

Explanatory note: calculating trade waste fees and charges

This explanatory note should be read together with the Trade Waste Bylaw 2016 and the Trade Waste Charges Policy 2019. It is to help premises that discharge trade waste in to the wastewater system to understand how their fees are calculated.

The trade waste charges are based on the nature and volume of the trade waste discharged to the wastewater system. Therefore, high volumes, discharges with high concentrations of suspended solids and those with high levels of biochemical oxygen demand¹ will pay more. For those trade waste premises that do not separately measure the trade waste discharges from other wastewater discharges (domestic wastewater²) a domestic sewerage allowance is calculated and subtracted from the total wastewater flow from that premise to ensure that the trade waste charge is on the trade waste proportion of wastewater only.

The three worked examples are for a high, medium and low risk trade waste premise. Although the examples are based on actual premises, the numbers used in the examples are not actual figures and the trade waste charges are not the actual rates charged. To see the current rates, please refer to the Council's current Annual Plan, User Charges and Fees.

Assumptions used in the calculations:

- The average domestic sewage flow is 50 litres per person per day (24 hours)
- Numbers have been rounded to the nearest whole number

Conversion factor used: 1,000 litres is 1m³

BOD = Biochemical Oxygen Demand

¹ Biochemical Oxygen Demand is the amount of dissolved oxygen needed (ie demanded) by aerobic biological organisms to break down organic material present in a given water sample at certain temperature over a specific time period

² Domestic wastewater is wastewater typical of that discharged from premises that are used solely for residential activities

Worked example 1 - high risk trade waste premise, such as a food processing plant

Trade waste discharges monitored daily.

Trade waste flow calculation

A three-tier charging system is applied

- \$0.30 per m³ for the first 100m³
- \$0.10 per m³ for 100 and 7000m³
- \$0.05 per m³ above 7,000m³

The daily total flow was 3,800m³, BOD was 200g/m³, Suspended Solids was 35 g/m³ and they had 800 staff members working an average of 8 hours for the day.

Domestic Sewerage allowance calculation

1. Domestic allowance for one staff member per day

50 litres per staff member per day x 8 hours / 24 hours
= 16.6 litres per staff member per day.

2. Domestic allowance for all staff per day

800 staff members x 16.6 litres per staff member =
13.2m³ domestic allowance per day

3. Proportion of daily total flow that is trade waste only

Trade waste proportion = daily total flow - domestic allowance per day

$$3,800\text{m}^3 - 13.2\text{m}^3 = 3,787\text{m}^3$$

Therefore, the Domestic sewerage allowance charge calculation is:

$$\text{For the first } 100\text{m}^3 = 100\text{m}^3 \times \$0.30 \text{ per m}^3 = \$30$$

$$\text{For the } 100 \text{ and } 7000\text{m}^3 = 3,787\text{m}^3 - 100 = 3,687 \times \$0.10 \text{ per m}^3 = \$368$$

$$\text{Total domestic sewerage allowance is } \$30 + \$368 = \$398$$

Total trade waste charge

Total trade waste charge = total flow charge + BOD charge + Suspended Solids charge

4. BOD Charge = trade waste flow x BOD rate:

$$3787\text{m}^3 \times 200\text{g}/\text{m}^3 = 757\text{kg}; \text{ the cost would be: } \\ 757 \text{ kg} \times \$0.30 \text{ per kg} = \$227;$$

5. Suspended Solids Charge = trade waste flow x Suspended Solids rate:

$$3787\text{m}^3 \times 35\text{g}/\text{m}^3 = 132\text{kg}; \text{ the cost would } 132\text{kg} \times \\ \$0.30 \text{ per kg} = \$39;$$

Therefore,

$$\text{The total trade waste charge for the day is: } \\ \$398 + \$227 + \$39 = \mathbf{\$664}$$

Worked example 2 - medium risk trade waste premise, such as a supermarket

Trade waste discharges monitored monthly.
Charges calculated for the year.

The annual total flow was 2000m³, average BOD was 600g/m³, Suspended Solids was 250g/m³ and they had 50 staff members working an average 12 hours a day for 362 days a year.

Domestic sewerage allowance calculation

1. Domestic allowance for one staff member per day
50 litres per staff member per day x 12 hours / 24 hours
= 25 litres per staff member per day.
So for one year - 25 litres x 362 days = 9,050 litres total staff members all year

2. Domestic allowance for all staff per day

Convert 9,050 litres to m³ = 9.05m³

50 staff members x 9.05m³ litres per staff member =
452.5m³ domestic allowance per year

3. Proportion of daily total flow that is trade waste only

Trade waste proportion = daily total flow - domestic allowance per day

2,000m³ - 452.5m³ = 1,547.5m³

Total trade waste charge

Total trade waste charge = total flow charge + BOD charge + Suspended Solids charge

4. BOD Charge = trade waste flow x BOD rate:

1547.5m³ x 600g/m³ = 928.5kg; the cost would be:
928.5kg x \$0.3 per kg = \$279;

5. Suspended Solids Charge = trade waste flow x suspended solids rate:

1547.5m³ x 250g/m³ = 387kg; the cost would be:
387kg x \$0.3 per kg = \$116;

Therefore,

The total trade waste charge for the year is:
\$464 + \$278 + \$116 = **\$858**

Worked example 3 - low risk trade waste premise, such as a vehicle cleaning service

The premise has a dedicated wash-pad for their vehicles and the water blaster there is directly measured by a water meter. All measured wastewater is categorised as trade waste.

From the meter, they have used 200 m³ of water last year and their average BOD was 300g/m³ and Suspended Solids was 1000g/m³.

Total trade waste charge

Total trade waste charge = total flow charge + BOD charge + Suspended Solids charge

1. Total flow charge = trade waste flow x total flow rate:

$$200\text{m}^3 \times \$0.3 \text{ per m}^3$$

Total flow charge = \$60;

2. BOD Charge = trade waste flow x BOD concentration x BOD rate:

$$200\text{m}^3 \times 300 \text{ g/m}^3 \times \$0.3 \text{ per kg}$$

The BOD charge = \$18;

3. Suspended Solids Charge = trade waste flow x suspended solids concentration x suspended solids rate:

$$\text{Suspended Solids: } 200\text{m}^3 \times 1000\text{g/m}^3 \times \$0.3 \text{ per kg}$$

Suspended Solids Charge = \$60;

Therefore,

The total trade waste charge for the year is:

$$\$60 + \$18 + \$60 = \mathbf{\$138}$$

