



Method Statement to Produce Baseline Estimate for Residual Waste Arisings in the Dorset Sub-region

Supporting Evidence to Alan Potter's Proof (Appendix 3)

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1 Introduction

1.1. Purpose

The purpose of this manual is to set out the steps that need to be followed to generate data to populate the Table 1 below

Table 1: Residual waste arising in Dorset subregion 2021 & 2022 Source: WDI (values in 000s tones)

| No | Component | 2021 | 2022 | Constituent Data Values |
|----|--|--------------|--------------|--|
| 1 | Subregion waste to Landfill in England | 36.3 | 39.7 | 50% 191212 plus mixed municipal and biodegradable. No RDF reported |
| 2 | Subregion waste to EfW in England | 32.4 | 67.4 | RDF plus mixed municipal plus 191212 |
| 3 | Exports outside England from subregion sites | 85.8 | 54.8 | Only RDF (191210) reported |
| 4 | Transfers of subregion waste to transfer/treatment sites outside subregion | 46.5 | 24.4 | Transfer/Treatment only as others may involve non residual mixed municipal i.e. commingled recyclates. |
| 5 | Waste from outside subregion to subregion transfer/treatment sites | -22.5 | -2.2 | 191212 plus mixed municipal and biodegradable. |
| | Total Residual Waste | 178.5 | 184.1 | |

This methodology is on the basis that the total residual waste produced within an area may be determined by considering the following elements together:

All area residual waste going to final fate (area waste to Landfill in England+ area waste to EfW in England+ exports outside England from subregion sites)

plus

Transfers of subregion waste to transfer/treatment sites outside subregion

minus

Waste from outside subregion to subregion transfer/treatment sites

1.2. What is the WDI?

The Environment Agency releases the Waste Data Interrogator (WDI): a compilation of the quantities and types of waste managed at permitted facilities in England as reported by permit holders. It is by calendar year and is normally released in the Autumn of the year following that to which the data relates i.e., in October 2023 the WDI for 2022 was published.

The WDI allows you to extract data identifying:

- The quantity of waste received and removed (where applicable) from each facility.

- The waste type by European Waste Catalogue (EWC) or Substance Orientated System of Waste Classification (SOC) reference.
- The identity and type of facility at which the waste was managed.
- The WPA area in which the facility is located and the origin WPA.
- The fate and destination of the waste.

1.3. Where to find the WDI

The Waste Data Interrogator is available to download from the Data.gov.uk website as two excel files: one file for waste received at permitted sites and another for waste removed from permitted sites. (See link below for the list of WDIs available)

<https://data.gov.uk/search?q=waste+data+interrogator>

Download both the 'Waste Received' and 'Waste Removed' datasets.

1.4. Glossary

Arisings: Waste produced in a particular WPA area, as reported by 'origin WPA' in each facility's returns.

Dorset subregion: The area administered by Dorset Council and Bournemouth, Poole and Christchurch Council.

European Waste Catalogue Code (EWC): Comprehensive listing of wastes by code transposed into English law by the List of Waste Regulations.

Facility WPA: The WPA in whose area the permitted waste management facility is located. In this case the '**Dorset subregion**'.

Origin WPA: The WPA from where the waste has originated, in this case the '**Dorset subregion**'.

Plan Area: The area of land administered by the Councils party to the Plan. This may include more than one WPA. In this case the Waste Plan relates to the '**Dorset subregion**'.

Waste Planning Authority: The Council responsible for planning for waste in its area.

2 Method

2.1. Extract the data from the WDI to show i. waste arisings from the subject WPAs area and ii. waste arisings managed at facilities located within the subject WPAs and iii waste removed from facilities located within the subject WPAs.

Once the WDI is downloaded and opened in excel you can extract data relating to a specific WPA area. Working from the 'Waste Received'¹ WDI dataset:

1. Select the sheet tab named '2022 waste received'² click on the filter on the column headed 'Origin WPA' (column U). Click 'Select All' to deselect all and then scroll down to find the WPA for which you are seeking arising data, in this instance select both Dorset and Bournemouth, Poole and Christchurch (hereinafter referred to as the Dorset subregion).
2. Once the data has filtered to the Dorset subregion, click the top left corner to select all the data displayed and copy it to a new sheet in a new excel file and call it 'Dorset subregion to all'.
3. Click the top left corner on the sheet 'Dorset sub region to all' to select all the data downloaded and click on the insert panel and then 'PivotTable' and click ok on the pop-up window. Call the new sheet that opens 'Dorset sub region to all piv'.

This is all of the waste arisings managed at permitted waste facilities located in England whether within or outside the subject WPAs. The next step is to extract the data relating to the imports of waste managed within the subject WPA from elsewhere.

4. Return back to the WDI and remove all filters on the 'Waste Received' sheet. Click on the 'Facility WPA' filter, click 'Select All' to deselect all and click the subject WPA, in this instance 'Dorset' and 'Bournemouth, Poole and Christchurch'.
5. Click the top left corner to select all the data and copy and paste into a new sheet in the excel file created and call it 'from elsewhere to Dorset'.
6. Click the top left corner on the sheet 'from elsewhere to Dorset' to select all the data and click on the insert panel and then PivotTable and click ok on the pop-up window. Call the new sheet that opens 'from elsewhere to Dorset piv'.

¹ Note that the WDI dataset does offer a 'Interrogator – Waste Received' tab where data can be screened down, however for the purposes of this manual the '2022 Waste Received' raw data tab has been used.

² While the WDI does provide a front sheet with data selection slicers, the above method provides a shortcut.

Determine the Quantity of Subregion waste sent to Landfill & EfW in England

The next step is to determine the quantity of residual waste from the Dorset subregion managed by landfill and EfW in England in 2022.

2.2. Create a Pivot Table to show subject WPA residual waste arisings managed at Landfill and EfW facilities in England

1. Click the top left corner on the sheet 'Dorset sub region to all piv', copy it to a new sheet and name it 'Dorset residual to LF + EfW piv'.
2. Click on the pivot table to open the pivot table fields. Select 'EWC Waste Desc', this will add all the types of waste arising from the Dorset sub region as a row in the pivot table. Select 'Site Category' this will add the site category as a row, drag to the columns box in the PivotTable Fields box. Select 'Tonnes Received', Excel will automatically add this as a value in the PivotTable Fields box. A pivot table like that shown in Figure 1 below should be produced.

It should be noted that the definition of residual waste has been set down in Regulation. This includes all waste types save for those listed in the Schedule to the Regulations, which are classed as excluded waste. A search was conducted of the wastes arising from the Dorset subregion reported in the WDI 2022, to identify all wastes that might fall within the wide definition. The outcome of this exercise is shown in the screenshot below.

| Row Labels | Incineration | Landfill |
|---|---------------|---------------|
| other wastes (including mixtures of materials) from mechanical treatment of wastes other than | 20,380 | 38,673 |
| mixed municipal waste | 26,129 | 20,261 |
| combustible waste (refuse derived fuel) | 20,932 | |
| bulky waste | | 18,200 |
| casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07 | | 11,308 |
| wastes whose collection and disposal is not subject to special requirements in order to prevent | 3 | 2,237 |
| minerals (for example sand, stones) | | 633 |
| other particulates other than those mentioned in 10 09 11 | | 574 |
| wood other than that mentioned in 20 01 37 | 275 | 17 |
| other engine, gear and lubricating oils | 224 | |
| biodegradable waste | | 166 |
| wood containing dangerous substances | 94 | |
| sludges and filter cakes other than those mentioned in 11 01 09 | | 44 |
| biodegradable kitchen and canteen waste | | 27 |
| packaging containing residues of or contaminated by dangerous substances | 0 | 26 |
| sludges from on-site effluent treatment other than those mentioned in 07 05 11 | 23 | |
| plastics | | 14 |
| Grand Total | 68,084 | 92,190 |

The list shows that the principal arisings are waste from mechanical treatment (a proportion of which will not be suitable for burning), mixed municipal waste and combustible waste. Bulky waste may only be subject to incineration if it is subject to pre processing such as shredding. This is not proposed for the Appeal facility. The final significant tonnage related to casting cores which would not be suitable for incineration. **This confirms the waste types selected captures the principal arisings that ought to be considered for this analysis.**

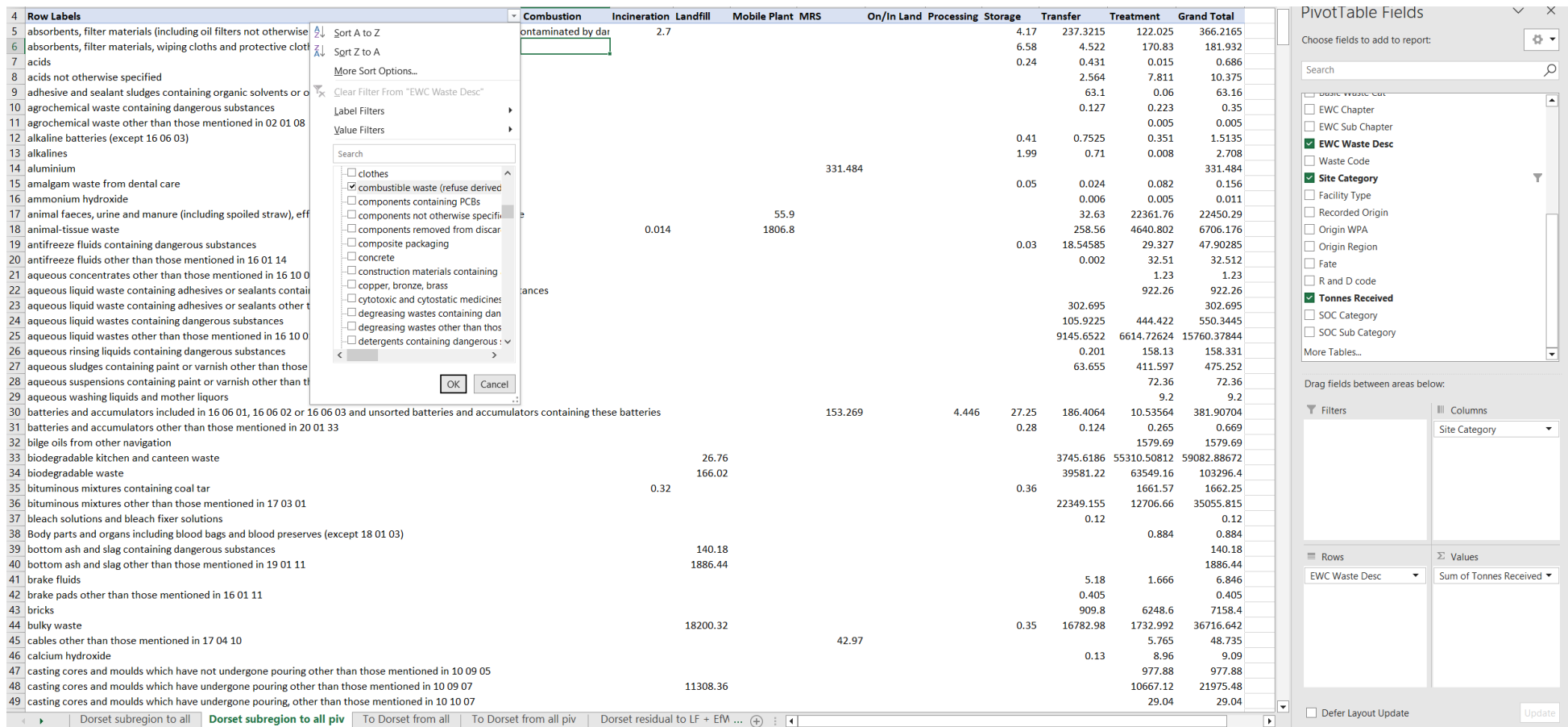


Figure 1: Pivot Table showing tonnage of waste by EWC waste description arising from Dorset Subregion going to any site in England by site category (dropdown menu for waste description displayed)

- To present the data more clearly, select the whole sheet by clicking on the top left corner and then right click and select 'format cells', select number and change decimal places to 0 and 'use 1000 separators', as shown in Figure 2.

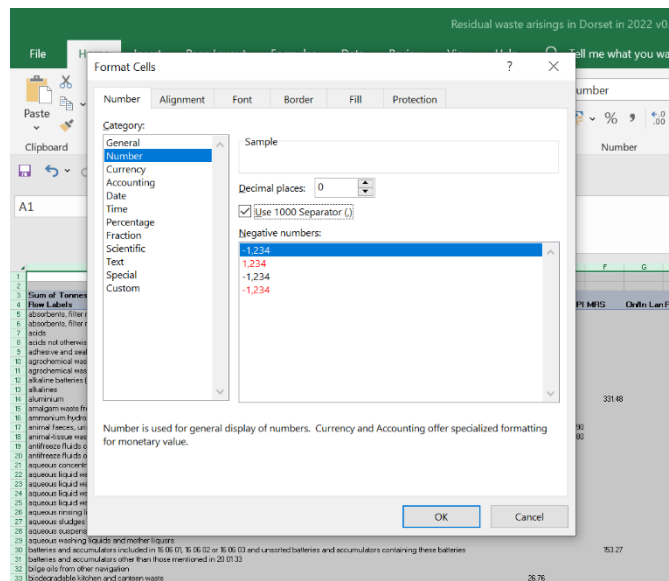


Figure 2: Formatting Cells

- Click on the column filter for 'Site Category', click 'Select All' to deselect all and select 'Landfill and 'Incineration' as shown in Figure 3 and click ok.

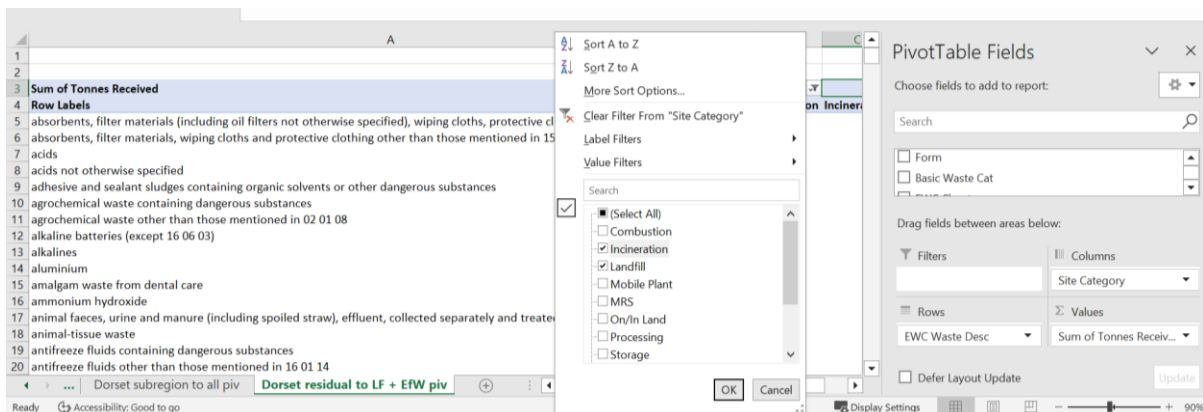


Figure 3: Filtering Dorset subregion waste to Landfill and EFW

- Click on the row filter for 'EWC Waste Desc', click 'Select All' to deselect all and select the following waste descriptions to show residual waste only:
 - 'biodegradable waste'
 - 'combustible waste (refuse derived fuel)'
 - 'mixed municipal waste'
 - 'other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11'

A pivot table like that shown in Figure 4 below is produced.

| | A | B | C | D | E | F | G |
|----|--|---|---------------------|-----------------|--------------------|---|---|
| 1 | | | | | | | |
| 2 | | | | | | | |
| 3 | Sum of Tonnes Received | | | | | | |
| 4 | Row Labels | | Incineration | Landfill | Grand Total | | |
| 5 | biodegradable waste | | 166 | 166 | | | |
| 6 | combustible waste (refuse derived fuel) | | 20,932 | 20,932 | | | |
| 7 | mixed municipal waste | | 26,129 | 20,261 | 46,390 | | |
| 8 | other wastes (including mixtures of materials) from mechanical treatment of wastes other than th | | 20,380 | 38,673 | 59,054 | | |
| 9 | Grand Total | | 67,441 | 59,100 | 126,541 | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | | | | | | |
| 16 | | | | | | | |
| 17 | | | | | | | |
| 18 | | | | | | | |
| 19 | | | | | | | |
| 20 | | | | | | | |

Figure 4: Dorset subregion residual waste sent to landfill and EfW in England

The waste description 'other wastes' captures residues from waste processing sites (EWC 19 12 12). A significant number of these sites deal with construction and demolition waste delivered in skips, the processing residues of which are not suitable for incineration. An estimation of 50% of the tonnage sent to landfill is assumed to be suitable for incineration. To account for this the following steps are taken:

6. Click on the cell under the pivot table under the landfill column use the following formula:
= 'other wastes to landfill' cell / 2
7. Click on the cell under this and use the following formula:
= 'total for landfill' – 'cell above'

A pivot table like that shown in Figure 5 below should be produced.

Figure 5 shows the tonnage of residual waste produced in the Dorset subregion in 2022 considered suitable for incineration, c39,500 tonnes was managed by landfill and c67,500 tonnes was managed by EfW.

| | Sum of Tonnes Received | Column Labels | |
|----|--|---------------|---|
| | Row Labels | Incineration | Landfill |
| 5 | biodegradable waste | | 166 |
| 6 | combustible waste (refuse derived fuel) | 20,932 | |
| 7 | mixed municipal waste | 26,129 | 20,261 |
| 8 | other wastes (including mixtures of materials) from mechanical treatment of wastes | 20,380 | 38,673 |
| 9 | Grand Total | 67,441 | 59,100 |
| 10 | | | 19,337 adjusted 191212 value |
| 11 | | | 39,763 amended total to landfill |

Figure 5: Tonnage of Dorset subregion residual waste to landfill and EfW in England suitable for incineration

Exports outside England from subregion sites

In order to determine the quantity of residual waste exported from the Plan area for management at facilities located outside England, the following steps should be followed:

2.3. Extract data from the WDI to show outputs from subject WPA sites

1. Open the 'Waste Removed' WDI dataset. On the sheet named 'waste removed' click on the filter on the column headed 'Facility WPA'. Click 'Select All' to deselect all and then scroll down to select the WPA for which you are seeking data, in this instance it is Dorset Subregion (Dorset, Bournemouth, Poole and Christchurch).
2. Click the top left corner to select all the data displayed and copy it to a new sheet in a excel file you are working from and call it 'From Dorset subregion sites'.
3. Click the top left corner on the sheet to select all the data and click on the insert panel and then 'PivotTable' and click ok on the pop-up window. Call the new sheet that opens 'From Dorset sub region sites piv'.

2.4. Create a Pivot Table to show exports of residual waste from subject WPA sites

1. Click the top left corner on the sheet 'From Dorset sub region sites piv', copy it to a new sheet and name it 'Residual from Dorset site piv'.
2. Click on the pivot table to open the pivot table fields. Select 'Destination Region', this will add all destinations of waste from the Dorset sub region sites as a row in the pivot table. Select 'EWC Waste Desc' this will also appear as a row. Select 'Tonnes Removed', excel will automatically add this as a value in the PivotTable Fields box.
3. Repeat Step 3 from section 2.2. above to format the cells so that values are rounded and have a ','. A pivot table like that shown in Figure 6 below should be produced.

| | A | B | C | D | E |
|-----|---|---------------|---|---|---|
| 319 | cytotoxic and cytostatic medicines | 26 | | | |
| 320 | oil and concentrates from separation | 142 | | | |
| 321 | other engine, gear and lubricating oils | 90 | | | |
| 322 | wastes containing oil | 1,004 | | | |
| 323 | Nottinghamshire | 5 | | | |
| 324 | mineral-based non-chlorinated engine, gear and lubricating oils | 5 | | | |
| 325 | Outside UK | 57,719 | | | |
| 326 | clothes | 49 | | | |
| 327 | combustible waste (refuse derived fuel) | 54,826 | | | |
| 328 | components not otherwise specified | 431 | | | |
| 329 | ferrous metal | 458 | | | |
| 330 | paper and cardboard | 25 | | | |
| 331 | paper and cardboard packaging | 1,661 | | | |
| 332 | plastics | 20 | | | |
| 333 | textiles | 250 | | | |
| 334 | Oxfordshire | 9,425 | | | |
| 335 | end-of-life tyres | 112 | | | |
| 336 | mixed municipal waste | 524 | | | |

Figure 6: Outputs from Dorset subregion sites to Facility WPA

4. Click on the row filter, select field and choose 'EWC Waste Desc', click 'Select All' to deselect all and select the following waste descriptions to show residual waste only:
 - 'biodegradable waste'
 - 'combustible waste (refuse derived fuel)'
 - 'mixed municipal waste'

- ‘other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11’
5. Click on the row filter, select field and choose ‘Destination Region’, click ‘Select All’ to deselect all and select ‘Outside UK’ and ‘Wales’ and ‘Scotland’ (if offered). A pivot table like that shown in Figure 7 below should be produced.

Figure 7 shows that the output of residual waste from Dorset sub region sites exported to sites outside England was RDF going outside the UK at c55,000 tonnes and c27,000 tonnes of mixed municipal waste going to Wales.

| 3 | Sum of Tonnes Removed | Column Labels | |
|----|---|---------------|---------------|
| 4 | Row Labels | Incineration | Recovery |
| 5 | Outside UK | 54,826 | |
| 6 | combustible waste (refuse derived fuel) | 54,826 | |
| 7 | Wales | 373 | 27,079 |
| 8 | mixed municipal waste | | 27,079 |
| 9 | other wastes (including mixtures of materials) from mechanical treatment of wastes other than those menti | 373 | |
| 10 | Grand Total | 55,199 | 27,079 |

Figure 7: Tonnage of residual waste from Dorset sub region sites exported for management outside England

Cross referencing the WDI results with the comparable dataset for Wales permitted sites³ shows that the mixed municipal waste was in fact commingled recyclables going to a MRF at Shotton in Flintshire, shown in Figure 8. As commingled recyclables do not represent residual waste this value has been ignored from the total residual waste arising value.

| 3 | Row Labels | Sum of Tonnes received |
|---|-----------------------------------|------------------------|
| 4 | Dorset | 27,029 |
| 5 | Material Recycling Facility (MRF) | 27,029 |
| 6 | mixed municipal waste | 27,029 |
| 7 | Shotton Paper Mill EPR/BT4885IT | 27,029 |
| 8 | Grand Total | 27,029 |
| 9 | | |

Figure 8: Tonnage of mixed municipal waste received at Shotton MRF located in Wales

³ NRW_DS116336 Waste Permit Returns Data Interrogator downloaded from <https://naturalresourceswales.sharefile.eu/share/view/sae217ec1e71419c8/fo32643a-bb38-4031-b6a8-ae66a79b848e>

Arisings of sub region waste to transfer/treatment sites outside sub region

In order to determine the quantity of residual waste managed outside the Plan area at waste transfer and treatment facilities located in England, whose identity would otherwise be lost when going to final fate, the following steps should be followed:

2.5. Create a Pivot Table to show tonnage of residual waste from subject WPA sent to transfer/ treatment sites outside the subject WPA

1. Click the top left corner on the sheet 'Dorset sub region to all piv', copy it to a new sheet and name it 'Dorset res to trans tment piv'.
2. Select 'EWC Waste Desc' and 'Facility WPA' and 'Facility Type' as a row. Select 'Site Category' and drag from row to column. Select 'Tonnes Received', excel will automatically add this as a value in the PivotTable Fields box.
3. Repeat step 4 from section 2.4. to screen the data down to only residual waste descriptions.
4. Click on the column filter, click 'Select All' to deselect all and click 'Treatment' and 'Transfer'.
5. Click on the row filter, select field and choose 'Facility Type', click 'Select All' to deselect all and click the following facility types:
 - 'Haz Waste Transfer'
 - 'Haz Waste Transfer / Treatment'
 - 'Non Haz Waste Transfer'
 - 'Non Haz Waste Transfer / Treatment'

Drag 'Facility Type' to filters in the PivotTable Fields.

6. Click on the row filter, select field and choose 'Facility WPA', deselect the subject WPA, in this instance 'Dorset' and 'Bournemouth, Poole and Christchurch'. Click ok. From the PivotTable Fields, drag 'Facility WPA' to the filters box. A pivot table like that shown in Figure 9 below should be produced.

| | A | B | C | D |
|----|---|------------------|--------------|---------------|
| 1 | Facility WPA | (Multiple Items) | | |
| 2 | Facility Type | (Multiple Items) | | |
| 3 | | | | |
| 4 | Sum of Tonnes Received | Column Labels | | |
| 5 | Row Labels | Transfer | Treatment | Grand Total |
| 6 | biodegradable waste | 384 | 144 | 528 |
| 7 | mixed municipal waste | 16,711 | 7,142 | 23,853 |
| 8 | other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11 | | 23 | 23 |
| 9 | Grand Total | 17,095 | 7,309 | 24,404 |
| 10 | | | | |
| 11 | | | | |
| 12 | | | | |

Figure 9: Tonnage of Dorset subregion residual waste sent for transfer/ treatment outside of Dorset subregion

Figure 9 shows c24,500 tonnes of residual waste from Dorset sub region was sent for transfer/ treatment at facilities located outside of Dorset sub region in England in 2022.

Determine the Quantity of Waste from outside sub region going to sub region transfer/treatment sites

In order to determine the quantity of residual waste received at waste transfer and treatment facilities located in the Plan area, which when sent on to final fate would be attributed to arising in the Dorset subregion, the following steps should be followed:

2.6. Create a Pivot Table to show tonnage of residual waste from outside the subject WPA managed at transfer/ treatment sites within the subject WPA

1. Copy the sheet 'from elsewhere to Dorset piv' and paste into a new sheet and name it 'res from elsewhere to Dorset piv'.
2. Open PivotTable Fields and select 'Facility Type', 'Origin WPA' and 'EWC Waste Desc' as a row.
3. Repeat step 4 from section 2.4. to screen the data down to only residual waste descriptions.
4. Repeat step 5 from section 2.5. to screen the facility types down to only transfer /treatment sites. Drag 'Facility Type' from row to filters in PivotTable Fields.
5. Click on the row filter, select field and choose 'Origin WPA', deselect the subject WPA, in this instance 'Dorset' and 'Bournemouth, Poole and Christchurch'. Click ok. A pivot table like that shown in Figure 9 below should be produced.

| Facility Type | Sum of Tonnes Received |
|---|------------------------|
| Bristol City | 3 |
| mixed municipal waste | 3 |
| Buckinghamshire | 443 |
| mixed municipal waste | 334 |
| other wastes (including mixtures of materials) from mechanical treatment of w | 108 |
| Hampshire | 807 |
| biodegradable waste | 115 |
| mixed municipal waste | 692 |
| South West (WPA Not codeable) | 926 |
| biodegradable waste | 846 |
| mixed municipal waste | 50 |
| other wastes (including mixtures of materials) from mechanical treatment of w | 31 |
| Surrey | 1 |
| other wastes (including mixtures of materials) from mechanical treatment of w | 1 |
| Grand Total | 2,180 |

Figure 10: Residual waste from elsewhere to Dorset subregion transfer/ treatment sites

Figure 10 shows c2,000 tonnes of residual waste from outside the Dorset sub region was received at transfer / treatment sites within the Dorset sub region in 2022.