Prestons Warehouse and Distribution Estate Yarrunga Street, Prestons

Construction and Demolition Waste Management Plan

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1. Background

This Construction & Demolition Waste Management Plan has been prepared on behalf of Logos Property Group for a development (Warehouse and Distribution Estate), located at the corner of Yarrunga Street and Bernera Road Prestons.

This Plan details the management of waste during the construction and demolition phases of the development and responds to the SEARs (for SSD 7155), issued for the project by the Department of Planning and Environment, specifically to address (extract from the SEARs report related to waste management):

> *Waste - including:*
>
> *- the quantity and type of liquid and non-liquid waste generated, handled, stockpiled, processed or disposed of on and off site for both construction and operation;*
>
> *- the proposed measures for managing all waste generated; and*
>
> *- the measures implemented to reduce and (where possible) recycle waste in line with NSW Government waste policy.*

The aim of this Plan is to ensure that all waste resulting from construction and demolition activities is managed in an effective and environmentally aware manner. Specifically,

- To minimise the generation of waste to landfill
- To maximise waste material avoidance and reuse on site
- To ensure that where practicable, an efficient recycling procedure is applied to waste materials
- To raise awareness among employees and subcontractors of their waste management responsibilities

Note: The testing and classification of any excavated material is not covered in this report. Where necessary separate specialist testing will be conducted by the project managers.

If acid sulphate soils are present on site, a separate management plan will need to be prepared for handling and disposal of such soil.

2. Waste Management Strategy

Waste management principles

The following waste hierarchy will be used as a guiding principle:

Avoid and Reduce

Minimise the production of waste materials in the construction process by:

- Assessing and taking into consideration the resultant waste from different design and construction options
- Purchasing materials that will result in less waste, which have minimal packaging, are pre-cut or fabricated.
- Not over ordering products and materials

Reuse

Ensure that where ever possible, materials are reused either on site or offsite.

- Identify all waste products that can be reused
- Put systems in place to separate and store reusable items
- Identify the potential applications for reuse both onsite and offsite and facilitate reuse

Recycling

Identify all recyclable waste products to be produced on site.

- Provide systems for separating and stockpiling of recyclables
- Provide clear signage to ensure recyclable materials are separated
- Process the material for recycling either onsite or offsite

Note: In some cases it may be more economical to send the unsorted waste to specialised waste contractors who will separate and recycle materials at an offsite location.

Disposal

Waste products which cannot be reused or recycled will be removed and disposed of to appropriately licenced facilities. The following will need to be considered:

- Ensure the chosen waste disposal contractor complies with OEH requirements
- Implement regular collection of bins

Waste sources

The principles outlines above are applied to the expected waste sources for the development as follows:

Excavation Material

Earthworks will be completed over the site as required to achieve proposed levels. Generally, the proposal is for a balance of “cut and fill”. Any surplus material from the works will be used as fill material within the site, excavated material on site will be reused as fill material within the site, or as required transported offsite (ie., surplus top soil) and where possible be used on other sites as fill material.

Green Waste

It is expected that there will be minimal green waste generated. All green waste material will remain onsite (shredded and or composted), and be reused in landscape areas around the development.

Bricks, Tiles, Concrete

Bricks will be stockpiled and reused wherever possible. Surplus, unused bricks will be reused in pavement construction or for temporary access tracks etc if possible. Unusable bricks will be collected and recycled at an appropriate brick/rubble recycling facility to be used in aggregate gravel products.

Plasterboard

To reduce the amount of waste produced, use of pre-cut and pre-measured sheets will be encouraged.

- Prior arrangements can be made with suppliers to collect and dispose of plasterboard waste product.
- Where the above is not practical, plasterboard waste will be stockpiled and transferred to a recycling facility.

Timber

Recyclable timber (untreated) will be collected and recycled at appropriate timber yard. Unrecyclable (treated) timber will be disposed at landfill.

Metals

Metal waste may result from the following:

- Use of metal material in construction
- Delivery of materials in drums or other metal packaging (e.g. paint)

All metal materials should be reused or recycled as follows:

- Metal drums and packaging to be returned to the supplier
- Any metal suitable for recycling should be separated and stored in a designated scrap metal bin for transport to a metal recycling facility

Paper and cardboard

Cardboard and paper will be produced mainly from packaging materials and office paper waste. These should be disposed of into a designated bin and collected regularly as required.

Liquid Waste

Liquid waste will be produced on site both as part of the construction process and for environmental control measures such as:

- Site and vehicle cleaning
- Brick/tile/concrete wash down areas
- Paint wash out areas
- Dust control waste

The following measures should be taken to minimise the impact of liquid waste:

- Ensure water is used in moderation and no taps are left continuously running
- Use any grey water produced on site for irrigation or for dust suppression
- Only discharge clean water into storm water

Waste water and storm water will be managed and disposed of in accordance with Sydney Water requirements.

Waste/recyclables storage (on-site)

All waste and recycling materials will be stored in bins provided by the appointed contractor(s). These bins will be appropriately coloured and signed to indicate what materials are to be deposited into them and located so as to maximise the recovery of reusable/recyclable materials.

Waste/recyclables treatment (on-site)

There will be no treatment of wastes or recyclables on-site except for possible removal of contaminants prior to forwarding to off-site recyclers.

3. Demolition materials

The tables below detail the different waste streams expected in the demolition and construction phases. The relevant disposal/recycling facilities have not been detailed as the waste contractor and sub-contractors have not yet been appointed for the project. All waste contractors/sub-contractors will be required to detail all intended disposal facilities to ensure the guiding principles of the waste hierarchy are upheld and maximum diversion from landfill is achieved.

The following table details the estimated composition by m^3 of demolition waste to be generated and management strategy. It should be noted that the site is largely vacant with one dwelling and associated "out buildings" and minimal vegetation cover.

Table 1: Waste management systems - demolition

Materials on site		Destination		
Type of material	Estimated volume (m^3/tonnes)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling facility)	Disposal (Detail contractor and landfill site)
Excavation material	40,000m^3	Retained onsite for reuse as fill where possible	It is not anticipated that any excavation materials will be required to leave the site. However, if so, unused clean material will be collected and used as clean fill by waste contractor with appropriate notification as to location	All remaining material will be disposed at landfill – facility TBA upon appointment of contractor
Green waste	100m^3	Chipped and used in landscaping where possible	Collected and disposed at green waste/mulching facility	No disposal to landfill
Concrete	3m^3	Separated on site and crushed for use in pavement and/or temporary access road construction where possible	Collected by contractor and disposed at concrete recycling facility	No disposal to landfill

Materials on site		Destination		
Type of material	Estimated volume (m^3/tonnes)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling facility)	Disposal (Detail contractor and landfill site)
Tiles	$3m^3$	Separated on site and crushed for use in pavement and/or temporary access road construction where possible	Collected by contractor and disposed at rubble recycling facility if tiles are appropriate	No disposal to landfill
Timber	$15m^3$	No on-site reuse	Collected by contractor and disposed at timber recycling yard	No disposal to landfill
Plasterboard	$3m^3$	No on-site reuse	Collected by the waste contractor for recycling. Facility TBA upon appointment of contractor.	No disposal to landfill
Metals (balustrades, fittings, door frames, guttering etc)	$1m^3$	No on-site reuse	Collected by specialist metal subcontractor for recycling. Facility TBA upon appointment of contractor.	No disposal to landfill
Other - glazing	$1m^3$	No on-site reuse		Collected by contractor and disposed at landfill

Materials on site		Destination		
Type of material	Estimated volume (m^3/tonnes)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling facility)	Disposal (Detail contractor and landfill site)
Other – façade cladding	$1m^3$	No on-site reuse	Collected by the waste contractor for recycling. Facility TBA upon appointment of contractor.	Non-recyclable cladding will be collected by contractor and disposed at landfill
Other - carpet	$2m^3$	No on-site reuse	Collected by specialist carpet subcontractor for recycling if possible. Facility TBA upon appointment of contractor – possible Boral or Dunlop.	Non-recyclable carpet will be collected by contractor and disposed at landfill

4. Construction materials

The quantity of waste materials to be generated onsite are estimates and therefore the systems that will be put in place need to incorporate flexibility to allow for variation in the total quantities generated. Active site management during the construction phase will ensure all waste/recyclable materials are disposed of appropriately and that all waste receptacles are of sufficient capacity to manage onsite activities.

Table 2 below details the estimated composition by m^3 of construction waste to be generated for the total site.

Finalisation of the system(s) that will be implemented for the recovery of materials and for disposal of others to landfill will occur following appointment of contractor(s). A component of the appointment will be that contractors will be required to provide data as to the disposal pathway (eg., materials, volumes and final disposal site), as well as a validation process for this information.

The appointed contractor(s) will also be responsible for sourcing speciality recycling facilities for the materials that cannot be reused on site.

The waste management systems proposed in the table below are as per the City of Liverpool requirements:

Table 2: Waste management systems - construction

Materials on site		Destination		
Type of material	Estimated volume (m^3/tonnes)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling contractor)	Disposal (Detail contractor and landfill site)
Concrete	$5m^3$	Separated on site and crushed for use in pavement and crushed for use in pavement and/or temporary access road construction where possible construction where possible	Collected by contractor and disposed at concrete recycling facility	To be advised
Brick	$5m^3$	Undamaged bricks separated on site and stockpile for reuse at designated area or crushed and used in pavement and/or temporary road construction	Unusable bricks collected by contractor and disposed at brick recycling facility	To be advised

Materials on site		Destination		
Type of material	Estimated volume (m^3/tonnes)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling contractor)	Disposal (Detail contractor and landfill site)
Plasterboard	$5m^3$	Unused material taken back by supplier for reuse where possible	Non-returnable material to be separate and stockpiled onsite. Collected by the waste subcontractor on a weekly basis (or as required) for recycling. Facility TBA upon appointment of contractor.	To be advised
Metal - (balustrades, fittings, door frames, guttering, studs etc)	$10m^3$	No on-site reuse or recycling	Unused material separate and stockpiled onsite. Collected by specialist metal subcontractor for recycling. Facility TBA upon appointment of contractor.	To be advised
Timber	$20m^3$	No on-site reuse or recycling	Unused material separate and stockpiled onsite. Collected by specialist timber subcontractor for recycling. Facility TBA upon appointment of contractor.	To be advised
Other - Cladding	$10m^3$	No on-site reuse or recycling	Unused material separate and stockpiled onsite. Collected by specialist metal subcontractor for recycling. Facility TBA upon appointment of contractor.	To be advised

Materials on site		Destination		
Type of material	Estimated volume (m^3/tonnes)	On-site (Reuse or recycle)	Off-site (Detail contractor and recycling contractor)	Disposal (Detail contractor and landfill site)
Other - carpet	$3m^3$	No on-site reuse or recycling	Collected by specialist carpet subcontractor for recycling if possible. Facility TBA upon appointment of contractor – possible Boral or Dunlop.	Non-recyclable carpet will be collected by contractor (TBA) and disposed at landfill
Mixed waste (recyclable)	$50m^3$	No on-site reuse or recycling	Separated onsite into dedicated receptacles. Collected by the waste subcontractor for recycling. Facility TBA upon appointment of contractor.	To be advised
Miscellaneous general waste	$100m^3$	No on-site reuse or recycling	Separated onsite into dedicated receptacles. Collected by the waste subcontractor for disposal to landfill with the facility TBA upon appointment of contractor.	Disposed into general waste bins onsite and collected by the waste contractor for disposal. Facility (TBA) upon appointment of contractor

5. Contracts and purchasing

Each subcontractor working on the site will be required to adhere to this Waste Management Plan.

The Head Contractor will ensure each subcontractor:

- Takes practical measures to prevent waste being generated from their work
- Implements procedures to ensure waste resulting from their work will be actively managed and where possible recycled, as part of the overall site recycling strategy or separately as appropriate
- Ensures that the right quantities of materials are ordered, minimally packaged and where practical pre-fabricated. Any oversupplied materials are returned to the supplier
- Implements source separation of off cuts to facilitate reuse, resale or recycling.

The Site Manager will be responsible for:

- Ensuring there is a secure location for on-site storage of materials to be reused on site, and for separated materials for recycling off site.
- Engaging appropriate waste and recycling contractors to remove waste and recycling materials from the site
- Co-coordinating between subcontractors, to maximise on site reuse of materials
- Monitoring of bins on a regular basis by site supervisors to detect any contamination or leakage
- Ensuring the site has clear signs directing staff to the appropriate location for recycling and stockpiling station/s. And that each bin/skip/stockpile is clearly sign posted
- Providing training to all site employees and subcontractors in regards to the WMP as detailed in section 6 below.

Should a subcontractor cause a bin to be significantly contaminated, the Site Manager will be advised by a non-conformance report procedure. The offending subcontractor will then be required to take corrective action, at their own cost. The non-conformance process would be managed by the Head Contractors' Quality Management Systems

6. Training and Education

All site employees and sub-contractors will be required to attend a site specific induction that will outline the components of the WMP and explain the site specific practicalities of the waste reduction and recycling strategies outlined in the WMP.

All employees are to have a clear understanding of which products are being reused/recycled on site and where they are stockpiled. They are also to be made aware of waste reduction efforts in regards to packaging.

The site manager will post educational signage in relation the recycling activities on site in breakout areas, lunch rooms etc.