



**FRASERS PUTNEY
VICTORIA ROAD, RYDE, NSW**

Waste Management Plan

Prepared for:

Frasers Putney Pty. Ltd
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ENDORSEMENT

All relevant parties as listed below endorse this Waste Management Plan (WMP) and will provide all necessary resources to ensure it is implemented. All staff, contractors, subcontractors and suppliers must comply with its requirements. The project manager is responsible for ensuring the design team addresses relevant requirements within this Waste Management Plan.

It is the responsibility of the Project Manager and Contractor to ensure the current document version is in use, and any changes in revised versions addressed where appropriate.

Print Name of Project Manager

Signature of Project Manager

Print name of Contractor

Signature of Contractor

FOREWORD

The Ryde Rehabilitation Redevelopment Waste Management Plan (WMP) identifies:

- Sources and types of waste produced in the demolition, construction and ongoing operation phases of the site.
- Provides for means to evaluate/estimate quantities of waste produced in the demolition, construction and operational phases of the site.
- Systems and actions to be implemented that will avoid/minimise waste generation and identify materials that can potentially be reused both on and off site.
- Training, monitoring, auditing and reporting requirements.

The systems/actions in this plan are derived to preferably avoid/prevent waste, minimise waste and encourage the reuse/recycling of generated wastes in line with the waste hierarchy (i.e. avoid, reuse, recycle and disposal)

This WMP is to be used by project managers, contract superintendents and contractors responsible for the development (demolition, construction and operational) of the proposed Ryde rehabilitation redevelopment to ensure compliance with environmental regulatory requirements and ensure the minimisation of impacts to the environment.

The Waste Management Plan has been developed based on an understanding of general construction activities associated with buildings and infrastructure and initial concept designs. This plan will be reviewed following receipt of comments from the public exhibition stage and prior to the commencement of detailed design for the Construction Certificate.

EMERGENCY CONTACTS

Position / Company / Authority	Name	Phone	Mobile
Project Management Contacts			
Project Manager	TBA		
Project Engineer	TBA		
Project Environmental Management Advisor/ Engineer	TBA		
Contractors Contacts			
Contractor	TBA		
Environmental Officer	TBA		
First Aid Officer	TBA		
Emergency Services / Authorities			
Fire Brigade / Police / Ambulance		000	
Sydney Water	General Enquires	132 092	
City of Ryde	General Enquires	02 9952 822	
	After Hours	02 9952 822	
Department of Human Services	General Enquires	02 6223 4400	
Department of Environment and Conservation	General Enquires	02 9995 5000	
NSW Poisons Information Centre	24 hr Switchboard	131 126	
NSW National Parks and Wildlife Service Address	Switchboard	02 9585 6444	
Energy Australia (electricity)	General Enquiries	131 525	

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1. INTRODUCTION

Meinhardt Infrastructure and Environment (Meinhardt Pty Ltd) have been engaged by Frasers Putney Pty. Ltd to develop a Waste Management Plan (WMP) to be implemented during the demolition, construction and operational phases at the Frasers Putney redevelopment, Victoria Rd, Ryde, NSW.

1.1 PURPOSE

The purpose of the Waste Management Plan (WMP) is to:

- Identify sources and types of waste produced during the demolition, construction and ongoing operational phases of the nominated site;
- Identify types of wastes produced during the demolition, construction and operational phases that can be either be avoided, reused either on site (preferable) or off-site.
- Identify management procedures in line with appropriate legislation and guidelines;
- Nominate appropriate disposal methods dependent on waste category (i.e. putrescible or hazardous waste);
- Identify targets that encourage waste avoidance and minimisation;
- Identify management procedures to achieve the above; and
- Implement an effective monitoring system to record volumes and types of wastes produced and aid in identifying opportunities for waste avoidance and reuse.

1.2 PROJECT DESCRIPTION

Frasers Putney is part of the proposed redevelopment of Ryde Rehabilitation Centre and comprises a residual land of 15.83 hectares being developed into residential subdivision for up to 791 dwellings including roads, parkland, community and recreation centre and infrastructure services.

The residential component will comprise:

- Apartment buildings comprising of 2 to 3 bedroom units;
- Townhouse developments; and
- Detached dwellings.

It is envisaged the development will be constructed in several stages with stage 1 being the eastern precinct located between Victoria Road and the central park. This stage will further then be developed in 4 phases. Construction of the first stage of the residential development will include about 118 dwellings comprising 60 apartments, 58 townhouses/semi detached/detached dwellings.

2. LEGISLATIVE FRAMEWORK

All waste management activities implemented during the demolition, construction and ongoing phases of Frasers Putney will comply with the relevant federal, state and local legislation and regulations. These include:

- Protection of the Environment Operations Act (1997)
- Protection of the Environment Operations (waste) Regulations (2005)
- Waste Minimisation and Management Act (1995)
- Environmental Planning and Assessment Act (1979)
- Waste Avoidance and Resource Recovery Strategy and Performance Report (2006)
- City of Ryde Development Control Plan (2006)

All of the above legislation/regulations/policies incorporate ecologically sustainable principles, which include the implementation of the waste hierarchy. The waste hierarchy for reduction strategies includes waste avoidance as the most preferred option, followed by reuse, recycling and waste disposal the least preferred option.

The federal government has set a waste reduction target of 50 % and the NSW government has set a 60 % reduction target based on 1990 per capita disposal rates for the year 2000. All of the strategies and actions listed in this plan were identified to aid in achieving these goals.

The NSW Waste Avoidance and Resource Recovery Strategy and Performance Report (2006) published by the Department of Environment and Conservation NSW reports that audits conducted indicated that the main recovery priorities for Commercial & Industrial waste are food, paper, cardboard and plastics. The priority materials for Construction & Demolition waste included soils, timber, concrete, brick and metals.

Waste management strategies and actions should be driving to effectively reduce and recover these wastes.

3. RESPONSIBILITIES

Management responsibilities referred to in this WMP are applicable to the design and construction of the Frasers Putney redevelopment. Handover of responsibilities to operational managers will occur at the completion of the contractual maintenance period for construction works.

Responsibility allocations are abbreviated in this section as follows:

PM = Project Manager,
C = Contractor,
SR = Superintendents Representative

Numerous procedures in this WMP have more than one allocated responsible position. Responsibilities generally apply as follows:

- The Project Manager is responsible for design and construction program issues. Project Managers are responsible for carrying out environmental risk assessments, and for setting up and ensuring the implementation of the waste management system on every project as appropriate.
- The Contractor is responsible for construction site management issues;
- The Superintendents Representative is responsible for monitoring activities and ensuring the Contractor fulfils environmental management responsibilities.

4. MONITORING AND MEASUREMENT

4.1 MONITORING OF DELIVERIES TO SITE

All plant, equipment and materials delivered to the site that may or could possibly have an impact on the environment are inspected and or tested to ensure they, or their packaging has not deteriorated to an extent that may have an impact on the environment.

4.2 MONITORING IN-PROCESS.

Monitoring on the site will be conducted regularly to detect any site issues associate with waste management and to provide a mechanism for improving controls and detect any non-compliant impacts to the environment due to waste management activities.

Waste management checklists for the demolition/construction phases and the operational phase can be found in Appendix A. The checklists were derived to provide a working document where separate waste quantities can be monitored. The volumes/weights of each waste type is recorded, as well as the quantity that is either reused on-site (with its specific use identified) or off-site (with name and type of contractor). If a waste is disposed, the contractor and landfill are recorded. By implementing these procedures, efficient recording of waste and its destination can be carefully monitored and areas for improvement can be easily identified.

The table below outlines inspection and surveillance procedures relating to waste management for the site.

Objective	Procedures	Position Responsible	Completion Signoff (signature/date) & Comments
Ensure appropriate Inspection and Surveillance	<ul style="list-style-type: none"> Monthly site surveillance shall be conducted to check the integrity and effectiveness of the implemented waste management procedures 	C	
	<ul style="list-style-type: none"> Establish specific performance measures and targets for reduce, reuse and recycling as part of waste management. 	SR	
	<ul style="list-style-type: none"> Daily inspection of litter on site. 	SR	
Undertake prompt corrective action	<ul style="list-style-type: none"> Corrective action shall be implemented as practical, immediately following surveillance or monitoring as required. 	C, SR	

5. CONTROL OF NON-CONFORMANCE

Should a non-conformance associated with waste management be identified the following procedure will be followed:

- i) Identify and locate the non-conformance
- ii) Identify the probable cause
- iii) Recommend the action to be taken to rectify the non-conformance
- iv) Implement the remedial action
- v) Re-inspect the non-conformance
- vi) Record the action taken.

6. RECORDS

A system will be maintained for filing both hard copy and electronic media records, which allows their easy access and which allows them to be stored in facilities that provide a suitable environment to minimise deterioration, damage and loss. The same filing system will be used for records filed on site and in the contractor's offices. Unless otherwise specified, WMP records will be held in the contractor's office or off-site storage centre for a period of seven (7) years from the date of Practical Completion.

Each contractor will have a specific records management procedure, which will be included in their Management System Procedures Manual

7. INTERNAL AUDITS

To ensure that the project WMP is being followed correctly, project implementation is monitored daily. Internal audits are conducted within one month of practical completion of all projects, unless situations arise or the complexity and risk are such that they are necessitated during construction. Monitoring and audit requirements are set out in every Project Plan.

8. PROPOSED WASTE MANAGEMENT STRATEGIES

The following section describes waste management actions/strategies based on the three stages of the proposed development (i.e. demolition, construction and ongoing operations).

The management strategies/procedures are based on the waste hierarchy with avoidance/minimisation being the most preferred option and disposal the least preferred. By implementing the proposed actions waste generation will effectively be minimised, which in turn will reduce negative environmental impacts.

The targets for the implementation of the WMP are to:

- Practice waste avoidance/minimisation at all times.
- 100% reuse and recycling of all suitable materials both on and off site.
- Identification and quantification of all generated wastes.
- Implement appropriate storage/collection of waste and quality design of facilities.

8.1 DEMOLITION WASTE MANAGEMENT

Generally, during the demolition phase of a project there is the high potential to reuse and/or recycle the majority of wastes produced from the demolition of buildings and infrastructure. By implementing procedures such as on site sorting and storage of materials, it is possible to significantly reduce the amount and costs for waste disposal.

Examples of potential waste minimisation/reuse include:

- Re-use of the excavated materials on-site, and disposal of any excess materials to another approved site;
- Greenwaste/vegetation waste can be mulched and reused in landscaping either on-site or off-site;
- Materials such as bricks, tiles and concrete can be reused on site or recycled off-site;
- Plasterboard can be re-used on-site or recycled off-site. Plasterboard can be broken up and used on landscaping;
- Materials such as windows, doors, and joinery can be recycled;
- Plumbing, fittings and metal elements can be recycled;
- All asbestos, hazardous and/or intractable wastes are to be disposed of in accordance with Workcover Authority and EPA requirements;

For a waste management plan and its strategies to be effective it is essential that all staff/contractors are aware of the correct procedures and the implications of their actions (i.e. financial and environmental impacts).

8.1.1 Strategies/actions to be implemented in the demolition phase

Strategy/Action	Position Responsible
Allocated on-site area for sorting and storage of waste (i.e. colour coded, labelled bins, separate areas/skips for bricks, cement render, floor and wall tiles, clean fill, concrete, masonry, mortar, roof tiles etc.). The successful Contractor will designate the location of these areas for each construction stage, in a Waste Management Site Map to be included in the Contractor's Construction Management Plan.	C
Staging work programs to enable material re-use	C
Identification of business/community groups to accept/reuse sorted materials	PM/C
Enable vehicle access to the site and to storage and container areas	C
Education of contractors and staff on appropriate disposal methods	
Agreement to abide by waste minimisation procedures specified in this plan to be incorporated into all subcontractors contracts	C
Completion of the demolition/construction waste management checklist (Appendix A), to be completed by the Contractor prior to the commencement of construction activities on-site.	C
Auditing and reporting of waste management procedures to occur throughout the demolition phase	PM

8.2 CONSTRUCTION WASTE MANAGEMENT

Strategies/actions developed during the demolition phase can be incorporated into the construction phase (i.e. separation, reuse, resale and recycling of generated wastes).

The majority of the improvements in waste minimisation in the construction phase can occur through the implementation of a purchasing policy. Careful planning and design in the initial stages, and by purchasing only the required amounts of materials is an essential strategy to incorporate. Accurately estimating the amount of materials required can be improved throughout the project from the comparison of initial estimations and waste quantities produced with actual quantities. Regular monitoring and auditing will enable this to occur more efficiently and effectively.

Identifying businesses or community groups that may be interested in utilising the generated wastes is also an effective method of decreasing the amount of waste disposed to landfill, and is a method often investigated by individual Contractors during preparation of their tender packages.

Appendix A contains the demolition/construction checklist which itemises the potential wastes generated, and enables effective recording monitoring of the wastes produced and recycled.

8.2.1 Strategies/actions to be implemented in the construction phase

Strategy/Action	Position Responsible
Implementation of a purchasing policy to ensure efficient ordering of quantities of materials and prefabrication materials where possible	C
Reuse of formwork	C
Minimise site disturbance by the limitation of unnecessary excavation	C
Allocated on-site area for sorting and storage of waste, i.e. colour coded, labelled bins, separate areas/skips for bricks, cement render, floor and wall tiles, clean fill, concrete, masonry, mortar, roof tiles etc. (Refer Contractor's Waste Management Site Map).	C
Staging work programs to enable material re-use	C
Identification of business/community groups to accept/reuse sorted materials	PM/C
Enable vehicle access to the site and to storage and container areas	C
Education of contractors and staff on appropriate disposal methods	PM/C
Agreement to abide by waste minimisation procedures specified in this plan to be incorporated into all subcontractors contracts	C
Completion of the demolition/construction waste management checklist (Appendix A), to be completed by the Contractor prior to the commencement of construction activities on-site.	C
Comparison of projected waste quantities with actual waste produced	PM/C
Auditing and reporting of waste management procedures to occur throughout the demolition phase	PM

8.3 OPERATIONAL WASTE MANAGEMENT

The wastes produced in the operational phase are going to vary significantly from the wastes produced in the demolition and construction phase. Rather than building and infrastructure wastes the wastes generated from the operation of the Frasers Putney redevelopment are likely to include:

- Food waste
- Recyclables (eg. glass, plastics)
- Green/vegetation wastes

Implementing management systems such as separate clearly labelled general waste and recycling bins; functional composting facilities to enable the reuse of green and food wastes.

An operational waste management checklist is located in Appendix A.

8.3.1 Strategies/actions to be implemented in the operational phase

Strategy/Action	Position Responsible
Allocated on-site area for sorting and storage of waste, i.e. colour coded, labelled bins, (Refer Contractor's Waste Management Site Map).	PM
Education of owners/residents on appropriate disposal methods	PM
On-site composting procedures to be developed and implemented	PM

8.3.2 Operational Waste Storage Methods (Multi-Unit Dwellings) MUD's

i. Household waste

A garbage chute system shall be provided with a suitable system for the transportation of garbage from each floor level to the garbage and recycling rooms.

The garbage chute system discharge to bins located at the basement Carpark level which shall be taken to street level for collection.

ii. Recycling waste

A garbage chute system shall be provided with a suitable system for the transportation of garbage from each floor level to the garbage and recycling rooms.

This garbage chute system shall be a separate system intended for recycled waste.

8.3.3 Operational Waste Storage Methods (Town Houses & Houses)

Houses and townhouses will source separate waste into separate bins in a waste cupboard in the kitchen. Occupants will then be required to transfer the waste to the waste bins stored in a utility area at the front of the building. The following waste bins will be provided in the basements:

- Mixed waste: 1x140L bin per dwelling.
- Recycled waste: 1x240L bin per dwelling.
- Green waste: 1x240L bin per dwelling.

9. OUTCOMES

By implementing effective waste management strategies and actions the following can be achieved:

- Waste minimised
- Increased reuse/recycling
- Increased financial returns (costs for transport and recycling offset by reduced landfill fees)
- Community goodwill (approval for demonstrated environmental responsibility)

10. REFERENCES

- Baulkham Hills Shire Council (2007), Waste Management Plan, Baulkham Hills Shire Council
- City of Ryde Council (2006), City of Ryde Development Control Plan, City of Ryde Council
- Department of Environment and Conservation (2006) NSW Waste Avoidance and Resource Recovery Strategy and Performance Report, Department of Environment and Conservation NSW.
- Department of Planning (2005) Determination of Major Project NO. 05_0001, Department of Planning.
- Landcom (2006), EMP Report Card, Landcom Pty Ltd.
- Meinhardt Infrastructure and Environment (2007), Ryde Rehabilitation Redevelopment Servicing Report, Meinhardt Infrastructure and Environment Pty Ltd.
- Development Control Plan 2010, Part 7.2, Waste Minimisation and Management, City of Ryde, 2010
- Development Control Plan 2010, Part 3.2, Residential Flat Buildings and Multi-Dwelling Housing, City of Ryde, 2010

APPENDIX A - WASTE MANAGEMENT CHECKLISTS

DEMOLITION/CONSTRUCTION WASTE MANAGEMENT CHECKLIST

Note: all waste transfer dockets to be attached to this report.

Waste Type and Relevant Definition	Total Quantity Generated (tonnes)	Total Quantity Recycled (tonnes)	Destination		
			Reuse & Recycling		Disposal
			On-Site Specify how materials will be reused or recycled on site)	Off-Site Specify the contractor and recycling outlet)	Specify the contractor and landfill site
Vegetation Waste Vegetation materials such as leaves, grass, branches, logs including materials that have been processed (i.e. chipped, mulched or composted) Note. This category does not include green or putrescible waste such as food scraps.					
Timber Wood materials used for formwork or other construction purposes					
Concrete Mixture of cement, sand and aggregates (or substitutes e.g. fly ash)					
Fill/Soil Low cost material such as clay, gravel, sand, soil or rock which is not VENM and is not contaminated					
Virgin excavated natural material (VENM) Clay, gravel, sand, soil or rock not mixed with any other type of waste excavated from natural areas that have not been used by human activities such as industry, farming or mining.					

DEMOLITION/CONSTRUCTION WASTE MANAGEMENT CHECKLIST

Note: all waste transfer dockets to be attached to this report.

Waste Type and Relevant Definition	Total Quantity Generated (tonnes)	Total Quantity Recycled (tonnes)	Destination		
			Reuse & Recycling		Disposal
			On-Site Specify how materials will be reused or recycled on site)	Off-Site Specify the contractor and recycling outlet)	Specify the contractor and landfill site
Asphalt Any materials containing bituminous hydrocarbons. May contain additives such as concrete. Includes recycled asphalt pavement.					
Bricks & Roof Tiles Clay bricks and roof tiles mixed together. This can include small amounts of concrete or plaster render.					
Glass Sheet glass used for doors, windows, partitioning etc.					
Plasterboard Composite wood material used for interior panels for buildings.					
Non-ferrous metals Metal building materials other than steel based items. Such things as aluminium cladding.					
Steel Steel building materials such as reinforced steel joints, 'Reo' etc.					
Hazardous Waste Materials such as asbestos					

DEMOLITION/CONSTRUCTION WASTE MANAGEMENT CHECKLIST

Note: all waste transfer dockets to be attached to this report.

Waste Type and Relevant Definition	Total Quantity Generated (tonnes)	Total Quantity Recycled (tonnes)	Destination		
			Reuse & Recycling		Disposal
			On-Site Specify how materials will be reused or recycled on site)	Off-Site Specify the contractor and recycling outlet)	Specify the contractor and landfill site
Mixed waste Mixed waste of which no one material comprises 50% or more of the load.					
Other Waste Waste materials generated or recycled that are not defined above.					

OPERATIONAL WASTE MANAGEMENT CHECKLIST

Waste Type and Relevant Definition	Total Quantity Generated (tonnes)	Total Quantity Recycled (tonnes)	Destination		
			Reuse & Recycling		Disposal
			On-Site Specify how materials will be reused or recycled on site)	Off-Site Specify the contractor and recycling outlet)	Specify the contractor and landfill site
Vegetation Waste Vegetation materials such as leaves, grass, branches, logs including materials that have been processed (i.e. chipped, mulched or composted) Note. This category does not include green or putrescible waste such as food scraps.					
Food Waste					
Office Waste Includes paper and cardboard					
Hazardous Waste Chemicals, cleaning products					
Contaminated Wastes Includes wastes contaminated with blood and bodily fluids					
Recyclables Includes glass and plastics (1-7)					
Other Waste Waste materials generated or recycled that are not defined above.					