



# WASTE MINIMISATION IN THE CONSTRUCTION AND DEMOLITION INDUSTRY

## CERES NZ, CADBURY FACTORY DECONSTRUCTION 2020–2024

Here is an example of how a business approach to waste minimisation during deconstruction and subsequent ground works can reduce both the costs and the environmental impacts of sending waste to landfill. This deconstruction kicked off a long-term, highly visible central city development of the New Dunedin Hospital Inpatients Building, under the scrutiny of the public and media.

**Site:** 35,000m<sup>2</sup> at Cumberland, Castle and St Andrews Streets, Ōtepoti Dunedin.

**Ceres waste diversion target:** 70% reused/recycled

**Diversion achieved:** 86% reused/recycled (exceeding target)

### Background

The five-storey Cadbury Factory was a major cultural and economic landmark in Dunedin's CBD for more than 80 years. The site and adjacent 'Wilson Block' was selected for the new Dunedin Hospital build. In 2020, Ceres Environmental NZ was contracted to undertake:

- full demolition of the Cadbury Block to enable Inpatients Building construction
- demolition of the Wilson Block for the Outpatients Building
- asbestos removal, hazardous materials remediation, structural demolition, and deconstruction
- subsequent excavation, groundworks, piling platforms, and installation of 324–325 steel tube piles for both building footprints.



The project began in early 2020 and progressed through sequential demolition, deconstruction, excavation and piling, with the final pile concreted in September 2024.

The scale of the site and its history posed additional challenges, including:

- complex heritage sensitivities, including Category 2 buildings adjacent to active demolition
- strict environmental requirements under Resource Consent and Trade Waste conditions.

### Task

- Full strip-out and removal of hazardous materials, including extensive asbestos and lead paint.
- A 12-month hazardous material removal programme preceded structural demolition.
- Precision containment processes ensured worker and public safety.
- Demolition of the Cadbury factory complex and adjacent Wilson's Block, including the crumb plant, raw materials building and two iconic 30-metre chocolate silos. High-reach excavators and engineered top-down sequencing were required to dismantle the silos safely.



### Groundworks and piling

- Excavation of ~16,500 m<sup>3</sup> of contaminated soil at Inpatients site.
- Construction of temporary piling platforms using recycled demolition rubble.
- Installation of 324 bottom-driven steel tube piles at Inpatients Building and 78 bottom-driven steel tube piles at Outpatients Building filled with concrete.

### Key waste diversion action

#### On-site concrete processing and reuse

Ceres established a mobile crushing and processing plant off site, allowing concrete to be recycled into construction-ready aggregate.

- 8000 tonnes of crushed concrete was reused immediately on-site as engineered fill for piling platforms.
- A further 12,198.85 tonnes was processed into premium-grade aggregate for local construction.
- Total demolition material processed: 28,119.36 tonnes

This work eliminated some 1200 truck movements, reducing emissions, fuel costs, and community disruption.



### Scrap metal recovery

All ferrous and non-ferrous metals were separated, stockpiled, and recycled through approved facilities:

- 3944.83 tonnes of metal recovered (all grades)
- 2700 tonnes heavy gauge steel
- 834 tonnes light steel
- 18 tonnes copper
- 25 tonnes aluminium.

### Salvage and reuse of machinery, plant and heritage items

- Ceres conducted a pre-demolition materials audit to identify reusable components.
- 32 tonnes of specialised machinery salvaged for reuse or historical preservation.
- W. Rietveld Ltd and other local recyclers removed:
  - » wiring and switchgear
  - » staircases, rails, gates and doors
  - » tanks, pipes, and plant items
- 13.5 tonnes of carpet tiles recycled
- heritage items retrieved (as per stakeholder direction)
- Ceres trucks returning to Christchurch were backfilled with reusable items such as yard gates, creating additional circular-economy benefits.





### Lessons learned

**Deconstruction—not demolition alone—can drive sustainability outcomes** – the Cadbury Factory project became a national example of this.

**Early planning and materials auditing maximises salvage potential** – Ceres Ltd says “Our pre-demolition material auditing system and on-site mobile processing plant allowed us to exceed client expectations and achieve an 86% diversion rate.”

**Co-locating processing infrastructure cuts emissions and transport costs** – on-site processing reduced truck movements by an estimated 1200 trips, lowering carbon impacts and community disruption.

**Deconstruction requires flexibility and adaptive methodology** – Ceres employed “a multi-technique demolition strategy” including top-down demolition, cut-and-crane, and high-reach operations to handle the structural complexity of the five-storey factory and 30m silos.

**Integrating heritage protection adds public value** – the project achieved 100% preservation of all heritage-listed buildings, supported by vibration monitoring, documentation, and 3D laser scanning.

**Circular economy outcomes are achievable at scale** – the reuse of over 20,000 tonnes of metal demonstrates how landfill dependency can be significantly reduced in major C&D projects.

### Why diverting construction and demolition waste matters

Reducing, reusing, and recycling waste from construction and demolition work:

- conserves natural resources
- reduces pressure on landfills
- cuts greenhouse gas emissions
- lowers disposal and cartage costs
- enables circular-economy businesses to thrive
- strengthens social licence for construction in urban settings
- demonstrates leadership and innovation in an industry traditionally associated with high waste generation.

The Cadbury Factory project shows that waste minimisation is not only possible at scale—it is economically advantageous and community-positive.

Find out more [www.ceresnz.co.nz](http://www.ceresnz.co.nz)

### Find out about potential support for your waste reduction ideas

DCC Waste Minimisation Team: phone 03 477 4000, or email [waste.minimisation@dcc.govt.nz](mailto:waste.minimisation@dcc.govt.nz)