The New Chum Solid Waste Landfill

CLEANAWAY
Making a sustainable future possible together

About New Chum

Cleanaway has operated the New Chum Landfill on behalf of the community since 1998, at times taking upwards of 200,000 tonnes of waste from Ipswich and nearby regions each year. It is situated on the site of a former open-cut coal mine.

Approximately 50% of the building and demolition waste received at New Chum is reused and recycled, with every effort made to repurpose valuable materials. In partnership with The Endeavour Foundation and Brisbane City Council (BCC), Cleanaway actively salvages reuseable materials through the BCC Treasure Trove stores, preventing them from reaching landfill.

New Chum primarily handles inert waste, focusing on building and construction materials and not on waste that is biologically active such as food waste or organic matter.

Cleanaway values our connection with the local community, with most New Chum employees being proud Ipswich residents.

The 2022 floods: Our recovery and renovations

The extraordinary weather event in February 2022 produced unprecedented rainfall, causing odour issues to emanate from cell 3B at New Chum, an unfilled void that was being prepared to receive waste. Contaminated rainwater gathered in the cell, becoming anaerobic after prolonged contact with waste.

In response, Cleanaway invested more than $35 million in significant enhancements, including:

- Comprehensive stormwater works diverting water from cell 3B
- Upgrading the holding ponds to be capable of retaining over 80ML of stormwater, facilitating offsite tanker removal and/or onsite pumping
- Installation of engineered High-Density Polyethylene (HDPE) liners around cell 3B to prevent water coming in contact with waste; and
- Enhanced site operation, training and implementation of a dedicated Mass Water Event Management Plan for extreme weather events.

Environmental controls

Cleanaway employs various tools and techniques to meet the stringent standards set by the Department of Environment, Science and Innovation. We collaborate closely with all levels of government to comply with – and in many cases – surpass requirements.

- Landfill gas collection: New Chum utilises more than 150 wells to capture natural gases, which are burned at a flare in a safe and odourless manner. We're investigating options to convert this gas into green energy.
- Air quality monitoring: Cleanaway employs onsite and local area monitors for continuous air quality surveillance in and around New Chum.
- Dust suppression: Cleanaway monitors and utilises water carts and irrigation for dust suppression.
- Fire management: Cleanaway has water cannon-equipped trucks to efficiently address any fire hazards that may occur.
- Leachate management: Cleanaway employs a two-pronged approach to leachate management. The primary approach is the disposal of leachate to the Cleanaway Yatala Treatment Plant. The second is a current onsite treatment system that utilises new treatment methodologies to treat the leachate to a trade wastewater specification, so that it can be sent to Bundamba for final treatment.

The role of landfill

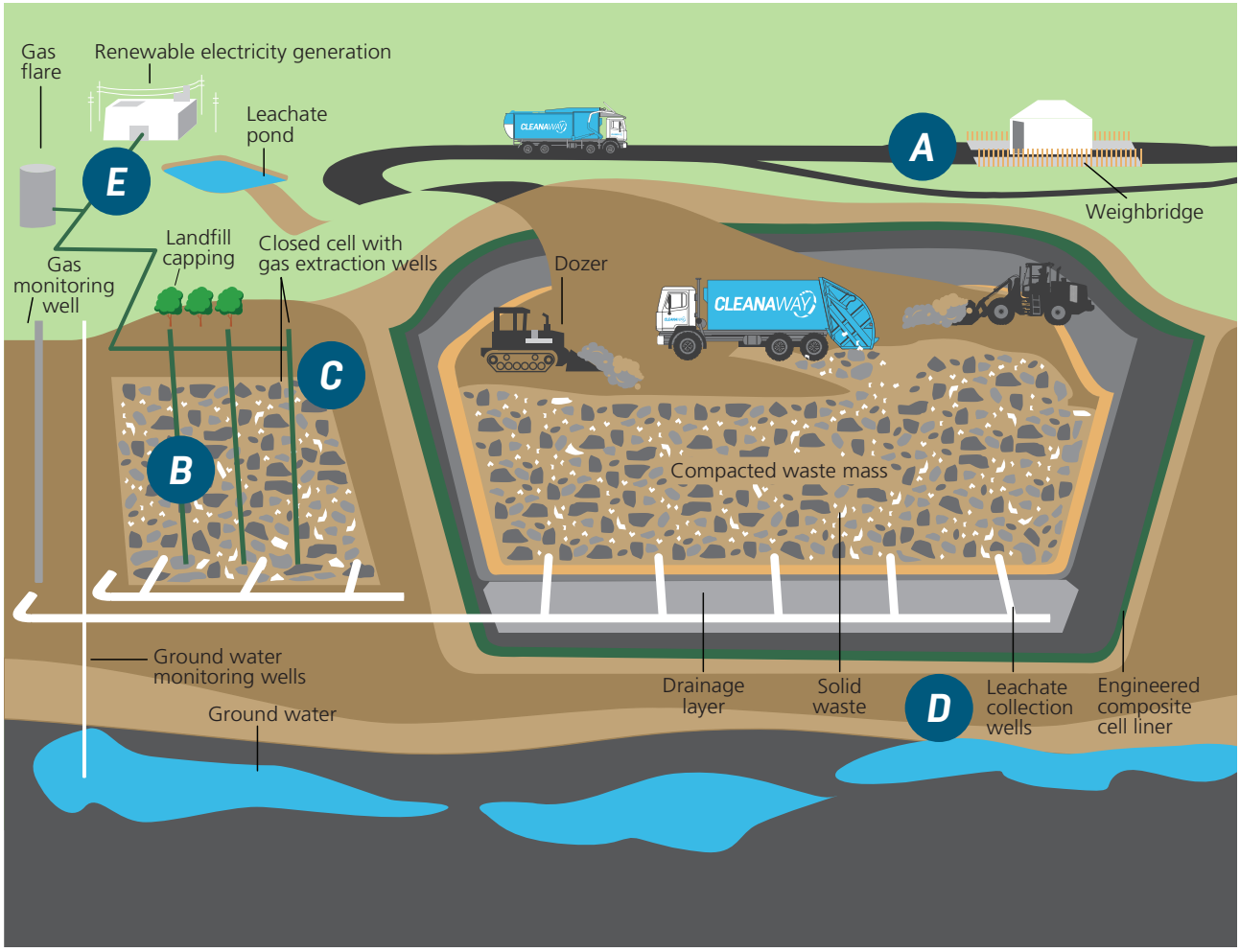
Well-designed and engineered landfills remain a critical part of Australia's waste management system.

Increased recovery of food, construction and demolition waste and transition to Energy from Waste will change the role of landfilling but will not remove its necessity; we must have a means of safely disposing of waste that cannot either be reused, recycled or recovered.

Cleanaway owns and operates eight open landfills, deploying best-in-class management and highly technical engineering to ensure the safety and compliance of sites, while minimising impact to the surrounding environment.

Cleanaway's Landfill Optimisation Blueprint examines how to optimise these highly engineered pieces of infrastructure to continue delivering value into the future through airspace optimisation and energy capture. Landfill capacity, or airspace, is a valuable and finite resource. Preserving this resource highlights the importance of working together with customers and partners to maximise resource recovery.

With all of Cleanaway's operating landfills now capturing gas and further investment being made to optimise usage, these assets will continue to be important long into the future.



A Incoming waste loads are managed using a 'weighbridge', to ensure waste meets licence requirements and to confirm that the weight of each load adheres to Cleanaway's customer contracts.

B 'Cells' divide modern landfills, so that sites are managed in sections to ensure material is properly separated, covered, and landfill gas and leachate are managed.

C These cells are highly engineered areas, designed with advanced composite material liners to minimise the chance of any waste or contaminated materials escaping the confines of the cell.

D Within each cell are leachate and landfill gas collection systems that capture these by-products of waste decomposition – helping to reduce our impact on the environment. Our 1.5° ambition outlines how we're reducing our carbon footprint, including through the capture of landfill gas.

E Collected landfill gas can be cleaned and then used by Cleanaway or third parties to generate renewable electricity or used as renewable gas.

A path to closure and rehabilitation

Cleanaway's New Chum site is nearing the end of its operational phase as a landfill. The site closed in March 2022 and is scheduled to reopen when cell 3B is prepared to receive waste, with a likely window in late 2024 or early 2025. Cell 3B has an estimated lifespan of approximately 12 months, contingent on external factors such as waste supply and weather conditions.

It is important to fill cell 3B to ensure the site is properly contoured and able to be securely capped once complete. Cell 3B will be filled with inert waste, which is the most environmentally and economically sound approach to ensure a timely and compliant completion to the site.

Partnering with Griffith University for cutting-edge rehabilitation

Cleanaway has already started cutting-edge rehabilitation on completed cells at New Chum using a process called 'phytocapping'. This is being completed through our partnership with Griffith University and provides a natural capping solution that encourages the growth of native flora and return of native wildlife.

https://bit.ly/newchum-phytocap

Cleanaway and Griffith University have transformed two hectares of the New Chum site into a lush natural ecosystem that also doubles as an effective and efficient way to cap and complete landfill cells.

A research project that began in 2019 has used an innovative process called phytocapping, which uses a combination of soil and native trees, shrubs and grasses to absorb rainfall and minimise the amount of water that filters through to compacted waste.

Traditional landfill capping involves 'hard infrastructure' solutions like geosynthetic clay liners. Phytocapping has better environmental outcomes while delivering the same engineering performance.

What was once a bare, covered landfill cell is now attractive bushland that is home to a thriving range of native plants and animals, with insects, nesting birds and desert tree frogs. The return of these species indicates a significant improvement in the ecological health of the site following landfilling activities.

Griffith University students regularly visit the site to learn about sustainable landfill phytocapping, witness the rapid growth of vegetation and observe the return of local wildlife. In future, the fully rehabilitated site will provide food for koalas and attract glossy black cockatoos thanks to the planting of food trees for these species.

Griffith University students, accompanied by Dr. Tony Kim, PhD (Landfill Rehabilitation [Phytocap]) and Dr. Ruby Michael, PhD (Ecological Engineering), visiting Cleanaway's New Chum phytocap

Measuring plant health with a chlorophyll meter

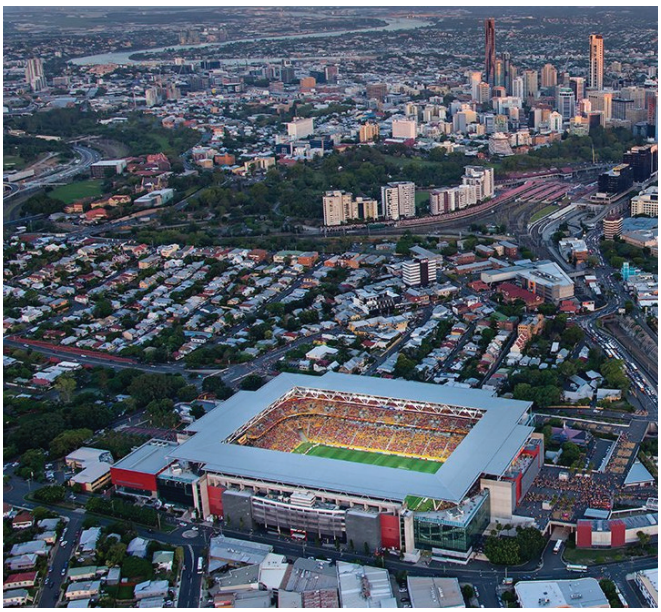
What comes next?

Once cell 3B is filled, the New Chum site will enter remediation and rehabilitation mode. Given it is a former mine site, the land will require years, and possibly decades, to fully settle before determining future use. As the landowner, Cleanaway assumes responsibility for the site post-closure.

Ipswich boasts numerous successful examples of landfills transformed into public spaces, including:

- Limestone Park
- Cribb Park
- Tony Merrill Park; and
- Jack Barley Park.

The most famous Queensland landmark built over a landfill is Suncorp Stadium in Milton (pictured at right).



Giving back

The New Chum Landfill Community Benefit Fund (CBF) returned in 2024 with another $50,000 for community wellbeing projects covering welfare programs, sports participation, youth support and connectivity.

Over the past two years the CBF has distributed more than $100,000 among 16 deserving Ipswich community organisations. These successes are the result of community collaboration, with recipients selected together with members of Cleanaway's Community Reference Group (CRG), which meets bi-monthly at the landfill site.

Cleanaway's CRG is an open forum for community members to ask questions and exchange ideas about the facility, the wider waste management industry and support our CBF. Meeting minutes as well as well as other updates from the New Chum site and the CBF can be accessed via the dedicated New Chum webpage.

2023 CBF recipients

https://bit.ly/Cleanaway-CBF-IBA

Fiona Williams, Ipswich Basketball Association, shares how the Cleanaway CBF grant helped the Under 14 team travel to Townsville for the Queensland State Championships

https://bit.ly/Cleanaway-CBF-PREPL

Roz Boyd, Redbank Plains State High School, highlights the impact of the Cleanaway CBF grant, calling it a "life saver" for helping local youth obtain driving licences and brighter futures

How to engage?

Cleanaway takes pride in engaging with our community and stakeholders through various programs and channels. For more information or updates:

- Visit our dedicated New Chum webpage - ***cleanaway.com.au/location/new-chum/***
- Contact the New Chum team via (07) 3894 0500