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Technical Advice Note 21

Waste

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1. The Planning Framework in Wales

1.1 This Technical Advice Note should be read in conjunction with:

- Planning Policy Wales;
- '*Towards Zero Waste - One Wales: One Planet*'. The overarching waste strategy document for Wales (June 2010);
- Part 5 and Part 6 of The Waste (England & Wales) Regulations 2011, as amended by the Waste (England and Wales) (Amendment) Regulations 2012, SI 2012 No.1889.
- Relevant 'Sector Plans', with particular reference to the Collections, Infrastructure and Markets Sector Plan (July 2012).

1.2 Planning Policy, Technical Advice Notes, Circulars and the overarching national waste strategy (including the waste sector plans) should be taken into account by local planning authorities in Wales in the preparation of development plans. They may be material to decisions on individual planning applications and will be taken into account by Inspectors and the Welsh Government in the determination of appeals and called-in planning applications.

1.3 This guidance note provides advice on how the land use planning system should contribute towards sustainable waste management and resource efficiency, reflecting the new waste management drivers at a European Union and Wales level. The Welsh Government's overarching waste strategy for Wales, 'Towards Zero Waste - One Wales: One Planet', sets out a long term framework for resource efficiency and waste management in Wales up until 2050, taking into account social, economic and environmental outcomes. Achieving the aims in Towards Zero Waste relies on a suite of waste sector plans. These provide details on how the outcomes, targets and policies in Towards Zero Waste are to be implemented.

1.4 Planning Policy Wales, this Technical Advice Note, Local Development Plans, Towards Zero Waste, and the Sector Plans, taken as a whole, comprise the overall waste management plan for Wales as required under European Union law, particularly Articles 1,4,13, 16, and 28 of the Waste Framework Directive. This document sets out the relevant land use planning considerations necessary to ensure that the new European Union waste management drivers are reflected in Wales when new waste management facilities are proposed.

1.5 Waste is an increasingly important issue in society and there are economic and social imperatives, as well as environmental ones for us all to use non-renewable resources more wisely through resource efficiency measures and the increased use of alternatives. In order to secure our resources and extend their use within the economy we need to prevent waste from arising and where this is not possible we need to be (i) capturing waste in ways that enable us to reclaim materials to be used again and (ii) harnessing waste as a resource in its own right. The Welsh Government reconfirmed its commitment towards sustainable development in the Government of Wales Act 2006.

1.6 The definition of waste is established in Article 3(1) of the Waste Framework Directive, which provides:

""Waste" means any substance or object which the holder discards or intends or is required to discard"[1].

1.7 The Waste Planning Authority is the local authority and national park authority with responsibility for land use planning control over waste management. The Waste Collection and Disposal Authority is the local authority responsible for the safe collection and disposal of municipal wastes arising in a particular geographical area[2]. National park authorities do not have responsibilities in relation to waste collection and disposal. National park authorities act as local planning authorities within the boundaries of their national park and as such are expected to collaborate in planning for waste facilities. The Waste Regulation Authority, having responsibility for the issue and control of environmental permits is Natural Resources Wales. However, where regulated facilities are found within Class B[3] and have no interaction with water, the responsibilities will fall to the relevant local authority.

1.8 The Welsh Government and the rest of the United Kingdom are committed to the full and timely transposition and implementation of a number of Directives in the management of waste. The result of this commitment is a legal and policy framework that will shape the way that waste as a resource has to be planned for and managed.

Scope of this guidance

1.9 Towards Zero Waste and the suite of existing and emerging waste sector plans will deal with matters beyond the scope of this guidance in providing the framework within which Wales will reduce the amount of waste it produces, and make the transition to a high recycling society. Planning Policy Wales and this Technical Advice Note set a framework for facilitating the delivery of sustainable waste management infrastructure through the planning process. At all stages, dialogue between local planning authorities, Natural Resources Wales, others in local and central government, the waste management industry, the voluntary sector and the general public is encouraged. Where possible, the Technical Advice Note refers to the relationship between the planning and permitting systems and areas of potential overlap. The parallel tracking of planning and permitting applications may be particularly beneficial for complex proposals and should be encouraged as a practical way forward where appropriate.

[1] Directive 2008/98/EC on waste, OJ [2008] L312/3.
[2] Environmental Protection Act 1990, s.30.
[3] Environmental Permitting (England and Wales) Regulations 2010, s.8 & 32.

Sustainable Waste Management

1.10 Sustainable development is a key functioning principle of the Welsh Government and its policies[4]. The movement towards sustainability in relation to planning for waste should be guided first by the wider principles of sustainability contained in Planning Policy Wales, however, with specific reference to waste management land use planning should help to:

- Drive the management of waste up the waste hierarchy and facilitate the provision of an adequate network of appropriate facilities;
- Minimise the impact of waste management on the environment (natural and man made) and human health through the appropriate location and type of facilities;
- Recognise and support the economic and social benefits that can be realised from the management of waste as a resource within Wales.

Planning Implications of Key European Directives

1.11 Further details of the key European Directives and decisions on waste are included within the supplementary document, Waste Planning: Practice Guidance. The following summary sets out the requirements of the most relevant Directives and their implications for planning for waste.

The Waste Framework Directive[5]

1.12 The Waste Framework Directive marks a shift in how we think about waste. Waste should be regarded as a valuable resource rather than as an unwanted burden. The Directive establishes clearer definitions, provides greater emphasis on the importance of preventing waste from arising (through the incorporation of reuse within prevention) and includes preparation for reuse. The Directive also sets more ambitious recycling goals. The new elements have implications for how and what we plan for in waste management infrastructure.

1.13 The implementation of Articles 16 and 28 are among a number of Articles within the Waste Framework Directive to which the planning process makes a contribution. Article 16 requires member states to establish an integrated and adequate network for the disposal of wastes, and for the recovery of mixed municipal waste, often referred to as residual municipal waste[6]. This network should include all necessary supporting waste management facilities such as waste transfer stations and processing facilities. The network should be adequate to deal, as far as practicable, with the range and volume of waste arisings. To help achieve this, member states are required under Article 28 of the Waste Framework Directive to produce waste management plans. Planning Policy Wales, Technical Advice Note 21and local development plans form part of this overall plan.

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[4] Government of Wales Act 2006, s.79; Welsh Government (May 2009) One Wales: One Planet - The sustainable development scheme of the Welsh Assembly Government. Available online at: http://www.sustainwales.com/library/one-wales-one-planet-sustainable-development-scheme-wales; Welsh Government (July 2008) People, Places, Futures: The Wales Spatial Plan Update. Available online at: http://wales.gov.uk/location/strategy/spatial/documents/wsp2008update/?lang=en.

[5] Directive 2008/98/EC on waste, OJ [2008] L312/3.

[6] Mixed municipal waste or residual municipal waste includes those mixed wastes collected by third parties from commercial and industrial sectors as well as from private households.

1.14 The planning system itself cannot deliver the network, this will be achieved by the private sector (aided in part by support from the Welsh Government where a need for market intervention exists) and through public procurement exercises for the procurement of capacity for the management of certain waste streams for the municipal waste sector. Therefore, local planning authorities should maintain an effective dialogue with other stakeholders within the waste sector.

The Landfill Directive[7]

1.15 Where the reuse, recycling or recovery of waste is not possible or will cause greater harm to human health and the environment, disposal of such waste remains the appropriate management option.

1.16 The Landfill Directive sets stringent requirements for the landfilling of wastes in Wales. The key requirements of the Directive are:

- the separation of wastes through a classification approach to landfills: landfill for hazardous waste; landfill for non-hazardous waste and landfill for inert waste[8];
- the treatment of wastes prior to landfilling[9];
- banning of certain wastes from being landfilled for example, liquid wastes, explosive and flammable wastes; clinical and veterinary wastes and whole or shredded waste tyres[10];
- reduction in the amount of biodegradable municipal waste going to landfill[11];
- landfill location requirements.

1.17 The planning process should complement the aims of the Landfill Directive by playing its part in diverting waste away from landfill and assisting in meeting the biodegradable municipal waste targets of the Landfill Directive and the Waste and Emissions Trading Act 2003 (as amended).

1.18 In doing so, local planning authorities should be mindful of the fact that changes in the nature and acceptability of current landfill arrangements will necessitate changes in the treatment and disposal of waste. These changes may be brought about by revised restrictions, bans or increased targets from the European Union or they may be as a result of Welsh Government measures introduced to stimulate more rapid changes to the ways we manage our waste and move us towards zero waste to landfill. For example, the Waste (Wales) Measure 2010, No.8 enables the Welsh minister to make regulations for Wales to restrict or ban certain wastes from landfill. This would have an effect on the volume and types of wastes needed to be dealt with in other types of waste management facilities.

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[7] Directive 1999/31/EC on the landfill of waste, OJ [1999] L182/1.
[8] Article 4, Landfill Directive.
[9] Article 6, Landfill Directive. Treatment is defined under Article 2 *as the physical, thermal, chemical or biological processes, including sorting, that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.*
[10] Article 5, Landfill Directive.
[11] Article 5(1), Landfill Directive.

1.19 As a corollary, facilities to accommodate waste streams prohibited and/or restricted from landfill will need to be developed and accommodated through the planning process.

The Overarching Waste Strategy for Wales: Towards Zero Waste and relevant Sector Plans

1.20 Towards Zero Waste is the overarching waste strategy document for Wales. It sets out a long term framework for resource efficiency and waste management in Wales up until 2050, taking into account social, economic and environmental outcomes. Delivering on the objectives contained in Towards Zero Waste relies on a suite of waste sector plans. These sector plans provide the details on how the outcomes, targets and policies in Towards Zero Waste are to be implemented. Of particular importance for land use planning and waste is the '*Collections, Infrastructure and Markets Sector Plan*'. The Collections, Infrastructure and Markets Sector Plan is of most relevance and focuses on delivering the necessary collection systems, infrastructure and markets for recyclates in Wales. The plan looks to create the conditions to enable as much waste as possible to be managed in Wales and for as much as possible of the recyclate generated in Wales to be used in Wales. It will do this by ensuring that a high volume of recyclate is delivered to reprocessors and that end markets are developed in Wales for the recyclates and by aiming to maximise the value from residual municipal waste to the benefit of Wales[12].

1.21 In order to reach the goal of zero waste, there is a difficult balance to be struck between making sure we have sufficient capacity to deal with our waste arisings in the short term (to avoid environmental impacts) in a way which does not impede the achievement of longer term goals post 2024/25. In order to achieve an increase in the quantity of waste material being diverted from landfill to preferred management methods, early delivery of mixed municipal waste treatment infrastructure is essential.

Waste Production and Forecasts in Wales

1.22 Towards Zero Waste and the Collections, Infrastructure and Markets Sector Plan provide data on the amount of waste arising in Wales. The Collections, Infrastructure and Markets Sector Plan breaks this data down by waste material and by source. It should be noted that not all waste arising in Wales is managed in Wales, some is "exported" usually to other UK counties for treatment, recycling, recovery or disposal. Waste is also imported into Wales for management at Welsh facilities. It is not necessary for Wales to have within its borders a full suite of facilities necessary to comply with the requirements of the Waste Framework Directive, or to manage all of its own waste.

1.23 Factors including the volume of a certain waste, its frequency of arising and location may mean that some waste is better managed across the border. Similarly, Wales does not only manage its own waste arisings, waste is taken from other parts of the United Kingdom and treated, recycled, recovered and disposed of in Wales.

[12] Article 16 of the Waste Framework Directive requires an integrated and adequate network of installations to be established for waste disposal installations and installations for the recovery of mixed municipal waste.

1.24 All types of waste should be managed sustainably. However, the Waste Framework Directive places particular obligations on member states with regard to infrastructure for waste disposal and infrastructure for the management of mixed municipal waste and establishes preparation for reuse and recycling targets for a number of priority materials including paper, metal, plastic and glass. Therefore, the Collections, Infrastructure and Markets Sector Plan identifies a number of priority materials: paper, card, metal, glass, plastics, food, hazardous waste and Directive wastes[13].

1.25 As waste composition changes over time facilities will need to adapt. It should be noted that a number of waste management installations are capable of taking a range of waste materials. For more information on the technological aspects and associated specific planning considerations, see the separate guidance document entitled: Waste Planning: Practice Guide.

[13] Welsh Government (July 2012) Collections, Infrastructure and Markets Sector Plan at p.5, 16-17.

2. Planning Principles

General Principles

2.1 When considering development proposals for all types of waste management facilities, planning authorities should take into account their potential contribution to the objectives, principles and strategic waste assessments set out in Towards Zero Waste and the relevant waste sector plans and the relevant development plan for the area. The extent to which a proposal demonstrates this contribution, in environmental, economic and social terms, will be a material planning consideration. The aim is to ensure that the right facilities are located in the right place to meet environmental, economic and social needs. At both a strategic and site level this means accepting that waste will need to be managed in all areas of Wales, that economic considerations relating to demand and viability may affect what management options can be acceptably brought forward in an area, that transportation considerations may effect whether a proposed location is suitable and that all proposals must be environmentally acceptable.

2.2 There are clear environmental, economic and social benefits associated with managing waste as a resource and optimising efficiency of use of waste material. The expanding waste management sector can offer job and training opportunities and safeguard existing jobs as a result of cost savings associated with increased resource efficiency. The creation of new infrastructure and jobs can support and regenerate local communities through skills enhancement and increased local expenditure.

2.3 The private, charitable and voluntary sectors all play a role in enabling re-use and preparation for re-use. These facilities often provide social and community benefits as well as environmental and economic benefits. They offer employment up-skilling opportunities in the green jobs sector and they often create training and employment opportunities for those socially excluded, including those with learning difficulties and other disadvantages. The social, economic and environmental benefits of this sector should be taken into account by planning authorities.

2.4 The Waste Framework Directive and daughter directives set down obligations for all sectors of waste. Amongst targets for a variety of waste materials, specific requirements are established in relation to the disposal of waste and to mixed municipal waste collected by or on behalf of waste collection authorities from private households and from other sources where such wastes are similar[14]. These requirements are reflected across the Welsh Government's waste management plans (Towards Zero Waste, the suite of sector plans and within this Technical Advice Note). So, whilst this Technical Advice Note provides advice on all types of waste management facilities, it also sets out the specific requirements for waste disposal and mixed municipal waste treatment infrastructure.

[14] This includes mixed wastes collected by third parties from commercial and industrial sectors as well as private households.

2.5 The principles enshrined in the Waste Framework Directive will have already shaped the development of Towards Zero Waste and the relevant waste sector plans and will have been factored into the associated strategic waste assessments implicit within these documents. Therefore, whilst Welsh Government waste policy context provides a starting point for progressing local development plans and for determining planning applications, local approaches and decisions should demonstrate that the principles contained in this section have been taken into account.

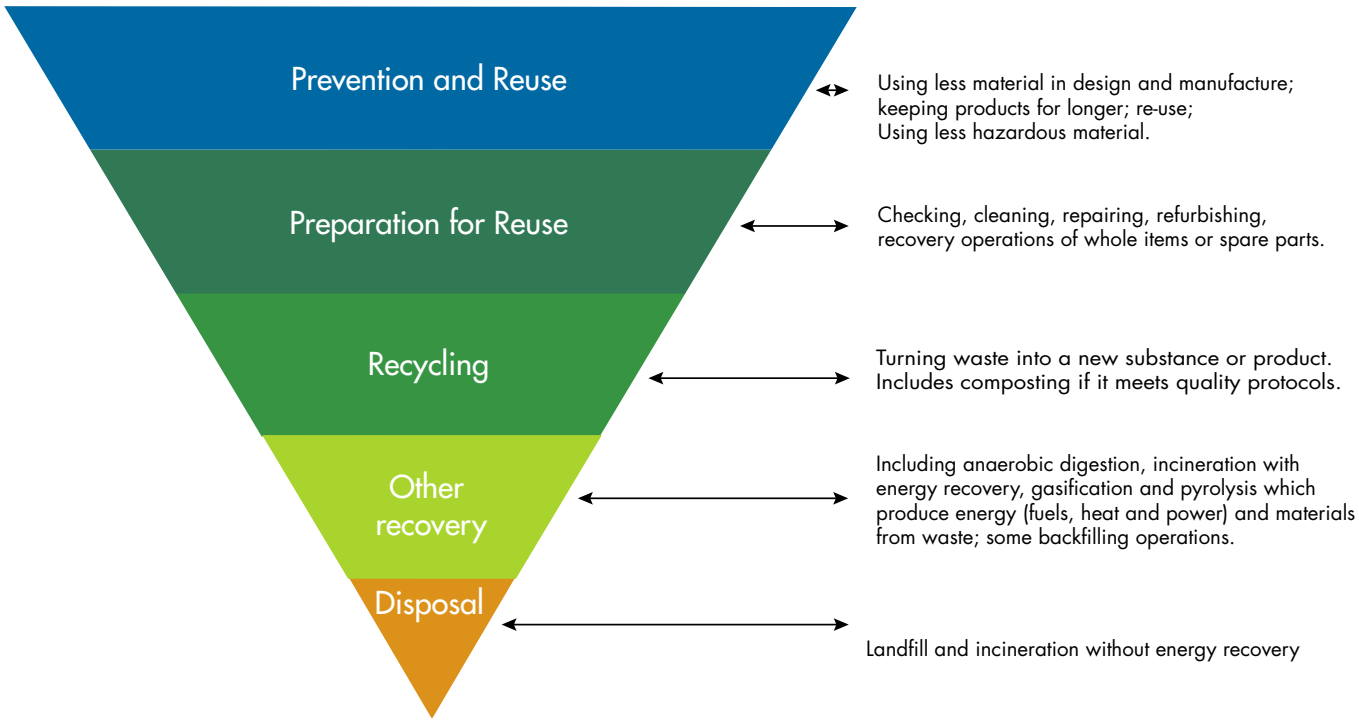
The Waste Hierarchy (Article 4 Waste Framework Directive)

2.6 The waste hierarchy is a central pillar to inform decisions on waste management options. The objective of the waste hierarchy is to ensure that wastes are managed in a sustainable way. The options for waste management appear in the waste hierarchy as a priority order in waste prevention and management. It should be noted that the waste hierarchy is not absolute, and does not mean that all waste should be reduced or recycled where it is not practical to do so, nor does it necessarily mean that there should be no further provision of disposal facilities.

2.7 The Welsh Government has produced guidance for waste producers on how to apply the waste hierarchy[15]. Whilst this guidance provides a useful indication of where waste treatment technologies sit within the waste hierarchy, the guidance is not written for the purposes of land use planning. When taking planning decisions it is expected that the waste hierarchy be applied as a priority order, unless, for specific waste streams departing from this hierarchy is justified by life cycle thinking on the overall impacts of the generation and management of such waste.

[15] Welsh Government (January 2012) Guidance on applying the waste hierarchy (Welsh Government: Cardiff) Available online at: http://wales.gov.uk/docs/desh/publications/120119wastehierarchyguideen.pdf.

Diagram 2.7 – The Waste Hierarchy



2.7.1 Prevention

Waste prevention is key to the efficient use of natural resources. If fewer resources are used then there will be less waste to manage and treat and therefore less demand for waste management infrastructure. Preventing waste from arising in the first place relies on improved and more sustainable patterns of production and consumption and land use planning is limited in its influence on changing such patterns. For example, measures which prevent waste from arising include reducing the quantity of waste produced through the reuse of products and the extension of the lifespan of products. However, planning authorities could help raise awareness, either at the pre-application stage or through supplementary planning guidance, by encouraging developers to think about how they may reduce waste at both the construction and operational stages of development. This could mean taking into account the potential to use excavated waste material on site, for example in landscaping and noise bunds, and whilst not strictly a prevention measure, by encouraging the provision of space for facilities to manage waste sustainably as part of development schemes. Further advice on sustainable design can be found in Technical Advice Note12 Design.

In relation to construction and demolition waste, the Welsh Government has introduced a requirement to produce Site Waste Management Plans. Amongst other things, Site Waste Management Plans should set out how waste will be prevented, managed and disposed as part of taking forward construction projects[16].

The reuse of waste products and materials is classified under the revised waste hierarchy as part of waste prevention. Reuse is where materials are used again for the same purpose for which they were made. This helps to divert products and components from becoming waste.

2.7.2 Preparation for reuse

Materials and products which need cleaning, checking and/or repairing before they are capable of safely performing their original function are waste until they have been prepared for reuse and all relevant pre-processing and recovery operations have been undertaken.

Reuse and preparation for reuse facilities and associated commercial schemes collect and repair discarded products, items and appliances such as furniture, electrical and electronic equipment, domestic white goods, vehicle parts and machinery. They tend to be small-scale, although not exclusively so. The preparation for reuse and sale for reuse of these items reduces demand on raw materials and the energy in producing new goods. These facilities should be supported in principle.

Reuse and preparation for reuse facilities may be appropriately sited on high streets, as retail concerns, or on business land as high tech or storage and distributing operations. The preferred siting of these types of facilities will depend upon the nature and scale of their activities. Local authorities play an important part in providing reuse facilities and ensuring opportunities exist to separate waste which is able to be reused. In the future, this could mean greater provision of reuse facilities at existing civic amenity sites.

Proposals aimed at preparation for reuse and reuse facilities should be considered favourably, taking into account factors associated with the deposit and collection of goods, the nature of the repairs, maintenance and treatment, the need to ensure satisfactory transport and accessibility for the deposit and collection of goods and potential implications of dust, litter and noise from the dismantling, treatment and maintenance undertakings on the site, all of which will vary on a case-by-case basis.

As emphasis on reuse grows, planning authorities should expect proposals for retail developments specialising in or involved in reuse or preparation for reuse. Access for drop-off and collection, taking into account the nature and potential bulkiness of these goods as well as the need to maintain suitable shop frontages in prime shopping areas will influence the suitability of location for such proposals.

[16] The Clean Neighbourhoods and Environment Act 2005, c.16.

2.7.3 Recycling

Where it is not possible to reuse materials and products or prepare them for reuse, recycling should be encouraged. Recycling can reduce the demand for resources and reduce atmospheric emissions.

Recycling is considered to be any recovery operation in which waste materials are reprocessed into products, materials or substances whether for their original or other purposes. Recycling includes the reprocessing of organic material through composting and anaerobic digestion. The meaning of recycling does not extend to energy recovery and the reprocessing of materials for use as fuels or for backfilling operations. Priority should be given to the development of new infrastructure that promotes high quality, closed loop recycling, or upcycling where feasible, with a focus on dealing with separately collected materials. Further advice on recycling infrastructure can be found in Chapter 4.

2.7.4 Recovery

Where wastes cannot be recycled, other waste recovery operations should be encouraged. Waste recovery operations result in waste that can serve a useful purpose by replacing primary fossil fuel materials (i.e. coal or gas) which would otherwise have been used to fulfil a particular function in the plant or in the wider economy. Energy recovery includes: incineration, incineration with energy recovery, co-incineration (e.g. cement kiln), anaerobic digestion[17], pyrolysis and gasification with energy recovery and the spreading on land of a separated out bio-waste.

The recovery of energy from mixed municipal waste in high efficiency facilities is considered by Welsh Government to be a vital component of the waste management system in Wales. Such facilities are currently considered to represent the most sustainable outcome for mixed municipal waste[18].

Co-locating these facilities with heat users is preferential in order to allow utilisation of waste heat from the combustion process. When preparing proposals, developers should give consideration to the location of these facilities and the potential for future user demand and planning authorities should identify any opportunities for co-location in their local development plans.

Waste incineration facilities dedicated to the processing of municipal wastes only may be considered to be recovery facilities (R1) rather than disposal facilities (D10) under certain specified conditions. The R1 Formula, defined in Annex II of the Waste Framework Directive, allows a distinction to be made between disposal and recovery in respect of incineration based upon the energy efficiency of the facility. Under the R1 Formula, incineration facilities dedicated to the processing of municipal waste only must have energy efficiency above 0.60 for installations in operation and permitted before 1 January 2009 and 0.65 for installations permitted after 31 December 2008 to be categorised as recovery operations[19].

[17] Anaerobic digestion may fall within the recycling category where certain standards and quality of bio-waste are achieved.
[18] Mixed municipal waste includes those mixed wastes collected by third parties from commercial and industrial sectors as well as from private households.
[19] DEFRA and DECC (February 2013) Energy from Waste: A guide to the debate. Available online at: https://www.gov.uk/government/publications/energy-from-waste-a-guide-to-the-debate.

In accordance with Towards Zero Waste and the Collections, Infrastructure and Markets Sector Plan high efficiency energy from waste facilities are encouraged. 'High Efficiency' facilities are defined as those facilities which exceed the R1 Formula limits. The Welsh Government aims for energy from waste facilities to be 'heat enabled' to allow the subsequent development of combined heat and power options. This then allows the development of facilities with thermal conversion efficiencies which approach, or even exceed, 60%. (By comparison, attaining an R1 value of 0.65 equates to a thermal efficiency of approximately 35%).

Where there is uncertainty as to whether or not a proposal constitutes a disposal or recovery operation, planning authorities should discuss the specific proposal with Natural Resources Wales before arriving at a judgement. Such discussion will be critical for ensuring consistency between the planning and permitting decisions.

Waste incineration is only one of the technologies which fall within the "other recovery" waste management option of the hierarchy. Pyrolysis, gasification and the spreading on land of bio-waste are recovery operations and anaerobic digestion can also fall within recovery, depending on the quality of the digestate produced[20].

2.7.5 Disposal

Where recovery cannot be undertaken waste must undergo safe disposal operations that ensure a high level of protection of human health and the environment. Disposal includes landfilling operations and the incineration of waste without energy recovery or incineration where energy is recovered at a low efficiency for plants recovering energy from municipal residual wastes and does not meet the R1 formula.

To achieve as close to zero landfill as possible, maximum volumes of waste to landfill have been set under Towards Zero Waste and reconfirmed in the Collections, Infrastructure and Markets Sector Plan. It is expected that the recycling and reuse targets set by Towards Zero Waste and the Collections, Infrastructure and Markets Sector Plan will, over time, result in a reduction in the volume of waste requiring disposal. As a result, landfill has an ever decreasing role to play in waste management. Nevertheless, it still has a role in the short to medium term while the necessary waste treatment infrastructure comes on stream and in the management of certain types of wastes where no better environmental outcome exists. Where no other alternatives exist (i.e. for legacy wastes such as asbestos) it will be necessary to ensure that sufficient landfill void is maintained to dispose of such waste until such time as Wales completes the transition to a high recycling society with as close to zero waste to landfill as possible.

[20] See Chapter 4, para 4.41-4.43 below.

An Integrated and Adequate Network (Article 16 – Waste Framework Directive)

2.8 In order to achieve sustainable waste management, an integrated and adequate network of waste disposal installations and installations for the recovery of mixed municipal waste collected from private households including where such collection also covers such waste from other producers must be established[21]. This principle is implemented by applying the waste hierarchy, the concept of the nearest appropriate installation and supporting the drive towards self-sufficiency as part of decision making. Whilst the waste hierarchy is relevant to all decisions concerning waste management proposals, the nearest appropriate installation concept and self sufficiency are only applicable for the purposes of the Waste Framework Directive to proposals for waste disposal and the recovery of mixed municipal waste[22].

Nearest Appropriate Installation (Article 16 – Waste Framework Directive)

2.9 The nearest appropriate installation principle states that waste falling with Article 16, should be disposed of or recovered in one of the nearest appropriate installations whilst ensuring a high level of protection for the environment and human health. This means taking into account environmental, economic and social factors, to ensure the right waste management facilities are located in the right place and at the right time. There are several reasons why it is important to manage such waste close to where it arises. This includes reducing the detrimental environmental impacts associated with the transportation of waste and retaining the intrinsic value of waste as a resource in line with the need to secure greater resource efficiency. Planning authorities should not attempt to restrict waste management developments within their boundaries to deal only with arising in their areas. The proximity of a waste disposal or mixed municipal waste recovery installation will depend upon the quantities and types of arisings at local, regional and national levels.

Self Sufficiency (Article 16 – Waste Framework Directive)

2.10 Moving towards the aim of self-sufficiency in waste recovery and disposal through the provision of an integrated and adequate network is a key principle. The principle should not be taken to mean, however, that Wales, or indeed each member State, must have the full range of waste facilities for dealing with all waste types which fall within the auspices of the article 16 obligation. The waste we cannot prevent should be regarded as a valuable resource and high quality recycling and re-use within Wales by Welsh industry should be facilitated. However, in doing so, account should be taken of geographic circumstances and the need for specialised installations for certain types of waste.

[21] Directive 2008/98/EC on waste, OJ [2008] L321/1 Article 16.

[22] See para 1.13 for discussion on the meaning to be given to mixed municipal waste. The scope of mixed municipal waste is also set out in the glossary.

Protection of Human Health and the Environment (Article 13 – Waste Framework Directive)

2.11 Planning authorities should ensure that all types of waste facilities are located where a high level of protection for the environment and public health can be ensured. In particular, waste management should be undertaken:

- without risk to water, air, soil, plants, or animals;
- without causing a nuisance through noise or odour; and
- without adversely affecting the countryside or places of special interest.

2.12 The operational impact of a proposed waste disposal or waste recovery operation falling within the definition of a regulated facility under the Environmental Permitting (England and Wales) Regulations 2010 (as amended) will be considered by the permitting authority and controlled through conditions established in the environmental permit. Planning authorities should take into account the ability of environmental permits to control the operations of waste facilities and its interactions with the environment and should not duplicate control more appropriately imposed as part of the permit. However, it will be appropriate to consider the complementary conditions which should be attached to a planning consent. It would be good practice to parallel track applications for planning permission and authorisations required under environmental permitting legislation where this is appropriate.

3. Strategic Planning for Waste

3.1 Towards Zero Waste, along with the Collections, Infrastructure and Markets Sector Plan, sets out a long term framework for resource efficiency and waste management in Wales up until 2050, taking into account social, economic and environmental outcomes. Therefore, the strategic planning response needs to create the conditions for contributing to both short and longer term waste management goals.

3.2 In the short to medium term there will be a continued need to develop more waste treatment and recovery facilities in order to reduce reliance on landfill. That said, the requirement for disposal capacity, albeit a diminishing requirement, will remain. At the same time, the longer term aim is an infrastructure network based on higher levels of reuse and recycling. Local planning authorities should provide an enabling framework for the development of all types of waste infrastructure indicating, as far as possible, the locations to which waste management facilities should be directed.

Regional Collaboration

3.3 It is difficult to predict with complete certainty future needs for the disposal of waste and recovery of mixed municipal waste due to the variety of factors that affect future tonnages and actual existing capacity. However, the Waste Framework Directive requires that waste disposal and recovery of mixed municipal waste should be undertaken at one of the nearest appropriate installations to the source of the waste arising. This does not carry with it the expectation that all areas should be self sufficient in terms of the network. Waste arising in one area may be better treated or disposed of in a neighbouring local authority area or region and the envisaged 'network' of infrastructure is likely to be spread over a wider area than a single local authority administrative boundary. However, in line with sustainability principles, there is an expectation that all areas should be prepared to accommodate infrastructure to support the development of an integrated and adequate network, be it an actual recovery treatment plant, an intermediate treatment facility or any supporting infrastructure such as transfer stations.

3.4 The Welsh Government considers that collaboration between local planning authorities is necessary to monitor progress towards establishing an integrated and adequate network for the disposal of waste and recovery of mixed municipal waste. Whilst further waste assessment work is unnecessary at the regional level (or local development plan) as the Collections, Infrastructure and Markets Sector Plan already provides the strategic starting point, monitoring will be important to identify whether:-

- sufficient landfill capacity is being maintained across the three regions of Wales to treat waste which cannot be treated further up the waste hierarchy;
- sufficient treatment capacity for the recovery of mixed municipal waste across the three regions of Wales is coming forward;
- the spatial pattern of provision is appropriate to fulfil identified needs; and

- any further action is needed by local planning authorities to address unforeseen issues.

3.5 Some wastes, such as hazardous waste, have very low waste arisings and are best assessed at an England and Wales level and this is recognised in the Collections, Infrastructure and Markets Sector Plan. It is not necessary, therefore, for any further analysis to be undertaken at a collaborative level by local planning authorities. However, monitoring should provide a mechanism to identify any unforeseen evidence on waste arisings and provide evidence on which any necessary action can be based.

3.6 The overview provided by monitoring should be a useful evidence base for plan preparation and aid understanding of the overall waste picture for decision making purposes. Monitoring planning permissions and environmental permits will help build up a picture of the potential amount of new waste management capacity coming on stream for future years. It will enable comparison to be made between the forecasted need range outlined in the Collections, Infrastructure and Markets Sector Plan and what is available or planned and will provide information on the spatial pattern of waste infrastructure to assist Welsh Government in assessing progress towards the development of an integrated and adequate waste network.

Monitoring arrangements

3.7 Local planning authorities, in conjunction with the Welsh Government and Natural Resources Wales should establish voluntary joint arrangements to undertake annual monitoring for each region[23]. An effective approach will be dependent on collaboration at a regional level (North, South West and South East Wales). The joint arrangements will be technical in nature and will be established within 6 months of the publication of this advice note.

3.8 Natural Resources Wales provides information on the type and quantities of waste handled by permitted waste management facilities in Wales, including the remaining landfill capacity for each region. This information will be a key evidence source and the monitoring approach should build on the existing reporting requirements of Natural Resources Wales as far as possible.

3.9 Joint monitoring will enable both Welsh Government and local planning authorities to take a strategic overview of, and be able to respond to, issues and trends in the waste sector through their local development plans, as well as providing an up-to-date context for taking decisions on planning applications.

[23] These regions remain the same as those established for the purpose of the Regional Waste Plans – North Wales, South West Wales and South East Wales.

Data Collection

3.10 When considering capacity requirements it will be necessary to look at landfill capacity, measured in terms of total capacity or void space, separately to that of recovery which can be considered in terms of tonnes per annum. Monitoring is required on an annual basis of:

- existing operational, permitted and closed residual municipal waste recovery facilities to ascertain approximate operational capacity to inform planning decisions;
- existing operational and permitted landfill capacity to ascertain the existing void relative to the trigger point identified in this Technical Advice Note;
- all waste permissions (planning consent and/or environmental permit) applied for and granted for new or extended facilities and the capacity of those additional or extended facilities, including where permission has been granted, whether they are operational or are under construction, and the main types of waste they will manage;
- all waste sites where operation is suspended for any reason;
- all waste sites that have been closed or have reached the end of their lifetime; and,
- progress on the different procurement programmes.

Waste Planning Monitoring Report

3.11 The information on landfill void and operational recovery capacity will be collated by a lead local planning authority in each region and published in an annual Waste Planning Monitoring Report.

3.12 The Waste Planning Monitoring Report should:

- provide up-to-date/annual data, at a regional level, on landfill void (including spatial adequacy of the void) and residual municipal waste disposal and recovery capacity (operational and planned but not built);
- set the capacity data against up-to-date residual waste arisings data to inform capacity requirements and regional capacity need;
- record progress on the procurement programmes and consider the implications for the capacity gap and record the sites which are being proposed to support the procurement programmes, as far as this information is publicly available, so as to prompt any necessary action through local development plans; and
- provide an update on local development plan progress, with particular reference to the fulfilment of Article 16 obligations.

Monitoring and triggers for further action

3.13 Using the information collected in the waste planning monitoring report each regional grouping of local planning authorities should identify where landfill capacity falls below both a ***7 and 5 year*** void in a region. The identification of a 7 year void represents the level at which sufficient capacity is likely to exist in a region to meet future disposal needs and as such this is the level at which void capacity should ideally be maintained. A period of 7 years should provide sufficient time for the market to come forward with a solution, bearing in mind the political sensitivities surrounding landfill provision and the costs and time involved in set up.

3.14 The **5 year** level should be identified as a trigger for pursuing any action which may be necessary to facilitate future provision. An agreed process will have to be developed but in general terms once action is deemed to be necessary a site search and selection process should be undertaken at the regional level by the lead authority on behalf of the constituent authorities in the region in consultation with the Welsh Government and Natural Resources Wales. The purpose of the exercise will be to identify a list of preferred suitable sites or locations for landfill which could appropriately fulfil the identified need in the region.

3.15 The areas of search maps, prepared to support the regional waste plan first reviews, for open-air facilities will provide a useful starting point for site searches, however other detailed information and local knowledge will be invaluable. To ensure landfill sites do not pose a serious risk to the environment in proposing a suitable location for a landfill, the following considerations must be taken into account:

- the distance from the boundary of the site to residential and recreational areas, waterways, water bodies and to other agricultural or urban sites;
- the existence of groundwater, coastal water or nature protection zones in the area; and
- the geological and hydrological conditions of the area, including flooding, subsistence, landslides or avalanches; and the protection of areas of acknowledged landscape, cultural and nature and geological conservation.

3.16 Once general locations or sites have been agreed by the regional grouping of local authorities this should be reported as a supplement to the relevant waste planning monitoring report. It is anticipated that each constituent local planning authority would need to endorse the supplement location or site search report. In the event that agreement cannot be achieved then the matter should be referred to Welsh Government, in order that an appropriate solution can be found. At the earliest subsequent opportunity a preferred area or site allocation should be identified in the appropriate development plan.

3.17 The Collections, Infrastructure and Markets Sector Plan outlines the increased potential for recovery treatment capacity to come forward and it is likely that this will take place primarily through the on-going procurement programme being taken forward by the local authority consortia. The potential for recovery treatment projects to be supported should be facilitated by local planning authorities in order that the existing capacity gap for recovery facilities can be closed. Until planned capacity becomes operational, continued co-operation between local authorities will be required to ensure the capacities which are needed in each region can be provided, particularly bearing in mind that not all local planning authorities will need to provide for the sub-regional or regional type of facilities which are required as part of ensuring an integrated and adequate network is provided. Therefore, as part of the waste planning monitoring process information on whether and how the capacity gap is being closed will be provided, including an updated regional position on the likely sites coming forward to facilitate the provision of these facilities and an indication where further provision through local development plans may be necessary.

Local Development Plans

3.18 As outlined in the previous section, regional monitoring is necessary in relation to installations for those wastes covered by Article 16 of the Waste Framework Directive. However, the locational requirements of these, as far as appropriate and all other types of waste facilities should be considered when preparing local development plans so as to ensure that the provision of a wide range of waste management infrastructure can be facilitated. Local planning authorities should initiate and maintain a close dialogue with waste colleagues when developing the waste policies of their local development plan.

3.19 Advances in technology and the introduction of new legislation, policies and practices mean that many modern in-building facilities externally appear similar to any other industrial building and internally contain industrial processes or energy generation that may be no different to other modern industrial activities in terms of their operation or impact. For this reason, many general employment sites and major industrial areas are likely to be suitable locations for waste facilities but this will depend on a variety of local factors, including the nature of existing users and the strategy adopted for particular employment sites.

3.20 Each local planning authority should take specific actions in relation to recovery treatment for mixed municipal waste as part of local development plan preparation to ascertain whether:-

- support for any local authority procurement programmes is necessary (this may also be the case for food waste treatment) and if so appropriate site allocations should be made;
- any agreement contained in the regional waste monitoring report needs to be addressed by way of a site allocation or through specific criteria based policies; or,
- any opportunities exist to derive benefits from facilitating co-location and the development of heat networks and if so appropriate site allocations should be made or supportive criteria based policies included. This could form part of the renewable energy assessments envisaged as part of Technical Advice Note 8.

3.21 Therefore, whilst Employment Land Supply Surveys (see Chapter 7 of Planning Policy Wales) will not be expected to specifically quantify the amount of separate future provision likely to be needed for waste facilities, local development plans should indicate where suitable and appropriate sites exist for the provision of all types of waste management facilities in order to provide some certainty for waste operators interested in fulfilling demand in an area. As part of this, planning authorities should engage directly with the waste industry and their own waste managers to determine whether there are any spatial requirements in their local authority areas.

3.22 Where necessary criteria based policies may be used to identify what types of facility may be acceptable as part of a specific allocation or as part of indicating which employment sites may be suitable for waste uses. It is expected that facilities for recycling and remanufacture can be appropriately accommodated on many general employment sites, providing suitable access and transportation is available, however there may be site specific reasons for these being located elsewhere. The take up of sites by waste management users should be monitored as part of annual monitoring of local development plans and will provide useful evidence on trends and activities in an area.

3.23 Some waste facilities, such as open windrow composting will not be suitable in built up areas and may be more appropriate in rural locations. Criteria based policies which provide a degree of certainty about how such facilities will be considered may be appropriate where evidence suggests that such facilities may come forward.

3.24 Where buildings are to be demolished the resultant materials may be recycled on site using temporary plant and machinery where it would be appropriate, and would not cause a detrimental impact on neighbours in terms of noise or dust. Where there are longer term prospects for a sufficient and economic supply of demolition and construction waste from an appropriate catchment area, it may be appropriate to identify a permanent recycling repository or 'urban quarry' for this purpose. Planning authorities should include criteria based policies, or preferably identify suitable sites, to guide the location of repositories or 'urban quarries' for construction and demolition waste to avoid unnecessarily landfilling of inert waste.

3.25 Adequate facilities and space for the collection, composting and recycling of waste materials should be incorporated into the design of any development and waste reduction efforts at the design, construction and demolition stage should be made by developers. All opportunities should be explored to incorporate re-used or recyclable materials or products into a new building or structure. Local development plan strategies and policies proposing development should encourage the provision of adequate and effective waste receptacles for recycling and indicate that they expect developers to take advantage of any opportunities to reduce waste as part of the design and construction of new buildings. It may be appropriate to prepare supplementary planning guidance, particularly where there are site specific factors to take into account, and this could provide the basis for seeking local agreements for taking responsibility for the on-going management of such receptacles where this is appropriate.

Location of waste management facilities

3.26 The suitability of locations should be considered within the context of the aims of Towards Zero Waste and the Collections, Infrastructure and Markets Sector Plan and will be influenced by various factors, including the regional 'Areas of search maps' and the overall strategy of the local development plan. In general, the most appropriate locations will be those with the least adverse impacts on the local population and the environment, and with the best potential contribution to a broad infrastructure framework. Particular care should be taken to avoid locations where new or extended waste facilities may be incompatible with existing land-uses.

3.27 There are numerous factors that may influence the type of location of new waste management facilities and Sustainability Appraisal (incorporating Strategic Environmental Assessment and Habitats Regulations) requirements for local development plan will assist in making these explicit. New sites might be located, if appropriate, within or adjacent to:

- industrial areas, especially those containing heavy or specialised industrial uses;
- active or worked out quarries - landfill is commonly used in quarry restoration but there may be opportunities for other types of waste management facilities at some quarried sites. It should be noted that quarry depth and the nature of the local water table will affect the feasibility of using such sites;
- degraded, contaminated or derelict land - well-located, planned, designed and operated waste management facilities may provide good opportunities for remediating and enhancing sites which are damaged or otherwise of poor quality, or bringing derelict or degraded land back into productive use;
- existing or redundant sites or buildings - which could be used, or adapted, to house materials recycling facilities, or composting operations;
- sites previously or currently occupied by other types of waste management facilities;
- sites where the nature of existing and proposed neighbouring land uses facilitates the location of waste management infrastructure and there are opportunities for co-locating waste management/resource recovery/reprocessing/re-manufacturing facilities to form environmental technology clusters;
- on farms where the output will be used on the farm.

And/or where:-

- site infrastructure (including electricity grid connections for energy from waste facilities) is present;
- there are existing or proposed transport infrastructure links – including opportunities for integrated multi-modal road, train, canal and sea connections;
- there is a need for sites for smaller-scale community based reuse and recycling activities;

- there are existing planning permissions/environmental permits;
- the cumulative effect of waste management facilities and other development on sensitive environmental receptors is acceptable;
- the cumulative effect of waste management facilities and other development on the well-being of the local community, including any significant adverse impacts on environmental quality, social cohesion and inclusion or economic potential is acceptable.

3.28 Local development plans are at various stages of preparation and, whilst local planning authorities are not required to repeat national policy in their own plans, they should have regard to the provisions within this Technical Advice Note at the earliest opportunity. In the case of adopted local development plans this will mean consideration of the issues identified in the Technical Advice Note as part of the annual monitoring review.

4. Development Management

4.1 Decisions in relation to waste management facilities should be taken in accord with the relevant development plan for the area and take into account national waste policy. Planning authorities should also take into account the principles outlined in Planning Policy Wales, Chapter 2 and Annex C of this Technical Advice Note[24]. Any updated position derived from work undertaken in relation to Chapter 3 (annual monitoring reports and supplements). Where a proposal is environmentally unacceptable or would cause impacts on amenity and the problems cannot be mitigated to an acceptable standard by conditions, planning permission should be refused.

Waste Planning Assessment

4.2 To enable proper consideration of the principles contained in the Technical Advice Note, a Waste Planning Assessment should be submitted with all applications for a waste facility classified as a disposal, recovery or recycling facility. The purpose of the Waste Planning Assessment is to ensure that the information necessary for making a decision is provided by the applicant when a planning application is submitted. The Waste Planning Assessment should be appropriate and proportionate to the nature, size and scale of the development proposed. Further advice can be found in Annex B.

4.3 Where the planning authority considers that the level of information submitted is insufficient to enable it to make a decision, it should use its powers to request further information, which may lead to a delay in determination. Where requested information is not forthcoming this may constitute a reason for refusal.

Applying the Waste Hierarchy

4.4 The waste hierarchy should be applied to all waste proposals, although it is acknowledged that the hierarchy itself is not absolute nor is it the only determining factor. Departure from the waste hierarchy should be justified through the use of Life Cycle Assessment. This will need to be documented as part of the Waste Planning Assessment produced by the applicant.

4.5 Whilst the guidance referred to in paragraph 2.8 was not developed specifically to support a planning decision, it represents the key starting point for decision making, along with the outcomes of any Life Cycle Assessment necessary to justify a departure from the waste hierarchy. Where Life Cycle Assessment is required to justify a proposal, planning authorities should consult Natural Resources Wales for their assistance in evaluating and in coming to an appropriate judgement on matters relating to the waste hierarchy.

4.6 The waste hierarchy principle should be set alongside other relevant social, economic and environmental factors, including the amenity of adjacent uses and communities, before the appropriateness of potential developments can be determined.

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[24] Planning considerations specific to a particular waste treatment technology are set out in the freestanding technical document: *Waste Planning: Practice Guide*.

4.7 In applying the waste hierarchy to proposals falling within the ambit of Article 16 of the Waste Framework Directive (disposal of waste or recovery of mixed municipal waste) it will be appropriate to consider how the proposal contributes towards the provision of an integrated and adequate network of facilities. It should be borne in mind that some facilities utilise intermediate treatment processes and are not 'stand alone' methods of treating waste and by their nature can only operate in conjunction with other facilities.

Applying the nearest appropriate installation concept and self sufficiency principles – facilities for the disposal of waste and recovery of mixed municipal waste

4.8 Although it is difficult to predict with complete certainty the future needs for residual mixed waste treatment, recovery and for the disposal of waste due to the variety of factors that affect future tonnages and actual existing capacity, the Collections, Infrastructure and Markets Sector Plan sets out the continued need for increased recovery of residual mixed waste which are incapable of being recycled, in the short to medium term but recognises that waste disposal needs will reduce. Therefore, across Wales a need exists to develop more residual waste treatment and recovery facilities and to ensure that sufficient disposal capacity is maintained at a level appropriate to support the overall aims of Towards Zero Waste and Collections, Infrastructure and Markets Sector Plan.

4.9 There are likely to be social, economic and environmental benefits in favour of proposals which seek to address an identified need. The presence of facilities outside of Wales or a region defined in the Collections, Infrastructure and Markets Sector Plan should not be used as a reason to refuse an application which can be shown to be required to satisfy an identified need in the area in which it is being proposed.

4.10 Whilst the Collections, Infrastructure and Markets Sector Plan seeks to encourage the provision of sufficient capacity of recovery infrastructure, this has to be complementary to the overall aim of driving the treatment of all waste further up the waste hierarchy. It models a set of forecast scenarios for mixed municipal waste quantities for 2024/25 and 2049/50[25] and presents these at a regional level. When determining applications planning authorities should give consideration to the circumstances prevailing at any given time, however, the upper threshold of the capacity ranges identified in the Collections, Infrastructure and Markets Sector Plan (or any subsequent update) is likely to represent the point at which the extent of provision in a region can be considered to be sufficient.

4.11 To determine whether there is sufficient capacity for recovery treatment to serve an area will depend on a variety of factors. The Collections, Infrastructure and Markets Sector Plan represents the starting point for the determination of need for future capacity.

[25] The Welsh Government (July 2012) Collections, Infrastructure and Markets Sector Plan at p.73. http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/publication/cimsectorplan/?lang=en.

4.12 There may be particular spatial factors which have a bearing on whether facilities are needed and these may be subject to change, for example, over time some facilities may cease to operate, or the type of facility being proposed may require taking into account the availability of, or need for, final treatment capacity to deal with the output from any intermediary treatment technologies. The waste planning monitoring reports prepared by each lead authority should provide up to date information and should be taken into account in determining the level of need for recovery treatment capacity.

4.13 Where planning permissions already exist in an area (region) they should be taken into account in determining the level of need. In practice it will be useful to differentiate between existing operational and proposed capacity. The significance which can be attached to proposed capacity in determining the level of need will vary depending on the likelihood of facilities being built. Evidence to consider will include whether facilities are in the process of being built, whether they have been commissioned, whether pre-commencement conditions have been discharged and whether an environmental permit is in place. In the interests of increasing certainty planning authorities should actively engage with applicants on the submission of any information needed to approve pre-commencement conditions.

4.14 The prospects of existing planning permissions being implemented and facilities being built will also be influenced by relevant economic and financial factors, and there may be valid reasons for operators to be unwilling to declare their intentions. However planning authorities should try to ascertain as far as possible the up to date position with regard to the prospects of existing planning permissions becoming operational facilities, and waste operators are encouraged to cooperate as far as possible. The annual monitoring reports should assist in this process.

4.15 It should be noted that the capacity ranges in the Collections, Infrastructure and Markets Sector Plan do not take into account any double handling of waste as a result of intermediary treatment options, nor do they account for the movement of waste between Wales and England. The capacity ranges also exclude permitted Refuse Derived Fuel capacity in cement kilns in Wales. This is because the current operational use is negligible and this is considered unlikely to change. This situation will be kept under review and should this capacity increase in significance and become available then the Welsh Government will publish revised figures accordingly. The use of cement kilns for residual waste treatment should not be precluded. Any such use is largely a matter for the permitting authority, however careful consideration of the relevant planning issues may be needed prior to changes in the operating conditions of these facilities.

4.16 Applicants should clearly justify why a proposal is necessary and where it cannot be clearly demonstrated that there is a need for the proposal it may be appropriate to consider refusing planning permission. This is likely to be the case where the level of provision exceeds the upper range identified in the Collections, Infrastructure and Markets Plan for any given region.

4.17 In coming to a decision a number of related factors will be relevant, including:

- whether there has been an unexplained and unjustified deviation from the waste hierarchy;
- whether the use of sustainable transport methods appropriately mitigates against an otherwise poorly located proposal;
- whether the proposal is to deal with waste arisings entirely, or predominantly within Wales or a particular region;
- whether a facility is well placed to take waste from outside of Wales and economic, social and environmental benefits can be demonstrated;
- whether co-location of several facilities may justify the importation of waste over a wide catchment; and/or
- whether overall waste arisings are so small as to justify a wide catchment over which waste can be imported.

4.18 Whilst circumstances will vary, overprovision will only be justified on the basis that the proposal represents a sustainably located facility. In coming to such a judgement planning authorities will wish to see the demonstration of social, economic and environmental benefits.

Waste Infrastructure Proposals – Needs and Considerations

Disposal Facilities

4.19 The Welsh Government has a long term aim of eliminating landfilling as far as possible[26]. Towards Zero Waste sets limits on the total amount of residual municipal waste and industrial and commercial waste sent to landfill. However, it is recognised that disposal to landfill or disposal through incineration without heat recovery, or with inefficient heat recovery, will continue in the short to medium term (to 2024/25)[27]. This is partly due to the way in which waste is collected, the infrastructure capacities we already have to deal with waste and the existence of legacy wastes and incineration residues, where no safe alternative to ultimate landfill disposal and the development of alternative markets for use of these materials as products currently exists. Planning authorities should support proposals which aim to divert waste from landfill to more sustainable waste management options taking into account the waste hierarchy as a priority order and the objective of delivering a high level of protection for human health and the environment.

[26] The Welsh Government (June 2010) Towards Zero Waste: One Wales One Planet at p.47. Available online at: http://wales.gov.uk/topics/environmentcountryside/epq/waste_recycling/publication/towardszero/?lang=en

[27] 'Disposal' means any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Article 3(19), Directive 2008/98/EC on waste and repealing certain Directives.

4.20 Modelling undertaken for the Collections, Infrastructure and Markets Sector Plan demonstrates that, depending on waste arising and recycling scenario modelled, Wales may need to develop additional non-hazardous landfill capacity prior to 2025. Adequate landfill capacity is required for the landfill of mixed municipal waste until the new recovery facilities are in place and we have achieved as close to zero landfill as possible[28]. The monitoring of landfill capacity requirements will be undertaken at a regional level and the annual monitoring reports prepared by each lead authority should be taken into account in determining the level of need for landfill in any locality.

4.21 The level at which the void in each region is considered sufficient and should be maintained is **5/7 years**. New proposals for landfill will require exceptional justification with reference to the waste hierarchy the concept of the nearest appropriate installation and self sufficiency, the updated position contained in the annual waste monitoring reports (and supplements) and on the grounds of sustainability.

4.22 It is expected that adequate landfill capacity will continue to be required in the longer term for legacy wastes such as asbestos and other such wastes where landfilling remains the best overall environmental outcome. It is also expected that as waste prevention and recycling targets are met, restrictions on certain wastes to landfill are introduced and recovery facilities for residual mixed waste are developed, the amount of waste going to landfill will reduce significantly. This will extend the lifetime of existing landfills.

4.23 The application of the waste hierarchy demonstrates that the disposal of inert waste is not acceptable in most circumstances and without exceptional justification planning applications for the disposal of inert waste should be refused. Exceptional circumstances may be demonstrated where the use of inert waste is necessary to address issues of instability, landscape, flood risk, matters relating to safety, or to enable the land to be used for an appropriate end use (for example, industry, agriculture). In each case, the level of inert waste to be used should be the minimum necessary to achieve the desired outcome.

4.24 Public concern often centres around landfills, predominantly due to the perceived health and environmental hazards posed by this form of waste management. The likelihood of a need arising for new landfill should reduce over time as the new waste prevention, recycling and other recovery activities develop in accordance with waste policy targets and actions. However, should a need for further landfill capacity arise in the future clear and robust consideration should be given to the impact on adjacent communities and the natural and built environment and the mitigation any potential negative impacts.

4.25 Municipal waste incinerators and energy from waste facilities which fall below the R1 energy efficiency threshold are considered to be disposal facilities for the purpose of the waste hierarchy. [See Chapter 2 and Chapter 5 below].

28 The Welsh Government (July 2012) The Collections, Infrastructure and Markets Sector Plan at p.225. The Welsh Government (June 2010) Towards Zero Waste at 47 and 58.

4.26 Low energy efficiency energy from waste facilities may be considered to offer a waste management solution for arisings of mixed household, industrial and commercial waste in Wales. Whilst use of these types of facilities may be preferable to landfill disposal (depending on the results of any individual life cycle assessment), they are not the Welsh Government's preferred option. Planning authorities should encourage development of high energy efficiency facilities wherever possible[29]. Proposals for developments falling under disposal and recovery operations should explain in the Waste Planning Assessment, set out in Annex B, where the proposal fits within the waste hierarchy and why it represents the best overall environmental outcome where alternative technologies or increased energy efficiency is possible.

Disposal of Niche Wastes

4.27 Most low energy efficiency energy from waste incinerators used for disposal purposes deal with niche wastes, such as animal carcasses or clinical wastes. These incinerators tend to be less capable of recovering energy efficiently due to the composition and nature of their wastes. Whilst low efficiency energy from waste facilities offer a solution for some wastes, they do not necessarily provide the best overall environmental option. Proposals which involve operating low-efficiency outputs should demonstrate through the Waste Planning Assessment where and how the proposal fits with the waste hierarchy and why it represents the best overall environmental outcome where alternative technologies or increased energy efficiency is possible.

4.28 Waste incinerators can pose planning issues relating to air emissions, odour, noise, vermin, ground water, transport and access. These should be considered and mitigated where appropriate at the planning stage and such action should be complementary to that likely under the environmental permitting regime which should set out conditions relating to the housekeeping and operation of the facility.

Recovery Facilities

4.29 Recovery is defined as any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy[30].

[29] Treatment of residual waste in high efficiency energy from waste facilities yield significant reductions in greenhouse gas emissions as compared to other treatment options that include an element of landfilling, as verified by life cycle assessment studies. Welsh Government (July 2012) Collections, Infrastructure and Markets Sector Plan at p.218, para 3.6.2.2.

[30] Article 3(15) Directive 2008/98/EC on waste and repealing certain Directives OJ 2008 L312/3. See also, Welsh Government (July 2012) Collections, Infrastructure and Markets Sector Plan at p.217.

4.30 Recovery operations can be broken down into other recovery and energy recovery. The main techniques under other recovery for mixed municipal waste (or fractions derived from it following intermediary treatment[31]) include:

- Energy recovery, including: incineration, co-incineration (e.g. in a cement kiln), anaerobic digestion, pyrolysis and gasification (including plasma gasification) with energy recovery with residues (incinerator bottom ash and air pollution control residues) being recycled or landfilled;
- Landspreading of compost like output (CLO)[32] on non-agricultural land (CLO) as a waste under an environmental permit;
- Landspreading of segregated biowaste for agricultural or ecological benefit[33]; and/or
- Use of waste glass, separated through intermediary treatment processes, as a secondary aggregate.

Energy from Waste

4.31 Technologies such as energy recovering waste incinerators can offer a suitable technique for maximising the social, environmental and economic benefits from the management of residual wastes (that waste remaining after reuse, preparation for reuse and recycling actions has been undertaken). Local planning authorities should be mindful of the need to divert waste away from landfill and the opportunities offered by energy from waste facilities to harness resources in the form of energy for heat and/or power from residual municipal waste.

4.32 Proposals that incorporate combined heat and power could contribute toward district heating schemes for industry, for commercial developments or for large public sector developments such as schools or hospitals, providing these are environmentally acceptable. This makes the recovery of energy more efficient and it would potentially reduce the impact of using primary fuels.

4.33 The recovery of energy from waste should be carried out at a high level of energy efficiency. In the case of energy from waste facilities using mixed municipal wastes and residual waste as a feedstock, in order to be classed as a 'recovery operation' these need to meet (as a minimum) the energy recovery efficiencies as defined under the 'R1 formula' (detailed in Annex 1 to the Waste Framework Directive). The Collections, Infrastructure and Markets Sector Plan provides details on the way in which the efficiency of energy from waste facilities is calculated using the R1 formula (see Collections, Infrastructure and Markets Sector Plan at p.217). Energy from waste facilities are categorised as recovery installations when their efficiency, as expressed using the R1 formula, is equal to or greater than:

[31] Intermediary treatments are considered below and detail is provided in the Waste Planning: Practice Guide.
[32] The Compost like output will be produced as a result of an intermediary treated process such as Mechanical Biological Treatment or Mechanical Heat Treatment. The Compost like output from biological treatment facilities (as discussed below) can be spread on agricultural land and other land but remain waste and may require an environmental permit unless spread on agricultural land. See Environment Agency (April 2012) U10: Spreading Waste on Agricultural Land to Confer Benefit.
[33] Where the waste has been through a treatment process to produce a product in accordance with the relevant quality protocol, for example PAS 100 or PAS 110, the material will be considered to have reached a certain quality standard to meet the level of environmental protection offered by recycling.

- 0.60 for installations in operation and permitted in accordance with applicable Community legislation before 1 January 2009 or
- 0.65 for installations permitted after 31 December 2008.

Where facilities using municipal waste, or mixed municipal and industrial wastes as a feedstock operate at an R1 efficiency level of <0.6, the operation is classed as a disposal operation for the purpose of the waste hierarchy.

4.34 Local planning authorities should take account of the energy efficiency of any energy from waste proposal, ensuring that any such facility operates or is capable of operating, at high efficiencies that minimise the environmental impacts and maximise the benefits of recovering energy from waste. This will involve consideration being given to the way in which heat is recovered from the installation. Local planning authorities should support the development of appropriate energy recovery options for the optimal recovery of energy from residual waste in Wales, including the development of markets for heat output and processed combustion residues, as well as electricity. Combined heat and power, and heat only options, should be considered favourably where they meet high energy efficiencies.

4.35 The spatial relationship between energy from waste facilities and heat users is an important factor in site choice. The siting of energy from waste installations should be in proximity to energy users. Likewise, site energy users should choose to locate in proximity to existing operational energy from waste facilities.

Landspreading

4.36 A wide range of wastes and by-products of industrial processes are being spread on the land in agriculture, forestry and land reclamation operations. Some materials generated from industrial processes are considered to be by-products rather than wastes so that they can be recycled to land as soil improvers and fertilisers with minimum restriction.

4.37 Biowaste and digestate can be considered as a virgin material rather than waste and can be spread on land without a permit if it conforms to certain standards. However, should they not meet the quality standards set out in the relevant quality protocols and 'Publically Available Specification' they will require management under environmental permitting.

4.38 In making a decision, local planning authorities should be satisfied that residual wastes which are not suitable for preparation for reuse, recycling or other recovery are used for the optimised recovery of energy in Wales.

4.39 Wider community health risks should be managed through appropriate design and siting. These issues and suitable alternatives should be considered as part of environmental impact assessment, where appropriate, and should be considered and controlled through conditions attached to any environmental permit provided by Natural Resources Wales.

Biological Treatment Facilities

4.40 Biological Treatment Facilities use and enhance natural biological processes to treat biodegradable organic waste materials including food waste, green wastes and, to a lesser extent, card, paper and wood. All biological treatment facilities involve the decomposition of biodegradable waste by living microbes (fungi and bacteria) which use biodegradable waste materials as a food source for growth and proliferation. There are two main types of biological treatment: anaerobic (in the absence of oxygen) and aerobic (in the presence of oxygen). These processes can be considered as recycling or recovery processes depending upon the quality of the output compost or digestate.

4.41 Anaerobic digestion is a natural process where microorganisms break down organic matter (such as food waste, manures and slurries, sewerage sludge and purpose grown crops for energy) in the absence of oxygen. The process can produce both biogas and digestate. Biogas can be used in combined heat and power to produce heat or cleaned and used in the same way as a natural gas or vehicle fuel. Digestate is used as a renewable fertiliser or soil conditioner. Where the anaerobic digestion facility satisfies BSI PAS 110 and the quality protocols for use as a soil conditioner or fertiliser, it will be considered as a recycling facility, where the digestate does not meet those quality standards the operations will be other recovery.

4.42 Due to the production of biogas and digestate in the anaerobic digestion process, anaerobic digestion is considered to have a greater potential to reduce greenhouse gas emissions than other composting treatments such as In-Vessel Composting or Open-Windrow Composting. The Welsh Government promotes anaerobic digestion as the recycling route for food wastes in preference to land spreading. Local planning authorities should recognise the preference for anaerobic digestion treatment of biodegradable waste and raise awareness of this, for example, when undertaking pre-application discussions. Consideration should also be given to locating anaerobic digestion facilities in proximity to users of heat and also in the broader planning context, to encourage new heat users to locate close to anaerobic digestion facilities which produce biogas for combined heat and power.

4.43 In-Vessel Composting uses a mix of food and garden waste. The treatment takes place in an enclosed environment in which the temperature is accurately controlled and monitored. The resultant compost can be used in local horticulture, amenity and agricultural markets. The facility will not be considered as a waste recovery operation where the facility processing the waste satisfies BSI PAS 100 for compost materials (January 2011) and the quality protocol for compost. Where the relevant quality protocols cannot be complied with, the application to land of the resulting compost or digestate will be classified an "other recovery" process rather than a recycling process.

4.44 Open-Windrow Composting processes only garden wastes in an open air environment or within large covered areas where the green waste can break down in the presence of oxygen. In order to be considered a recycling process, the BSI PAS 100 and the quality protocols will apply. The resultant compost can be applied to a range of end uses including for gardens, brownfield sites, landscaping and full-scale agriculture.

4.45 Issues for consideration depend upon the type of biological treatment facility proposed. Odour, noise and dust will be more significant where the treatment operates outside/in the open air. The potential release of pathogens during decomposition is a consideration for all biological treatment plants, although this is something which may be controlled through conditions within the environmental permit. Site access and vehicular movements, from both heavy goods vehicles and farm vehicles, will influence site suitability. Visual amenity is likely to be an issue for Open-Windrow Composting, however the Animal By Products Regulations do not apply to Open-Windrow Composting due to the feedstock consisting of only 'green waste'.

Physical Treatment Facilities

4.46 These types of facilities change the physical characteristics and composition of a waste but do not change its chemical or biological composition. Physical treatment aims to reduce the volume of waste disposed of to landfill through the separation of waste fractions and different waste materials for onward processing, recycling and recovery operations. Many types of physical treatment facilities are intermediary infrastructure since they act as a precursor to recycling, other recovery or disposal.

4.47 Materials Recovery Facilities process mixed waste or co-mingled (mixed) recyclable materials for example paper, card, metal and plastics collected by waste collection authorities and other third party and private waste contractors. Through various manual and automated techniques these waste materials are sorted and separated into those materials to be prepared for reuse, recycled or otherwise recovered.

4.48 Materials Recovery Facilities can create significant public interest and require careful consideration. Due to the unsorted nature of the recyclables, there is potential for noise and dust emanating from the site as a result of the transportation, transfer, handling and segregation processes and this may influence the hours of operation of the site. Odour is rarely an issue with these types of facilities given the nature of the waste being treated however, odour may be a consideration where there is a high volume of contamination in wheeled bin comingled collections. These so-called "dirty Materials Recovery Facilities" handle a mixture of recyclable and residual municipal solid waste and sort it as one stream for onward processing and the sorted materials are often destined for other recovery or landfill. Dirty Materials Recovery Facilities are not a preferred waste management option due to the quality of the material output from the process. In addition, the future source segregation of collections envisaged in Towards Zero Waste and the Collections, Infrastructure and Markets Sector Plan should discourage future dirty Materials Recovery

Facility proposals coming forward. Proposals for dirty Materials Recovery Facilities would need to demonstrate using the Waste Planning Assessment, not only the need for such a facility, but that it offers a sustainable waste management option, taking into account the waste hierarchy and lifecycle assessment.

4.49 Transport and access should be considered in terms of site choice and site design, to ensure that disruption and pollution caused by vehicles entering and leaving the site are minimised and that there is sufficient space on site for manoeuvring.

4.50 Other types of physical treatment facilities can be waste specific, for example, facilities managing the depollution and dismantling of end-of-life vehicles or facilities dismantling waste electrical and electronic equipment. The ultimate objective of physical treatment facilities is the same, whatever the waste input - the separation and sorting of separable waste material streams for onward processing and future use. The nature of the treatment means that noise is likely to require careful planning consideration, however, odour, dust and litter are less likely to raise substantial planning issues, although the significance of odour, dust and litter as a consideration will depend upon the waste being handled for example, food waste, green waste, mixed recylates or plastics.

4.51 Facilities capturing metals and dismantling end-of-life vehicles and waste electrical and electronic equipment, may pose a risk to groundwater due to the nature of components found in these types of wastes. The risk posed to groundwater from these activities should be considered by local planning authorities to ensure site suitability, bearing in mind that the actual operations of the facility in relation to the prevention and mitigation of non-natural substances entering ground waters will be regulated by Natural Resources Wales through the environmental permit.

Intermediary Treatment Facilities

4.52 There are a number of technologies which provide a level of treatment of residual waste. They are regarded as intermediary treatment processes as they produce a residue that requires further management and treatment through either recovery or disposal operations.

The main treatments in use are:

- Mechanical Biological Treatment – with the non-recyclable residues going to either energy from waste, landfill and/or landspreading; and
- Mechanical Heat Treatment and Autoclave - with the non-recyclable residues going to either energy from waste, landfill and/or landspreading.

4.53 Mechanical Biological Treatment combines biological and physical processes in the management and treatment of mixed household and residual waste. Waste undergoes a mechanical sorting process to separate out recyclables. The remaining waste following this first phase processing is the organic rich fraction or biodegradable fraction for biological treatment. The second phase is a biological digestion process (aerobic decomposition and/or anaerobic digestion). Where anaerobic digestion is used to digest the organic rich waste fraction biogas is produced which can then be used as a source of energy.

4.54 In order to control potential odour issues there may be a need to incorporate negative pressure ventilation with air extraction within the waste reception and treatment plant areas and the use of biofilters to control odour. The location of Mechanical Biological Treatment and Mechanical Heat Treatment facilities adjacent to sensitive receptors needs to be carefully considered. Where combined heat and power is generated by the facility consideration should be given to the location and suitability of proximate heat and/or power users.

4.55 Emissions to the atmosphere may need careful consideration where negative pressure ventilation with air extraction, or flues/stacks from associated combustion activities are proposed in relation to Mechanical Biological Treatment or Mechanical Heat Treatment facilities. These can be dealt with both at the planning stage and through the housekeeping and operation of the facility itself under the conditions set down in the environmental permit issued.

4.56 Transport and access should be considered in terms of site choice and site design to ensure that disruption and pollution caused by vehicles entering and leaving the site are minimised and that there is sufficient space on site for manoeuvring. Noise is not generally considered to be an issue where operations are taking place within a building, however noise from loading and unloading, and vehicles manoeuvring around the site may be an issue if it is proposed to locate such facilities in a noise sensitive area.

Collection Facilities

4.57 The term collection facilities covers waste infrastructure used to collect, sort and transfer various waste streams. It includes bring banks, civic amenity sites/household waste recycling centres, and transfer stations.

4.58 Bring Banks can supplement kerbside collection services, and enhance capture of targeted recyclates at a low additional cost of collection. They can increase a local authorities recycling rate by improving the access to the recycling service by the householder. Sited sympathetically, they can enhance the area in which they are sited and provide alternatives for targeted materials. However if they are not emptied regularly there may be problems of odour.

4.59 Civic amenity sites, if sympathetically located, can reduce the frequency of fly tipping by providing alternatives for targeted materials. However, consideration should be given to noise from vehicles unloading, and the removal of materials from the site once containers are full.

4.60 Transfer stations are of significant importance to all sectors. They serve to manage the flow of waste more effectively and can reduce overall reliance upon landfill; as increasingly the capture of recyclable materials takes place at these facilities. Sited carefully, they can enhance the area in which they are sited and reduce costs to waste carriers by providing alternative markets for targeted bulk materials rather than to deposit small volumes continuously to landfill. Some transfer stations may include physical treatment options to optimise their recycling, recovery and the efficiency of onward transport (e.g. sorting of wastes, compaction of mixed loads, shredding of wood wastes etc).

4.61 The required site and building design measures will depend on the type of transfer station proposed (i.e. inert, hazardous, or clinical waste). However it will be necessary to ensure these installations are located in suitable areas taking into account the planning considerations set out under Annex C of this document. Transfer stations can create issues with odour, noise, dust, vermin and visual amenity where storage of waste occurs in the open, as well as high traffic movements associated with delivering and collecting. Therefore, planning issues to consider in relation to these types of development include, but are not limited to: suitable highway access for the type and volume of vehicle movements, mitigation of noise and odour and that suitable bunds and impermeable surfacing is provided to ensure that there is no pathway to sensitive receptors such as ground water as well as the impact on communities and the natural and built environmental.

Specialist Facilities

4.62 It may be necessary to develop new facilities for managing special waste arisings but given that waste arisings are often relatively low it is likely that only a few locations will be required for specialist facilities across the UK. Specialist waste facilities may include:

- Preparation for reuse activities
- Clinical Waste Treatments
- Hazardous Waste Treatments
- Radioactive Waste Disposal Facilities

4.63 Where items are repaired, refurbished and cleaned prior to being used again for their original purpose, these activities fall within the preparing for reuse waste management option of the waste hierarchy.

4.64 Preparation for reuse has many benefits including reducing the ecological and carbon footprints of waste, retaining valuable natural resources within the economy, diverting materials from landfill and may reduce costs to businesses and local authorities. It also affords opportunities for job creation and training. Where practicable, local planning authorities should consider favourably proposals for preparation for reuse and repair infrastructure.

4.65 Issues including odour, litter, vermin and visual amenity are unlikely to be significant for planning consideration due to the types of waste usually undergoing preparation for use and the indoor nature of these activities. Noise may be an issue in relation to the unloading and loading of items which may be heavy and bulky. Access and space on site should be considered for the purpose of vehicle movements and on-site manoeuvring. Groundwater may be a consideration depending upon the type of waste being repaired and refurbished, for example refurbishment of waste electrical and electronic equipment may pose a risk of harm to controlled waters due to the harmful substances contained in the items.

4.66 Clinical waste treatment facilities render safe infectious waste from medical, dental, veterinary and similar practices. This enables these types of wastes to be further processed or safely disposed of. Issues associated with clinical waste treatment facilities include odour, infestations of flies and/or vermin and air emissions through the release of pathogenic micro-organisms and maceration of the waste. Suitable storage and containment will control odour and vermin whilst in-building filtration systems will reduce emissions to air.

4.67 The treatment of radioactive waste and the planning issues raised will depend upon the categorisation of radioactivity – low, intermediate or high level. Again, treatment processes aim to render radioactive waste safe for transportation, storage and disposal.

4.68 The guidance in this section on the types of planning issues posed by the main types of waste management infrastructure is not intended to be exhaustive. Each proposal should be considered on a case by case basis, taking account of factors including the nature, type, size, need and location of the development. Site specific issues will vary depending on the scale, waste treated and the nature of the proposal and its proposed location. Further information on detailed planning considerations can be found in Annex C. More detail on technology types will be made available in the Waste Planning: Practice Guide.

Consultation

4.69 Planning legislation requires local planning authorities to publicise applications and to consult Natural Resources Wales and other public bodies with relevant environmental responsibilities. Planning applications for waste management facilities should, where appropriate, be the subject of consultation with the department dealing with waste management or with the waste management authority (in the case of national park authorities) and Natural Resources Wales. The general public must also be given an opportunity to express their views about the proposals, before a decision is made. As part

of the decision making process, planning authorities should satisfy themselves that the level of consultation undertaken is commensurate with the nature and scale of the proposal under consideration.

4.70 Developers preparing applications for waste management developments should undertake consultation with the planning authority, Natural Resources Wales and with local communities at an early stage, preferably well before an application is submitted to ensure comprehensive and meaningful public consultation. Pre-application discussion with the planning authority is likely to be necessary to determine what information should be included as part of the Waste Planning Assessment. Where separate discussions are held between developers and the planning authority or Natural Resources Wales, the outcomes of those discussions should be shared with the planning authority in the case of a meeting with Natural Resources Wales and with Natural Resources Wales in the case of a meeting with the planning authority. Consultation should be undertaken, where known, with local community groups and there are various tools and techniques as well as organisations with consultation and engagement expertise which can be drawn on to ensure that a meaningful engagement strategy can be developed.

4.71 Public 'ownership' and openness are important as a significant change of attitudes toward waste as a resource is needed to achieve the changes required. In this spirit of co-operation the development of partnerships between local authorities, the waste management industry, Natural Resources Wales and other interested or advisory groups and organisations can assist in clearly articulating the benefits of proposals as well as addressing concerns.

4.72 Undertaking a health impact assessment at an early stage may be valuable with regard to health and wellbeing concerns, however, the actual and/or potential impacts on human health arising from a proposal should be identified as part of undertaking an environmental impact assessment. Therefore, it is in the context of a wider community engagement strategy that specific techniques which deal with particular issues are likely to be of most benefit. With all types of engagement strategy care should be taken to manage expectations and it should be recognised that in some instances the recommendations arising out of engagement work may not necessarily be material considerations which can be delivered under planning legislation.

Environmental Impact Assessment

4.73 All projects that fall within Schedule 1 to the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999[34] must be subject to environmental impact assessment, before development consent can be granted. These include waste disposal installations for the incineration and chemical treatment of all hazardous waste and of other waste where the capacity of the installation exceeds 100 tonnes per day and landfill.

4.74 For all Schedule 2 development, including that which would otherwise benefit from permitted development rights (see paragraph 6.12), the local planning authority must make its own formal determination as to whether health impact assessment is required (referred to in the Regulations as a "screening opinion"). Waste proposals comprise Schedule 2 development if any of the following apply (Column 2 of the table in Schedule 2):

- disposal is by incineration; or
- the area of the development exceeds 0.5 hectare; or
- the installation is sited within 100 metres of any controlled waters; or
- if any part is within a "sensitive area" as defined in Regulation 2(1) of the 1999 EIA Regulations.

Habitats Regulations

4.75 European sites are critically important biodiversity assets in Wales, and as such, their protection is a key component of sustainable development. Technical Advice Note 5 Nature Conservation provides policy and procedural advice in this regard and should be referred to in all instances where there is potential to affect a European Protected Site (or any other nature conservation interest) as part of proposals for waste management.

Town and Country Planning (General Permitted Development) Order (GPDO) 1995 (As amended)

4.76 Certain operations involving the deposit of waste may fall within one of the classes of permitted development under the Order:

- Waste material can be deposited on agricultural land, subject to certain conditions, where the operation is reasonably necessary for the purposes of agriculture within that agricultural unit. If the total area used for waste deposit exceeds 0.5 hectares, prior approval is required from the local planning authority (Part 6).
- Waste material can be deposited for the formation or maintenance of private ways on forestry land provided it is reasonably necessary for that purpose (Part 7).
- Waste material (not including mineral waste) resulting from an industrial process can be deposited on industrial land provided it was being used for that purpose on 1 July 1948 (Part 8).
- Waste material (not including mineral waste) can be deposited by a local authority on any land that was in use for that purpose on 1 July 1948 (Part 12).
- Waste tipping at mineral workings is set out in Part 21, and removal of material from mineral-working deposits in Part 23.

[34] Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999, SI 1999 No.293.

4.77 It should be noted that the operations listed above are likely to require an environmental permit or to be registered as an exemption and liaison with Natural Resources Wales is advised.

Annex A: Waste Framework Directive Compliance Matrix

Article	Requirement	TAN 21 Transposition	Reference
1	Requires member states to introduce measures to protect the environment and human health by preventing or reducing the adverse impacts of the generation and management of waste and by reducing overall impacts of resource use and improving the efficiency of such use.	Introduces spatial planning policy that reflects the priority order of the waste hierarchy.	1.11., 1.15., 1.18., 2.7.1., 2.11., 2.12., 2.14., 4.68., 4.69-71., Annex B.
4	Establishes a revised hierarchy of waste management options, known as the waste hierarchy.	Planning for waste should be guided first by the waste hierarchy and by the principles of nearest appropriate installation and self-sufficiency.	1.10., 1.13., 1.18., 1.22., 2.6., 2.7., 2.7.1., 2.9., Diagram 2.6., 3.5., 4.4-4.6., 4.16., 4.20., 4.27., Annex B.
11	Requires member states to take reasonable measures to promote the reuse of products and preparation for reuse activities.	Technical Advice Note 21 promotes the prevention of waste through reuse and the extension to lifespan of products. Planning plays a role in waste prevention, reuse and the preparation of reuse activities by supporting proposals for waste treatment, preparation and reuse facilities which aim to divert waste from landfill.	1.12., 1.15. 2.2., 2.3., 2.7.1., 2.7.2.
13	Measures should be established to ensure that waste management is carried out without endangering human health, without harming the environment and, in particular: (a) without risk to water, air, soil, plants or animals; (b) without causing a nuisance through noise or odours; (c) without adversely affecting the countryside or places of special interest.	Annex C – Detailed Planning Considerations. This Annex provides detail on the planning issues which may be relevant to consider in the determination of any planning application for a waste facility. This includes, amongst other things: atmospheric emissions, nature and archaeological conservation, odours and protection of surface and ground water.	1.11., 1.15., 1.18., 2.7.1., 2.11., 2.12., 2.14., 4.68., 4.69-71., Annex C.

Article	Requirement	TAN 21 Transposition	Reference
16	Member states must establish an integrated and adequate network of waste disposal installations and of installations for the recovery of mixed municipal waste collected from private households, including where such collection also covers such waste from other producers. The network should take into account the principles of self-sufficiency and proximity.	Technical Advice Note 21 implements Article 16 through its land use planning policies. Technical Advice Note 21 is one of the documents comprising the waste management plan. Technical Advice Note 21 sets out the land use policies in relation to the management of all waste and all waste management requirements for Wales. In particular, it provides advice on the siting and need for infrastructure for the management of mixed municipal waste in a period of changing waste composition.	1.4., 1.10., 1.13., 2.1., 2.8-2.11., 3.3., 3.6-3.8., 3.11., 3.17., 3.19., 4.8.
28	Competent authorities in each member state must establish one or more waste management plans in accordance with articles 1,4,13 and 16.	Technical Advice Note 21 enables the provision of the sustainable management waste infrastructure network for Wales in line with the Waste Framework Directive and waste strategy documents.	1.4., 1.13., 2.5., Chapter 3.

Annex B: Waste Planning Assessment

Pre-application consultation is essential in terms of establishing the extent of supporting information that is likely to be required (including individual site specific issues) to support a planning application for new waste infrastructure. Undertaking tripartite liaison between applicant, local planning authority, and Natural Resources Wales to clarify any overlap between Environmental Permitting and material planning considerations will also help to ensure that planning applications are processed efficiently and effectively.

In order that consistent information is submitted to demonstrate how the proposed waste development will contribute towards meeting Wales' overriding objectives (Towards Zero Waste, Collections, Infrastructure and Markets Sector Plan) for dealing with waste, it will be necessary for applicants to provide a Waste Planning Assessment. Where appropriate, applicants may consult or engage a relevant practitioner to complete the necessary information in the Waste Planning Assessment.

The failure to provide a Waste Planning Assessment may delay the determination of the planning application, and may result in permission being refused on the grounds of a lack of information.

The detail and technical complexity of the Waste Planning Assessment will reflect the scale and potential significance of the proposed development. Where the application is accompanied by an Environmental Statement, the Waste Planning Assessment does not need to repeat information already provided in the Environmental Statement. However, the Waste Planning Assessment should provide the appropriate references indicating where the information can be found within the Environmental Statement. The Waste Planning Statement could comprise the following information.

Waste Policy Statement

- A description of how the proposals will contribute to the relevant provisions of 'Towards Zero Waste' and the Collections, Infrastructure and Markets Sector Plan.
- A statement of compliance with policy related to need & location requirements.
- A calculation of existing and projected future demand.
- Identify the markets that will be served by the proposed development.
- A calculation to identify the current shortfall in treatment capacity.
- A description of the consultation undertaken by the applicant.
- A signed declaration that in making the application the applicant has paid due regard to the waste hierarchy (see Box below)

Development

Time-scale

- Lifespan of the operation, including any proposed measures for future proofing
- Days and hours of operation.

Types and quantities of waste to be managed

- Estimated annual quantity of each waste type to be received, and estimated total capacity where relevant.
- The destination of any end product (residues and any hazardous materials) from the site should be submitted.
- The minimum and maximum quantities that the facility could process and remain operational.
- The amount of waste (in tonnes) the facility is designed to treat.

Design, layout, buildings and plant – a full description of the proposed development including:

- the processes involved, including transportation to and from the site.
- layout and design of buildings, plant, operational areas, haul roads and external lighting.
- If relevant - Details on landfill gas and leachate control infrastructure should also be identified.
- Proposed restoration and aftercare

Amenity and Nuisance

- The compatibility of the proposed development with existing or neighbouring land uses.
- Measures to prevent and control land contamination, light pollution, noise, smell, dust, birds and vermin, litter,
- Any emissions associated with the proposed operations.

Air pollution

- The impact of emissions to atmosphere of any product gasses resulting from specialist treatment/recovery processes.

Energy Efficiency (if relevant)

- Explanation of how energy recovered from the incineration process will be maximised (e.g. through combined heat and power, district heating or the supply of steam / hot water to neighbouring industrial users).
- Evidence that the proposal would or would not meet the R1 energy efficiency calculation.

Declaration

This statement sets out how the waste hierarchy has been considered in developing the proposals currently forming this planning application.

Signed: _____

Date: _____

Annex C: Detailed Planning Considerations

There are a number of planning considerations which are relevant to all proposals for waste management facilities. This annex sets out the planning issues which are necessary for applicants and planning authorities to have regard to whilst preparing and determining applications for waste management proposals[35].

In accordance with Chapter 4, this annex sets out in more detail the material planning considerations relating to the overarching objectives of:

1. Ensuring prudent use of land and resources.
2. Minimising greenhouse gas emissions.
3. Minimising adverse effects on air quality and quantity.
4. To protect & enhance the landscape, townscape & cultural heritage of Wales.
5. Minimising adverse effects on water quality.
6. Avoid increasing the risk of flooding.
7. Protecting biodiversity.
8. Providing employment opportunities & support long-term jobs & skills.
9. Minimising adverse effects on residential property.
10. Minimising the increased cost of waste management.
11. Protecting local amenity.
12. Minimising adverse effects on public health and to avoid increasing health inequalities.
13. Minimising local transport impacts.

1. Atmospheric Emissions

1.1. Air emissions and the potential emission of pathogens and/ or toxins are a material planning consideration and may represent a significant public concern. Such matters are controlled through environmental permitting conditions for facilities permitted under the Environmental Permitting (England and Wales) Regulations 2010, or through other relevant pollution control legislation for facilities exempt from permitting (ie. the 'Statutory Nuisance Provisions' of the Environmental Protection Act 1990). For permitted facilities, the regulator is Natural Resources Wales, with local authorities having responsibility in respect of statutory nuisance issues where these apply. However, air quality issues can be a material planning consideration as well as a pollution control issue.

[35] These planning considerations have been set out in alphabetical order and as such, the order in which they are set out has no relevance to the importance of the considerations.

1.2. Air emissions from waste management facilities will vary according to the operations undertaken at the facility, as an example they can include:

- Particulates – (Thermal Treatments, Gasification, Landfill Gas Plants)
- Bioaerosols – (Composting, Anaerobic Digestion, Mechanical Biological Treatment)
- Acid Gases – (Thermal Treatments, Pyrolysis and Gasification)
- Carbon Dioxide – (Thermal Treatments, Gasification, Landfill Gas Plants)
- Dioxins and furans – (Thermal Treatments, Pyrolysis and Gasification)
- Heavy metals – (Thermal Treatments, Pyrolysis and Gasification)

1.3. Atmospheric emissions relative to all waste management facilities are associated with emissions of combustion products (COx, SOx, NOx, VOCs and PM10) from heavy goods vehicles and other transport and waste movements to and from the site. These emissions should be considered not only within a close proximity of the site but also along the immediate route of the vehicles involved. However, on a regional basis transfer stations, if correctly located, can reduce the total volume of pollutants produced by reducing the number and mileages of waste vehicles.

1.4. Waste management facilities associated with the production of bioaerosols may need careful consideration. (These facilities include In-Vessel and Windrow composting, Mechanical Biological Treatment facilities and certain Landfill operations). Bioaerosols have the potential to travel large distances as they may be carried in the air as spores or microbes, on fine dust particles or entrained on tiny water droplets. However, the weight of the particles and the wind speed and direction dictate the distance to which these may be carried. Environment Agency research suggests that bioaerosols are likely to be at more harmful or equal to natural levels within 250m of waste composting operations. Therefore modelling of bioaerosols and an appropriate separation distance from sensitive receptors may be required. Mitigation measures such as biofilters may reduce these levels.

1.5. Landfill gas is comprised of around 40-60% methane, with the remainder comprised of carbon dioxide and trace gases. Landfills which produce landfill gas ('Non-Hazardous Reactive Waste' sites) can be potentially significant contributors to climate change, as landfill gas has a contributory factor around 25 times that of carbon dioxide. Consideration should be given to suitable mitigation methods, such as the combustion of landfill gas during the production of energy outputs. Although these are reliant on the efficiency of landfill gas extraction.

1.6. Modern, well managed incinerators are unlikely to make a significant contribution to local concentrations of air pollutants.

1.7. The overall emissions of waste management facilities may be reduced by the co-location of facilities at nodal points, increasing efficiency and maximising combined heat and power opportunities. However, a concentration of facilities in one area could result in air emissions having an adverse effect on the adjacent natural and built environment or local communities. Consultation with Natural Resources Wales should be undertaken, particularly to establish appropriate mitigation measures.

2. Birds and Vermin

2.1 Waste management sites have the potential to attract birds and vermin, which could constitute as a statutory nuisance. Where waste management operations tend to take place within buildings and/ or waste materials are only present for short periods, processing operations will not normally experience problems associated with rodents or birds.

2.2 Waste management sites accepting putrescible wastes have the potential to attract birds and vermin.

2.3 Landfill sites can represent sources of flies, vermin and birds which may scavenge food wastes. Fly infestations may occur in hot summer weather conditions when their breeding cycle speeds up. Fly infestations usually derive from sources further up the waste steams such as long bin storage.

2.4 Control is provided through permit conditions requiring the control of pests through the application of daily cover (landfills), spraying of waste deposits to eradicate insect pests (landfills), the use of bird-scarers and birds of prey (landfills) and the use of baits and traps (all facilities accepting putrescible wastes). Some landfills are attractive to protected or rare species and require particular care in management.

2.5 The numbers and movements of some species of birds may be influenced by the distribution of landfill sites. Congregating birds can become a major nuisance to people living near facilities. They can also become a substantial hazard to aircraft at sites close to aerodromes. As part of the aerodrome safeguarding procedure, local planning authorities are required to consult the Civil Aviation Authority on all applications for landfill development that fall within eight miles of major civil aerodromes, and the Ministry of Defence for similar development within 10 miles of military aerodromes. Local planning authorities within such areas should also consult the Civil Aviation Authority and Ministry of Defence when preparing their unitary development plans.

2.6 When new landfill sites or extensions to existing sites are proposed, then consideration should be given to the potential presence of protected or rare species. However there is the possibility for protected species to be present on other waste management sites and appropriate consideration will need to be given.

3. Dust

3.1 Dust from any waste facility has the potential to represent a nuisance issue with potential adverse impacts on residential and/or local amenity. Dust and particulates can continue to give rise to these issues even out side of operating hours.

3.2 Particulate emissions from waste management facilities will depend on the type of facility. Dust production can be minimised through careful design of a facility, use of appropriate and well-maintained abatement equipment, and good industrial housekeeping. Air quality issues will normally be raised at the planning stage and can be a material planning consideration as well as a pollution control issue.

3.3 Dust is sometimes generated by vehicles travelling over unsurfaced haul roads and on the public highway leading to and from a site. Vehicle movements on site may also give rise to dust. The loading and unloading of feedstock from vehicles also has the potential to produce dust, and so suitable mitigation measures may be required.

3.4 Dust emissions should be controlled, for instance by dust suppression techniques such as water spraying, by adequate covering of waste storage areas or deposited wastes in landfill sites, by the sheeting of vehicles carrying wastes and by air abatement plant to capture particulates from local exhaust ventilation from in-building facilities, and from combustion activities. It may be appropriate to impose a planning condition that requires waste operators to prepare a scheme, or to indicate what measures will be undertaken, to suppress dust on site. Care should be taken, however, that any planning condition does not duplicate a condition imposed through a waste management licence or Pollution Prevention and Control Permit.

3.5 Locations would need to take into account the potential of local particulate emissions, in order to reduce the impacts on local amenity.

4. Hours of Operation

4.1 Local planning authorities will need to consider carefully the proposed operating hours of facilities in order to mitigate impacts of noise, lighting and traffic movements. A condition setting out the hours of working (different hours may be necessary for certain activities) and hours of traffic movement may need to be applied to each waste management facility. If a site is located close to residential or other sensitive land-uses, it would normally be inappropriate to allow operations, deliveries, or other traffic movements to take place at night, during Sundays or on Bank Holidays. However, it should be recognised that certain activities may need to operate at other times. Maintenance of plant, facilities to control or collect gas emissions at landfill sites, or land surface water pumping may require 24-hour operation. At particularly sensitive sites there may need to be more stringent restrictions on hours of operation. Planning and permitting relating to hours of work should be complementary.

4.2 A planning condition limiting overall hours of working may require a shorter operational day for waste disposal to make sure that all operations are completed by the end of the working day. With the depositing of waste in a landfill site, for instance, sufficient time is required for the newly deposited wastes to be covered before operations end for the day.

5. Land Instability

5.1 Waste management and disposal sites should not be located where they could be affected by land instability. This might, for instance, damage containment precautions of landfill and landraising sites, or affect buildings at other types of facility. Local planning authorities should satisfy themselves that the stability of proposed sites has been properly investigated and where necessary, an engineering assessment may be required to design appropriate precautionary or remedial measures.

5.2 Any new landform, resulting from landfill or landraising operations, should be designed both to be inherently stable and to fit with the nature and scale of existing features in the vicinity. The intended final landform, including gradients and drainage of a site should be designed at the outset, taking account of existing ground conditions, landscaping and pollution control requirements, and options for reclamation and after-use.

6. Lifetime of Waste Management Sites

6.1 A planning permission for a waste management facility must in most cases be implemented within 5 years. Longer periods may be appropriate in exceptional circumstances. The impacts of new developments both during and after construction need to be monitored carefully. The local planning authority should be notified when development is to begin.

6.2 The duration of a planning permission will relate to the particular waste management proposal. For landfill, all operations, including the final landscaping, should be completed by the end date of the planning permission. It is necessary, therefore, for the waste deposit phase to cease an appropriate period before the permission end date in order to allow the required restoration and aftercare to be completed on time. Predicted end dates may vary, and local planning authorities may have to exercise flexibility, although public concern about final restoration should be considered carefully.

6.3 Landfill operations should be undertaken in accordance with an approved programme of phased operations, in order to minimise environmental disturbance. There are advantages in using planning conditions that give the operator the opportunity to apply to the local planning authority to vary the working programme and other details at a later date if changed site conditions or other new circumstances require. In considering such variations the local planning authority should give prime importance to minimising the overall environmental impacts of the remaining stages of the permitted development, and the consequences for other local land users.

6.4 Landfill or land raising operations are essentially transitory although some last for fairly long periods. If other waste management facilities, not necessarily tied to the life of the landfill, are also proposed at such sites the longer-term environmental benefits and disbenefits of the whole or co-development should be considered. It will be necessary in some instances to consider the intended closure of the parent operation, and judge whether it is appropriate to limit the period of operation of the ancillary development. This decision should be taken in the context of the updated annual monitoring report on landfill need and Towards Zero Waste which seeks to limit reliance on landfill.

6.5 Local planning authorities and operators should discuss the need for amendments to existing planning permissions to anticipate and make provision for changes in landfill categorisation and changes in the volume and nature of the waste streams available to landfill that could affect site restoration. For sites with a long remaining life, in excess of 5 years, it may be necessary to assess the viability of the operations continuing and consider alternative means of restoration, in consultation with Natural Resources Wales.

7. Litter

7.1 Litter can be a serious problem on waste management sites, especially landfills, transfer stations and civic amenity sites. Operators should ensure that their site operating procedures tackle this problem in a reliable and consistent way, by ensuring, for example, that working areas are covered and that litter screens are erected and maintained. Even small-scale facilities such as container banks can give rise to litter through overflowing if not emptied frequently enough. Vehicles bringing material to sites and waiting to discharge should be appropriately netted or sheeted.

8. Nature and Archaeological Conservation

8.1 Landfilling may be proposed in former mineral workings that have been abandoned for some time, and where natural regeneration of habitats has been taking place. It is for local planning authorities (in consultation with Natural Resources Wales) to consider whether landfilling would be appropriate in these circumstances, having regard to the nature and geological conservation value of the site. This recommends that all areas of damaged land, including former mineral workings, should be assessed for their nature conservation interest. Where any ecological interest is known or is suspected to be significant on or adjacent to proposed development sites, an ecological/geological/soil survey should be undertaken before any decision is taken on the future use of the site.

8.2 Facilities should not have an adverse impact on areas or sites designated for local, national or international protection, such as:

- World Heritage sites;
- Areas of Outstanding Natural Beauty;
- National Parks;
- National Nature Reserves;

- Sites of Importance for Nature Conservation;
- Sites of Special Scientific Interest;
- Special Areas of Conservation;
- SPAs; or
- RAMSAR sites

8.3 This does not preclude suitable proposals for waste facilities located within the boundaries of National Parks and other similar designated areas, provided that they are appropriately designed.

8.4 Account should also be taken of the potential effect on sites of archaeological importance.

8.5 Account should be taken of the potential effect on the natural and built heritage.

9. Noise

9.1 As part of the planning process, consideration of the impact of proposed waste facilities on residential development and other noise sensitive receptors will need to be considered.

9.2 The level of detail supplied in the application should be commensurate with the level of risk. In other words, the higher the risk of causing annoyance or other environmental impact, the more detail is required and the higher the expectation of a proactive approach to noise control.

9.3 Noise assessments should be undertaken in accordance with BS4142:1997 ('*Method for rating industrial noise affecting mixed residential and industrial areas*') and BS5228-2:2009 ('*Code of practice for noise and vibration control on construction and open sites*') as appropriate, or any future replacement guidance.

9.4 Where required, noise control measures should form a scheme developed by the site operator in conjunction with the planning authority and the appropriate regulator (Natural Resources Wales in respect of permitted facilities, and the local authority for other waste management operations). The aim should be to control noise impact by setting noise limits at sensitive receptors. This is more appropriate than setting noise limits at site boundaries or prescribing minimum distances between sites and noise sensitive properties. In order to achieve these noise limits, consideration should be given to mitigation measures such as noise bunds and fences to contain noise disturbances.

10. Odours

10.1 Waste management facilities can produce odours that can be a cause of concern to sensitive receptors, and this should be given full weight in the consideration of planning applications. Odours may be controlled both by planning and site permitting conditions under the Environmental Permitting (England and Wales) Regulations 2010 administrated by Natural

Resources Wales. Local authority environmental health departments may also become involved in enforcement if a statutory nuisance arises in respect of facilities which are exempt from permitting.

10.2 Among the facilities presenting the greatest potential for odour production are those which compost food and green wastes, sites which transfer or treat mixed wastes (such as Mechanical Biological Treatment facilities) and Non-Hazardous Reactive Waste landfill sites. These types of facility have historically led to the most public complaints. Odour issues have been a cause for site closures. In particular, landfill sites can give rise to public concern as their odours can be detectable from over 1km away from a site. Over half of all landfill complaints relate to odour. However, most odour problems may be overcome with good site and landfill gas management procedures.

10.3 The majority of small facilities such as container banks should not generally present a problem although they should be emptied and cleaned frequently.

10.4 Odour can be minimised by using techniques such as negative pressure in facility housings, and good site practices, such as the daily covering of waste at landfill sites. Odour mitigation measures could have potential visual impacts and so should be considered as part of planning processes, and where possible, as part of the original proposal.

10.5 Where a proposed development is considered environmental impact assessment development under the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (as amended) the impact of odours may be carried out as part of the formal Environmental Statement required to identify, assess and mitigate against potential significant environmental effects.

10.6 For major infrastructure consented under the Planning Act 2008, the impact of odours again may form a key part of an assessment required under the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009. The local planning authority will play a key role during the consultation process and through the requirement under section 60 of the Act to produce a local impact report.

10.7 Careful consideration needs to be given when locating new developments, such as residential developments, schools and hospitals, which may be sensitive to the activities of neighbouring waste management facilities (i.e. odour and noise). If inappropriately located, the development may lead to the waste management site becoming the subject of complaint from the new occupiers.

10.8 Natural Resources Wales should advise the local planning authority on the pollution control provisions and specify those issues that the licence or permit will deal with to avoid duplication of controls.

11. Protection of Surface and Groundwater

11.1 Potential effects on water resources are a material planning consideration. There should be no possibility of run-off, spillage or leachate pollution of surface or groundwaters.

11.2 For landfill and landraising applications, planning conditions will be required to control drainage and disposal of surface water and to prevent uncontrolled pollution of groundwater by leachate. Proposed sites for landfill or landraising should be investigated carefully by developers (in consultation with Natural Resources Wales) to determine the geological and ground conditions as well as the behaviour of surface and groundwaters.

11.3 Landfill activities may disrupt and divert surface and groundwater flows by altering local topography, excavating below groundwater levels and via dewatering operations.

11.4 Other forms of waste management facility may also have the potential to affect groundwater through the seepage of pollutants. However, as most facilities are undercover and on concrete hard standing with separate foul water drainage, rainfall is unlikely to come into contact with the waste materials, and as such, water pollution is unlikely. However, any wash-down waters and any liquid within the waste does need to be managed appropriately.

11.5 Waste management facilities with any potential to contaminate soils or groundwater should be located on sites with natural geological advantages, such as low permeability deposits and sites which are geotechnically stable.

11.6 Permit controls may require the use of bunding or closed drainage systems to prevent contaminants entering normal surface water drainage. Most facilities will require drainage systems to ensure that dirty waters are dealt with appropriately and separately from surface water drainage.

12. Flood Risk

12.1 Waste disposal facilities proposed in areas without existing flood defence infrastructure that are regularly or potentially subject to flooding are unlikely to be acceptable. In areas that may be subject to flooding, the potential effects of pollution to surface and groundwater should be taken into account. Natural Resources Wales and Technical Advice Note 15 provide further advice on this and the potential generation of additional surface water run-off.

13. Reinstatement of the site

13.1 When the operation of a waste management site comes to an end there needs to be an obligation for it to be left in a fit state for beneficial subsequent use. The restoration of the site should have clear regard to the end use. If the proposed after-use constitutes a material change in land use, planning permission will be required. Permit conditions and sound management should ensure that there is no possibility of future harm or pollution.

13.2 In the case of landfill and landraising operations, appropriate and careful restoration and aftercare is required to prepare the site for a use which is compatible with the surrounding area and the provisions of the local development plan.

14. Transport and Access

14.1 Waste management facilities have the potential to generate a large increase of vehicle movements within the locality. Vehicular movements, highway safety, transport and access are material planning considerations. The traffic generated may include a mixture of private vehicles, waste collection vehicles, bulk haulage vehicles and skip transporters.

14.2 The principal material planning considerations relating to transport and access are:

- Congestion;
- Severance;
- Safety and traffic related loss of amenity;
- Mud on roads; and
- Traffic associated air pollution; if development affects trunk routes, then it may also become a concern of the Highways Authority.

14.3 The economic viability of certain facilities will rely on volume and throughput. This will inevitably impact upon the nature and volume of vehicle movements and the nature and source of the waste. Vehicle movements in and out of such facilities should be considered carefully by local planning authorities, as any major waste facility will be served by a significant number of heavy goods vehicles.

14.4 Small scale facilities are unlikely to have a significant effect on local traffic flows. However, these facilities may form additional processing operations to avoid the disposal of waste, increasing the number of movements in the locality compared with direct transport to incineration or landfill.

14.5 Local planning authorities should consider routes and volume of traffic associated with increased activities at existing facilities, as well as the traffic implications at proposed facilities. The ideal scenario, where other planning considerations allow, would be the location of facilities at nodal points that are easily accessible from major transport routes, (potentially reducing the need for transfers between sites) reducing the impact of traffic on the road and rail networks.

14.6 Co-location of these types of activity with other waste management practices would be advantageous, minimising the overall distance travelled by vehicles. However, centralised facilities would generate significant levels of heavy goods vehicle movements. Therefore it may be necessary to place restrictions on deliveries to centralised facilities.

14.7 Planning preference should be given to sites within close proximity to alternative modes of transport. Planning permission should be refused if the existing road network is unsuitable, or the impact of traffic on local communities is unacceptable, and cannot be improved

sufficiently as part of the proposed development. Improvements may be achieved through a highway agreement, by means of a planning obligation via a unilateral undertaking, Community Infrastructure Levy Regulations or by an agreement under Section 106 of the Town and Country Planning Act 1990.

14.8 As with all waste management facilities, bring banks and civic amenity sites will be accessed by a significant level of traffic, potentially causing an impact on roads close by and the amenity of local residents. The majority of this traffic will consist of private vehicles, although waste collection vehicles such as heavy goods vehicles and skip transporters will also need to visit the site on a regular basis. Potential for traffic queuing at peak times is a major issue, and so proposals for facilities should have good highway and pedestrian access to minimise congestion and reduce the risk of accidents.

14.9 Most waste facilities have specific spatial requirements, for example an appropriate size, layout, and level service area for parking, unloading and turning of large vehicles with minimal reversing and a parking area for staff and visitors. Sites should be of a sufficient size for the circulation and manoeuvring of traffic within the site.

14.10 The traffic noise generated in association with waste management facilities is a material planning consideration. Noise issues may arise due to general traffic noise onsite or on the local road network, waste collection vehicle manoeuvring (particularly in relation to reversing alarms) loading and unloading operations associated with heavy goods vehicles movements and/or train noise.

14.11 Vehicle movements on un-surfaced haul roads and on the public highway leading to and from a site may give rise to dust, creating a nuisance issue with adverse impacts on residential amenity. Planning authorities should take this into consideration when determining an application.

14.12 A planning condition requiring that adequate cleansing facilities are provided, so that vehicles moving off sites will be clean, should normally be sufficient to ensure that mud and waste materials are not deposited on the highway.

14.13 Vehicle movements may also result in a negative visual impact. The significance of any such impact is dependent on the number of vehicles/trains/barges accessing and exiting the site.

14.14 Heavy goods vehicles movements in relation to waste management facilities can contribute towards atmospheric emissions, and are primarily associated with emissions of combustion products (COx, SOx, NOx, VOCs and PM10). These emissions may be important within close proximity to sites as well as along the immediate route of the vehicles involved.

14.15 Where there is reason to believe that the numbers of vehicle movements to and from a site will have significant adverse effects on residential property along access routes, it may be appropriate to set a limit on the quantity of material that may be transported, or the number of movements to be permitted over specified periods. Ideally, such a condition will be self-policed by the operator, for example through keeping suitable weigh-bridge records,

but planning conditions may be imposed to require summaries of vehicle movements to be submitted periodically to the local planning authority for monitoring purposes. There may also be a requirement for open-topped vehicles to be sheeted, amongst other restrictions common to most waste transport.

15. Visual impact

15.1 The development of any new building may lead to impacts on landscape character and visual amenity. Landscape and visual impacts are material planning considerations. A significant amount of public concern and anxiety can be generated by the proposed visual appearance of such waste management facilities[36]. The site should take advantage of existing topography so as to reduce the visual impact and the facilities should not be located where they will have an adverse impact upon statutorily protected landscapes.

15.2 Waste management facilities, their operations and the traffic associated with them vary greatly in size and degree of their visual intrusion. Consideration should be given to the potential effects on the landscape.

15.3 Larger scale plants have the potential to create greater visual intrusion. Enclosed facilities will also require buildings and/or containers for the waste reception processing areas. Smaller, less conspicuous installations may be more appropriate in some circumstances, subject to the economic viability of the operation. Sites may be screened by landscaping works and amenity bunds as well as advance planting of trees, shrubs or hedges around the periphery of a site.

15.4 The significance of any landscape and visual impact is dependent upon a number of site specific issues such as:

- Compound footprint;
- Direct effects on landscape fabric, including Greenfield vs. Brownfield, removal of hedgerows, trees etc;
- Proximity of landscape designation;
- Site setting, for e.g. the proximity of list buildings and/or conservation areas;
- Proximity of sensitive viewpoints;
- Stack height/number of stacks;
- Presence of existing large built structures;
- Existing landform and nature of existing landscape;
- Presence/absence of screening features (trees, hedges etc.)

15.5 Traffic movements may also result in a visual impact and should also be taken into consideration.

[36] See the case studies in Waste Planning: Practice Guide.

15.6 The site planning for a large waste management facility should include details of landscape proposals and planting where this is required to reduce visual impact. A landscaping scheme will usually be required as part of a planning application.

15.7 The height of the stack used for release of gaseous emissions can be a critical concern to local residents and represent a major visual impact. The frequency of a visible plume from the stack also needs to be considered. The presence of flares/ engines and their associated stacks can add a new 'industrial' feature into a generally open context of a restored landfill. Stack height will determine the degree of visibility of the compound to a significant extent, and in the future, as emission criteria become more stringent, taller stacks are likely to be required. However, landfilling activities are often utilised to reprofile and landscape derelict land or mineral voids leading to landscape improvement in the long term.

15.8 New lines or cables used to connect energy producing facilities to the National Grid for electricity transfer will also have an impact on visual amenity both on and off the site.

15.9 Careful site selection and appropriate orientation of the appearance of the building footprint together with appropriate screening measures can help to minimise any potential adverse impacts, and consideration should also be given to the opportunity for site profiling and engineering to minimise the visual appearance of building. In some instances partial burial of certain elements of the plant may be possible.

15.10 A degree of design modification should be possible to ensure the building provides a good fit with the local architectural vernacular, and has colour treatment and design details that are consistent with local industrial design guides. Various site engineering and screening techniques can be used to minimise visual impacts if located in a particularly sensitive setting.

16. Planning conditions

16.1 Where planning permission is given for waste management, local planning authorities should consider imposing conditions or negotiating obligations, where relevant appropriate, in respect of matters such as:

- Transport modes, mode transfer facilities, access arrangements, and the volume of traffic generated;
- The physical nature of wastes acceptable or excluded, insofar as this might affect local amenity or neighbouring land-use (but not to the level of detail relevant to an environmental permit);
- The hours of operation where these may have an impact on neighbouring land-use;
- Noise limits;
- The timescale of operations and any phasing of uses on a site;
- The protection of surface and underground water;
- Plant and buildings;

- Ancillary development;
- Visual impact – screening and lighting proposals;
- Landscaping;
- Minimising nuisance from dust, birds, vermin or litter;
- The historic environment, industrial heritage and archaeological remains;
- Precautionary measures against the risks of sites suffering from or causing land Instability;
- Removal, handling and preservation of topsoil and subsoil, and their replacement at the restoration stage;
- The area to be filled and site layout; and,
- Restoration and aftercare - including pre/post settlement contours at landfill or landraising sites. (Details may need to be reserved until a site is close to its completion, or amended to reflect changing needs for mitigating the impacts on the environment and local communities).

16.2 Applications for incinerators that would generate more than 50MW output of electricity would require authorisation from the National Infrastructure Planning Unit of the Planning Inspectorate.

Annex D: Glossary of Terms

Term	Definition
Agricultural Waste	Waste from premises used for agriculture or horticulture within the meaning of the Agriculture Act 1947 that the holder discards, intends to discard or is required to discard. Examples include: used tyres, surplus milk, used pesticide containers and old silage wrap. Agricultural waste is controlled in the same way as industrial waste, although it is important to note that manure is not classified as waste if it is being used as fertiliser on the farm on which it arises. The Waste Management (England and Wales) Regulations 2006, SI 2006 No.937 amended s.75(7)(c) of the Environmental Protection Act 1990 to bring agricultural and mining/quarry waste within the scope of "controlled waste". This has had the effect of bringing agricultural waste within the same national management controls already in place to comply with the Waste Framework Directive. Agricultural operations fall under the Environmental Permitting (England and Wales) Regulations 2010.
Anaerobic Digestion	A biological process where biodegradable wastes, such as kitchen or food waste, are encouraged to break down in the absence of oxygen in an enclosed vessel. It produces carbon dioxide, methane (which can be used as a fuel to generate renewable energy) and solids/liquors known as digestate which can be used as fertiliser. This form of waste treatment has an advantage over composting, since it generates energy, which reduces emissions of climate change gases by offsetting emissions from fossil fuelled power stations. It gives higher net carbon savings than composting.
Bioaerosols	These are naturally occurring bacteria and chemicals found in the air and produced when organic matter, particularly compost decomposes. Bioaerosols are material considerations in locations where sites treating or disposing of organic wastes must be sited at least 250 metres from dwellings and/or businesses.
Biodegradable/ Putrescible Wastes	Biodegradable/Putrescible waste includes paper and card, food and garden waste, and a proportion of other wastes such as textiles.
Bring Sites/Collection Banks	A recycling point where the public can bring material for recycling, for example bottle and can banks. They are generally located at supermarket car parks, council car parks and similar locations.
Civic Amenity Site	Site provided by the local authority for the disposal and recycling of household waste including bulky items free of charge.

Term	Definition
Closed Loop Recycling	Recycling where recycled materials are being used for the same or similar purpose, e.g, a glass bottle recycled into new glass product rather than downgraded, for example being used as an aggregate.
Combined Heat and Power	A highly fuel efficient technology which produces electricity and heat from a single facility.
Composting	An aerobic, biological process in which biowastes, such as garden and kitchen waste, are converted into a stable granular material which can be applied to land to improve soil structure and enrich the nutrient content of the soil.
Controlled waste	Defined in s.75(4) Environment Protection Act 1990 as household, industrial and commercial waste (this includes agricultural and mining wastes) or any such waste.
Cool User	Uses cool energy produced as part of a trigeneration or quadgeneration recovery activity. Operations using the cool energy from such activities may include those requiring air conditioning or refrigeration. As with efficient combined heat and power users, cool users should be sited in proximity to the source to maximise efficiency. See for example, the Olympic Park Energy Centre in London which is a trigeneration plant. The biomass fired boilers generate heat and cold, reducing the park's carbon emissions by 20-25% (Department of Energy and Climate Change 2012).
Courtauld Commitment 1 & 2	Voluntary agreement aimed at improving resource efficiency and reducing carbon and wider environmental impacts of the grocery retail sector. Now in Phase 2, it aims to achieve more sustainable use of resources over the entire lifecycle of products and throughout the whole supply chain.
Digestate	The fraction remaining after the treatment of segregated organic wastes through anaerobic digestion. It is a mainly liquid material, with an average solid content of between 5-20%. Digestate produced in accordance with the standard BSI PAS110 and the developing Environment Agency Quality Protocol for Anaerobic Digestate can be used for appropriate agricultural and horticultural applications as a product, and is no longer considered to be a waste material.
Feedstock	Raw material required for a process.
Gasification	Gasification is the process whereby carbon based wastes are heated in the presence of air or steam to produce fuel-rich gases.

Term	Definition
Household waste	Includes waste from household collection rounds (waste within Schedule 1 of the Controlled Waste Regulations 1992), waste from services such as street sweeping, bulky waste collection, hazardous household waste collection, litter collections, household clinical waste collection and separate garden waste collection (waste within Schedule 2 of the Controlled Waste Regulations 1992), waste from civic amenity sites and wastes separately collected for recycling or composting through bring/ drop off schemes, kerbside schemes and at civic amenity sites.
Household Waste Recycling Centre	Site provided by the local authority for the disposal and recycling of household waste including bulky items free of charge.
In Vessel Composting	This is a process where biowaste is placed in sealed containers and aerobically treated (usually with the forced addition of air) to ensure the breakdown of organic wastes over a set time and at a set temperature to a given standard (PAS110).
Landfill/ Landraising Sites	Any areas of land in which waste is deposited. Landfill sites are often located in disused mines or quarries. In areas where they are limited or no ready made voids exist, the practice of land raising is sometimes carried out, where waste is deposited above ground and the landscape is contoured.
Landfill Gas Utilisation Plant	A facility which converts landfill gas to energy. Comprised of one or more landfill gas engines with supplementary landfill gas flare, usually in an enclosed compound.
Leachate	Leachate is the generic term given to water which has come into contact with waste materials and which has drawn pollutants out of those materials into solution, thereby contaminating the water.
Leachate Treatment	Leachate treatment is a process to reduce the polluting potential of leachate.
Legacy Waste	Legacy wastes are often hazardous, for example asbestos, are materials that it is not currently feasible to recover or recycle and therefore cannot be returned into the chain of utility. The only option is disposal, and this is likely to continue to be the case in the future if that material continues to be used in the present way. In order for waste not to become legacy waste the original product needs to be redesigned so that it can be recovered and reused. In the meantime, new treatment methodologies need to be developed wherever possible to avoid these materials being sent for disposal.

Term	Definition
Local Authority Collected Municipal Waste	Local Authority Collected Municipal Waste is municipal waste as collected by local authorities. It includes household waste and any other wastes collected by a Waste Collection Authority, or its agents, such as municipal parks and gardens waste, beach cleansing waste, commercial or industrial waste and waste resulting from the clearance of fly-tipped materials.
Materials Recovery Facility	A specialized plant that receives, separates and prepares waste materials into different component streams prior to onward transfer to a reprocessing plant, disposal or treatment facility (end-user manufacturers). **Dirty Materials Recovery Facility** Where some recyclable components are separated from mixed, unsorted waste. **Clean Materials Recovery Facility** Clean, dry, pre-sorted or partially sorted materials are bulked up prior to onward transfer to a reprocessing plant.
Mechanical Biological Treatment	Combines biological and physical processes in the management and treatment of residual waste. Waste undergoes a mechanical sorting process to separate out recyclables. The remaining waste following this first phase processing is the organic rich fraction or biodegradable fraction for biological treatment. The second phase is a biological digestion process (aerobic decomposition and/or anaerobic digestion). Where anaerobic digestion is used to digest organic rich waste fraction, biogas is produced which can then be used as a source of energy.
Mixed Municipal Waste	Mixed municipal waste or residual municipal waste includes those mixed wastes collected by third parties from commercial and industrial sectors as well as from private households.
Mixed Waste Processing	Mixed waste processing is designated to recover valuable components from unsorted municipal solid waste for recycling and deliver a stabilised residue for final landfilling. Otherwise processing involves a number of standard waste separation techniques to remove recyclable materials such as glass, metals and plastics, followed by the composting or anaerobic digestion of the remaining organic materials.

Term	Definition
Municipal Waste	Municipal waste means 'municipal waste as collected by local authorities'. It includes household waste and any other wastes collected by a Waste Collection Authority, or its agents, such as municipal parks and gardens waste, beach cleansing waste, commercial or industrial waste and waste resulting from the clearance of fly-tipped materials.
Open Loop Recycling	Where the end product of recycling is used to replace something else, e.g. glass is recycled into aggregate which replaces virgin aggregate.
Plastics Recovery Facility	Sorts plastics into different fractions for recycling.
Processor	An operator who accepts the waste, processes it in some way e.g, segregation, baling, shredding, bulking etc before sending the material onto a reprocessor. Processors often form the first destination of a waste material from a local authority, particularly with respect to metals, mixed paper and card and plastic wastes. There can be several intermediaries (i.e. processors, brokers etc) between collections and the final reprocessing of the material.
Pyrolysis	During pyrolysis, organic waste is heated in the absence or air to produce a mixture of gaseous and liquid fuels and a solid inert residue (mainly carbon).
Recyclate	This is material separated (either at source or following interim treatment) for the purpose of recycling.
Recycling	This means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.
Reprocessor	An operator undertaking one or more activities of recovery or recycling.
Residual Waste	The term used for waste that remains after recycling or composting material has been removed from the waste stream.
Special Waste	This term has been replaced with "Hazardous Wastes" under the Hazardous Waste (England and Wales) Regulations 2005 (as amended).
Thermoplastics	Polymer resins. This type of plastic is liquid when heated and hard when cooled. It can be reheated, reshaped and is easy to recycle.
Thermoset	These are rigid plastics which are resistant to high temperatures than thermoplastics. Thermoset plastics cannot be remolded once set.

Term	Definition
Transfer Station	Facilities which receive waste for bulking into larger containers prior to onward transport to a point of treatment, disposal or reprocessing.
Treatment	Physical, thermal, chemical or biological processes, including sorting, that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.
Upcycling	Where high energy raw materials are substituted by lower energy secondary raw materials and these are retained in the materials economy. It often refers to the reconfiguration of waste materials and items into desirable new items.
Waste Collection Authority	A local authority charged with the collection of waste from each household in its area on a regular basis. They can also collect, if requested, commercial and industrial wastes from the private sector.
Waste Management Network	Wales has a duty to take measures to establish an integrated and adequate network of waste disposal installations and installations for the recovery of mixed municipal waste collected from private households and similar wastes from other sources. The waste management network is wider than just disposal and recovery infrastructure. To manage waste efficiently a joined up network of collection, transport, transfer, storage, interim and final processing infrastructure is needed. This infrastructure should be sufficient for the volume of waste arising taking into account spatial and demographic factors and therefore, the wider waste management network may take into account infrastructure not only available in Wales but cross border and even within the European Union.
Windrow Composting	Where waste is heaped up, either in the open air or in buildings and periodically turned to help the composting process. This is not suitable for kitchen waste which requires a treatment to kill harmful organisms in animal by-products and food.