

UTS Central Waste Management Plan



A VISION FOR OUR
FUTURE CAMPUS

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Introduction

This report supports a State Significant Development Application (SSDA) submitted to the Department of Planning and Environment pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The SSD Application relates to the Concept Plan Approval for the University of Technology Sydney (UTS) City Campus Broadway Precinct, which was approved in December 2009 (MP08_0116).

The proposed works relate specifically to the UTS Central Project, more specifically the extension of Building 1 (podium) and redevelopment of Building 2 at the City Campus, Broadway Precinct.

As the development has a capital investment value of more than \$30 million as an educational establishment, it is identified as State Significant Development under the *State Environmental Planning Policy (State and Regional Development) 2011*, with the Minister for Planning the consent authority for the project.

This report has been prepared having regard to the Secretary's Environmental Assessment Requirements issued for the project.

Background

UTS recognised the need to upgrade the City Campus back in 2000, and undertook a number of visioning and master planning projects culminating in the *City Campus Masterplan 2020* (BVN, 2008) which provides a framework for refurbishments and new building works across the campus (comprising the Broadway Precinct and other sites in the Sydney CBD) in order to provide improved facilities and to accommodate future expected student and staff growth.

The long term strategic vision for UTS is 'to be one of the world's leading Universities of Technology'.

On 23 December 2009 a critical step in realising UTS's vision and identity for the Broadway Precinct was realised, with approval of the UTS City Campus Broadway Precinct Concept Plan (BPCP) – approved under the former Part 3A of the EP&A Act (MP 08_0116). The approved Concept Plan supports the significant redevelopment of the Broadway Precinct providing for new buildings, alternations and additions to existing buildings, along with associated landscaping and public domain works.

Since approval of the Concept Plan in 2009 UTS has secured the necessary detailed planning approvals and delivered a number of state of the art and iconic learning, research and social facilities across the Broadway Precinct, including:

- Faculty of Engineering and IT Building, designed by Denton Corker Marshall Architects.
- Multi-Purpose Sports Hall.

- Alumni Green, designed by ASPECT Studios Landscape Architects.
- Faculty of Science and Graduate School of Health Building, designed by Durbach Block Jagers in association with BVN Architecture.
- Library Retrieval System.
- Great Hall and Balcony Room Upgrade, Designed by DRAW Architects in association with Kann Finch Architects.

As part of the staged delivery of the Concept Plan and as expected in its natural evolution, there have been a number of modifications to the Concept Plan. Of note, Modification No 5 to the Concept Plan provides for the complete redevelopment of Building 2, including additional floors above a new podium building.

Overview of Proposed Development

This SSD Application seeks approval for the following components of the development:

- Site preparation works, including demolition and clearance of existing Building 2 down to approximately ground level and associated tree removal;
- Retention and re-use of existing basement Level 1 and Level 2;
- Construction and use of a new podium building fronting Broadway (Building 1 extension and new Building 2);
- Construction and use of new floors above new Building 2 podium;
- Public domain improvements surrounding the site;
- Landscaping works to roof levels;
- Retention of existing vehicle access and parking arrangements;
- Provision of new at-grade loading space off Jones Street; and
- Extension and augmentation of physical infrastructure / utilities as required.

The new floor space will accommodate a range of educational and ancillary educational uses, such as:

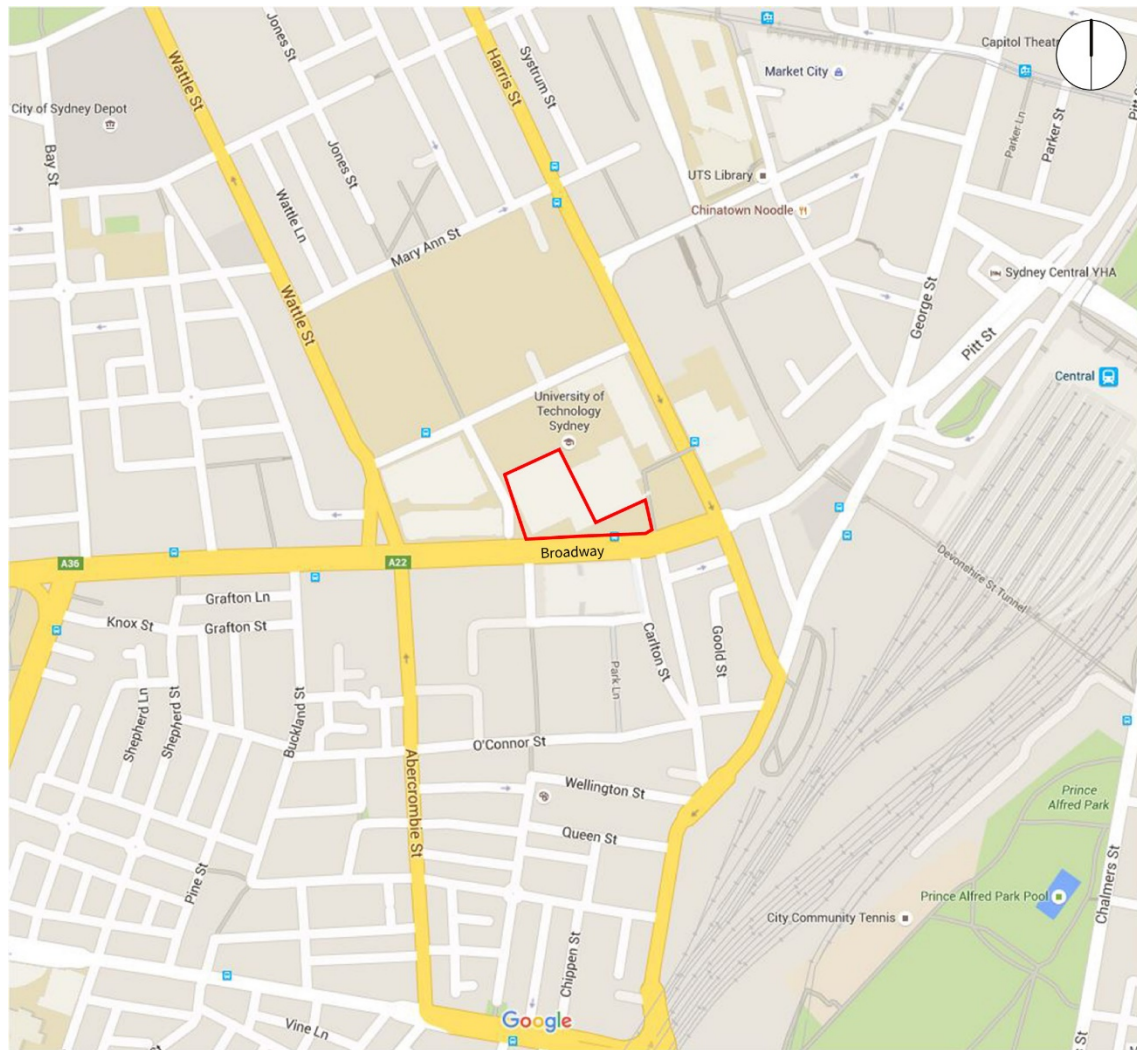
- Library
- Research
- Teaching Space
- Informal Learning Space
- Student Centre
- Student Union Spaces
- Food and Beverage Outlets
- Academic (including Faculty space)

A more detailed and comprehensive description of the proposal is contained in the Environmental Impact Statement (EIS) prepared by JBA.

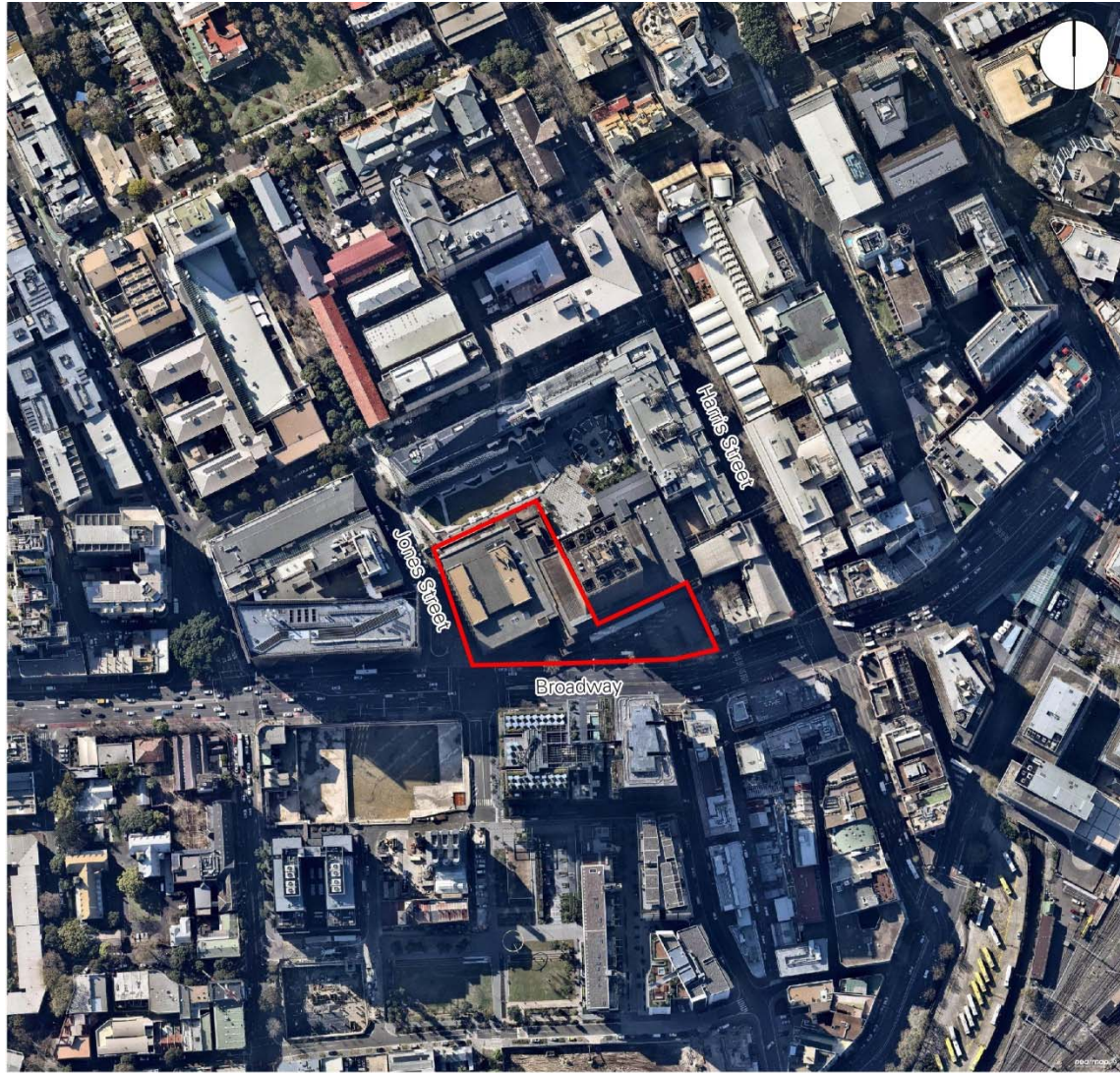
The Site

The Broadway Precinct of the UTS City Campus is located on the southern edge of the Sydney Central Business District with frontages to Broadway, and Thomas, Wattle and Harris Streets (see **Figure 1**). Central station is located less than 500m to the east.

More specifically the UTS Central project site relates to Building 1 (excluding the Building 1 tower) and Building 2 of the Broadway Precinct, refer to **Figure 2**.



 The Site



 The Site

UTS Central Project

PART A Construction Waste Management Plan

A VISION FOR OUR
FUTURE CAMPUS



UNIVERSITY OF
TECHNOLOGY SYDNEY

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Introduction

This construction Waste Management Plan (WMP) has been specifically prepared for the UTS Central project, and forms part of the Project Management Plan.

Purpose of the Plan

The purpose of this Plan is to ensure that the waste generated on site, during construction will be minimised. This document provides details on how the generated waste will be recovered and recycled, where practical.

This WMP includes details on how all generated waste will be monitored, which types of waste will be collected for recycling or for re-use on site, how recycling will occur and who will be responsible for the various aspects of the waste management process.

Richard Crookes Constructions (RCC) recognises the importance of promoting building design and construction techniques which minimise waste and provides an efficient recycling procedure for all waste material.

The purpose of this plan is to outline the:

- Objectives and Targets;
- Operational Controls;
- Recording, Monitoring Corrective Action; and,
- Reporting.

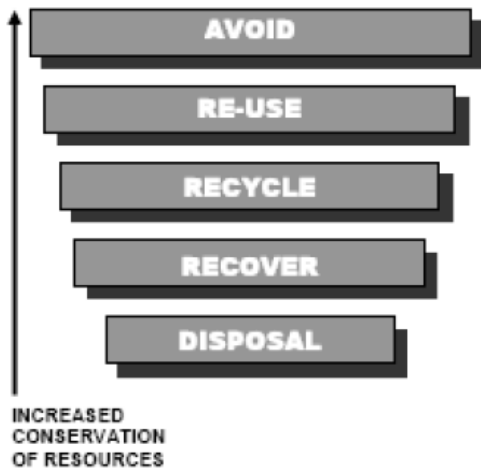
RCC Objectives and Targets

RCC's overall objective is to recycle or reuse at least 80% of the construction waste generated on site. The aim of this strategy is to achieve compliance with the Man-7 Waste Management credit of the Green Star Education V1 rating tool.

To demonstrate compliance with the Green Star requirements, RCC will implement the following:

- Advise all sub-contractors to adhere to the provisions of this WMP
- Retain waste records and submit quarterly reports to UTS
- Achieve a minimum of 80% (by mass) of the total construction waste generated on site to be reused or recycled.

The Operational Controls implemented to achieve this include:-

Operational Controls		Method of Recording
General	a) Identify any hazardous and toxic materials (e.g. asbestos) and comply with WorkCover requirements. b) Develop project Waste Management Plan c) Try not to over-order on materials (initial waste avoidance). d) Communicate housekeeping & litter reduction rules with subcontractors during contract letting and site inductions.	<ul style="list-style-type: none"> • Hazardous substance survey • Waste Records • Inductions
Measures to Minimise Waste During Construction Stage	a) RCC will ensure that right quantities of materials will be ordered (Ordering of excessive quantities will be avoided) b) Reusing formwork; c) Minimising site disturbance, limiting unnecessary excavation; d) Careful separation of off-cuts to facilitate re-use or recycling; e) Co-ordination and sequencing of various trades. Non-recyclable products will be removed by the sub-contractor or a competent and licensed disposer and will be disposed at an EPA approved landfill or transfer station.	
Implement the waste hierarchy – avoid, reuse, recycle and lastly disposal to landfill. The strategy for reducing the waste on the project will be made up of the following strategies as detailed below in order of priority.		
<p><i>Waste Minimisation Hierarchy</i></p>  <p>The diagram illustrates the Waste Minimisation Hierarchy as a series of five horizontal bars of decreasing length, stacked vertically. From top to bottom, the bars are labeled: AVOID, RE-USE, RECYCLE, RECOVER, and DISPOSAL. To the left of the bars is a vertical arrow pointing upwards, with the text 'INCREASED CONSERVATION OF RESOURCES' at its base.</p>		
Demolition Plan	a) Demolition disposal for concrete, bricks, plasterboard, timber, tiles, PVC, metal, paper & cardboard, glass, appliance, carpet, vegetation, soil – to Recycled Facility b) Asbestos & SMF to be removed by a licenced contractor (up to 30 June 2007 >200m ² , 1 July 2007 > 50m ³ , from 1 Jan 2008 > 10m ² of bonded asbestos) & managed in accordance with OHS Act & Regulation (2001) and DECC requirements. c) Lead paints & dusts will be removed using we	<ul style="list-style-type: none"> • Monthly Waste Report • Disposal dockets

Operational Controls		Method of Recording
	sanding and vacuum techniques (cleaners which comply with AS/NZS 3544 Industrial vacuum cleaners for particulates hazardous to health). Waste will be contained within sealed plastic bags for disposal. Clean up with a wet mop.	
Consider recycling reprocessing	Where practicable: a) Timber for reuse or mulching b) Aluminium wall frames – reprocess c) Plasterboard – recycled or use as soil improvers d) Steel – reprocess e) Toughened Glass – reprocess f) Carpet & underlay – reprocess & mulch mats g) Bricks and concrete h) Crushed concrete i) Aluminium, other metals j) Foam insulation k) Packaging materials (Plastics, etc) l) Carpet / Ceiling tiles m) Light fixtures	<ul style="list-style-type: none"> Monthly Waste Report
Product Stewardship	a) Investigate returning waste to the supplier? (e.g. plasterboard, packaging)	<ul style="list-style-type: none"> Contract/ Supply agreem'ts
Putrescibles Waste	a) Putrescible waste is to be contained in bins and collected by licenced contractor for disposal	<ul style="list-style-type: none"> Invoices
Contaminated Soils	a) Contaminated soils will be excavated and classified in accordance with DECC guidelines "Environmental Guidelines: Assessment, Classification & Management of Liquid & Non-Liquid Wastes"(June 2004) – www.environment.nsw.gov.au/waste/envguidlns/index.htm .	<ul style="list-style-type: none"> RAP Test Reports Waste Records Disposal Dockets
Virgin Excavated Natural Materials (VEMN)	a) VENM excavated from site with suitable compaction qualities will be beneficially re-used on other construction sites whenever possible. Disposal to landfill will be the last option. b) No fill will be received on site that does not comply with DECC guidelines ie. contamination limits appropriate to the development.	<ul style="list-style-type: none"> Test Reports Waste Records Disposal Dockets
Acid Sulphate Soils	a) Potential for acid sulphate soils will be assessed based on the sites proximity to low-lying coastal areas eg. coastal plains, wetlands and mangroves where the surface elevation is less than five metres above mean sea level. b) If suspected, consultant to prepare Acid	<ul style="list-style-type: none"> ASSMP Test Reports Product delivery (lime) dockets Site Plans

Operational Controls		Method of Recording
	<p>Sulphate Soil Management Plan (ASSMP).</p> <p>c) Excavation and neutralisation to be supervised by consultants as per ASSMP.</p>	
Monitoring	<p>a) Bin(s) with heavy lids shall be provided for putrescibles waste</p> <p>b) Daily inspections shall be carried out to ensure the worksite is litter free.</p>	<ul style="list-style-type: none"> • Env. Inspection Checklist
Reporting	<p>a) Waste reports/management plans indicate estimated waste min 80% of accumulated totals for the project.</p>	<ul style="list-style-type: none"> • Monthly Reports
Non- Compliance	<p>a) Generation of water pollution and/or air pollution from onsite waste storage</p> <p>b) Inappropriate/illegal off-site disposal of waste materials</p> <p>c) Asbestos & CCA treated timber contamination of recoverable waste stream thereby requiring landfill disposal.</p>	<ul style="list-style-type: none"> • Env. Inspection Checklist • Incident Report, NCRS
Emergency Response	<p>a) No specific requirements associated with waste management</p> <p>b) Scenarios such as spill, fires, explosions covered by the project emergency response plans.</p>	<ul style="list-style-type: none"> • Incident Report

Demolition Generated Materials.

The project involves the demolition of 5 full levels of an existing 8 storey reinforced concrete building with floor plates ranging from 4000 sq.m. to 2000 sq.m.

The existing building to be demolished is a conventionally reinforced concrete structure with reinforced concrete columns.

The façade is made up of a combination of reinforced concrete walls, precast concrete panels and masonry walls with aluminium framed glazed windows.

The internal fitout of the building includes masonry, lightweight and glazed partition walls, suspended plasterboard ceilings and carpeted floors.

We aim to recycle 90% of all demolition materials

Estimated quantities of demolition materials:

Material	Quantity	Use
Concrete	6000 cubic m.	Recycled crushed concrete
Steel Reinforcing	1000 tonnes	Reprocess
Structural Steel	200 tonne	Reuse in temporary works
Metal roof sheeting	600 sq.m.	Reuse in temporary works
Masonry	700 cubic m.	Recycled
Aluminium	100 tonne	Reprocess
Glass	100 tonne	Recycle in blended sands
Timber	10000 lm	Reuse
Electrical Cables	20 tonne	Reprocess
Metal ductwork	20 tonne	Reprocess
Copper pipework	2 tonne	Reprocess
Steel pipework	5 tonne	Reprocess
Decorative Light fittings	15 off	Reuse
Light fittings	500 off	Reuse as new LED's
Carpet	6000 sq.m.	Reuse in temporary protection
Plasterboard	100 tonne	Dispose
Insulation	1 tonne	Dispose
Asbestos	10 tonne	Dispose

All demolition materials will be loaded out in the Jones St construction zone and the existing UTS level 2 loading dock as indicated in the Construction Traffic Management Plan.

Construction Generated Materials.

The project involves the construction of a 17 storey building following the demolition of the existing structure.

The new building will be a reinforced concrete structure with a glazed curtain wall to all elevations. The fitout of the building will include finishes typical with an office fitout.

The internal fitout of the building will include masonry, plasterboard and glazed partition walls and floor finishes.

We anticipate using 15 cubic metre bins and generating 500 loads of mixed waste over the construction period.

We aim to recycle 80% of all construction waste generated on site.

All demolition materials will be loaded out in the Jones St construction zone and the existing UTS level 2 loading dock as indicated in the Construction Traffic Management Plan.

Reporting

Richard Crookes Constructions will meet its waste compliance criteria by engaging the professional services of a reputable Waste Management Company and working together to meet our obligations.

Refer to the attached Dial a Dump Waste Management Plan for the UTS Central Project.

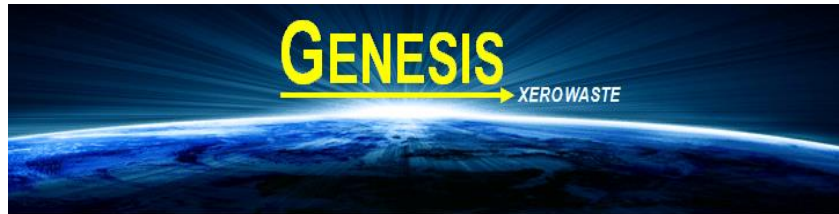
RCC will utilise the waste contractor to segregate and recycle waste “off site” on a monthly basis the contractor will issue a detailed report identifying m3 and tonnage of the core waste streams and the amounts recycled and sent to landfill to achieve 2 points under Man 7.

The specialised waste management contractor will Rubbish will be sorted off site, separate bins will not be provided for the sorting of recyclable materials.

In addition, RCC will dispose of concrete slurry through a specialised contractor who will be contracted via our concrete supply and place contractor.

The Project Green Star Administrator will be responsible for collecting monthly waste reports and issuing them to the Project Manager.

These reports will measure the weight of waste generated of material by classification, total weight of waste, percentage by weight recycled and percentage by weight to landfill.

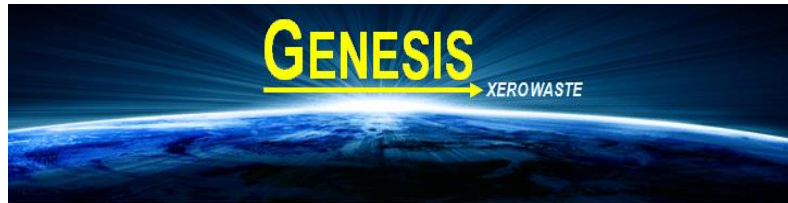


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CONFIDENTIAL WASTE MANAGEMENT PLAN



16 December 2015



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WASTE MANAGEMENT PLAN

Created for: Richard Crookes Constructions

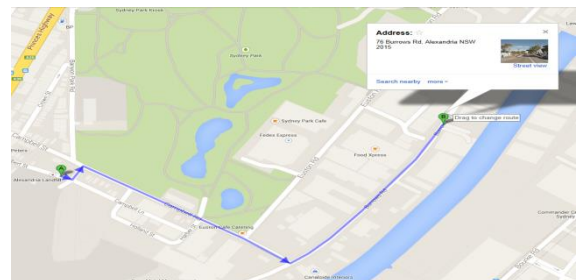
Site Name & Address: UTS Central Site

Recycling is a vital means whereby Australia's natural resources are conserved and efficiently utilised.

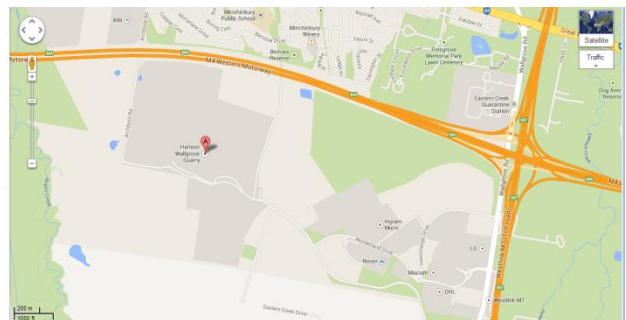
Dial A Dump's aim is to work together with your company to develop a waste management system centred around resource recovery and recycling and that assists your company in meeting its Waste Compliance Criteria and obligations, namely the re-use or recycling of 87% of waste by weight.

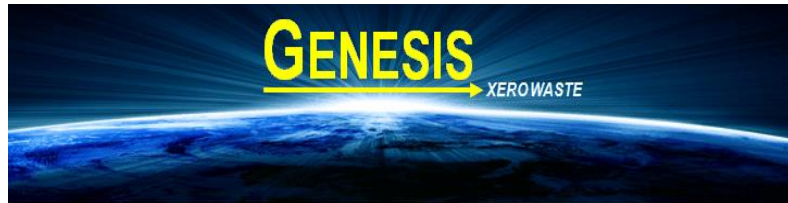
Dial A Dump is licensed by the EPA to transport (Licence number: 11303, store, recycle, reprocess and dispose of wastes. Accordingly, all waste is collected and transported by **Dial A Dump** then returned to our Recycling Centres which are situated at Alexandria No 76 Burrows road Alexandria or Honeycomb Drive Eastern Creek.

Alexandria



Eastern Creek

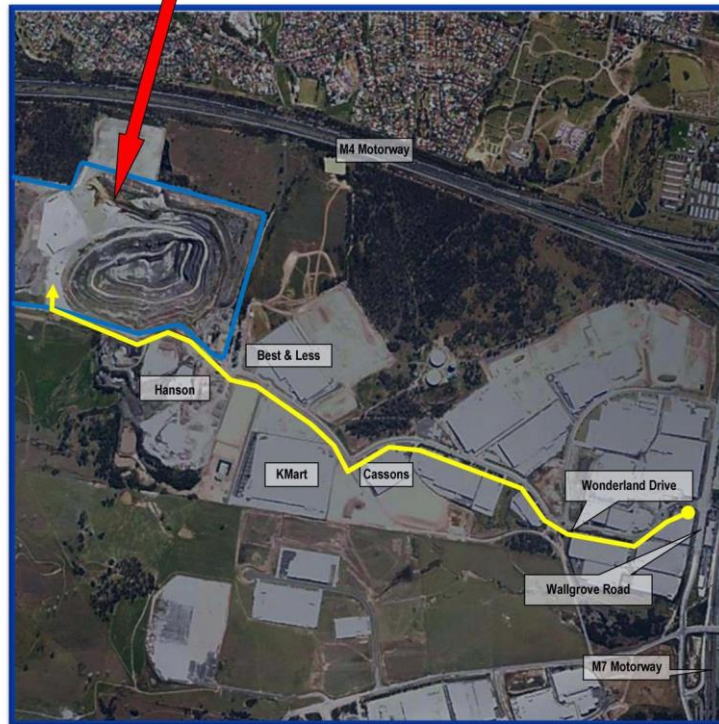




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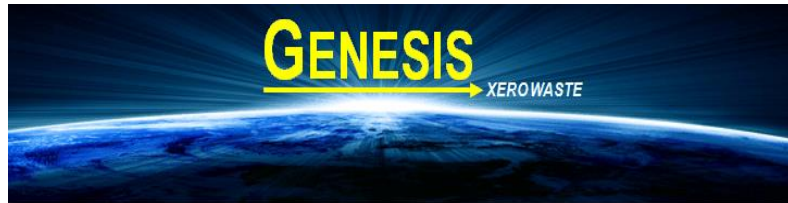


RECYCLING AND LANDFILL FACILITY
Honeycomb Drive, Eastern Creek



- From the M7 take the Wallgrove Road Exit
- Turn into Wonderland Drive and continue to the end
- Take second exit at Kmart roundabout into Honeycomb Drive and follow concrete road to the Facility

From here, only a small percentage is taken off site for disposal (Special or Restricted or hazardous wastes) or committed to landfill. It is in both **Dial A Dump** and our customers' interest to ensure as much waste as possible is committed to re-use and we welcome customers who may wish to view our Recycling facilities for themselves.



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Wastes

Wastes are described by many different names and come in many different types; industrial, commercial, building and demolition, clinical, solid, domestic, putrescible, non-putrescible, hazardous, household, inert, municipal, and trade waste. They are defined for regulatory purposes in the Protection of the Environment Operations Act.

For practical purposes New South Wales has adopted a waste management hierarchy that prioritises ecological sustainable waste solutions. The hierarchy consists of

- 1 Avoiding waste,
- 2 Re-using materials,
- 3 Recycling and reprocessing materials
- 4 Waste disposal.

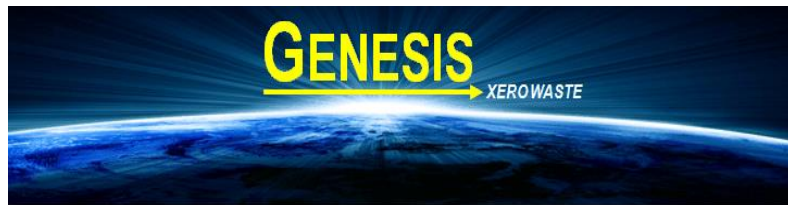
Waste Reduction

It is **Dial A Dump's** aim to achieve an 87% reduction in waste being disposed of – an aim that is consistently exceeded by **Dial A Dump** by means of innovative resource recovery and processing. The clients of **Dial A Dump's** waste management service can justly claim that they are achieving the Government's goal in waste minimisation and meeting their Waste Compliance Criteria.

Waste Management

Wastes need to be managed in order to comply with every aspect of the legislation covering wastes. The waste management service provided by **Dial A Dump** is a total waste management service. By engaging **Dial A Dump** to manage wastes, a waste generator has exercised complete due diligence. **Dial A Dump** assumes the responsibility and requirements for the correct collection, transport, storage and disposal of wastes.

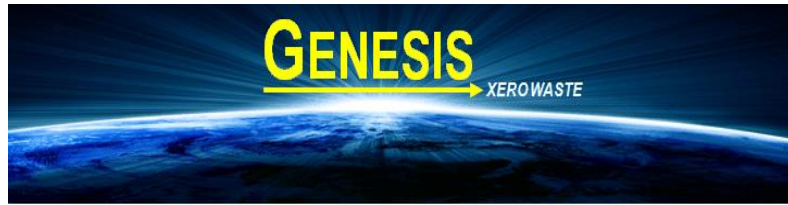
The waste management service of **Dial A Dump** covers all aspects of all wastes, a complete and thorough service to assist industry, a significant service that is *Keeping Australia Clean*.



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MPC (Materials Processing Centre)



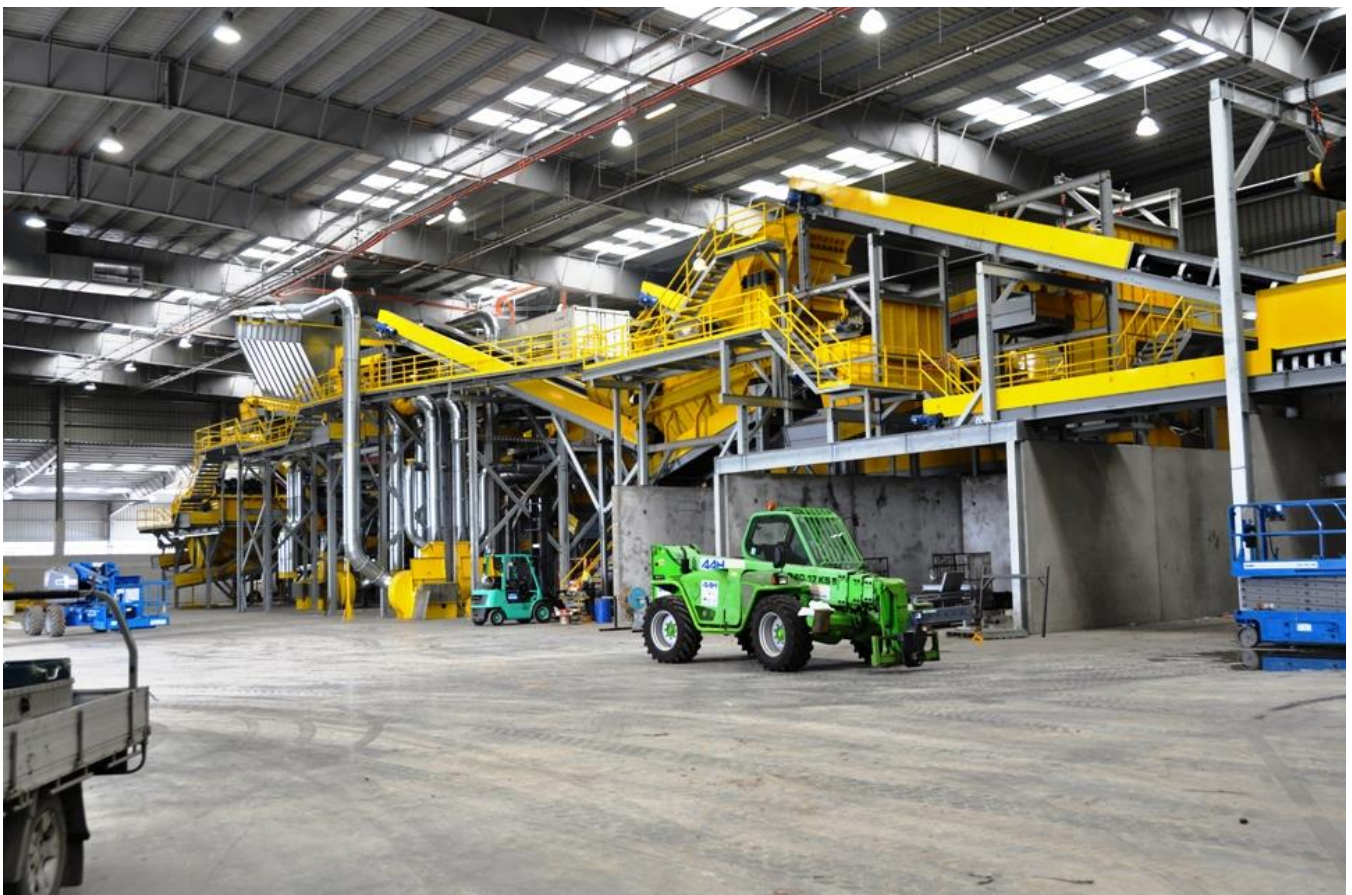


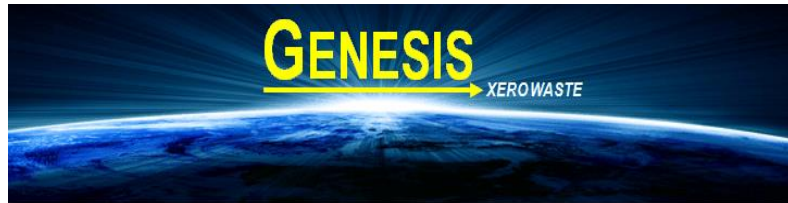
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MPC (Materials Processing Centre)

- This is where all mixed loads of waste are unloaded and classified in accordance with EPA Guidelines
- Large items of concrete, brick and metal objects are recovered immediately for further processing

Smaller mixed material capable of being recycled is shredded to commence the recycling process. It then proceeds through a series of screens, separators, blowers and magnets until it is segregated to be able to be reused



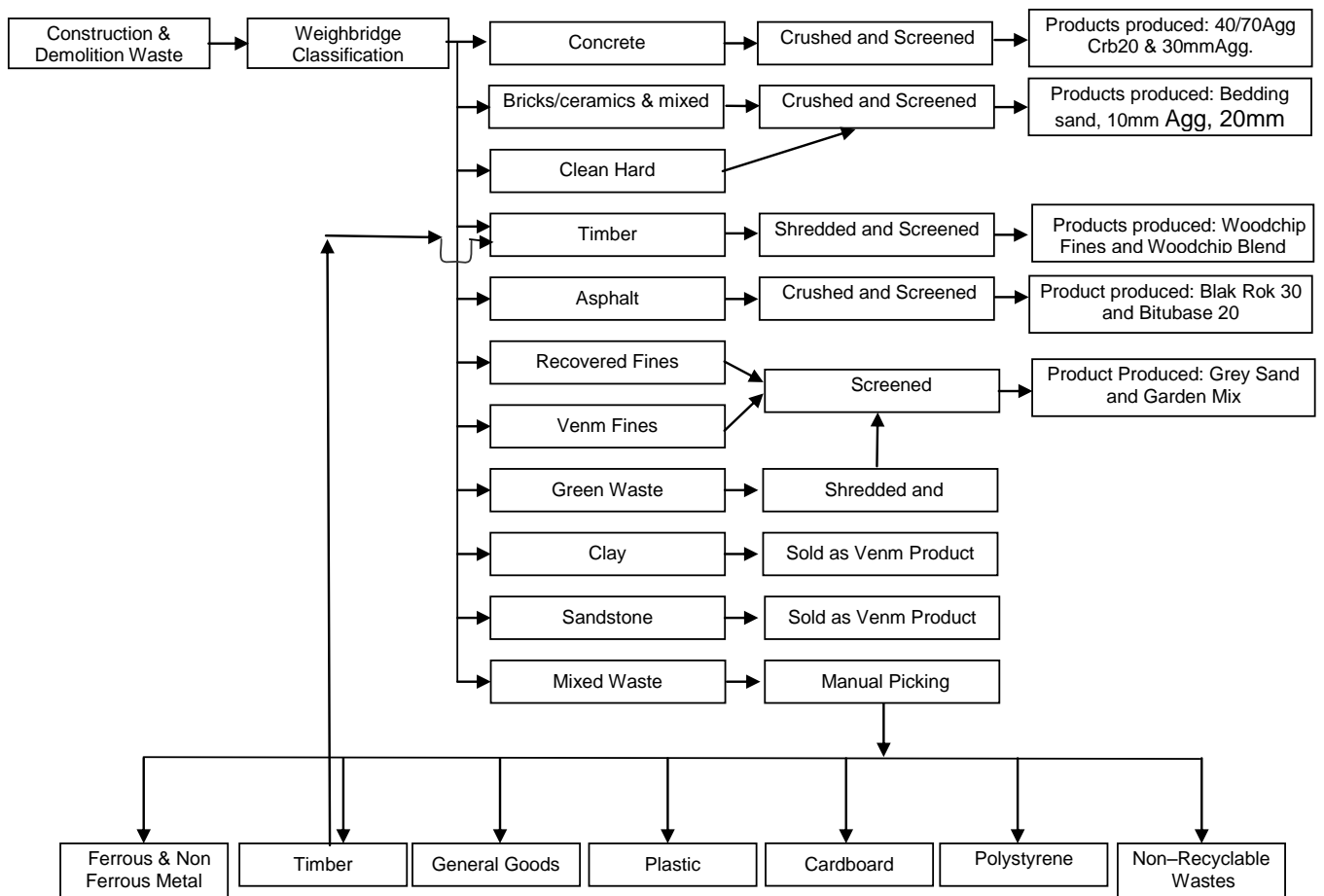


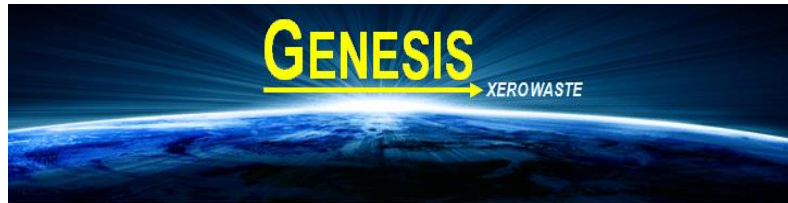
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RECYCLING

Recycling is a vital means whereby Australia's natural resources are conserved and efficiently utilised. Our 'Waste Management' system is centred around *resource recovery and recycling* and through innovative approaches **Dial A Dump** consistently achieves recycling figures in excess of the objectives of the Waste Minimisation and Management legislation and the Waste Wise agreement. Below is our Recycling flow diagram of our waste processes.

**Dial A Dump Recycling Centre
Recycling Flow Diagram**





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Off Site Recycling

Off site recycling is the most appropriate course of action for mixed waste streams and sites with minimum room or access difficulties.

At our Recycling and Landfill Facilities, **Dial A Dump** is able to sort and recycle wastes coming from your sites.

This sorting and recycling includes the recovery and production of the following materials:

Mattresses
Paper/Cardboard
Polystyrene
Glass
Steel - OSI and Black Iron

Non-Ferrous metals such as:

- Lead
- copper
- electrical cable
- brass and aluminium;

All which are sorted and sent to the appropriate processing plants.

Timber such as:

- Formwork
- pallets
- hardwood
- tree stumps
- oregon and alike;

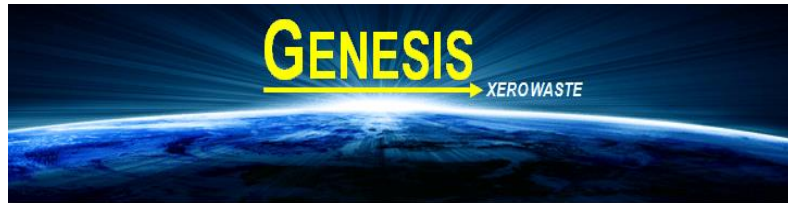
are sorted for reuse, with the rest being processed to make woodchip.

Green Waste is transformed into mulch.

Problem wastes such as:

- Carpet
- Plastic and tyres;

are all processed at **Dial A Dump** facilities to avoid the potential problems that wastes such as these cause at landfills.



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All hardcore materials:

- Bricks
- mortar
- concrete
- dirt
- soil
- sand
- tiles
- marble and stone;

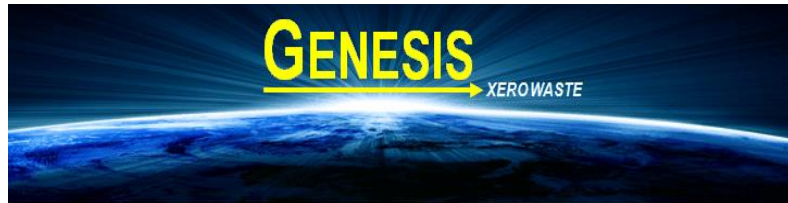
are either stacked for reuse, or re-processed into high quality raw materials such as:

- * Roadbase
- * Aggregates for drainage
- * Fill sand
- * Soil
- * Turf underlay

Off-site recycling is an efficient and cost effective option for **Dial A Dump's** customers. Upon returning to **Dial A Dump's** recycling and landfill facility, the general loads collected are sorted and recycled directly on site. Materials currently recycled and reused at our recycling facility include:

Polystyrene	Recycled to make plastic products
Metals	Resold to appropriate processing plants
Timber	Recycled to make Woodchip
Green Waste	Recycled into Mulch
Hardcore	Recycled into products including Roadbase, Sand, Fill and Aggregate.

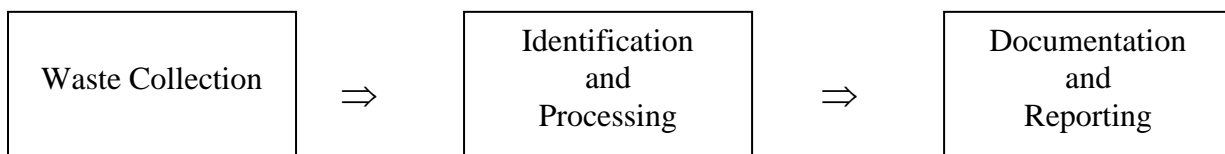
Dial A Dump customers can feel secure in the knowledge that their waste is being disposed of and recycled according to environmental protection legislation and the principles of ecologically sustainable development.



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REPORTING PROCEDURE

Dial A Dump is committed to assisting your company in meeting its requirements under the Waste Criteria and to this end has instituted the following procedures to provide your company **an** auditable method of confirming that **Dial A Dump** recycles the benchmarked proportion of waste received from your company.



Collection of Materials

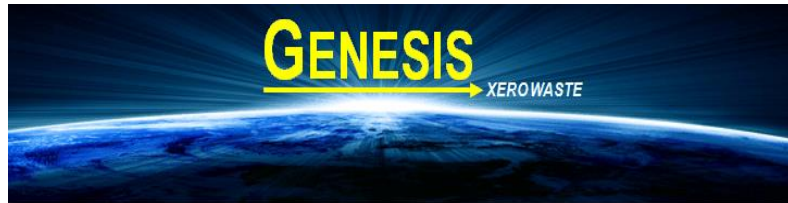
The **Dial A Dump** driver shall, at the time of collecting the bin from your company site, record the identity of the bin from its ID Number. The bin shall then be transported to the most appropriate **Dial A Dump** Recycling facility for evaluation and treatment.

Identification and Processing

Large bins are tipped in the processing yard and visual inspected and photos are taken of the loads. Sample report below. Small bins are processed by source separating by forklift into larger bins.

Inspection Report

Bin Bags -> Misc. 4, 6, 9, 10, 13, 17, 27		Site Bags -> Recycled & Quarry Products		DIAL A DUMP KEEPING AUSTRALIA CLEAN	
Mail: PO Box 1040, Mascot NSW 1460				ABN 75 131 565 583	
E: cs@dadi.com.au W: dadi.com.au					
TAX INVOICE				9519 9999	
Greenstar <input type="checkbox"/>		Date:			
To:					
Address:					
Qty	Product/Services				
Bin No. Del.:			Bin No. P/Up:		
Time Arrived:			Time Departed:		
Payment Type:			Cost inc. GST		
Pickup	Timber	Conc.	Brick	Soil	Plastic
Contents %					
Gyp	Green	Metal	Insul.	Mix	Other:
I indemnify Dial A Dump Industries against any liability for damage caused by bins placed at my direction. I acknowledge that I am responsible for ALL Council Fees & Charges and contents* within this bin. I acknowledge that I am liable for damage to bins whilst on hire and that extra charges will apply.					
Client Signature:					
Name: (please print)					
* NO Food, Liquid, Fibro/Asbestos, Hazardous Chemicals, Tyres, Carpet or Mattresses - please do not conceal unacceptable materials under loads. Extra charges will apply if found in the Bin.					
Load not to exceed rim - overloaded Bin will NOT be removed.					
7 Day hire - call 9519 9999 for pickup. Unpaid COD Bins will NOT be removed.					
Driver:		Docket No. 06701			



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Receipt of Materials

At the **Dial A Dump** Recycling facility, the bin will be taken across the Weighbridge to ascertain the total tonnage weight being brought in and the following details recorded:

- Date and time of receipt of load
- Weight of load
- Origin of load
- Bin Identification Number and size by cubic metre

The Bin will then be transported to a designated unloading area for processing and recycling.

Weighbridge Report

DOCKET	REGO	ITEM	TN/CM	GROSS	TARE	NET	BIN SIZE	DATE/TIME

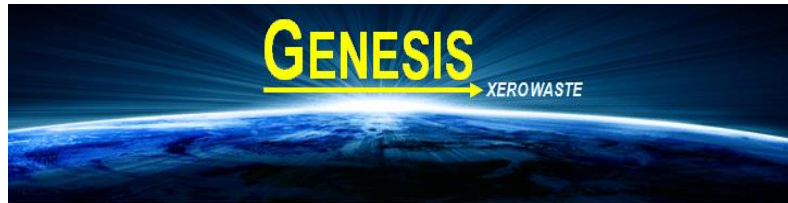
Documentation

At the beginning of each month **Dial A Dump** will provide to your company a Recycling Report for each site (in the attached format) summarizing your company **contribution** to the quantities of materials received by **Dial A Dump's** Recycling Centers in the preceding month and their method of processing/disposal.

Dial A Dump will maintain records of all Bins collected from your company's **Waste** site and provide, on request, an itemized report detailing:

- Date of collection
- Recycling Centre receiving the Bin
- Registration number of the vehicle collecting the Bin
- The amount of material collected by tonnage and cubic metre

For the purposes of Waste auditing **Dial A Dump** will, on request, provide documentary evidence of the resale of segregated and/or recycled materials (excluding commercially confidential information) from its Recycling Centers to confirm the information provided in the monthly reports to your Company as to the volumes of materials received being recycled.



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REPORTS

Recycling Reports are a key feature of **Dial A Dump's** waste management services, and can be provided to Customers at the end of each month indicating the Recycling results achieved by individual sites. This allows our Customers the confidence of knowing they are achieving both Government standards and Waste Compliance Criteria and meeting all reporting requirements.

We provide four different styles of waste reports each determine the level of reporting you need to achieve for your project waste management or company compliance for your project.

: **\$125.00 flat fee per site per month.**

Providing the details as below.

All loads weighed and logged.

All are classified by our devoted on site classifier.

Report the details of the monthly waste retrieved from the site, a cumulative summary of the waste received to date from the site. Information as to what products we have turned their waste into.

Waste Consultant to visit on commencement of the project, at each construction stage and as required.

<div><div>DIAL A DUMP</div><div>INDUSTRIES</div><div>KEEPING AUSTRALIA CLEAN</div></div>		Monthly Bin Inspection Report										<div><div>GENESIS</div><div>XEROWASTE</div></div>	
		Company:											
		Site:											
		Month:											
Material													
Total quantity generated													
Total disposed of													
Method & location of disposal													
Bricks and Roof Tiles		Metre ³	tonnes		Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Virgin Excavated Natural Material		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Concrete		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Hebel		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Asphalt		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Vegetation Waste		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Timber		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Soil Mix (GSW)		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Glass		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Plasterboard		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Plastic		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Grapple or Manual /Exported or Visy	
Metal		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Magnet, Grapple or Manual / Metal merchant	
Cardboard		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Polystyrene		Metre ³	tonnes	0.00	Metre ³	0.00	tonnes		Metre ³		tonnes	Processed Genesis Eastern Creek	
Insulation		Metre ³	tonnes		Metre ³		tonnes	0.00	Metre ³	0.00	tonnes	Disposed at Genesis Eastern Creek	
Mixed Waste		Metre ³	tonnes		Metre ³		tonnes	0.00	Metre ³	0.00	tonnes	Processed Genesis Eastern Creek	
Total (weighed)			5.00	tonnes		1.00	tonnes			1.00	tonnes		
Conversion Total	50.00	Metre ³		1.00	Metre ³			2.00	Metre ³				
% Total M3				2.00%				4.00%					
% Total Tonnes				20.00%				20.00%					

UTS Central Project
PART B: Operational Waste Plan

Part B Operational Waste

UTS Operational Waste Streams

The general and recyclable waste storage spaces provided for the UTS Central project will effectively serve all building uses and occupants and will be sufficiently sized to accommodate the storage of the following recyclable material, as a minimum :

- Paper and cardboard
- Glass
- Plastics (mixed containers)
- Plastics (soft plastics)
- Plastics (polystyrene)
- Metals
- Used cooking oil
- Organic (compost) materials

Note: There will be no general waste compactor installed in the UTS Central project. However, there is an existing “Hungry Giant” polystyrene compactor located in the adjoining basement of Building 1 (CB01) which will be used by the UTS Central project and is currently used by Buildings 1, 2, 3, 4 and 7.

Details of UTS waste streams, collection and recycling processes can be found in Appendix A.

UTS Operational Waste Storage Areas

Where possible the general waste and recycling storage areas for the UTS Central project will be located directly adjacent to the existing Building 1 (CB01) loading dock. The waste and recycling storage spaces will be located within easy, level access of the goods lift servicing the UTS Central project. They will be designed to huddle around the loading dock area for easy and simple access for building users, waste collection staff and waste removal vehicles.

UTS Loading Dock Facilities and Access

The service vehicles will access the existing CB01 loading dock via the existing ramp from Thomas Street. The minimum vertical clearance within the existing CB01 tower loading dock and car park area is 3.5m. UTS ensures that its Waste Contractor Services’ vehicles have been sized to comply with the minimum 3.5m vertical clearance within the existing CB01 loading dock area, and sized to ensure that the vehicles can enter and exit the basement in a forwards direction. There is no vehicle turntable.

UTS Operational Waste Audits

UTS undertakes regular 10 day operational waste recycling audits of all waste collected from the University’s City Campus. The audit is overseen by a National Australian Built Environment Rating System (NABERS) Accredited Assessor. The 2013 audit undertaken in March indicated that 83.3% of UTS’s waste is recycled and diverted from landfill. An 81.44% diversion rate was achieved in 2011.

UTS Operational Waste Stream Quantities

The potential operational waste quantities for the UTS Central project can be extrapolated from current UTS waste audit data and the proposed Gross Floor Area (GFA) of the building.

Appendix B is an excerpt from the latest 2013 Waste Audit Report and consists of a broad overview of the recycling streams measured during the audit. In summary, the waste audit confirmed the current recycling rate for the UTS waste and recyclable streams as 83.3% +/- 1.6%.

It is assumed that the additional area in the new Building 2 is 17,540sqm GFA, and that the additional area in the Building 1 extension is 6,917sqm GFA.

Waste Type	Estimated Daily Weight/Volume - New Building 2	Estimated Daily Weight/Volume - Building 1 extension	Collection Frequency	Collection and Transfer Methods	Notes
Cardboard / Paper	149.90 Kgs	59.11 Kgs	Daily	TransPacific Cleanaway	Source: UTS 2013 Waste Audit
Plastics - Mixed Containers	13.37 Kgs	5.27 Kgs	Daily	TransPacific Cleanaway	Source: UTS 2013 Waste Audit
Metals	4.21 Kgs	1.66 Kgs	Daily	TransPacific Cleanaway	Source: UTS 2013 Waste Audit
Glass	3.22 Kgs	1.27 Kgs	Daily	TransPacific Cleanaway	Source: UTS 2013 Waste Audit
Plastics - Soft Plastics	15.04 Kgs	5.93 Kgs	Daily	TransPacific Cleanaway	Source: UTS 2013 Waste Audit
Plastics - Polystyrene	0.39 Kgs	0.15 Kgs	Every 3 mths or as required	Resource Environmental Solutions	Source: UTS 2014 TEFMA Environmental Survey
Used Cooking Oil	2 L	1 L	Fortnightly or as required	Café operator's (not yet appointed) Contractor	Source: UTS Commercial estimate
Organic Material	26.16 Kgs	10.32 Kgs	Daily	Earthpower	Source: UTS 2014 TEFMA Environmental Survey
General	38.31 Kgs	15.11 Kgs	Daily	TransPacific Cleanaway	Source: UTS 2013 Waste Audit

* The UTS Central project will share use of the existing Hungry Giant polystyrene compactor which is located in Garbage Room 02.08 in CB01 basement level 02, which adjoins the loading dock and shares the service vehicle access ramp from Thomas Street.

Table 1: Estimated operational waste.

The estimated figures above are based on the 2013 Waste Audit results which can be found in Appendix C. The net weights (Kg) of each of the recyclable and non-recyclable materials calculated during the audit were averaged to a daily rate per Gross Floor Area (GFA) of 236,484m² covered by the audit (including leased properties, but excluding Housing and UTS Union-leased properties). The daily rate per GFA for each recyclable material was then projected for the UTS Central Project, consisting of 17,540sqm (additional area in the new Building 2) and 6,917sqm (additional area in the Building 1 extension). Other sources of information include the UTS 2014 TEFMA Environmental Survey and information from the UTS Commercial unit.

Appendix A

UTS waste streams, collection and recycling process



PAPER	ORGANIC & FOOD WASTE - Alternate waste technologies	PLASTIC	CARDBOARD	GLASS	METAL / ALUMINIUM	LANDFILL
Collected from waste generation point	Organic Waste Collected from waste generation point	Collected from waste generation point	Collected from waste generation point	Collected from waste generation point	Collected from waste generation point	Collected from waste generation point
Transported to Galloway EWM Materials Recycling facility - Seven Hills, NSW	Transported from waste generation point to Earthpower an Organic Waste recycling plant in Camellia NSW	Transported to Galloway EWM Materials Recycling facility	Transported to Galloway EWM Materials Recycling facility	Transported to Galloway EWM Materials Recycling facility	Transported to Galloway EWM Materials Recycling facility	
Sorted and processed into appropriate grade	Earthpower further processes organic waste to be used as renewable energy	Sorted and processed into appropriate grades - please see table below	Sorted and processed into appropriate grade	Sorted and processed into appropriate grades and colours	Sorted and processed into categories	
Processed through shredder if further required	http://www.earthpower.com.au/	GRADES OF PLASTIC LDPE - Low Density Polyethylene (Garbage bags, plastic used to make plastic containers) HDPE - High Density Polyethylene (Milk bottles, juice bottles, cream containers, bottles for shampoo and cleaning agents) PET - Polyethylene Terephthalate (Soft drink, juice and water bottles plus some plastic jars)	Baled and compacted		Baled and compacted	Transported to Clyde transfer station which is then railed to Woodlawn
Baled and compacted			Recycled through business partners in local and domestic markets		Quality controlled for export or on sell	
Recycled through business partners in local and domestic markets			Quality controlled for export or on sell	Transported to local and domestic markets for recycling - Campbelltown glass	Transported to local and domestic markets for recycling SIMS METALS	
Quality controlled for export or on sell		Quality controlled for export or on sell	Shipped overseas for processing at Paper/ cardboard Recycling plants VISY OR AMCOR			
Shipped overseas for processing at Paper Recycling plants AMCOR OR VISY		Shipped overseas for processing at Plastic Recycling plants CHINA EXPORTS				

Appendix B

Excerpt from the UTS 2013 waste audit report

REPORT ON

UTS Waste Audit March 2013

Peter Lewis, BE, MA

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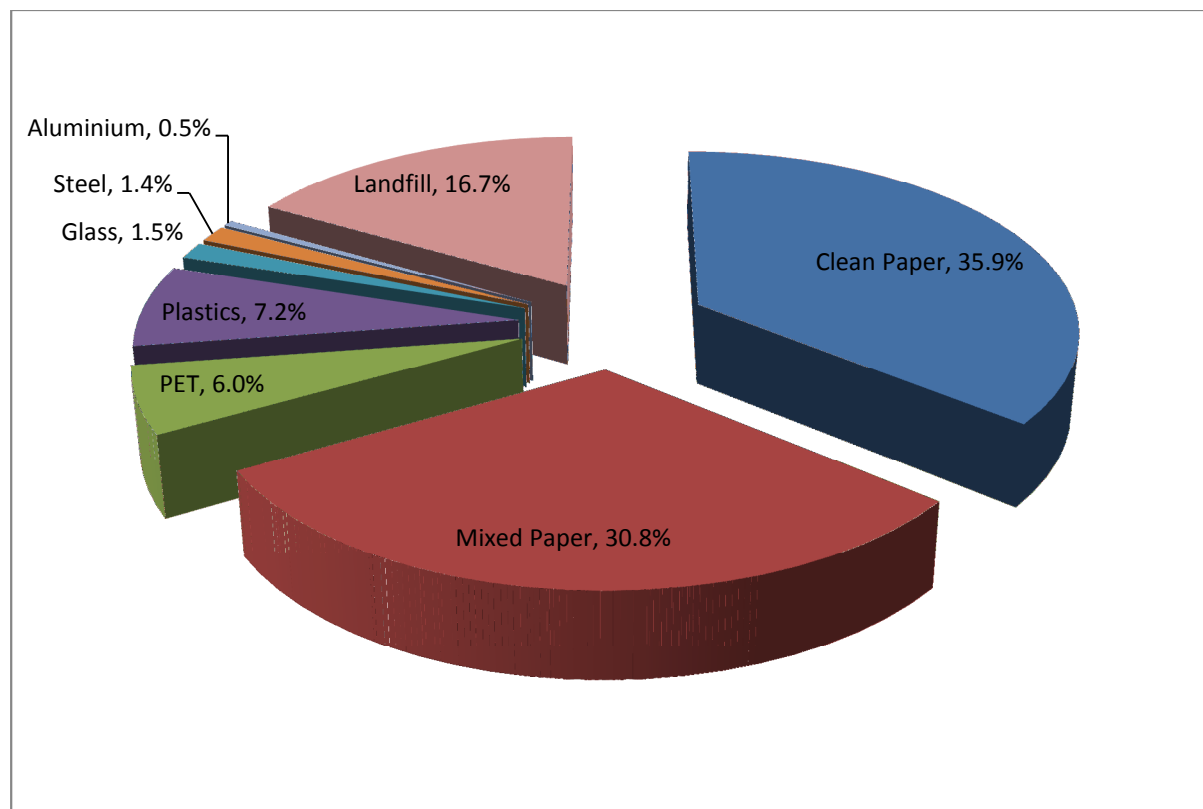
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1. Summary

This report details the results of an independent audit of the waste and recycling streams generated at the University of Technology, Sydney between 11 March and 22 March 2013.

The waste audit was conducted at the Wastefree (Aust) Pty Ltd materials recycling facility located at 10 Artisan Road, Seven Hills.

A broad overview of the recycling streams measured during the audit is given in the chart below.



In summary, the waste audit confirmed the **current recycling rate** for the UTS waste and recyclable streams as **83.3% +/- 1.6%**.

Appendix C

UTS 2013 waste audit results

2013 Waste Audit

Date	11.3.13	12.3.13	13.3.13	14.3.13	15.3.13	18.3.13	19.3.13	20.3.13	21.3.13	22.3.13
Paper	1250	1060	1070	640	850	1730	1380	1010	960	880
PET	205	150	190	180	237	201	175	166	146	153
Plastics	110	190	130	120	349	282	190	239	221	197
Glass	40	30	50	50	41	50	49	42	39	43
Steel	40	25	50	40	40	49	30	38	68	46
Aluminium	10	20	10	10	13	20	17	13	15	13
Mixed paper	1160	950	970	820	900	990	960	980	850	800
Total recyclables	2815	2425	2470	1860	2430	3322	2801	2488	2299	2132
Nonrecyclables	760	350	440	410	451	798	489	548	472	447

Table 1: Net weights (kg) of recyclable and non-recyclable materials by date
(plus/minus 1.6% error)