewater quality, although there is also some self-regulation within the industry. To a certain extent, it is at the discretion of operators how biowastes resulting from the wastewater treatment process are managed.

- Sludge (Use in Agriculture) Regulations 1989
- Sewage Sludge Directive 86/278/EEC (only covers urban sludge (i.e. sludge from the treatment of domestic or urban waste water or waste water of a composition similar to domestic and urban waste water), but does not consider other non-hazardous sludges)
- Nitrate Vulnerable Zones (England and Wales) Regulations
- Water Act 2003
- Urban Wastewater Directive
- Circular on Wastewater Treatment Works
- EC Directive on surface water abstraction
- Directive 86/278/EEC Sludge (Use in Agriculture)
- Duty of Care Legislation
- Waste Management Licensing Regulations

What is being recovered now and what infrastructure is in place

3.0 Current Resource Management

3.1 As of March 2004, there were a total of 27 wastewater treatment facilities in Hampshire (25 in Hampshire, 1 in Portsmouth and 1 in Southampton). (Hampshire County Council, 2003). The throughput of these facilities is unknown (licensed capacities are however known). These facilities are shown in table 1 and the population equivalent for these facilities will be calculated once data has been provided by the Environment Agency and Southern Water at a later date.

Table 1 – Treatment Works in Hampshire

Site (WWTW - Wastewater Treatment Works)	**Operator**
Chickenhall WWTW, Eastleigh	Southern Water Services
Burnett's Lane Waste Pumping Station, Horton Heath	Southern Water Services
Petersfield WWTW, Petersfield	Southern Water Services
Budds Farm WWTW, Havant	Southern Water Services
Slowhill Copse WWTW, Marchwood	Southern Water Services
Ashlett Creek WWTW, Fawley	Southern Water Services
Beaulieu WWTW, Beaulieu	Southern Water Services
Sway WWTW, Sway	Southern Water Services
Aldershot Garrision Sewage Treatment Works, Aldershot	MOD
Fullerton Treatment Centre, Clatford	Southern Water Services
School Lane, Middle Wallop	Testway Housing
Green Pond Lane, Ampfield	Testway Housing
Brookside Cottages, Nether Wallop	Testway Housing
East Dean Road, Lockerley	Testway Housing
Dean Road, West Tytherley	Testway Housing
Stevens Drove, Houghton	Testway Housing
Red Lane, West Tytherley	Testway Housing
Manor Road, East Tytherley	Testway Housing
The Bunny, Longstock	Testway Housing
Bulpits Lane, Vernham Dean	Testway Housing
Morestead WWTW, Winchester	Southern Water Services
Spring Gardens, Alresford	Southern Water Services
Eastney WWTW, Portsmouth	Southern Water Services
Millbrook WWTW, Southampton	Southern Water Services
Manor Farm (Pennington) WWTW, Lymington	Southern Water Services

(Source: Hampshire, Portsmouth and Southampton Minerals and Waste Local Plan Annual Monitoring Report 2002-2003)

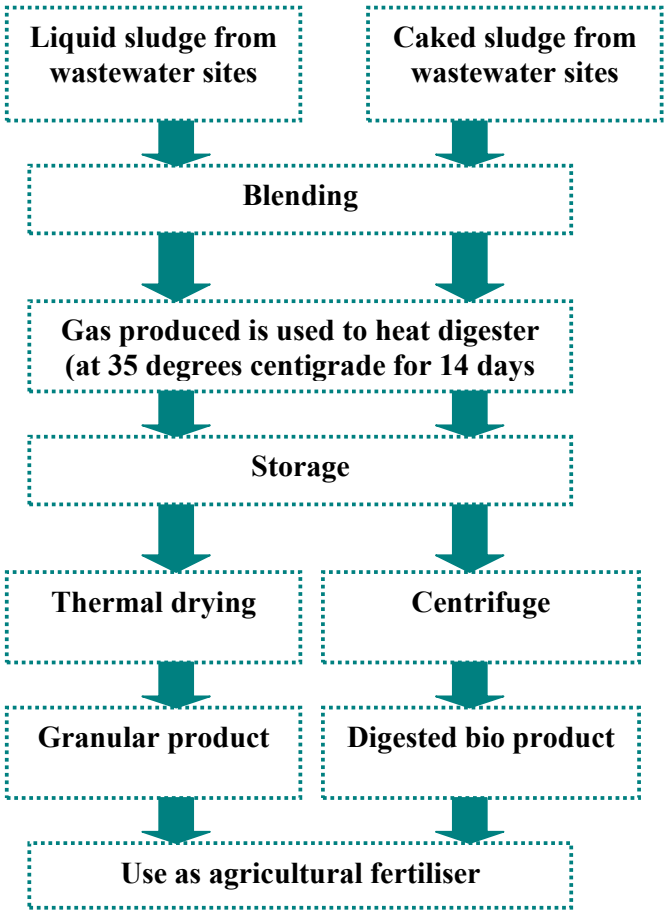
3.2 There are a number of methods in which sewage sludge can be treated. These include dewatering, thickening, digestion, thermal drying, lime treatment and composting.

3.3 The main current disposal option is the controlled application to agricultural land, after processing to produce a useful fertiliser product. It is estimated that only 2% of all sewage sludge is currently applied to land compared to industrial wastes (4%) and animal manure (94%) (Southern Water, 2004). In 1996 / 7 sludge was applied to 80,000 ha of land in the UK (approximately 5%) (P165, 1999). Sludge applications rates to farmland must be according to the nutrient requirements of crops, the quality if the soils and to ensure that the surface and groundwater is not polluted. All wastewater treatment processes produce a valuable residual organic material known as a bioproduct.

3.4 A fertiliser can be produced from sludges and is available as a digested cake, limed cake, or in granular form. The digested cake and dried granules produced at processing plants are available for use in agriculture and for other land improvement schemes. Fertiliser granules are produced by sludge being treated through the digestion process and then dried to produce a versatile phosphate granule fertiliser. Digested cake is created through this treatment process and is then de-watered to produce a low odour 'cake'. It is primarily a source of phosphate and sulphur plant nutrients in addition to the bulk organic matter and can act as a soil conditioner. Limed cake is produced through the dewatering of sludge which is then stabilised and treated using hydrated lime.

This can be used to restore the pH balance of soils and offers the same nutrient benefits as digested cake. Although initial infrastructure costs are high, the production of granules through enhanced treatment is seen as one of the most beneficial methods of treating biowastes, the long-term benefits and costs of this method are low. This type of treatment which is practiced by Southern Water is practiced on the majority of sludges processed by the company in Hampshire. This is recognised as a valuable soil conditioner and fertiliser and the 'Best Practical Environmental Option' (BPEO) in most circumstances' (DETR, 2000).

Wastewater Sludge Treatment Process



3.5 Energy from Waste (EfW) is an energy efficient disposal option but is currently quite sparsely used. During the digestion process methane gas is produced which is then recycled and can be used to generate power to help run the plants or be transferred to the national grid. It also has the ability to deal with any high levels of metal which may be present in sludges and reduces the volume of sludge to about 40% of original dry weight with ash residue being produced. Southern Water used to have an incinerator at Peel Common but this has now closed. Thames Water use incineration as a method for waste processing / disposal although any sludge managed by

Thames Water produced in Hampshire is currently processed at sites outside of the county.

3.6 Landfiling bio wastes is still a method which is used for disposal. However, the disposal of sludge products to landfill has become and will continue to become increasingly expensive.

3.7 Biowastes can also be reused within the composting process. For example, dewatered sludges can be mixed with bulking agents such as straw and recycled compost or with lime cement to produce a granular soil. This can then be aerated. Currently, UK experience is limited to small operations so this may be a potential market for the future.

3.8 Processed sewage can be managed in a number of ways. On the European level information on disposal and recovery of sludge indicates that 45% is recycled to land (largely in agriculture), 18% is landfilled, 17% is incinerated and 1% is disposed of to surface water (despite this being prohibited since 1 January 1999). The use of remaining 19% of sludge is unknown (EC, December 2003). Historically in the UK, sewage sludge biowastes and other products were disposed of at sea. This disposal method used to account for approximately 30% of the waste generated nationally (DTI, 2003). However, the introduction of the Urban Waste Water Treatment Directive in 1998 made this illegal.

3.9 Social Issues

3.10 A particular problem is public opposition to the spreading on agricultural land of fertiliser products derived from wastewater treatment which is a key part of the overall management process. Further changes in public perception are required for a greater acceptance of such products to occur.

3.11 Some consumers can take the disposal of wastewater for granted, as they have no financial incentive to limit the amount of produced. Water companies and the Environment Agency already work actively to change public attitudes by promoting best practice.

3.12 Environmental Issues

3.13 Sewage sludge is primarily a supplier of nutrients (nitrogen, phosphorus and, to a lesser extent, potassium and sulphur) (EC, 2003). The nutrient content of sludge varies sharply depending on the wastewater type (e.g. urban, industrial) and the treatment it has undergone. The nitrogen content of sludge is one of the main factors in favour of its use. It is generally richest in nitrogen (1 to 6% dry matter) in the liquid phase. The phosphorus content of sludge is 1 to 2% giving a phosphoric acid content of 3 to 8%. The phosphorus content of sludge is higher than that of manure, which explains the attraction of sludge use in agriculture. Recycling composted sludge and biodegradable waste in agriculture maintains and restores the quality of soils, because of the fertilising or improving properties of the organic matter contained in these materials.

3.14 Much has been done to minimise the potential transmission of pathogens from waste spreading through effective treatment processes and then matching efficiency of pathogen removal to operational restriction on application practices and land use.

3.15 In the same way as the application of farm manures, the application of sludge and biowaste on soils can pose certain environmental issues mainly related to an excessive and/or unbalanced supply of nutrients. This includes the introduction of pollutants, such as heavy metals and organic compounds, and the spreading of human, animal or plant pathogens (EC, 2003). However, there is little evidence of disease in man or animals arising from land application of biowaste, including sludge. The few documented cases in Europe have occurred when local regulations or codes of practice have not been observed (EC, 2003). Controls upon the quality of discharges are becoming more stringent and some historical methods of disposal will no longer be permitted. In addition the storage of biowaste material potentially poses some environmental issues, which need to be carefully assessed.

3.16 Economic Issues

3.17 Economic issues implicate the type of disposal options for sewage sludges. Processing and disposal options for sludges in Hampshire are company specific. In addition, the land and infrastructure required for the recycling and processing of sewage sludge is often expensive.

3.18 The sewage sludge derived products market is currently very competitive, and focuses on the agricultural sector. Some companies charge for higher quality products (such as granulated fertiliser), however, they can find they are undercut by others offering low quality products for free. This acts as a disincentive to make investments in the infrastructure required to produce better quality products. The costs to the consumer of quality fertilisers derived from residues of the wastewater treatment process can be significant. However, the long-term benefits associated with their use can represent good value for money. Southern Water trials have demonstrated that the use of fertilisers manufactured from the wastewater treatment process can increase arable gross margins by an average of £31/ha (7%) across a 3-year rotation of 2 wheat's and an oilseed rape (Southern Water, 2004). Trials have also shown that regular use of granulated fertiliser products have resulted in a consistent yield and grain quality improvement giving rise to increased output.

3.19 Waste gases (such as methane) produced during the wastewater treatment process can be used to power small Combined Heat and Power (CHP) units to produce energy. The cost of the energy produced is currently higher than is available from the National Grid; however, these facilities may become more financially viable in the future. Residues from the bio waste treatment process can also be used to improve the balance of composts produced from green wastes. The introduction of sludge cake in the right quantities can result in better product.

3.20 Codes of Practice:

3.21 The **Hampshire Water Strategy** was published following the creation of a partnership of private, public and voluntary sector stakeholder representatives involved in water management in Hampshire. The main aim of the strategy is to explain the major issues and problems involved in water management in the county. The strategy also outlines the strategies and initiatives already underway or planned to address these issues. The strategy considers a variety of issues including pollution and wastewater, agriculture, drainage which are all relevant to the management of wastewater in Hampshire.

3.22 The **Safe Sludge Matrix** was set up in 1998 in England, Wales and Scotland through an agreement reached between Water UK (representing the UK'S water and sludge operators) and the British Retail Consortium (BRC), which lead to the publication of the 'Safe Sludge Matrix' by ADAS. The Matrix was developed with input from the Department for the Environment, Food and Rural Affairs (DEFRA), Food Standards Agency, the Environment Agency and National Farmers Union (NFU) (amongst others).

3.23 The matrix consists of a table of crop types together with clear guidance on the minimum acceptable level of sewage sludge treatment. It is designed to reassure the public that the use of sewage sludge is not only an environmentally beneficial option, but also provides minimal risks to human health as long as good practice is adhered to, providing a comparable level of risk to other, similar farm activities. Pre-treatment of sewage sludge before spreading on land has been required since 2001. This is linked to the safe sludge matrix.

3.24 The ***Codes of Good Agricultural Practice*** has been produced by DEFRA.

3.25 Current Key players

3.26 ***Southern Water*** is the statutory sewage and wastewater under taker for the majority of Hampshire with the exception of the Basingstoke area, which is within the areas of ***Thames Water*** and part of the western fringes of the county which are within ***Wessex Water.*** There is also a dedicated plant in Aldershot run by the ***Ministry of Defence***. Each of the operators tackle the issues of biowaste disposal and recycling in different ways. For example, Southern Water specialises in the treatment of biowaste primarily for agricultural fertiliser.

3.27 ***Cleansing Services Group*** (CSG) is a privately owned waste management company which specialises in the transfer and treatment of a number of different types of wastes including sewage and wastewater. CSG Between, shares the market in Hampshire for the collection of waste from cesspits and septic tanks with BKP Environmental Services. CSG transports the waste to wastewater treatment works for processing and disposal.

3.28 ***BKP Environmental Services*** is an independent provider of environmental services offering a wide possible range of waste treatment solutions. BKP shares the market in Hampshire for the collection of waste from cesspits and septic tanks with CSG. BKP transports the waste to wastewater treatment works for processing and disposal.

3.29 ***Water UK*** represents UK water and wastewater service suppliers at national and European level and have a general duty to ensure that they play their part in delivering sustainable development, and sustainable practice.

3.30 Biowaste (Wastewater) support

3.31 The ***Environment Agency*** is the environmental regulator for the water industry. The Agency registers and monitors the transportation of waste and advises on waste management methods.

3.32 ***English Nature*** champions the conservation of wildlife, geology and wild places in England. They are a Government agency set up by the Environment Protection Act 1990 and are funded by the Department of Environment, Food and Rural Affairs (DEFRA).

3.33 The ***Department for the Environment, Food and Rural Affairs (DEFRA)*** is the Government department with prime responsibility for waste and resource management, as well as other forms of environmental protection and the promotion of sustainable development.

3.34 ***National Farmers Union (NFU)*** is the organisation for farmers and growers in England and Wales, representing around three quarters of the full time commercial farmers of England and Wales. Its central objective is to promote successful and socially responsible agriculture and horticulture, while ensuring the long-term viability of rural communities.

3.35 Current Examples of Best Practice

3.36 The ***Millbrook Wastewater Treatment Works*** in Southampton is an active waste water treatment centre which is also a sub-regional sludge treatment and recycling centre specialising as a drying plant making granulated fertiliser. The site is run by Southern Water and is a safeguarded site (Safeguarded site K) within the Hampshire Portsmouth and Southampton Mineral & Waste Local Plan (HCC, 1998).

3.37 Southern Water's ***Bestway fertilisers*** have been used in a number of areas within the county including a football club training ground, an agricultural college, an arboretum on golf courses and race courses in and around the Country.

How is this likely to change by 2020

4.0 Future Data Required

4.1 Data on arisings of sewage sludges and the quantities of recycled products produced needs to be investigated.

4.2 Future legislation

4.3 Future legislation is likely to increasingly regulate disposal options for sewage sludges. There are a number of pieces of legislation which are expected to impact upon the disposal of sewage sludges in the future. For example, the Wastewater, Sewage and Sludge Directive will be introduced to supersede the Sludge (Use in Agriculture) Regulations 1989.

4.4 The Sludge Regulations will be introduced to improve sewage sludge treatment regulations and to encourage the recycling of the sludge to agricultural land. The regulations will also seek to improve enforcement and monitoring. The regulations include strengthening the requirements for sludge treatment processes to ensure that potential pathogens are not transmitted into the food chain; the introduction of more stringent post application controls on harvesting and grazing; the ban on the use of untreated sludge on agricultural land on which food crops are grown, which was banned voluntarily from the end of 1999 and the strengthening of record keeping and control procedures to improve quality control and effective enforcement of the regulations.

4.5 Other legislation predicted to impact upon sludges include the EU Thematic Strategy on Soil, the Water Bill, the EU Soils Strategy, the European Fertiliser Regulations, the Biowaste Directive and the European Commission Water Framework Directive (2000/60/EC).

4.6 Future sludge arisings

4.7 Nationally the amount of sewage sludge produced annually was expected to rise from 1.1m/t in 2000 to 1.5 m/t in 2005 due to increased regulation of disposal options (DETR, 2000). This poses implications for the future disposal.

4.8 In the absence of data on current arisings for sewage sludges for Hampshire, assumptions on the predicted arisings for 2010 and 2020 cannot be made. It can be assumed however that future sludge arisings will be proportionate to the population growth, which will be experienced in Hampshire during this period. The population of Hampshire (including Southampton and Portsmouth) is expected to rise by 11% from 1,682,000 in 2001 to 1,869,000 by 2021. (Hampshire Structure Plan (Review) 1996-2011). The Hampshire County Structure Plan 1996-2011 (Review) allows for 94,290 new dwellings to be built in the county (not including within Southampton and

Portsmouth) over the 15-year period, each of which needs to be connected to the water supply and have its wastewater treated.

4.9 Future Options for Resource Management

4.10 In 2000 DETR predicted that by 2005, sewage sludge would be disposed of by land spreading (60%), incineration (36%) and gasification (4%).

4.11 Minimising waste arisings of sludges is a difficult area to manage due to the nature of its production. Methods in which other waste streams are tackled with a view to minimising waste arisings may often increase the levels of sludges, which are produced. For example, the wider introduction of waste disposal systems which will be encouraged through the MRS may increase the levels of sewage sludges needing processing if implemented widely.

4.12 Returning sludges to land is acknowledged as the Best Practicable Environmental Option (BPEO) for this waste stream (Stakeholder Working Group, 2004). Further options for this type of disposal should be explored and the treatment of sludges for disposal on land particularly to land should be encouraged.

4.13 The levels of these future waste arisings which can be and will be recycled will depend mainly upon the economics of its processing and the systems implemented by waste companies (Stakeholder Working Group, 2004). The MRS partners need to support an integrated approach to waste management and natural resources by promoting material recycling, the closing of the nutrient loop and minimising final disposal, while recognising the need for favourable conditions for investments in the treatment companies.

4.14 Opportunities to mix sewage sludges with other forms of waste such as green or kitchen wastes can be further explored. For example, in North America sewage sludge has been mixed with digestates from Mechanical Biological Treatment (MBT) processes to produce soil enhancers. Other opportunities exist to mix sewage sludges with straw or with incinerator bottom ash to make potassium fertiliser which has been practiced at a plant in Cambridge. There are also opportunities to use it within the aggregate industry such as cement kiln fuel for example and in the manufacture of construction blocks, although this will probably remain a niche market.

4.15 Improving treatment of the growing amount of biowastes will entail the development of new infrastructure on existing sites (Environment Agency, 2004). This will be led by population growth within the county particular in major growth areas such as the Major Development Area's stated in the Hampshire Structure Plan (West of Waterlooville; Andover; Winchester). However, stakeholder representatives believe that the capacities of our present wastewater treatment works and processing facilities is adequate. Existing sites are often adapted to deal with growing areas of waste production and sites are often subject to programmes of improvement which is already under way in many of Hampshire's wastewater treatment facilities.

However, the provision of a facility for the difficult wastes arising from treatment, if combined with a composting site, would mean there would be no requirement for landfill of wastewater management residues. There is a need for closer liaison between local authorities and water companies and MRS partners a key role in facilitating the provision of infrastructure required for the future management of wastewater.

4.16 Incineration of sludges can provide an effective means of disposal although it is expensive. Energy from Waste is an area which could be developed further in the future if the infrastructure and costs make it more viable. Thames Water use incineration as their main method of waste processing and /or disposal.

4.17 Social Issues

4.18 The use of sewage sludge and its by-products as agricultural fertiliser often meets with public opposition, however, this is more environmentally acceptable disposal method than dumping at sea (now illegal) or landfill. The lack of public acceptance of sewage based fertiliser's needs to be addressed through education. Addressing perceived health and safety concerns are also key to future success of sewage sludge based fertiliser products. Research shows that human sewage has far less nitrates within it than animal based sewage (Southern Water, 2004). However, treated sewage sludge is still seen to be far less acceptable as fertiliser than raw sewage was 30 years ago. In addition, it has become clear that increased general understanding of the issues surrounding the management of wastewater is needed.

4.19 Environmental Issues

4.20 The future disposal of sewage sludge on land may be affected by both existing and new environmental controls which regulate the use of biowaste fertiliser products, in particular ground water source protection zones and nitrate vulnerable zones. Such controls restrict the areas of land, and quantities of fertiliser which can be applied. New legislation is likely to mean stricter controls on treated sludge spreading will be enforced along with the reduction of maximum lead content in soil from 300mg to 200mg and restrictions on the pathogen content is likely to be strengthened.

4.21 Improved management systems for sewage sludge and biowaste would ensure that the land spreading of sludge and biowaste happen in a cost-effective manner and in such conditions that the potential drawbacks, in particular possible negative effects to human and animal health, wildlife and biodiversity and long-term impact on soil quality, are minimised and the positive aspects, notably from an agronomic point of view, are maximised.

4.22 More clearly defined links need to be made between the MRS and the Hampshire Water Strategy with regards to biowastes and its treatment and disposal. There are also opportunities to link into the Sustainable Urban Drainage Strategy which is being prepared by Hampshire County Council. Sustainable Urban Drainage Systems (SUDS) are physical structures, which

receive surface wastewater run-off and they may also be used to treat water prior to discharge in the longer term.

4.23 Direct links to the development of the Hampshire Soils Project and Strategy must be investigated.

4.24 Economic Issues

4.25 Market demand for products derived from wastewater processing are key to the effective management of the wastes. In particular, the agricultural market is likely to remain the main consumer of these products. The agricultural sector needs a secure, long-term supply of nutrients to compensate for losses through uptake by crops (harvest, grazing), leakage into groundwater, volatilisation to the atmosphere. Sewage sludge based fertiliser products have can make a useful contribution in the role.

4.26 Other markets could also be developed, including energy from waste through CHP plants**,** and the use of waste water products as a components of products manufactured from other waste streams, such as Mechanical Biological Treatment digestate to produce soil improver**.**

4.27 The possible reclassification of biowaste-based products such as granulated fertiliser manufactured from sewage sludge under the proposed Fertiliser Regulations may have an extensive impact on potentials markets. If the granulated fertiliser is reclassified as a 'product' rather than a 'waste' the potential for the expansion of the market is significant. Reclassification could help to over come the general negative public perception towards sewage sludge based products. In light of this, regulatory authorities such as the Environment Agency work towards reducing controls over these fertiliser products in a similar way as has happened with Progrow compost.

4.28 It is important to note that the introduction of new regulations and funding through the Common Agricultural Policy (CAP) may have an impact on the future markets available. For example, at the moment, winter wheat makes up more the half of the main market for granulated fertiliser products manufactured by Southern Water from sewage sludge. The introduction of any measures through CAP that results in a reduction in the amount of winter wheat grown in the region will have a knock on effect on the existing markets.

4.29 Increases in compost products manufactured from green waste compete for the same markets as products produced from sewage sludge. Synergies between the two products can be exploited by manufacturers to their advantage, and there is potential for cost savings from the use of shared infrastructure and marketing.

4.30 The MRS partners can play a role in helping to develop the markets and in tackling negative public perceptions through the use of their procurement policies to strengthen markets for sewage sludge based fertilisers and publicise their use of them. For example sewage sludge based fertilisers could be used on County Council playing fields or farms and further

areas where such fertilisers could be used should also be explored. The MRS partners should actively work with the British Retail Consortium with regards to the procurement of products.

4.31 Government investment will have a significant impact in influencing how companies choose to dispose of its waste, and what (if any) end products are produced. Technological change will also aide the further use and effective disposal of wastewater. It is clear that the water industry would welcome government support and investment in waste processing in the future.

Further Information

References:

- Consultation on the Working Document on sludge and biowaste (Draft Discussion Document (EC, December 2003)
- Hampshire County Structure Plan 1996-2011 (Review) (HCC, 2000)
- Hampshire, Portsmouth and Southampton Minerals and Waste Local Plan Annual Monitoring Report 2002/3, (HCC November 2003).
- Hampshire Minerals and Waste Framework: Waste Forecasting Draft Interim Baseline Report (Entec, 2003)
- Hampshire Water Strategy, 2003
- National Waste Strategy (DETR, 2000)
- 'No time to Waste' - Proposed Alterations to Regional Planning Guidance, South East – Regional Waste Management Strategy (SEERA, March 2004).
- SWMA for South East (Environment Agency 2000)
- SWMA for South East Annual Updates (Environment Agency 2000)
- UK Sewage Sludge Survey National Presentation – Research and Development Technical Report P165, Environment Agency, 1999

Further Sources of Information

Interviews with

Bill Griffith, Southern Water – 29 April 2004
Peter Kelly, Environment Agency – 10 June 2004
Stakeholder Working Group – 23 June 2004

Appendix 1 Biowaste (Wastewater)

Issues/Opportunities (general)

- The MRS is not in the position to influence the reduction in the amount of wastewater and sludges produced as this is population led.
- Reapplication of processed sludges to agricultural land as fertiliser is considered the best management option.
- EfW is a better option than landfill for non-recyclable sewage residues.
- There is potentional for composting sewage sludges with green wastes.

Proposed Actions (for MRS partners)

- More investigation and research into opportunities for recycling and reuse of sewage sludges with other types of waste (such as green waste).
- Encourage water companies to produce granulated fertiliser products from sewage sludges in preference to lower level treatments and incineration.
- The public procurement of products produced from sludge waste, and the specification of this material in public sector tender documents were appropriate should be exploited. Tenants of County Council farms should also be encouraged to use these products.

Proposed Policies (wording is indicative)

- Opportunities for the reuse of sewage sludges in pelletised form as a fertiliser should be actively encourage as the best management option
- Opportunities for the reuse of sewage sludges mixed with other waste streams should be exploited.

Proposed Options

There is very limited impact the MRS could have for the management of wastewater, in terms of actual proposals because it is so heavily dependent upon the water companies. Therefore recycling options for this waste stream are not being considered.

New wastewater treatment infrastructure, and the policies for its provision if required will be addressed under the disposal options section of the MRS later in the process.