Intermodal Logistics Centre at Enfield Environmental Assessment

CHAPTER 19

WASTE MANAGEMENT

- October 2005

Contents

19. Waste Management

The Director-General's requirements request the consideration of waste management in terms of collection, storage, disposal and reuse of wastes and methods of waste reduction, recycling or disposal. Management of wastes during the construction and operational phases of the Intermodal Logistics Centre (ILC) at Enfield is an important part of minimising the environmental impacts of the proposal. This chapter outlines the relevant legislation and guidelines regarding waste minimisation and management, assesses potential waste generation and details waste management strategies to reduce waste. Options to minimise, re-use, recycle and dispose of waste are outlined. These aim to address the NSW Department of Environment and Conservation (DEC) guidelines for the management of liquid and non-liquid wastes.

19.1 Introduction

The development of the ILC has the potential to generate moderate quantities of liquid and non-liquid wastes. The key waste streams identified include:

- Excavated material (soils generated through decontamination works and stockpile removal);
- Demolition waste (building and structural materials, rail track and pavement);
- Construction waste (packaging material, scrap metal, timber formwork, pallets, plastic wrapping and cardboard); and
- General waste from operation of the ILC facility (trade waste, waste water, packaging materials and office wastes).

Detail on each of these waste streams is provided in Section 19.3.

19.2 Statutory Framework for Waste Management

The main legislation and guidelines that govern the management of waste for the proposal are:

- *Waste Avoidance and Resource Recovery Act, 2001;*
- *Protection of the Environment Operations Act, 1997;*
- *Protection of the Environment Operations (Waste) Regulation, 1996;*
- NSW Waste Reduction and Purchasing Policy (WRAPP) (EPA, 1999);
- Strathfield Council Development Control Plan (DCP) 26 – Waste Management, 2003;
- Environmental Guidelines: Assessment, Classification and Management of Non-Liquid and Liquid Waste (EPA, 1999); and
- *Contaminated Land Management Act, 1997.*

The principles of waste avoidance, waste reduction, waste re-use or waste recycling would be adopted during the construction and operation phases of the ILC in accordance with the following legislation and policies that provide the statutory framework for waste management in NSW.

19.2.1 Waste Avoidance and Resource Recovery Act 2001

The objectives of the *Waste Avoidance and Resource Recovery Act, 2001* (WARR Act) are to encourage the most efficient use of resources, to reduce environmental harm, and to provide for the continual reduction in waste generation in line with the principles of Ecologically Sustainable Development (ESD). To meet the objectives of the Act, waste management options are considered against a hierarchy, comprising:

- Avoiding unnecessary resource consumption;
- Recovering resources through the re-use and recycling of waste; and
- Disposal (as a last resort).

The Act sets the framework for waste management and planning, based on the following objectives:

- To provide for the continual reduction in waste generation;
- To minimise the consumption of natural resources and the final disposal of waste by encouraging the avoidance of waste and the re-use and recycling of waste;
- Ensure that industry shares with the community the responsibilities for reducing and dealing with waste;
- Ensure the efficient funding of waste and resource management, planning and programs and service delivery; and
- Achieve integrated waste and resource management, planning and programs and service delivery on a State-wide basis to assist in the achievement of the objectives of the *Protection of the Environment Operations Act, 1997.*

19.2.2 Protection of the Environment Operations Act, 1997

The *Protection of the Environment Operations Act, 1997* (POEO Act) incorporates the major regulatory and enforcement provisions of the former *Waste Minimisation and Management Act, 1995* (WMM Act). In effect, the POEO Act merges pollution control approvals and pollution control licences into a single process, or one Environment Protection Licence (EPL). EPLs are required for development or activities listed in Schedule 1 of the POEO Act and would incorporate provisions relating to water pollution, noise pollution, air pollution and waste management.

The need for an EPL under the POEO Act was considered with regard to waste, either as waste activity or the site as a waste facility. The following conclusions were reached:

- Waste activities. The proposed development will not generate or store hazardous waste, industrial waste or Group A waste as defined in the POEO Act and is therefore not considered a waste activity; and
- Waste facilities. The term *'waste facility'* is defined in the dictionary of the POEO Act to mean *"…any premises used for the storage, treatment, reprocessing, sorting or disposal of waste (except as provided by the regulations)"*. The proposed development is not characterised as a class of waste facility listed in Schedule 1 of the POEO Act

On the basis of this, a licence would not be required under Schedule 1 of the POEO Act.

19.2.3 NSW Waste Reduction and Purchasing Policy (WRAPP)

In 1999, the NSW EPA adopted the NSW Waste Reduction and Purchasing Policy (WRAPP). The aim of WRAPP is to ensure that all NSW Government agencies contribute to the achievement of the State's aim to reduce waste to landfill. WRAPP requires that all state government agencies and state owned corporations develop and implement Waste Reduction and Purchasing Plans aimed at reducing waste in the following four areas:

- Paper products (general office paper, magazines, newspaper, cardboard, packaging);
- Office equipment (toner cartridges and printer ribbons);
- Vegetation material (tree clippings, leaves and prunings); and
- Construction and demolition material (concrete, excavated rocks and earth and drainage materials).

Waste Reduction and Purchasing Plans must also give priority to purchasing materials with recycled content. In developing their WRAPP, Sydney Ports applies the principles of resource management across its entire operations. A large proportion of their waste is generated during construction and demolition activities. Consideration of options for recycling and re-use of this waste prior to disposal is given priority. As an example, sandstone is crushed for re-use in road construction and road millings are recycled for re-use in pavement subgrade.

As part of WRAPP, Sydney Ports is required to report to DEC every two years on the progress of their Waste Reduction and Purchasing Plan. The main areas of concern for the Sydney Ports include:

- Re-use and recycling of construction and demolition waste;
- Reduction of and proper disposal of port wastes; and
- Reduction, re-use, recycling and purchasing of recycled office products.

With regard to the proposed ILC development, Sydney Port's WRAPP requires that it investigates all available re-use opportunities for excess materials and other resources existing on site. The WRAPP would ensure priorities are given to avoid, reduce, re-use or recycle wastes during both construction and operation phases of the proposal.

19.2.4 Strathfield Council Development Control Plan No 26

In response to calls from the NSW Government to achieve significant reductions in solid waste sent to landfill, local Councils are obliged to establish a Development Control Plan (DCP) for waste minimisation. The main objective of the plans was to allow individual Councils to achieve waste reductions through their regulatory functions of development consent and building approvals.

Strathfield Council has produced DCP 26 – Waste Management, which provides Waste Management Guidelines adopting the waste management hierarchy of avoid, reduce, recycle and dispose. The aim of the DCP is to reduce the demand for waste disposal and to ensure the appropriate handling and

storage of waste in buildings. The DCP also provides guidelines for preparing waste management plans.

The objectives of the DCP that specifically relate to this proposal are as follows:

1) To maximise re-use and recycling of building/construction materials and industrial/commercial waste;
2) To assist in achieving Federal and State Government waste minimisation targets;
3) To minimise the overall environmental impacts of waste;
4) To provide advice to intending applicants on how to prepare Waste Management Plans, detailing actions to minimise waste generation and disposal;
5) To require source separation and other design and location standards which complement waste collection and management services offered by Council and private operators;
6) To provide advice to intending applicants on how to reduce and handle waste during the demolition and construction phase;
7) To encourage building designs and construction techniques that will minimise future waste generation; and
8) To provide details for the design and construction of waste handling storage facilities in buildings.

19.3 Potential Wastes Generated from Proposal

The two distinct construction and operational phases of the proposal would generate different amounts and types of wastes according to the activity undertaken. A summary of the expected waste streams generated from either phase is outlined below. The majority of waste generated from the proposal would be in the form of non-liquid waste ie. stockpiles during construction and packaging during operation. With the exception of stockpile quantities (which have been subject to preliminary survey), waste quantities provided are estimates based on industry practice and existing guidelines.

19.3.1 Construction Waste

Stockpiles

The ILC site contains a substantial volume of stockpiled material, most of which (stockpiles 1, 2 and 3) are comprised of earth material suitable for construction purposes. The stockpile locations are shown in **Figure 4-12**. This material would be re-used on site to create appropriate site levels and to construct landscaping mounds. This would minimise the importation of fill materials to the site and reduce the amount of materials disposed at landfill sites.

However, the largest stockpile (5), which is located north of the Coxs Creek trunk drain, contains approximately 132,000m^3 of mixed ash, ballast, shale and refuse materials. This stockpile also contains up to 37,000m^3 of material that would be unsuitable for construction purposes. It is proposed to sort this material for re-use with the excess to be transported off-site for disposal. The re-usable material in stockpile 5 would be retained on-site as fill for construction, or the proposed landscaping / acoustic mounds, which would be constructed along the eastern perimeter of the ILC site along Cosgrove Road and at the extreme north west of the site.

Contaminated Soil

Remediation of contaminated soil would be undertaken during the construction stage as category 2 remediation work under SEPP 55. Contaminated soil is found mainly at the DELEC site, and generally consists of hydrocarbon, copper and asbestos contaminants. Remediation of contaminated soil would involve approximately 12,000m^3 of material from the DELEC site and 1,500m^3 on the remainder of the ILC site.

It is proposed to landfarm the hydrocarbon contaminated material on-site during the construction phase in order to render the material suitable for re-use on-site, with the remaining contaminated material to be disposed of at a licensed waste receiving facility. Any asbestos or heavy metal contaminated materials would be transported off-site for disposal at a licensed waste receiving facility. Further detail on these activities and the approximate volumes of waste is provided in Chapter 9 – Geology, Topography, Soils and Groundwater.

Green Waste

It is also expected that during the earthworks a small amount of green waste would be generated from the removal of vegetation mostly comprising weeds.

Construction and Demolition

Building wastes include such items as timber, masonry, scrap metal, packaging materials and plastics. It is anticipated that approximately 200 tonnes of general building waste would be generated throughout the 4 / 5 construction stages. In addition, a small quantity of waste (sewage and domestic rubbish) would be generated from the construction compound.

Demolition waste includes concrete, bricks, asphalt, rail track, scrap steel. The site contains a number of buildings, structures and paved areas, all of which are owned by Sydney Ports. Strathfield Council has approved the removal of a number of these under a separate Development Application (DA), and this work is currently being undertaken.

Any concrete, masonry or asphalt would undergo processing (crushing) offsite and be recycled. A small volume of concrete may be crushed on-site for re-use. Hazardous building materials will be removed prior to demolition.

Steel scrap, including re-use of rail tracks where practicable, would be recycled. It is estimated that the total quantity of demolition waste is not expected to exceed 500 tonnes, due in part to previous removal works.

19.3.2 Operational Waste

Waste generated from the operation of the ILC would be associated with the container operations, the warehousing activities, vehicle servicing and repairs, and ancillary office uses. These activities are likely to result in the following wastes generated:

- Trade wastes from container washing, oil / grit separator, sewage and other waste water;
- Packaging waste, including pallets, polythene, paper and card associated with the container unloading and warehousing;
- Metals associated with container repair activities;
- Used oils, tyres, rags, packaging, oil drums and discarded components associated with on-site vehicle and rail track maintenance;
- Clean up materials used in accordance with emergency response procedures for accidental spillages; and
- Paper and associated stationery waste associated with office activity.

A summary of the potential wastes and their source generated during construction and operation of the works are outlined in **Table 19-1**.

19.4 Waste Management

The following provides a summary of the strategies and management measures that would be implemented to achieve minimal waste generation and responsible disposal for the construction and operational phases of the proposal. The measures ensure the incorporation of the principles of avoid, re-use, recycle embodied in the NSW *Waste Avoidance and Resource Recovery Act, 2001*.

19.4.1 Waste Management Plan

A Waste Management Plan (WMP) would be developed for the construction phase of the proposal for incorporation in the Construction Environmental Management Plan (CEMP). The plan would be prepared in accordance with *Waste Avoidance and Resource Recovery Act*, 2001, *Protection of the Environment Operations Act, 1997*, NSW *Waste Reduction and Purchasing Policy* (EPA, 1999), Environmental Guidelines: Assessment, Classification and Management of Non-Liquid and Liquid Waste (EPA, 1999) and *Contaminated Land Management Act 1997.*

The WMP would detail any procedures for the management of construction wastes from the site. In addition, the plan would contain an inventory of all waste types anticipated and the preferred options for re-use, recycling or disposal, and would seek to ensure that all waste generation and its fate is recorded such that waste minimisation can be achieved.

Waste management would be a component of the Operational EMP for the operational phase of the facility. It would ensure that initiatives for the sustainable management of waste are given consideration.

Table 19-1: Potential Waste Streams of ILC site

Phase	Stage	Waste	Source
Construction	Stage One & Two	Green waste (vegetation)	Site clearing
		Sewage and domestic waste	Applicable to all phases
		Material unsuitable for re-use	Surface / stockpile levelling excavation works, temporary haul road removal
		Contaminated soil, asbestos	Remediation of contaminated material
		Excess concrete, asphalt and masonry, steel, ballast and hazardous materials	Removal pavement, built structures including rail
	Stage Three	Excess concrete masonry	Construction of retaining walls/ drainage structures
		Excess concrete, asphalt and masonry	Construction of Overbridge Paving container storage areas and internal roads
	Stages Four & Five	Steel	Construction of new railway line and sidings
		Excess concrete, asphalt and masonry, steel, packaging wastes	Construct warehouses, administration and maintenance buildings Pavement areas Construct buildings along Cosgrove Road for commercial / light industrial and ancillary retail / refreshment uses
Operation		Packaging waste – pallets, polythene, paper and card	Logistics Centre warehousing
		Metals and steel	Container repair activities
		Used oils, tyres, rags, packaging, oil drums and discarded components	On-site vehicle and rail track maintenance
		Clean up of accidental spillage of materials	General container loading/unloading and rail operations
		Paper and associated stationery waste	Office administration activity
		Water and trade waste	Container washdown bays
		Trade waste, sewage and domestic waste	Staff administration, warehouses, and Intermodal Terminal operations

19.4.2 Mitigation Measures

Mitigation measures for wastes generated by the proposal are discussed below.

Construction and Demolition Materials

- Ensure the correct quantities are ordered and delivered to the site;
- Investigate the use of recycled materials, including concrete, roadbase, asphalt and other construction materials;
- Existing concrete pavement material would be collected and transported to crushing and recycling plants. Some material could be crushed on-site if practicable for re-use;

- Re-use asphalt by transferring to batching plants or use as a base course layer for access roads;
- Following any demolition works, bricks, timber, tiles and other items would be collected and transported to a recycling depot;
- Hazardous materials from buildings to be demolished to be handled and disposed of according to regulations;
- Collect and transport steel scraps, including rail tracks if practicable, and other metals to a recycling facility or reuse where suitable.

Stockpiles and Excavated Soils

- Cut and fill works would be balanced where possible;
- Clean excavated fill material would be used as construction fill and for road works where suitable; and
- Excavated material not suitable for re-use as fill would be re-used for mounding for noise mitigation or landscaping where practicable.

Contaminated Soils and Hazardous Materials

- On-site remediation of soils would reduce the need for waste transfer and disposal;
- Unsuitable / contaminated material from stockpiles would be identified, separated from clean material and disposed of in accordance relevant NSW legislation, where not suitable for re-use; and
- Empty oil and fuel drums to be collected in suitably designated areas and removed by a licenced waste contractor.

Green Wastes

- Native vegetation cleared during construction would be chipped and re-used as mulched material for revegetation;
- All noxious weeds and exotic plant species removed would be bagged and disposed of at a licensed landfill facility; and
- Vegetation not re-used on site and green waste from landscape maintenance would be transferred to green waste facility.

Paper / Cardboard/ Packaging

- Strategies would be adopted to encourage reduction and recycling for plastics, paper and packaging products.

Sewage and Water

- Provide portable toilet facilities during construction phase, which would be regularly maintained and ensure wastes are disposed of by a licensed waste contractor in accordance with Sydney Water and DEC requirements;
- Operational facilities would utilise water efficient technology and discharge to the Sydney Water sewerage system;
- Trade wastes from container wash down and kitchen areas will be discharged to the sewer through a trade waste agreement with Sydney Water; and

- Water derived from the collection of rainwater runoff would be re-used for container washdown and toilet flushing. If necessary, the water required for fire protection would be provided by storage of rain water.

Domestic Wastes

- Recycling facilities would be provided to encourage the separation and recycling of all paper, aluminium, glass, and plastic products used during construction and operation of the ILC site; and
- All domestic waste would be collected regularly and disposed of at licenced facilities as appropriate.

19.5 Conclusions

Waste management arrangements would be put in place during the construction phase of the ILC site to maximise the reduction, recycling, and re-use of waste materials. This would be achieved through the implementation of a Waste Management Plan (WMP) during construction. The WMP would be developed and implemented in accordance with the requirements of relevant waste management legislation and policies and incorporated into the Construction EMP for the ILC site.

Waste management requirements for the operational phase would be incorporated into the Operational EMP for the ILC.