

Airport Link

Phase 2 – Detailed Feasibility Study

CHAPTER 18

WASTE MANAGEMENT

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18. Waste Management

This chapter addresses Section 5.12 of the Terms of Reference. It describes the potential waste production and management during construction, including development of an indicative waste inventory. This includes an outline of proposed waste management strategies, having regard to the Environment Protection (Waste Management) Policy 2000, the principles of waste avoidance, reuse, recycling, treatment and disposal. Where solid or liquid wastes are to be taken off-site for disposal, the following details are provided:

- *Typical facilities (locations) to which waste would be sent for disposal;*
- *Target rates of recycling;*
- *Indication of how the transport of the wastes from the site to the disposal facility will be undertaken;*
- *The likely times and day of the week that wastes, including hazardous or dangerous materials, would be transported from the site to the disposal facility;*
- *On-site storage and treatment requirements for wastes, including waste receptors ad per ANZECC guidelines; and*
- *The impacts wastes may have on the environment.*

The waste management strategies also consider segregation of waste, storage of waste, monitoring and reporting programs, and cleaner production programs.

18.1 Waste Streams

The Airport Link project has the potential to generate a range of liquid and solid waste materials. It is likely that the primary source of waste will be generated during the construction phase. The key waste streams during construction include:

- Demolition wastes (building materials, vegetation, kerbs and pavements);
- Building waste (packaging materials, scrap metal, timber formwork, pallets, plastic and cardboard);
- Contaminated soil and acid sulphate soils excavated during construction;
- Liquid wastes from cleaning, repairing, and maintenance of tunnelling and construction vehicles, from spillage of stored chemicals or oils, from dust control measures, from tunnel wash down requirements, from groundwater inflow and from rainwater runoff from construction sites and pavements;
- General waste from construction sites (including office wastes, scrap materials and biodegradable wastes).

A Waste Inventory, addressing these streams, will minimally contain information on the type, volume, storage location, disposal method and frequency and any special requirements or warnings to be displayed.

The generation of wastes during the operational phase will be limited to sediment, hydrocarbons (oils and greases) and gross pollutants contained in groundwater inflow, pavement run-off and wash down water generated during maintenance of the tunnels. These wastes will be managed through the incorporation of appropriate control measures into the design of the stormwater and groundwater management systems as discussed in Chapter 4. Further focus points in the management of waste would be dealing with spillage through incident management procedures (outlined in an Incident Management Plan), prevention of dust and wind erosion, silt run-off, the spread of fire ants to the disturbed site and the spread of pest weeds or other pests.

The management of contaminated soil and/or groundwater or acid sulphate soils would be the subject of specific waste management plans to be developed during the detailed design phase of the project. The likelihood of encountering contaminated land or acid sulphate soil has been addressed in Chapter 6 and contaminated groundwater in Chapter 7.

18.2 Waste Management Plan

In Queensland waste management is governed by the requirements of the *Environment Protection Act, 1994*. The *Environment Protection Regulation 1998* and the *Environment Protection (Waste Management) Policy 2000* (EPP Waste), seek to achieve the objectives of the Act and set the legislative framework governing the waste management strategy and plan. The framework includes:

- Adoption of a waste management hierarchy;
- Assigning responsibility for waste management; and
- Outlining specific mechanisms for waste management planning.

A Waste Management Plan (WMP) for the project will be prepared, providing comprehensive management processes for key waste streams. The WMP will consider the waste hierarchy that seeks to avoid waste generation as a priority, reuse of waste (recycle/reprocess) and, only if avoidance and reuse are not possible, the disposal of waste. The plan will also specify waste management procedures to be followed during the construction period. These procedures would include:

- The re-use of clean excavated materials wherever practicable;
- Appropriate reuse wherever practical of lubricants and machine parts;
- Arrangements for transporting inert and solid wastes to appropriate management centres or disposal areas; and
- The installation of segregated bins for recyclable materials.

The governing principles of the waste management strategy would need to be effectively incorporated into the construction program.

18.3 Waste Management Strategies

Measures that involve waste minimization and management, as specified in EPP waste, fall within the categories of avoidance, reduction, re-use, recycling and disposal.

Avoid & Reduce

Strategies for reducing waste will be detailed in the Waste Management Plan and may include:

- Consider utilising materials and products that have a recycled content wherever cost/performance competitive, and where environmentally preferable to the non-recycled alternative;
- Arrangements made with suppliers to return any construction materials not used;
- Where possible, goods to be ordered in bulk to minimise packaging waste and packaging material returned to the supplier wherever practicable; and
- Encouraging everyone working on the project to avoid and reduce waste, wherever possible.

Re-use

Strategies for the re-use of waste products during construction may include:

- Chipping and mulching of vegetation cleared during construction and reuse of mulched material for landscaping purposes;
- Topsoil free of weeds to be stockpiled and stored for re-use, if possible;
- Re-use of concrete formwork throughout the project;
- Re-use of reinforced steel structures in the project;
- Re-use of structures including culverts, cabling, poles and similar infrastructure;
- Broken bricks, tiles and other masonry to be used in fill or transferred to a building supply company; and
- Asphalt to be re-used by transferring to batching plants or use as a select/earthworks coarse layer.

Recycle

Strategies for recycling during construction may include:

- Kerb and pavement materials (concrete, asphalt) to be transferred to crushing and recycling plants;
- Provision of recycling bins for general rubbish, i.e. glass, plastic, paper, metals, using colour-coded bins;
- Collection of demolition materials and re-use on site where possible or transport to a recycling depot;
- Collection and return of packaging materials (e.g. pallets) to suppliers wherever practicable;
- Investigation of the availability of treated wastewater, runoff or groundwater in-flow for spraying roadworks to reduce dust generation or for watering progressive landscape works;
- Incorporation of a closed water recycling system if a concrete and/or asphalt batching plant is to be established on or close to the construction site (although the provision of such plants is not anticipated);
- Use of recycled materials to the limits of design in concrete, roadbase, asphalt and other construction materials;
- Collection and recycling of used oils by a licensed contractor;
- Collection by a licensed contractor of empty oil and fuel drums and other containers for return to recycling facilities; and
- Training of all employees in the waste management plan and recycling opportunities.

Disposal

Waste unable to be reused or recycled will be disposed of in a certified land fill site under the control and management of the BCC. Materials will include putrescible wastes from kitchens and lunchrooms, non-putrescible materials unable to be recycled. The transport of regulated wastes and contaminated soils or other materials (see section 18.6) will be conducted by licensed contractors for disposal at licensed facilities, in accordance with legislative requirements.

18.4 Timing of Waste Transport

The likely construction sites for the project were described in detail in Chapter 4. Provision will be made on these sites for the storage of Dangerous Goods (including fuel), according to the Dangerous Goods Codes.

Delivery and removal of materials from the site would be governed by the potential impacts of truck movements on nearby residences. On that basis, all surface truck movements (for transport of waste materials) would be considered as part of the Traffic Management Plan.

18.5 Management of Hazardous materials or Dangerous Goods

Products likely to be stored at construction compound sites or within tunnels include:

- Petroleum or other hydrocarbon products; and
- Hazardous materials/dangerous goods residues and containers.

It is not intended to store explosives at the work sites during construction. Explosive materials would be transported to the worksites as required by the construction program. Storage and transport of materials would be undertaken according to:

- AS 1216 *Classification, Hazard Identification and Information Systems for Dangerous Goods*;
- AS 1678 *Emergency Procedures Guides – Transport*;
- AS 1940 *Storage and Handling of Flammable and Combustible Liquids*;
- AS 3780 *The Storage and Handling of Corrosive Substances*;
- AS 2809 *Road tank Vehicles for Dangerous Goods*;
- AS 2931 *Selection and Use of Emergency Procedures Guides for Transport of Dangerous Goods*;
- AS 2187 *Explosives – Storage, Transport and use*.

Refuelling and maintenance activities will be undertaken in designated bunded areas to minimise the potential for soil and water contamination to result from these activities. Appropriate spill response plans would also be prepared (refer Chapter 17).

18.6 Management of Contaminated Soil

The management of contaminated soil was discussed in Chapter 6. Any contaminated land to be excavated would be subject to a Site Management Plan (SMP), and if required, include the transport of contaminated soil offsite. Where contaminated soil needs to be removed, a Contaminated Land Disposal Permit would be required to remove the contaminated soil to a licensed landfill. Authorisation from the Brisbane City Council would also be required prior to disposal. If spills occur during the transport of contaminated soil, the area affected would be remediated.

The preparation or alteration of a SMP, and any removal or disposal or remediation of contaminated material will be carried out in accordance with:

- Australian and New Zealand Environment and Conservation Council/National Health and Medical Research Council *Guidelines for Assessment and Management of Contaminated sites*; and
- The *Environmental Protection Act 1994* as amended and other related Acts, Policies and Statutory Regulations of Federal, State and Local Governments.

Alternatively, the best option may be to remediate or cover a contaminated site with packed clay or concrete to minimise potential to contaminate the local environment. Consultation would be undertaken with the EPA to establish the standards required for the onsite remediation of any contaminated soil. Validation sampling would need to be carried out following remediation or covering, and sign-off given by the EPA via an appropriately certified auditor.

18.7 Acid Sulphate Soils

The management of acid sulphate soils (ASS) was discussed in Chapter 6. Subject to further investigations, an ASS management plan would be developed, incorporating best management and monitoring practices through the design, pre-construction and construction phases to eliminate or minimise environmental impacts associated with ASS. ASS mitigation measures will accord with State Planning Policy 2/02 –*Planning and Managing Development involving Acid Sulphate Soils* and the hierarchy of ASS management principles in line with the *Queensland Acid Sulphate Soil Technical Manual Soil Management Guidelines (version 3.8)* (2002), which include: avoidance, minimisation of disturbance, neutralisation, hydraulic separation and strategic re-burial.

In particular, the ASS management measures would specifically ensure:

- Where ASS must be disturbed, soil treatment with lime or other neutralising agents, in accordance with the treatment rates prescribed in the ASSMP, must be used onsite to prevent the downstream or offsite impacts from acidic water drainage;
- All leachate and runoff from areas excavated below 5m AHD in known ASS areas, ASS treatment pads and stockpile areas should be adequately captured, contained, analysed, and treated (if necessary) prior to offsite discharge; and
- All fill to be used on site (e.g. for elevated roadways etc.) must be ASS-free or first evaluated for ASS and if found, must first be treated with lime or other acid neutralising agents, in accordance with the treatment rates prescribed in the ASSMP.

Careful planning would be required during the design phase and implementation of suitable management/mitigation measures to minimise and adequately manage potential impacts from ASS disturbance during construction. It would also be essential to maintain and monitor the condition and performance of permanent mitigation measures that are installed during construction and for the duration of the operational phase to prevent/minimise potential impacts that may occur as a delayed impact in the future.

Water management is one of the key elements for the management and mitigation of potential impacts resulting from the disturbance of ASS affected material. Therefore, it is essential to identify runoff and drainage control points within and exiting the construction site and design suitable control measures and structures to be installed during construction that would divert or contain runoff from specific areas.