DALLYWATER CONSULTING

ORGANICS AUDIT

City of Bunbury, Shire of Capel, Shire of Collie & Shire of Donnybrook-Balingup

August 2017

REPORT PREPARED BY:

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1. EXECUTIVE SUMMARY

The CEO of the Stanley Road Waste Management Facility contracted Dallywater Consulting to undertake a third-party waste audit of the organic material being delivered to the facility by the Wellington Regional Waste Group (specifically the Shires of Capel, Collie and Donnybrook-Balingup and the City of Bunbury).

The organic material is collected from organics bins presented fortnightly to the kerbside by the residences within those local government areas and the material is processed at the Stanley Road Organics Processing Facility.

The Audit was conducted on samples of organics delivered from each of the four LGs during the second last week in August 2017 to the Facility. Material was emptied onto the processing piles in the usual manner and then samples were taken from the piles, weighed and deposited onto a sorting area for spreading and assessment.

The results of the Audit revealed the following:

- Bunbury's organic stream contained 2.31% by weight of contamination, with Other Waste at 0.78% being the main contaminant;
- Capel's organic stream contained 4.23% by weight of contamination, with Rubble being the main contaminant at 1.71%;
- Collie's organic stream contained 3.83% by weight of contamination, with Other Waste being the main contaminant at 1.11%; and
- Donnybrook's organic stream contained 1.32% by weight of contamination, with Rubble being the main contaminant at 0.63%.

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2. BACKGROUND

The Shires subject of this audit have been collecting organics from the kerbside of residences within their municipalities for a few years and for at least the last couple, the Wellington Regional Waste Group organics material has been audited to assess the levels of contamination in the organics stream.

The results from the audits are used to target education programs throughout the region with the aim of improving disposal behaviours of the residents and reducing contamination.

This audit was conducted at a similar time of the year to previous audits and while those previous audits were conducted by staff at the Stanley Road facility, this year's audit was conducted as a third-party audit by a waste auditor.

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3. METHODOLOGY

3.1. Sample Collection

The sample was required to represent the material collected from the organics bins at the kerbside of the Wellington Region. To this end, samples were taken from truckloads of organic material collected from:

- Bunbury;
- Capel;
- Collie; and
- Donnybrook

and delivered to the Stanley Road Waste Management Facility ("Stanley Road").

3.2. Sample Selection

Once the organic material had been delivered to Stanley Road and deposited onto the composting windrows, a sample of the material was collected by a loader and weighed over the weighbridge. In order to ensure that the results of this audit could be compared statistically with previous audits, the samples taken from the loads delivered to Stanley Road weighed as close as possible to one tonne.

As the samples were being selected, the operator tried to ensure that each sample of material was representative of the overall pile of material received from each LG. The auditor assessed each bucket load of material and confirmed that representative samples were achieved.

Deposited Organic Waste

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3.3. Sorting

Once the material had been selected, it was weighed and then transported to a concrete "bay" where it was deposited onto the floor and spread for sorting.

Organics Spread for Sorting

The samples were separated into organics and contamination. For the purposes of this audit, the following list shows the materials found in each stream:

Organics
Newspaper
Cardboard
Liquidpaperboard
Other Paper
Food
Garden
Wood,
Other Compostables (e.g. paper handtowels and tissues)

Contamination
Glass
Ferrous
Other Ferrous
Rubber & Leather
Sludge
Plastic Bags/Plastic Film/Soft Plastics
Other Waste
E-Waste
Rubble
Plastics 1 - 6
Non-Ferrous
Other Non-ferrous
Textiles
Nappies
Hazardous
Other Glass (Broken Glass/Cullet)
Batteries

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Once sorted, the various materials in the contamination were placed into containers, measured (via electronic scales) and the weight recorded on a data sheet.

Audit Containers

3.4. Data Aggregation & Analysis

The data collected during the sorting process was entered into Microsoft Excel spreadsheets and analysed. Data values sourced from the weighing of the material on the auditor's equipment are accurate to within +/- 0.01kg and percentage values are accurate to within +/- 0.01%.

It is noted that the weighbridge is likely to have an error built in to its recording system and this may be in the order of 5-30kg.

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4. RESULTS

The following section presents the results of the Audit.

4.1. Composition of the Organics Stream – All LGs

The results of the audit are presented in the following table.

Table 1: Results - All Local Governments

COUNCIL	BUNBURY		CAPEL		COLLIE		D'BROOK	
Organics	**Kg**	**%age**	**Kg**	**%age**	**Kg**	**%age**	**Kg**	**%age**
All Organics: (Newspaper, Cardboard, Liquidpaperboard, Other Paper, Food, Garden, Wood, Other Compostables)	957.32	97.69%	938.53	95.77%	961.66	96.17%	967.1	98.68%
Contamination								
Glass	1.4	0.14%	1.45	0.15%	2.72	0.27%	0.36	0.04%
Plastics 1 - 6	2	0.20%	3.86	0.39%	4.81	0.48%	0.69	0.07%
Ferrous	0.16	0.02%	1.89	0.19%	2.02	0.20%	0.28	0.03%
Non-Ferrous	0.25	0.03%	1.21	0.12%	1.42	0.14%		-
Other Ferrous	-	-	-	-	-	-	-	-
Other Non-ferrous	-	-	-	-	-	-	-	-
Rubber & Leather	-	-	-	-	-	-	-	-
Textiles	5.18	0.53%	1.63	0.17%	-		1.72	0.18%
Sludge	-	-	-	-	-	-	-	-
Nappies	-	-	-	-	-	-	-	-
Plastic Bags/Plastic Film/Soft Plastics	5.79	0.59%	7.45	0.76%	11.12	1.11%	1.96	0.20%
Hazardous	-	-	-	-	-	-	-	-
Other Waste	7.63	0.78%	7.19	0.73%	11.08	1.11%	1.72	0.18%
Other Glass (Broken Glass/Cullet)	-	-	-	-	-	-	-	-
E-Waste	0.16	0.02%	-	-	-	-	-	-
Batteries	0.11	0.01%	-	-	-	-	-	-
Rubble	-	-	16.79	1.71%	5.17	0.52%	6.17	0.63%
Total Contamination	**22.68**	**2.31%**	**41.47**	**4.23%**	**38.34**	**3.83%**	**12.9**	**1.32%**
TOTAL LOAD (kg)	980	100.00%	980	100.00%	1000	100.00%	980	100.00%
Total Organics	957.32	97.69%	938.53	95.77%	961.66	96.17%	967.1	98.68%
%age Contamination	**2.31**		**4.23**		**3.83**		**1.32**	

It can be seen from the table that the contamination varied between 1.32% to 4.23%. This represents a regional average of 2.92% contamination in the organics stream.

4.2. Data by Local Government

The charts on the following pages present the data for each LG as the percentage by weight of contamination in the various loads, and then the percentage composition by weight of the various materials making up the contamination.

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City of Bunbury

Chart 1: Composition of the Total Organics Stream (Bunbury)

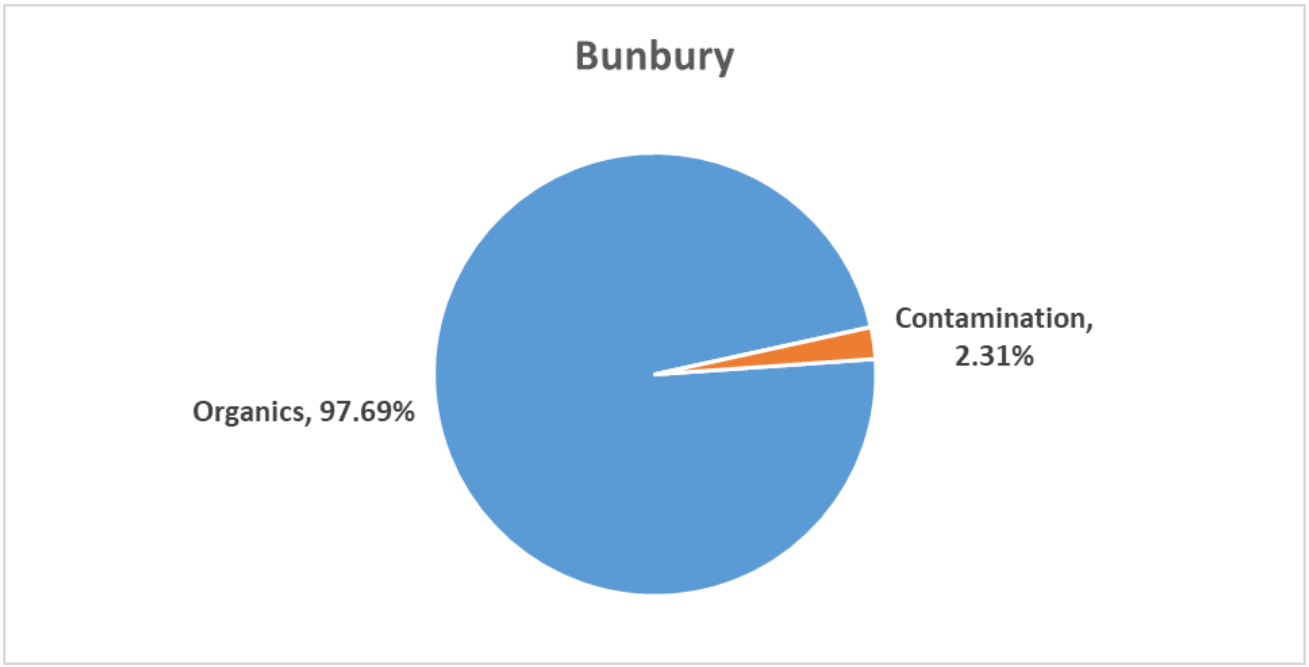
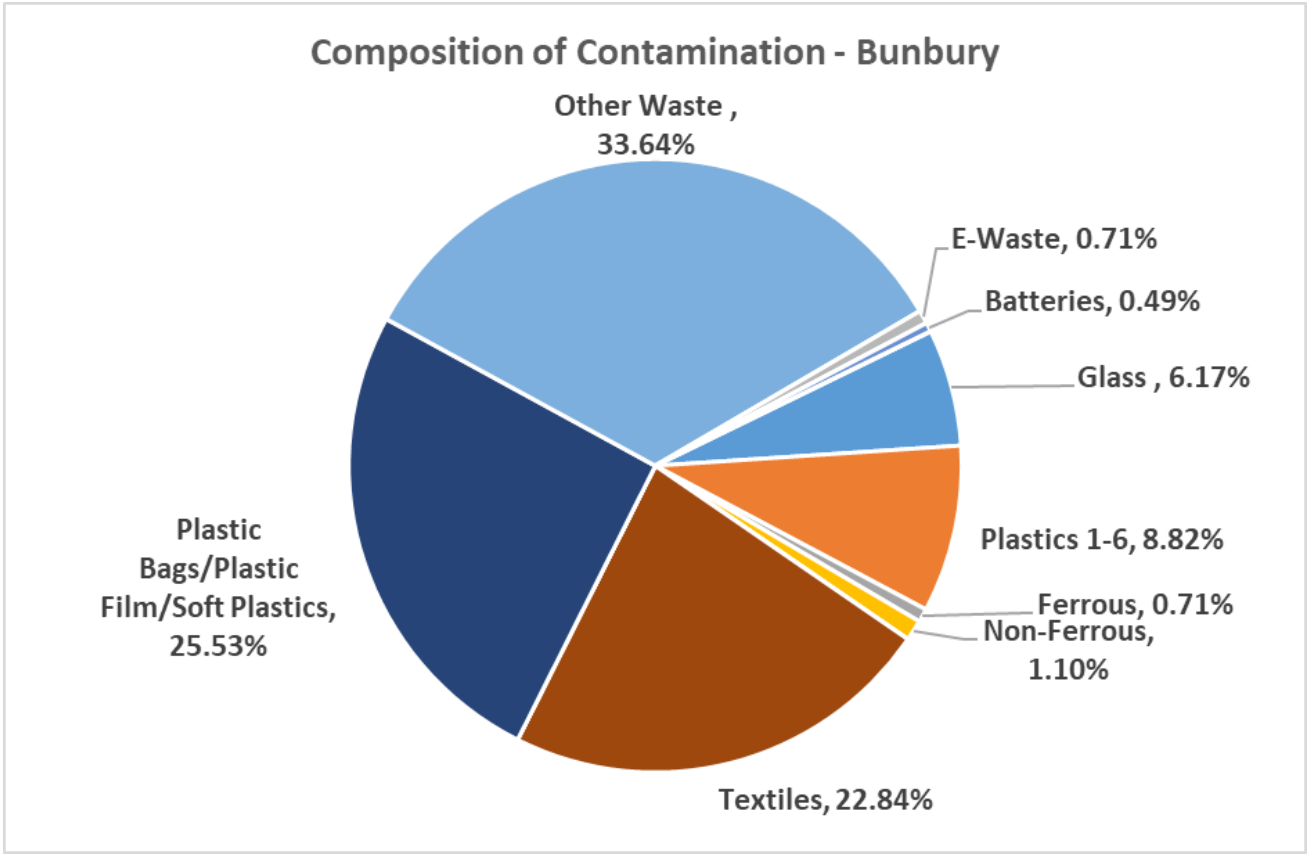


Chart 2: Composition of the Contamination (Bunbury)



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Shire of Capel

Chart 1: Composition of the Total Organics Stream (Capel)

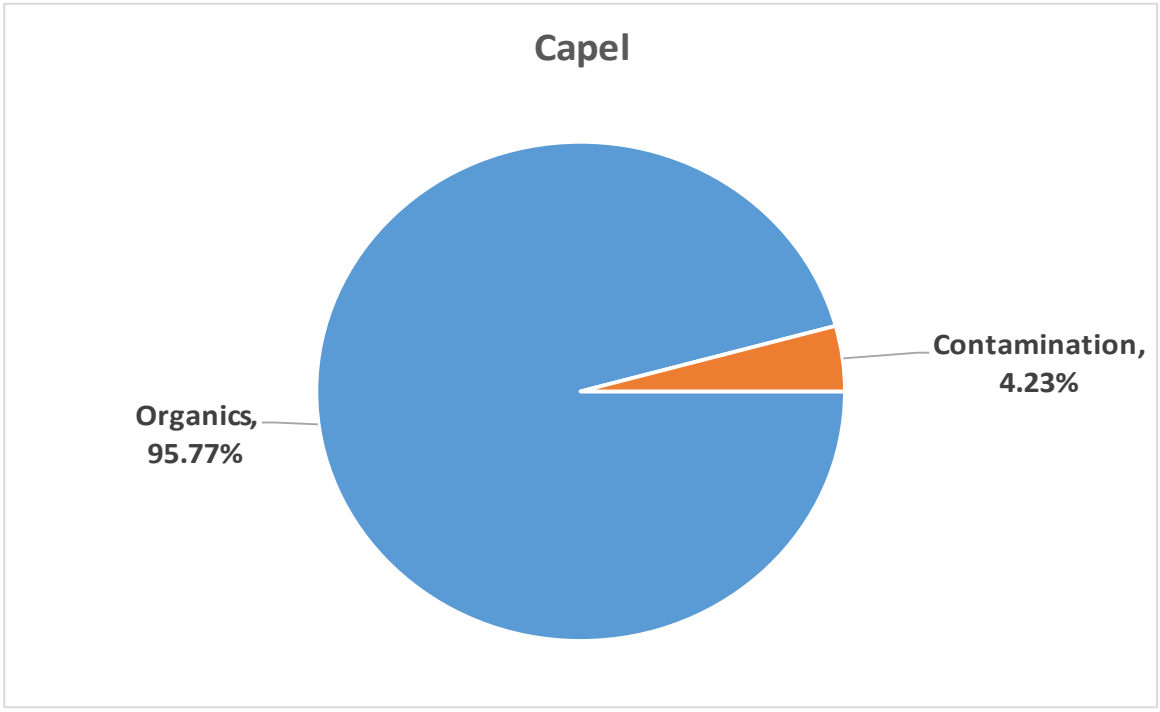
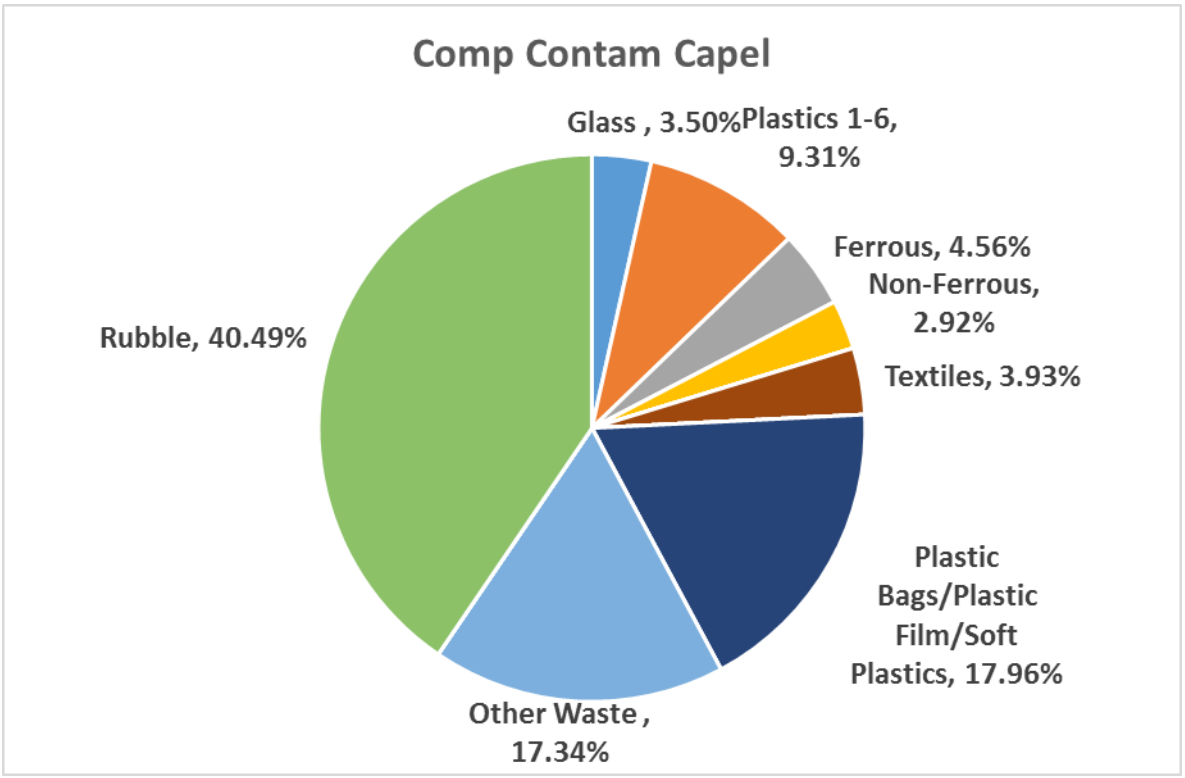


Chart 2: Composition of the Contamination (Capel)



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Shire of Collie

Chart 1: Composition of the Total Organics Stream (Collie)

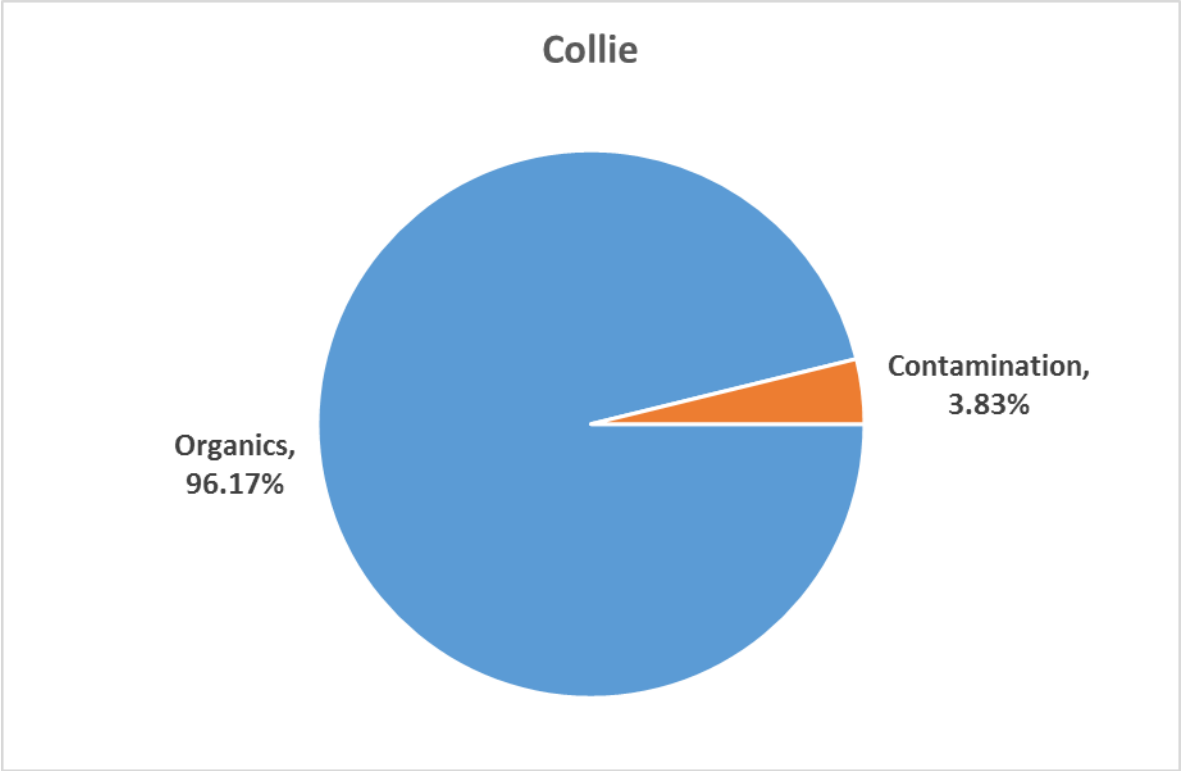
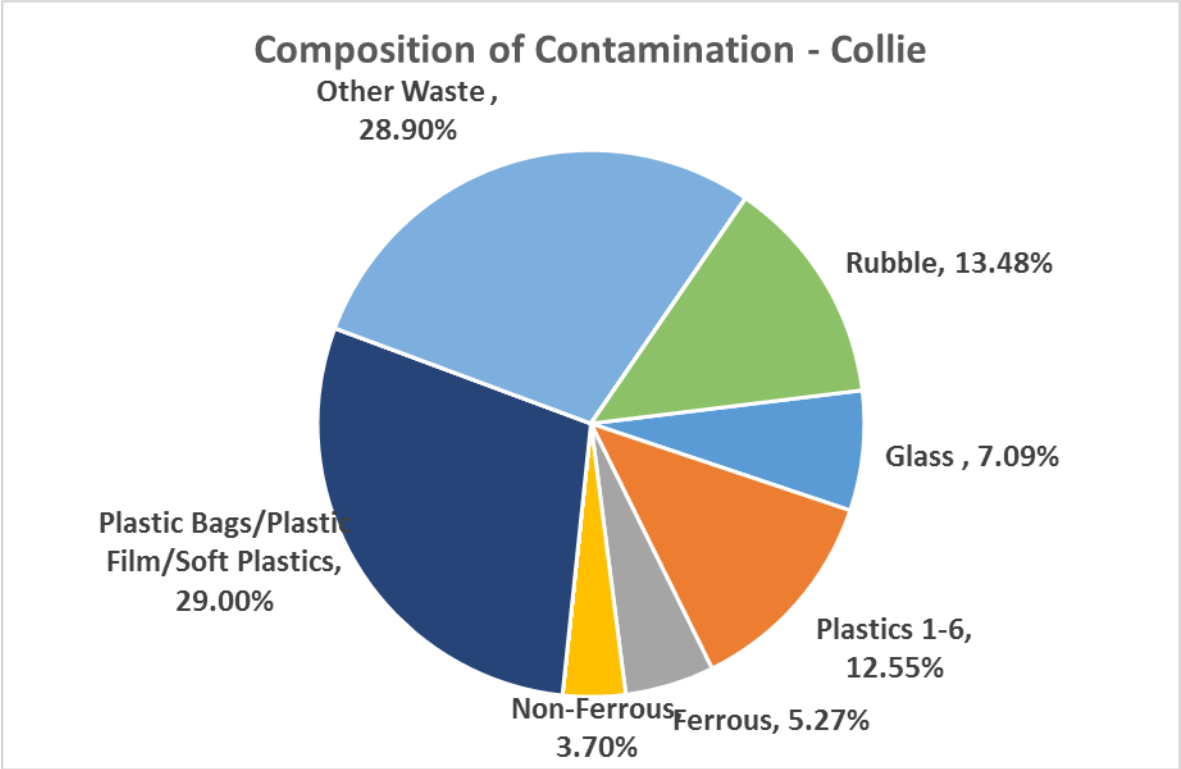


Chart 2: Composition of the Contamination (Collie)



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Shire of Donnybrook - Balingup

Chart 1: Composition of the Total Organics Stream (Donnybrook)

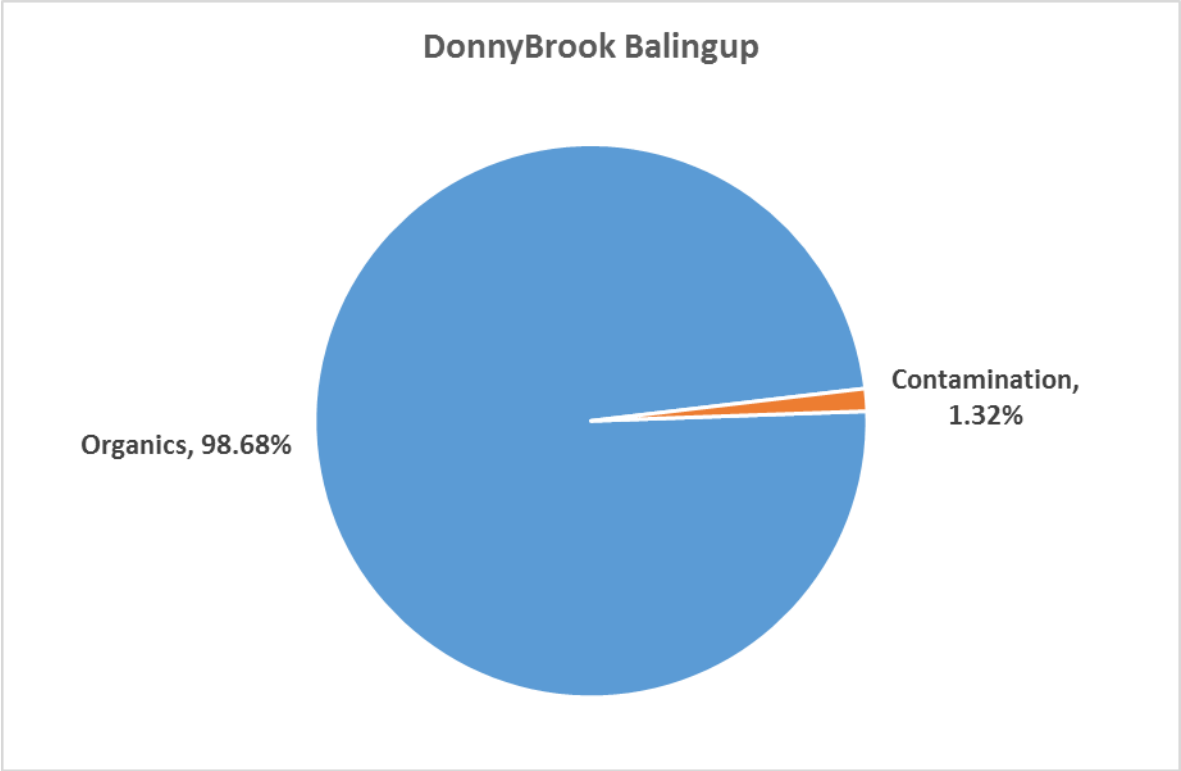
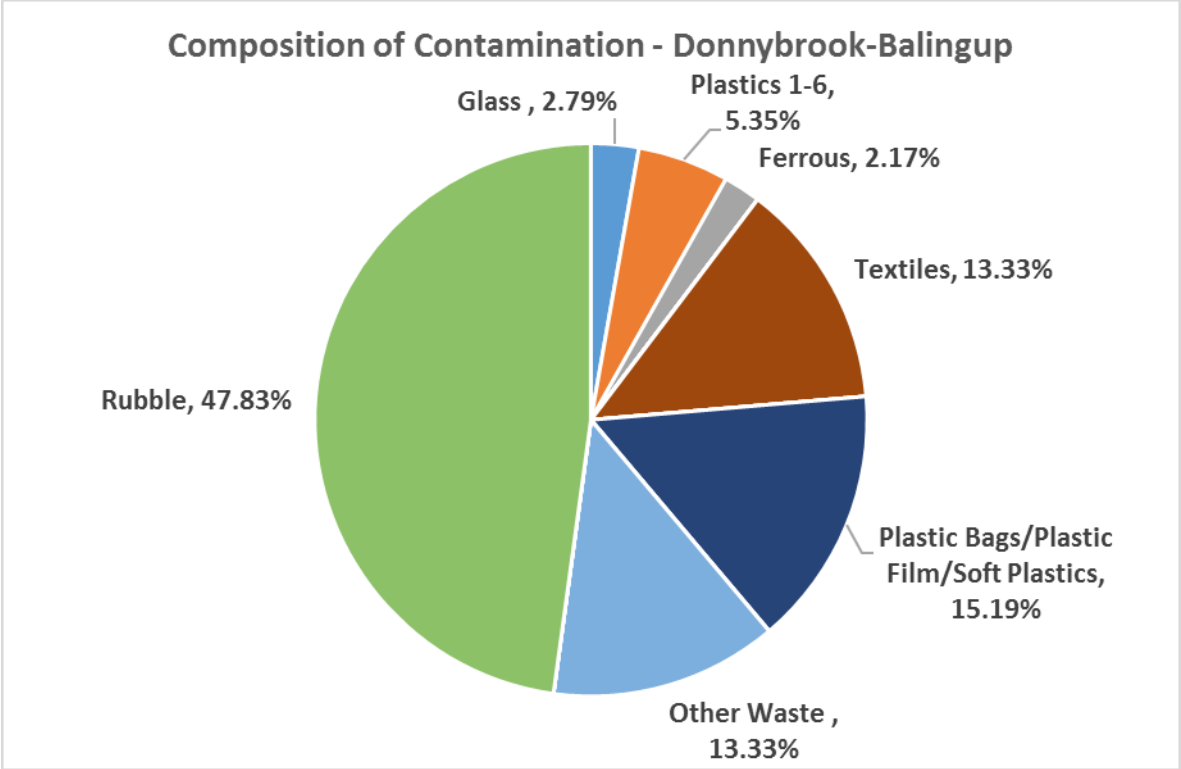


Chart 2: Composition of the Contamination (Donnybrook)



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5. FINDINGS

The findings of the audit are as follows:

Bunbury

Contamination Rate:	2.31%
Highest %age by Weight of Contamination	Other Waste (0.78%)
Next Highest Contamination	Plastic Bags/Film/Soft Plastics (0.59%) Textiles (0.53%)

Capel

Contamination Rate:	4.23%
Highest %age by Weight of Contamination	Rubble (1.71%)
Next Highest Contamination	Plastic Bags/Film/Soft Plastics (0.76%) Other Waste (0.73%)

Collie

Contamination Rate:	3.83%
Highest %age by Weight of Contamination	Plastic Bags/Film/Soft Plastics/Other Waste (1.11%)
Next Highest Contamination	Rubble (0.52%) Plastics 1-6 (0.48%)

Donnybrook

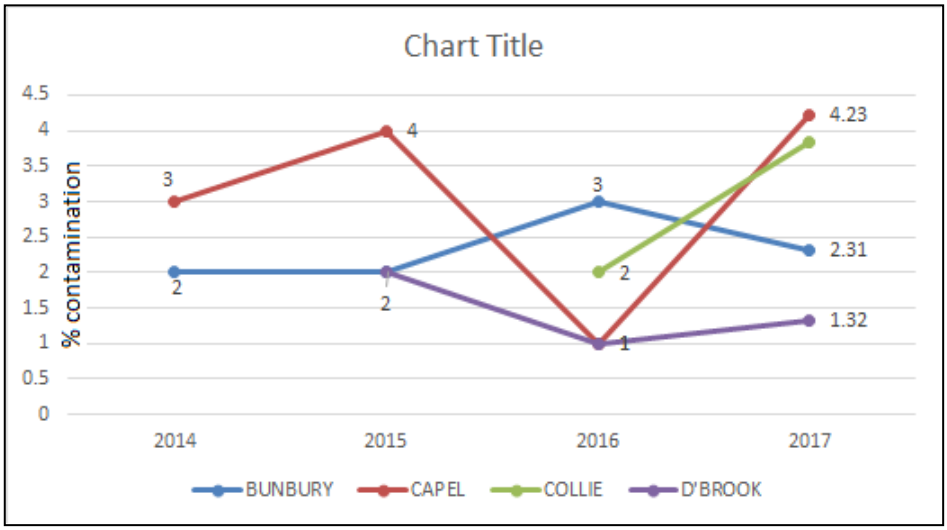
Contamination Rate:	1.32%
Highest %age by Weight of Contamination	Rubble (0.63%)
Next Highest Contamination	Plastic Bags/Film/Soft Plastics (0.20%) Textiles/Other Waste (0.18%)

Observations:

- Rubble has a significant effect on the audit results. Removing Rubble from Capel's total would result in a contamination rate of 2.52%. Similarly, removing Rubble from Donnybrook's total would result in a contamination rate of 0.69%.
- Plastic bags/Film/Soft Plastics represented between 0.20% to 1.11% of the total organics stream.

Historical Trends

The following graph shows the available historical contamination rates for the four LGs. Both Donnybrook and Bunbury appear to be relatively consistent with Bunbury showing a 0.7% decrease from last year and Donnybrook with a small rise of 0.32%. Both Capel and Collie have shown increases since last year; Collie up 1.83% and Capel up 3.23%.



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EXAMPLES OF VARIOUS CONTAMINATION

Polystyrene, rubbish bag, recyclables

Textiles

Plastic Bags

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Household Waste

Textiles

Recyclables

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Rubble

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