Beyond Waste Technical Note

Introduction

I have produced this note to assist the Examination Authority of the DCO into the Medworth EfW CHP proposal (EN010110). I confirm that I am acting independently and in my professional capacity and the contents of this note are true and correct to the best of my belief. It is structured as follows:

1. Credentials
2. Purpose of this Note
3. Context
4. Methodology
5. Findings
6. Analysis
7. Sense Checking Findings
8. Conclusion

1. Credentials

My name is Alan Potter. I am a Fellow of the Institute of Waste Management, a Chartered Environmentalist and a member of the United Kingdom Environmental Law Association. I have produced numerous Waste Needs Assessments (WNAs) for various authorities including the following:

- Cheshire West & Chester Council (2023)
- Gloucestershire County Council (2023)
- Cumbria County Council (2022)
- Lincolnshire County Council (2021)
- Cheshire East Council (2017, 2019 Refresh & 2023),
- Essex County Council (2016),
- North East Lincolnshire Council (2015),
- Medway Council (2019 and 2021 Refresh)
- Kent County Council (2015 & 2017 and 2022 Refresh),
- Surrey County Council (2014 & 2022 Refresh)
- Oxfordshire County Council (2013/4 & 2016),
- East & West Sussex County Councils (2012).

I sit on the Defra waste data steering group and have advised Defra on the update of its Commercial & Industrial Waste methodology which includes consideration of 191212 residues. I was also lead author of Kent County Council's evidence to the Kemsley DCO inquiry in which the Fuel Availability Assessment was a key point of contention. The Secretary of State found against the need to build an additional EfW plant in that case, partly based on the lack of a proven need case.

2. Purpose of this Note

The Applicant has produced an updated Fuel Availability Assessment and I note that it uses the term HIC as a shorthand for combustible waste. However closer examination of the waste codes included under this Basic Waste Categorisation shows it captures a very wide range of waste, a significant amount of which would not be classed as suitable for incineration. This paper particularly deals with waste classified under the EWC code 19 12 12. I consider this approach significantly over estimates the available fuel and this paper sets out why in my professional opinion this is the case. I first set out an explanation of the nature of 19 12 12 waste and then present a worked example to illustrate my point.

3. Context

The WNAs that I am lead author of, assess the management requirement for different waste types projected to arise over a particular plan period within a particular Waste Planning Authority's area. They form part of the underpinning evidence base to plans that relate to waste that undergo public examination and scrutiny by independent planning inspectors. These may be dedicated Waste Local Plans, combined Minerals & Waste Local Plans and waste policies that form part of a Local Plan, where the plan making authority is a unitary authority.

In producing Waste Needs Assessments it is necessary to determine how much waste arise in the Plan area to which the WNA relates. The principal streams set out in Government Planning Practice Guidance are as follows:

1. Local Authority Collected Waste. (LACW)
2. Commercial & Industrial Waste (C&I)
3. Construction, Demolition & Excavation Waste. (C, D & E)

In addition to the above as required by Government Planning Practice Guidance, the management requirements for hazardous waste, low level radioactive waste, wastewater and agricultural waste arising within the particular Plan area are also considered along with any other waste that may arise locally that may have specific management needs. However this note specifically relates to the generation of baselines for C&I waste and C,D & E waste..

While data relating to LACW is readily available, because local authorities report on the management of arisings to central Government on a regular basis via an online data portal Wastedataflow, data for C&I and C,D & E waste is not so. Therefore it is necessary to consider in depth the data that is available. This data is primarily sourced from returns submitted by operators of permitted waste management sites to the Environment Agency. These report inputs and outputs by EWC code for each site, normally on a quarterly basis. For inputs, the origin of waste is reported, and for outputs destination and fate are reported. The returns are collated in a national dataset known as the Waste Data Interrogator (WDI).

4. Methodology

Dealing with Double Counting

As part of the exercise to generate a baseline value for C&I waste and C,D & E waste it is necessary to consider inputs and outputs to intermediate waste management facilities such as Waste Transfer Stations and Waste Treatment Facilities and attempt to trace the origin of waste that goes through these to their final destinations/fates. This ensures that double counting of waste does not occur, as otherwise waste going into such sites will also be recorded at the 'next step' site also reporting through the WDI. In undertaking this task a particularly problematic waste is the waste reported under Chapter 19 of the European Waste Catalogue as these are identified as waste arising from the mechanical treatment of waste, and hence lose their original identity when they leave the intermediate management facility for onward management at a 'next step' facility. The process flow is illustrated in Figure 1 below.

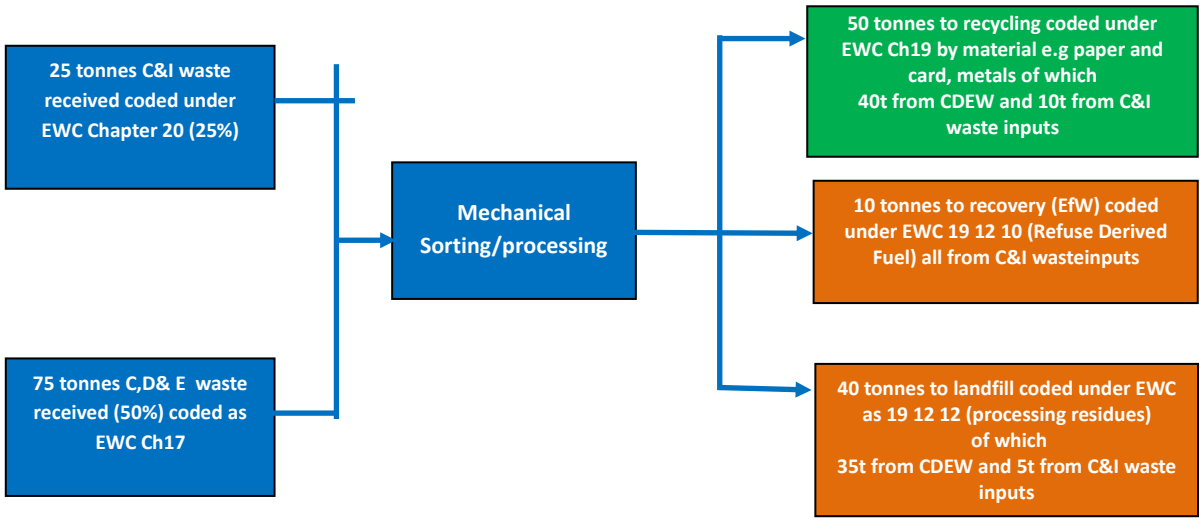

Figure 1: Schematic of Flows and Mass Balance of Intermediate waste sites

Facts Underpinning the findings of this Note

It is important to note that:

1. 19 12 12 waste can only by definition come into existence following mechanical processing of waste. The EWC description being "*other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11**", where 19 12 11* is the mirror code for the hazardous version of the same.

2. There is a parallel EWC code for refuse derived fuel 19 12 10, which covers the output of waste processing facilities that is suitable for use as a fuel in incineration plants such as that proposed at Medworth and co-incineration plants such as cement kilns.

3. C,D & E waste represents the majority of waste produced nationally(62% by weight); and can be expected to represent the majority of waste produced within a Plan area. Where this is mixed skip waste coded either under EWC 17 09 04 or at times 20 03 02 where a skip has been supplied to a householder, this skip waste will be subject to processing primarily to reduce the landfill tax liability associated with its disposal. Since the landfill tax was introduced, virtually all skip waste collectors will process the waste to some degree generating 191212 in the process. The same cannot be said to be true of C&I waste which may still be landfilled directly, although some treatment ought to have occurred at source to comply with the Landfill Directive. Also if you are going to the trouble of mechanically processing C&I waste you would normally look to convert it to RDF classified under EWC code 19 12 10 if the feedstock is suitable for combustion.

4. The processing of mixed skip waste generates residues of low combustibility after removal of wood and cardboard in sorting. These are normally referred to as trommel fines. There is a specific provision under the HMRC landfill tax regime to allow the disposal of these residues to landfill under the inactive waste classification if they meet a loss on ignition test. That is to say they have to prove they are not combustible to qualify. This by definition means they would be unsuitable for incineration. The landfill tax applies two rates, standard rate for active waste which currently stands at £102.10/tonne and inactive which currently stands at £3.25/tonne.

5. By way of illustration of the gross generalisation applied in the Medworth Fuel Availability Assessment I include an extract of recently issued environmental permit in Appendix 1. This relates to the excavation of previously deposited dredgings to extract secondary aggregate. The processing residues would fall under EWC code 191212.

Given the above, a critical determinant in establishing what if any proportion of 19 12 12 currently landfilled may be suitable for diversion to incineration is the proportion of the input to processing sites accounted for by C&I waste as opposed to C,D & E waste, LACW already being accounted for via Wastedataflow.

5. Findings

The quantity of 19 12 12 that may arise from C&I waste depends on the profile of inputs to these type of facility within each Plan area. What we can say is that a proportion will arise from C,D & E waste and given C,D & E waste is the dominant arising due to its weight a greater tonnage of C,D & E waste will be processed in real terms, and the corresponding amount of 191212 waste produced can be expected to be greater. If these residues were accepted at a non-hazardous waste landfill they can be expected to have met the HMRC Loss on Ignition Test and should therefore not be counted as combustible.

By way of illustration I've looked at the published Kent WNA dated November 2022 [1]of which I was lead author, and have arrived at an estimate of the proportion of 191212 attributed to C,D & E waste(and C&I waste by inference) in Kent. I have reproduced the relevant Tables I have used for the C,D & E waste component. I have no reason to believe that the profile of origin of 19 12 12 waste arising from waste transfer and waste treatment facilities in other Plan areas would be substantially different.

Table 6: Permitted Waste Transfer Sites within Kent managing Non-hazardous C, D & E Waste from Kent and producing Chapter 19 waste (Step 3bi)

Site Name + Operator	Shortfall (tonnes)	Ch 19 (tonnes)	% C, D & E Waste from Kent	Make Up (tonnes)
4. Port Richborough Business Park, ½ Skips Ltd	2,293	998	100%	998
Oare Creek Recycling Centre, East Kent Recycling	19,401	8,380	100%	8,380
Pelican 3 Wastenot Recycling, Sheerness Recycling Ltd	8,051	1,380	100%	1,380
Plot 15 Manor Business Park, Crossways Recycling Ltd	690	98	19%	18
Richborough Hall Waste Transfer & Recycling Centre, Thanet Waste Services Ltd	32,185	29,802	100%	29,802
Richborough Park, Thanet Waste Services Ltd	106,476	21,239	100%	21,239
Site 'b' North Farm Lane, We Load & Go Waste Management Ltd	3,864	2,693	95%	2,546
			Total	**64,364**

This gives a total 'Chapter 19 makeup' at transfer sites within Kent of 64,364 tonnes.

The value arrived at compares with the total net production of 191212 waste (after deduction of inputs) from Kent Waste Transfer sites of 99,784 tonnes. This gives a % of 191212 waste output arising from C,D & E waste inputs arising from Kent as 64,364/99,784 = **65%.** It should be noted that the value would be somewhat higher if all C,D & E waste inputs were to be counted (and not just limited to C,D, & E waste from Kent) but I have limited myself to published data for transparency's sake.

[1] available to download from https://letstalk.kent.gov.uk/kent-minerals-and-waste-local-plan

Table 7: Permitted Waste Treatment Sites within Kent managing Non- hazardous C, D & E Waste from Kent and producing Chapter 19 waste (Step 3bii)

Site Name and Operator	Shortfall (tonnes)	Ch 19 (tonnes)	% C, D & E Waste from Kent	Make Up (tonnes)
Ashford Transfer Station, Greenbox Recycling Kent Ltd	39,037	13,560	100%	13,560
Boarded House Farm, Steven Reginald Westley	645	1,043	99%	642
Callington Court Farm, Moores Turf & Topsoil Ltd	8,581	10,150	90%	7,762
Longfield Farm, Scrapco Metal Recycling Ltd	13,290	408	90%	369
Manor Way MRF, Sheerness Recycling Ltd	19,270	1,000	24%	242
Milton Pipes MRF, Sheerness Recycling Ltd	67,750	5,140	100%	5,140
Land Off North Farm Lane, Omni Recycling Ltd	24,118	8,548	100%	8,548
Land at Sanderson Way, Sheerness Recycling Ltd	26,470	2,040	95%	1,932
Tilmanstone Works, Ovenden Tipper Services Ltd	26,362	8,497	100%	8,497
Total				**46,691**

This compares with the total net production of 191212 waste (after deduction of inputs) from Kent Transfer sites of 98,798 tonnes. This gives a % of 191212 waste output arising from C,D & E waste inputs arising from Kent as 46,691/99,798 **= 47%.** Again it should be noted that the value would be somewhat higher if all C,D & E waste inputs were to be counted regardless of origin.

6. Analysis

Bringing the above values together that gives a total % of **56%** of inputs to Kent transfer and treatment sites from C,D & E waste arising from Kent. Given the low combustibility of C,D & E waste, after removal of wood and cardboard in sorting, this waste would not be suitable for incineration, and would continue to be landfilled regardless. This leaves 44% of 19 12 12 waste outputs, which after deducting C,D & E waste arising from outside Kent might leave 40% as potentially arising from C&I waste and therefore potentially suitable for incineration.

I note that Tolvik also considers 1912 12 waste to not all combustible. They assume 70% is, but don't evidence this. I do note that the general pressure of landfill tax is forcing more waste through mechanical processing plants so more fines might be produced particularly as they are only subject to the lower rate of tax, and this might explain the discrepancy with the historic Tolvik analysis. The key point is the principle that not all 19 12 12 is suited to incineration is accepted by the sector and therefore should not all be counted in the Medworth Fuel Availability Assessment. The evidence above supports a position that a value of c40% may be most accurate, and would consider 50% to be a generous estimate.

7. Sense Checking Findings

Analysis of Fate of 191212 waste managed in Kent

A value of no more than half is supported by examination of WDI data for 19 12 12 waste managed in Kent in 2021 as reported through the WDI 2021 as displayed in Table 1 below. This shows that only 25% was managed through incineration. If only inputs of 19 12 12 coded waste going to management routes that correspond to final fate is considered, this increases to 50%. This is in a situation where Energy from Waste capacity is in such plentiful supply that the Secretary of State adjudged that an additional plant was not required, and would have been injurious to the local Plan strategy. This shows that the provision of EfW capacity does not mean 19 12 12 waste can be expected to be diverted from landfill.

Table 1: Fate of 191212 coded waste managed in Kent in 2021 (tonnes)

Source: WDI 2021

	Management Method	Tonnes Received	% Grand Total	% Final Fate
Final Fate	Incineration	134,317	25%	50%
	Landfill	130,980	25%	50%
	On/In Land	7,040	1%	0.5%
Intermediate	Transfer	173,008	32%	
	Treatment	87,819	16%	
	Grand Total	**533,164**		

Analysis of Profile of inputs to Kent EfW Plants

To complete the analysis using the Kent example, I have also considered the profile of inputs to the Energy from Waste plants operating in Kent and found that 19 12 12 coded waste only represented 13% of the total inputs with the majority of inputs being coded under Chapter 20 in 2021. The data is displayed in Table 2 below.

Table 2: Profile of inputs to Kent EfW plants in 2021 (tonnes)

Source: WDI 2021

Input EWC code	Tonnes Received	% Grand Total
03 03 07	1,506	0.1%
19 12 04	1,314	0.1%
19 12 10	120,986	11.8%
19 12 12	134,317	13.1%
20 01 01	2,130	0.2%
20 01 08	4,984	0.5%
20 03 01	761,954	74.1%
20 03 03	1,189	0.1%
Grand Total	**1,028,380**	

Even when considering the coding of inputs to the Kemsley EfW Plant upon which the Secretary of State recently adjudicated alone, which is operating in a merchant capacity mode that the proposed Medworth Facility would be following, 191212 coded waste only represented 24% of the total inputs as shown in Table 3 below.

Table 3: Profile of inputs to Kemsley EfW plants in 2021 (tonnes)

Input EWC code	Tonnes Received	% Grand Total
03 03 07	1,506	0%
19 12 04	1,314	0%
19 12 10	119,875	23%
19 12 12	125,805	24%
20 03 01	278,529	53%
Grand Total	**527,029**	

8. Conclusion

The above shows that an estimate of 50% of 191212 coded waste being combustible is far more realistic than the approach taken in the Medworth Fuel Availability Assessment.

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15 August 2023

Appendix 1: Extract of Environmental Permit demonstrating that EWC code 19 12 12 being applied to inert waste processing residues being deposited in a non-hazardous waste landfill.

Silt Lagoons at Rainham and Wennington Marshes Permit number EPR/FB3701XY

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

Variation – EPR/FB3701XY/V004

The variation is for the excavation of previously deposited waste for processing by washing, screening and crushing. In addition to this, selected waste imported to the site will be directed to the waste treatment area for processing by washing, screening and crushing. The primary objective of the processing is to produce secondary aggregate with the residues deposited at the site and the secondary aggregate sold off site.

There are no proposals to change the overall quantity of waste or the extent of the permit boundary. It is anticipated that:

- up to 500,000 tonnes per annum (tpa) of excavated and imported wastes will be processed at the site;
- approximately 350,000 tpa of secondary aggregates will be generated from the waste processing operations; and
- approximately 150,000 tpa of residues will be deposited in the landfill either as disposal or as recovery.

The Operator also intends to import and stockpile up to 50,000 tpa of chalk and clay rich materials for export off site for reuse.

Two new EWC codes (19 12 09 and 19 12 12) have been added to tables S2.1 and S2.2 of the permit to allow for the deposition of residues from the on-site treatment operations

The rest of the permit remains the same and is described as follows.

Variation – EPR/FB3701XY/V003

A variation to increase the annual waste input rate specified in table S1.5 of the permit from 350,000 tonnes to 750,000 tonnes. Waste code 19 02 03 added to the tables S2.1 and S2.2 of the permit to allow for the deposition of dewatered tunnel arisings from the Thames Tideway project or similar projects, arisings which have not required dewatering will continue to be deposited as 17 05 04.

A pre-operational condition added to table S1.4 of the permit to ensure an appropriate stability action plan and procedure is in place prior to the increase in the annual waste input rate taking effect.

Variation – EPR/FB3701XY/V002

The variation permits the operator to continue to infill the lagoons with dredgings and accept inert wastes. The operator will restore the site in accordance with the approved restoration plan that details that:-

• approximately 3.35 million m3 of materials will be imported to the site (delivered either by road or river including pumped to shore from the jetty);

Variation and consolidation
application number
EPR/FB3701XY/V004

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