

East Sussex and Brighton & Hove
Waste & Minerals Development Framework

Information Paper 10
Waste Water and Sewage Sludge

October 2009

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Introduction

Introduction

1.1 This 'Information Paper' on Waste Water and Sewage Sludge is one in a series that has been produced to support the preparation of the Waste and Minerals Development Framework (WMDF). The WMDF will contain planning documents ('Development Plan Documents' (DPDs)) that will help decide how and where waste should be dealt with and minerals produced in East Sussex and Brighton & Hove in the future (up to 2026). More information about them can be found on the Councils' websites:

- www.eastsussex.gov.uk/environment/planning/development/mineralsandwaste
- www.brighton-hove.gov.uk/index.cfm?request=b1148434

1.2 The Information Papers are being used provide the evidence for the development of the WMDF and to support consultation and discussion with members of the public and key stakeholders who are concerned with waste and minerals in East Sussex and Brighton & Hove.

1.3 The Papers are 'living drafts' which present the evidence as it stands at this stage and they will be periodically updated with any new information that comes to light. This will ensure the Councils' knowledge and understanding of waste and minerals remains robust and the evidence base for the WMDF is 'sound'.

1.4 The Information Papers were first published and consulted upon in July 2007, and were then revised in February 2008. This third version (October 2009) brings them up to date with new information and recent changes in legislation and policy.

1.5 Details of the other Information Papers that have been produced are included in Appendix 1.

1.6 If you would like to comment on or add to the WMDF evidence base that is presented in this Information Paper, please visit the consultation website <http://consult.eastsussex.gov.uk> and follow the instructions for the Information Papers. Alternatively you can send an e-mail to wasteandmineralsdf@eastsussex.gov.uk or write to:

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Introduction

Please make sure that you refer to the section and paragraph numbers that your comments relate to.

Waste Water and Sewage Sludge

Waste Water and Sewage Sludge

What are waste water and sewage sludge?

2.1 Broadly speaking '**waste water**' is used to refer to waste in the form of water and solids which flows from a community or population. This information paper is concerned with waste water that flows to a water treatment plant operated by a water company. This is commonly referred to as the 'public sewer'.

2.2 The term waste water excludes '**sewage sludge**' or '**sludge**'- the semi-solid or liquid residue removed during the treatment of waste water. Sewage sludge is the product of waste water treatment. The biological content of sludge is determined by the treatment process used and the controls on water discharging from the Waste water Treatment Works (WwTW). Where higher levels of treatment are required to improve the quality of discharged water, the sludge will have a correspondingly higher biological content. Whatever the content, sludge is mainly formed of water. In most cases the actual solid is around 1% of the total. ⁽¹⁾

2.3 Properties in rural locations often have not or cannot connect to the public sewer and are served by septic tanks. Around 8% of the population of East Sussex is not connected to the public sewer which is at the high end of the national average (5-8%) and reflects the large rural area that forms most of the county. There are issues surrounding the effect of septic tanks on local ground conditions, however these are not dealt with individually through planning, or in this document.

2.4 Further detail can be found in the technical waste water study⁽²⁾.

Management of waste water and sewage sludge: the legislative framework

2.5 At a national level the Department for Food and Rural Affairs (Defra) governs water policy in England in relation to water supply, water resources, regulatory systems and the water industry. Management of waste water involves the cooperation of national and sub-national bodies working across a number of regulatory regimes. The four main players are the water companies, the water regulator, the Environment Agency and the planning authorities.

2.6 Planning permission is not always required for minor alterations to existing facilities but is required for new treatment works. Applications are made to the waste planning authority, or the unitary authority where applicable.

1 Defra Information Note

2 Waste Water Management Study, Scott Wilson, October 2009

Waste Water and Sewage Sludge

2.7 Water companies as sewerage undertakers ⁽³⁾ are able to carry out some minor works under the permitted development regulations however all operations relating to the water environment will fall under regulation enforced by the Environment Agency. New facilities are catered for in business plans as well as strategic policies. Planning applications are required in all cases and Environmental Impact Assessment is often required.

2.8 The Planning Act 2008 provided for the formation of the Infrastructure Planning Commission, which will take decisions on nationally important infrastructure. This would include new waste water treatment works serving a population greater than 500,000.

The Role of the Water Company

2.9 The water company operates under licence from the government and this licence is regulated by Ofwat. The water company operates and maintains the infrastructure and facilities in line with planning permissions and with the environmental permits issued and monitored by the EA. The yearly business plan is submitted to Ofwat for approval and takes into account provisions in the Environment Agency's national programme; setting out investment priorities as well as levels of service and consumer costs.

The Role of the Water Regulator –Ofwat

2.10 Ofwat sets consumer pricing levels, recommends efficiency savings and scrutinises water companies' business plans in England and Wales. The regulator is separate from government and reports to Westminster and the Welsh Assembly. It works with the bodies that monitor water quality: the Environment Agency and the Drinking Water Inspectorate.

The Role of the Environment Agency

2.11 The Environment Agency is a non-departmental public body, independent to government and half funded through the fees it generates from environmental permitting and licensing schemes. Included in the Agency's responsibilities is the requirement to monitor the operation of sewage and waste water treatment works as well as setting limits on discharges to watercourses.

2.12 As well as other functions - such as those relating to flood management- the EA is the main body taking forward the protection of water resources in the UK, through the provisions of the recent EU directives (see list and description in Appendix 2).

3 see The Town and Country Planning (General Permitted Development) Order 1995

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2.13 The EA has set out its priorities in the National Environment Programme (NEP). This gives indicative standards for new discharges at existing works. The EA also sets out where capacity is limited at WwTW sites which are already operating at Best Available Technology (BAT).

The Role of the Waste Planning Authority

2.14 Planning for waste water includes forward planning for facilities and growth through the development planning system as well as determining applications for facilities as they come forward. In England this is the responsibility of the County or Unitary Planning Authority.

National Policy

2.15 The most relevant national Planning Policy Statements are:

- PPS10 Planning for Sustainable Waste Management; and
- PPS23 Planning and Pollution Control.

2.16 These documents set out national policies as well as the duties of the planning system under the following directives. They also detail how the planning system will interact with other regulatory regimes.

2.17 It is worth noting that there is a new emphasis on pro-actively protecting water quality and that a reliance on technology and regulation to protect the environment is no longer considered best practice.

Regional Spatial Strategy – The South East Plan

2.18 The guiding policy within the South East Plan is Policy CC7: Infrastructure and Provision. It notes that the “timely provision of waste water treatment works and other sewerage infrastructure is essential and will require early engagement of local authorities, the Environment Agency, infrastructure providers and other key stakeholders”.

Water Framework Directive (WFD) (2000/60/EC)

2.19 The directive combines issues of water quantity and water quality together for the first time. All water bodies are required to meet ‘good ecological, chemical and morphological status’ by 2015 unless there are grounds for ‘derogation’⁽⁴⁾. There are specific criteria for different types of water body – rivers, lakes, transitional waters and coastal waters. The classification works as a ‘worst case scenario’ so the lowest result a water body achieves in any category then becomes the overall grade.

River Basin Management Plans

4 legal grounds for not meeting a legal requirement

Waste Water and Sewage Sludge

2.20 These plans assess water quality across catchments of water bodies and set out proposals to ensure water bodies in a catchment can achieve 'good' status within the required timescales, usually by 2015. The plans will be reviewed every six years (2015, 2021, and 2027). Work on the draft River Basin Management Plan for the South East is led by the EA and should be finalised in December 2009.

Planning for waste water and sewage sludge

2.21 There is a need for all bodies in the waste water sector to work together to ensure that necessary development (eg new homes) is supported by provision of the necessary infrastructure at the right time.

2.22 Planned growth is set out in national, regional and local level planning policies. The waste planning authority needs to take into account the predicted levels of growth and development in any waste planning policy document such as the Core Strategy. Background evidence for the Core Strategy also takes account of the Environment Agency's National Environment Programme and the business plan set out by SWS and approved by Ofwat.

2.23 The waste planning authority assesses the need for growth against the environmental constraints in the area. Development proposals set down in development plan documents and approved through planning applications require supporting infrastructure (eg roads and schools) and this includes a need for the treatment of waste water.

2.24 Spending by water companies on improvements to systems is controlled by contracts with national government and governed by the industry watchdog, Ofwat. Water companies plan maintenance and improvement works in addition to the national programme. The Environment Agency monitors and regulates water quality and capacities in the system; issuing permits for facilities.

Future influences on waste management capacities

2.25 The provision of waste management facilities will be affected by

- the potential increases in the population and development needing to be served; and
- tighter environmental restrictions on discharges to water bodies.

Drivers for growth in East Sussex and Brighton & Hove

2.26 The primary consideration for estimating waste water production is population growth. Facilities are monitored on the potential population they can serve – the population equivalent (PE). Growth in the PE is primarily affected by housing growth although any potential increase in commercial activity is also relevant.

2.27 For example, 11,000 houses are proposed for the area served by Hailsham North and South WWTWs, and 41,400 houses in total are currently proposed for East Sussex and Brighton & Hove in the period up to 2026.

Waste Water and Sewage Sludge

Water treatment and water quality

2.28 Discharges from WWTW to water bodies now have to meet the more stringent standards set out in the Water Framework Directive. The WFD requires all water bodies to achieve “good ecological status” by 2015, unless specified otherwise. The overall status of a water body is compiled from a number of individual assessments e.g. fish or invertebrate habitats, river morphology, concentrations of chemicals.

2.29 The failure of water bodies to achieve ‘good’ status in relation to invertebrates or fish is not necessarily related to discharge quality. It can also be in relation to other factors such hydro-morphology (e.g. changes from natural river characteristics through historic river engineering which change habitats)

2.30 The Councils are working in partnership with SWS and the EA to ensure that there are adequate treatment facilities to maintain water quality and to meet the proposed growth across East Sussex and Brighton & Hove.

Sewage Sludge

2.31 The two main drivers for sewage sludge generation are the growth in population and tightening discharge limits discussed above. More stringent requirements for water quality will require more organic material to be removed from the outfall, resulting in greater volumes of sludge to be managed.

2.32 The demand for sludge spreading to agricultural land has decreased in recent years and water companies are seeking to broaden their sludge treatment strategy approach. In some areas this already includes the use of biogas to generate electricity.

2.33 SWS may need to explore alternative options in the future as commercial pressures have led to major retailers restricting the use of sewage sludge fertiliser on crops intended for supermarkets. Alternatives could include biogas and thermal treatment.

Other influences on the management of waste water treatment and sewage sludge in the plan area

2.34 Policies and plans affecting sites designated under the Habitats Regulations require Appropriate Assessment and this could affect the location of future facilities.

2.35 Any future policies and proposals should be developed in consultation with relevant stakeholders, in particular Southern Water, the Environment Agency and Natural England.

Management of Waste water and Sludge arisings in East Sussex and Brighton & Hove

Management of Waste water and Sludge arisings in East Sussex and Brighton & Hove

Southern Water Services

3.1 Southern Water Services (SWS) is the sewerage undertaker for the East Sussex and Brighton & Hove area.

3.2 SWS is required to submit a Final Business Plan for the approval of Ofwat and Defra. The next set of funding (the 2009 Price Review) will be announced later in 2009. The NEP is likely to provide additional capacity at many key sites and SWS is planning to defer further investment to 2020 for the majority of catchments.

3.3 Hailsham North and South WWTWs are identified for investment in the period 2012-2015 as a result of housing and other development planned before 2020. A new discharge location and additional processing capacity are required to protect the Pevensey Levels SSSI to the regulatory standards.

3.4 An application has been approved for a new combined Waste Water Treatment and sewage recycling centre at Peacehaven. When the facility is operational, all catchments within East Sussex and Brighton & Hove will be covered by modern waste water treatment plants.

3.5 SWS considers that there is sufficient capacity to serve currently planned development. This does not include the requirements of the Regional Spatial Strategy (South East Plan) or Local Development Frameworks that are currently being prepared by Local Planning Authorities in East Sussex and Brighton & Hove. The South East Plan requirement for new dwellings for the East Sussex and Brighton & Hove area stands at 41,400 to be provided between 2006 and 2026.

Existing Waste Water Management in East Sussex and Brighton & Hove

Capacity at WWTWs

3.7 There are 32 WWTWs within the plan area treating 60 million cubic metres of waste water each year. The volume passing through each works is controlled by consents from the EA. This is based on a maximum Dry Weather Flow (DWF). This does not account for flows when there is heavy rainfall.

3.8 Smaller works do not measure flow in this way and a DWF has been calculated using the population served by the works. ⁽⁵⁾

Current Capacity

3.9 Current capacity at WWTWs has been divided into the following categories:

5 More accurately a Population Equivalent (PE) is used- a notional population that would generate an amount of sewage

Management of Waste water and Sludge arisings in East Sussex and Brighton & Hove

Capacity: The consented capacity is greater than the current flows

Limited Capacity: Current flows are within 5% of the maximum allowed

No Capacity: Current flows exceed consents and new consents or infrastructure is required

3.10 Three WWTWs are identified as at or near capacity. The EA's DWF consent review process may provide increased capacity at these sites. This is not guaranteed and may not meet the demands of future development.

Capacity to accommodate future growth

3.11 Most of the treatment works would have capacity if increases to DWF consents are agreed, or expansion of works can take place. This is dependent on the EA agreeing to the new flows and SWS providing the infrastructure for new capacity within the necessary timescales.

Process Capacity

3.12 Twenty-one WWTWs are considered to be at BAT with a further eighteen works identified as requiring tightening of consent limits when they are reviewed. Mostly this will relate to the setting of Phosphate limits.

3.13 Eleven WWTWs are identified within AMP5 (the national asset management plan period which runs between 2010 and 2015) or NEP which will result in the tightening of consents.⁽⁶⁾

Current effects on Water Quality

3.14 The Pevensey Levels, Waldron Ghyll, the River Cuckmere and Camber bathing water have all been identified as 'sensitive' to discharges under the European Urban Waste Water Directive.

WWTW discharging to rivers

3.15 Currently twenty-five WWTWs have been identified as discharging to watercourses that are currently achieving moderate ecological status. Where this drop in classification is only due to phosphorous concentrations, the WWTW are

6 The NEP is a list of **environmental improvement schemes** that ensure that water companies meet European and national targets related to water. The EA produce the NEP after consultation with the water industry and a number of other organisations. Companies incorporate these requirements into their proposed **business plans**, which inform Ofwat's decision on prices.

Management of Waste water and Sludge arisings in East Sussex and Brighton & Hove

considered to have capacity for further development ⁽⁷⁾ Where there is likely to be a restriction on discharges to ensure waterbodies achieve 'good' status by 2015, 2021 or 2027, these have been designated as having limited capacity.

3.16 There are five WWTW discharging to watercourses that are currently achieving 'poor' or 'bad' ecological status. It is recognized that these WWTWs have no capacity at present and will require further investigation and assessment if development proposals come forward in these areas.

WWTW discharging to bathing waters

3.17 Bathing waters are assessed by the EA each year from mid-May to the end of September. The data is submitted to Defra and then published by them every November. Six WWTWs have been identified as having potential to impact on bathing waters within the plan area. The 16 bathing waters in East Sussex and Brighton & Hove are identified in Appendix 5.

3.18 Hastings, Normans Bay and Pevensey Bay are identified as unlikely to meet the required standard ('poor predicted compliance').

Discharges affecting SACs, SPAs and SSSIs

3.19 The Pevensey Levels Ramsar and Dungeness Special Area of Conservation (SAC) are downstream of a number of WWTWs and sensitive to elevated phosphate levels. The impacts of individual treatment works have not been identified or assessed at this stage. A further four SSSIs and Dungeness to Pett Level SPA may also be impacted by WWTW discharges.

3.20 **Hailsham North and South WWTW** discharge to the Pevensey Levels. The EA has included these WWTWs on the list of facilities in the SE Region where the Agency may object to housing applications coming forward. This would be on grounds of impact on water quality, caused by a lack of adequate infrastructure capacity. Further information on this issue is contained within 'Creating a Better Place: Planning for Water Quality in the South East'.

3.21 The EA has since re-assessed the available headroom and now estimates that there is capacity for further development of 2,900 and 2,400 houses to connect to Hailsham North and South respectively. SWS hopes to deliver infrastructure to meet this headroom capacity by 2012. ⁽⁸⁾

Crowborough WWTW

3.22 SWS are seeking funding for a phosphate stripping scheme to increase capacity by 20%. If approved by Ofwat, the scheme will be completed in 2014.

7 Further discussion on this point is contained within the Scott Wilson Waste Water Management Study at para 2.43.

8 Only an additional 1400 houses could currently be accommodated at Hailsham North whereas Hailsham South has the necessary infrastructure in place

Management of Waste water and Sludge arisings in East Sussex and Brighton & Hove

Sewage Sludge in East Sussex and Brighton & Hove

3.24 Southern Water estimates that 19926 tonnes of dry solids (tds) were managed in East Sussex in 2006/07.

3.25 A combined WWTW and sludge recycling centre at Peacehaven has been approved and a Judicial Review regarding the decision was dismissed in April 2009.

3.26 SWS operates another sludge treatment facility at Hastings. This does not operate at full capacity as the planning permission limits the amount of lorry movements. It is currently unclear if there is scope to permit the facility to work to capacity.

3.27 Further assessment is needed to clarify the likely need for further sludge treatment facilities. This will be dependent on the regulatory regime, the rate at which development comes forward and the requirements of SWS business plan. A discussion of the options is contained in the detailed technical study.

Conclusions

3.27 The most challenging issue for the future management of waste water and sewage sludge is the need for additional WWTW capacity in the Hailsham area to support the development proposed in that area by the South East Plan.

3.28 Further work is needed to identify sites in the Hailsham area for either a new waste water treatment works or a pathway for a new outfall. This work will be undertaken in conjunction with SWS and other stakeholders, and will be progressed through a Waste Site Allocations development plan document. Treatment options for sewage sludge may also need further assessment.

3.29 Background work to inform the identification of broad locations in the Core Strategy can be found in the technical study ⁽⁹⁾

9 East Sussex County Council and Brighton and Hove City Council Wastewater Management Study (Scott Wilson).

Appendices

Appendices

Appendix 1: List of Other Information Papers

1. The Future Need for Waste Management
2. The Future Need for Minerals Production and Management
3. Sustainable Resource Use and Management
4. Waste Management Methods and Technologies
5. Residual Waste Disposal
6. Spatial Portrait of East Sussex and Brighton and Hove
7. Hazardous Waste
8. Transportation of Waste and Minerals
9. Climate Change and Waste and Minerals
10. Wastewater and Sewage Sludge

Appendix 2: International and National Legislation

EU Directives

Water Framework Directive (WFD) (2000/60/EC)

Urban Wastewater Treatment Directive (UWWTD) protects the environment from the adverse effects of sewerage discharges. The UK is required to review waters sensitive to sewage discharges every four years.

Groundwater Directive protects the environment from the adverse effects of sewerage discharges. The UK is required to review waters sensitive to sewage discharges every four years. The Pevensy Levels, Waldron Ghyll, the River Cuckmere and Camber bathing water have all been identified as sensitive.

Fresh Water Fish Directive (FFD) (2006/44/EC) identifies fresh water bodies that sustain fish populations, setting chemical and physical objectives for salmonid and cyprinid waters (salmon and carp waters). This will be incorporated into the WFD in 2013.

Bathing Water directive

The main objective of the Bathing Water Directives (76/160/EEC and 2006/7/EC) is to protect public health and the environment from faecal pollution at bathing waters. The regulations are currently in a transitional period and the requirements of 76/160/EEC are changing in stages to reflect the requirements of 2006/7/EC between now and 2015.

Marine and Coastal Access Bill

The MCA Bill aims to simplify the process of planning and regulating works at sea, setting up a new Marine Management Organisation to coordinate a range of activities in the following areas

Appendices

- Marine Planning
- Marine Licensing
- Marine Nature Conservation
- Fisheries Management and Marine Enforcement
- Environmental Data and Information
- Migratory and Freshwater Fisheries
- Coastal Access
- Coastal and Estuary Management

Flood and Water Management Bill

The bill details responsibility for flood risk and sets out mechanisms for flood risk planning. The sections particularly relevant to water and waste water companies are:

- safety of reservoirs;
- more sustainable forms of drainage in new developments
- resolving misconnections to sewers

More sustainable forms of drainage will reduce volume and flows through the public sewer, which could generate extra capacity.

Shellfish Waters Directive

Protects shellfish waters in the same manner as the FWF directive. There are no designated shellfish waters adjacent to the plan area.

UK legislation

Planning Act 2008

Environmental Protection Act 1990

Environmental Permitting Regulations (for England and Wales) 2008

The Groundwater Regulations 1998 (to complete the implementation of the EC Groundwater Directive)

The Water Resource Act 1991 (for discharges of sewage effluent)

Sludge (use in Agriculture) Regulations 1989 (as amended).

The Town and Country Planning (General Permitted Development) Order 1995

Appendix 3: Planning Policy Framework in relation to this Information Paper

PPS10 Planning for Sustainable Waste Management

PPS23 Planning and Pollution Control

Appendices

The South East Plan (2009)

East Sussex and Brighton & Hove Waste Local Plan (2006)

Appendix 4: Further References and Information Sources

Defra

Information on all regulations relating to water quality can be found on the Defra website

<http://www.defra.gov.uk/environment/water/quality/index.htm>

Defra publishes Sewage Treatment in the UK, to fulfil the obligation to provide a periodic update in relation to waste water in the UK.
<http://www.defra.gov.uk/environment/water/quality/uwwtd/report02/pdf/uwwtreport2.pdf>

Defra also maintains a list and maps of sensitive areas, which can be found at

<http://www.defra.gov.uk/environment/water/quality/uwwtd/sensarea/default.htm>

EA

Further information on the Urban Waste Water Treatment Directive and how the EA is working in this area can be found at

<http://www.environment-agency.gov.uk/homeandleisure/37809.aspx>

and here

<http://www.environment-agency.gov.uk/business/regulation/31907.aspx>

Ofwat

Information on Ofwat and how it regulates the water industry can be found at

<http://www.ofwat.gov.uk/aboutofwat/>

Southern Water Services

More information on Southern Water and its operations can be found at

<http://www.southernwater.co.uk/Aboutus/library/default.asp>

including a video explaining the process of sewage treatment
<http://www.southernwater.co.uk/Environment/allAboutWater/DownTheDrain/default.asp>

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