



Executive Summary

INTRODUCTION

WSN Environmental Solutions (WSN) proposes to develop an alternative waste technology (AWT) facility within the suburb of Lucas Heights in New South Wales (NSW). The project would use patented ArrowBio material separation and anaerobic digestion technology to process up to 100,000 tonnes of municipal solid waste per year.

The project would divert an estimated 70% of incoming material from landfill and thereby assist some of Sydney's councils to achieve the 2007 NSW Waste and Resource Recovery Strategy targets for diversion of waste from landfill.

This environmental assessment has been prepared by GHD Pty Ltd (GHD) in accordance with the requirements of Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). An EA is required under Part 3A to support an application to the NSW Minister for Planning for approval of the project and to address the requirements of the Director-General of the NSW Department of Planning (the Director-General's Requirements) received on 23 August 2008.

In preparing this environmental assessment, consideration has been given to potential cumulative impacts associated with other development applications being prepared concurrently by the proponent for areas adjacent to the project site (a proposed truck parking area and relocation of the current mini-bike club).

THE PROPONENT

The project is being jointly proposed by Sutherland Shire Council and WSN Environmental Solutions (WSN). Although both Sutherland Shire Council and WSN are proponents for the purposes of the project application, the project would be constructed and operated by WSN (referred to in this document as 'the proponent').

WSN, formerly known as Waste Service NSW, is a NSW Government owned corporation and has been operating for over 35 years in the business of integrated waste management. WSN is Sydney's major provider of waste management and recycling services, handling over 1.7 million tonnes of putrescible waste annually. It owns and operates four major landfills, seven large waste transfer stations, and two materials recovery facilities. Sydney's first alternative waste technology facility for domestic waste, at Eastern Creek and an alternative waste technology facility at the Macarthur Resource Recovery Park (MRRP) (currently being commissioned), are also part of the WSN network.

Sutherland Shire Council is a local government organisation that manages the area of land called Sutherland Shire, an area of 370 km² stretching from the Georges River in the north, Deadman's Creek and Woronora Dam in the west, the Royal National Park in the south and the Pacific Ocean in the east. Sutherland Shire Council was established in 1906 and currently administers the Sutherland Shire on behalf of 215,000 residents and ratepayers, making it the second largest local government in NSW in terms of the number of people it serves.



THE PROJECT

The project involves construction and operation of an AWT facility using patented ArrowBio technology to process up to 100,000 tonnes per year of municipal solid waste.

The project would involve use of material separation technologies to recover recyclable materials from the municipal waste stream and anaerobic digestion. The AWT facility would produce:

- ▶ Stabilised sludge with market potential as soil conditioner;
- ▶ Biogas, which would be used to generate approximately 2 MW of electricity for use onsite and excess exported to the electricity grid; and
- ▶ Other residual material which would be disposed of to landfill.

It would divert an estimated 70% of the incoming material from landfill. The project would involve development of the following facilities onsite:

- ▶ Receiving hall;
- ▶ Separation plant;
- ▶ Biological plant;
- ▶ Energy generation plant;
- ▶ Staff facilities;
- ▶ Laboratory;
- ▶ Weighbridge;
- ▶ Parking area for 72 cars and other vehicles;
- ▶ Internal road network; and
- ▶ Site access.

The technology is similar to that currently being commissioned at WSN's Ecolibrium™ Mixed Waste Facility at the MRRP in south-west Sydney.

THE EA PROCESS

Part 3A of the EP&A Act applies to the project. The project is considered to meet the definition of a resource recovery or waste facility listed in Schedule 1 Clause 27(3) of *State Environmental Planning Policy 2005 (Major Projects)* as it will handle more than 75,000 tonnes per year of waste, and has a capital investment value of more than \$30 million.

The NSW Minister for Planning is the approval authority for the project, and an environmental assessment (this document) is required to support the application for project approval in accordance with the requirements of the EP&A Act.

THE SITE

The site of the project is located in the suburb of Lucas Heights, within the Sutherland local government area (LGA), approximately 30 km south west of the Sydney city centre. It comprises Lot 111 of DP 1050235 and Lot 1 of DP 233333 and covers an area of 11 ha in the south east corner of the Lucas Heights Waste and Recycling Centre (LHWRC). It is bounded to the south by New



Illawarra Road, to the north by Little Forest Road and a biogas power plant operated by EDL, to the east by Little Forest Road, and to the west by rehabilitated landfill at the LHWRC.

The site is owned by the Australian Nuclear Science and Technology Organisation (ANSTO) and leased to the proponent. The site falls within the ANSTO 1.6 km radius exclusion zone that provides a safety buffer for ANSTO activities.

CONSULTATION

Statutory consultation was undertaken, according to the Director General's requirements, during preparation of the environmental assessment. Stakeholder comments were addressed in the environmental assessment. In addition, consultation with the community was undertaken to create awareness in the community about the project including information brochure distribution, media release, advertisements in local newspapers, discussions and presentations at Community Advisory Committee meetings and development of a project website.

NEED AND ALTERNATIVES

Proponent's objectives and business strategy

The proponent is committed to providing environmentally sound and sustainable waste management solutions that improve resource recovery, and reduce the quantities of waste being disposed to landfill. The objectives of the proponent are set out in the *Waste Recycling and Processing Corporation Act 2001*, which includes the requirements to protect the environment by managing waste in accordance with the principles of ecological sustainable development.

In addition, the project is a strategic response aimed at implementing the key objectives of the NSW Waste Avoidance and Resource Recovery Strategy (WARRS) 2007, which contains four operating principles including:

- ▶ Avoiding and preventing waste;
- ▶ Increased use of renewable and recovered materials;
- ▶ Reducing toxicity in products and materials; and
- ▶ Reducing litter and illegal dumping.

The project would divert valuable resources from landfill and would meet the proponent's objectives and business strategy.

Strategic planning drivers

The project is consistent with an increasing focus on sustainable waste management. The project would assist councils who use it meet the objectives of the *Waste Avoidance and Resource Recovery Act 2001* and targets for resource recovery set by the NSW Waste Avoidance and Resource Recovery Strategy 2007, including the 66% resource recovery target for municipal solid waste. It would also meet the aims of the Sydney Metropolitan Strategy 2005.

As well as meeting State targets for waste management, the proponent forecasts that the community will demand ongoing improvement in waste management, and higher standards of environmental performance, sustainability and resource recovery. The project would satisfy community expectations for improved waste management practices.



The project is also consistent with the sustainability objectives of the Sutherland Shire Local Environmental Plan 2006 which includes emphasis on the principles of ecologically sustainable development.

Demand

The proponent has contracts to receive approximately 65,000 tonnes per annum of municipal solid waste from Bankstown and Parramatta Council. This requires an AWT facility to be built and operating by 2013. This timeframe can be achieved by obtaining environmental approvals by late 2009 and building the proposed facility at the LHWRC, which could take 2-3 years to complete.

Alternative locations

The proponent has identified other locations within the LHWRC that could also be used for siting an AWT facility. However the proposed site is relatively far from existing residential areas and has good proximity to major roads. In addition, the site is able to accommodate additional AWT infrastructure if demand increases, noting that any additional future AWT infrastructure would be subject to a separate development application and approvals process.

Technology selection

The proponent undertook its own review of alternative waste technologies before commencing this project. The conclusion was that the best technical and commercial solution was to utilise the ArrowBio technology that is currently being implemented at the MRRP, as the technology was judged to be suitable for treating the types of waste to be received at the LHWRC, and the design and construction of this facility could be optimised from experience gained during building and commissioning of the MRRP.

ENVIRONMENTAL ASSESSMENT

Waste management

The majority of construction waste would be reused on-site, disposed of at the adjacent landfill, or transported from the site to nearby re-processors and recyclers. Construction activities at the site are not expected to impact significantly on the waste management operations and waste minimisation goals of the region.

Waste generated during operation of the project would be reused and recycled where possible. The remaining waste would be disposed of at the adjacent landfill. The project would provide high levels of resource recovery and diversion of waste from landfill.

Operation of the project is expected to assist councils to reach their waste minimisation goals by diverting up to 70% of incoming municipal solid waste from landfill.

Soil and water

Construction impacts would result in a disturbance of soils, as cut and fill methods of levelling would be undertaken and some shallow excavation would be required. As a result, there is the potential for sediment movement.

The project is not expected to have any acid sulphate soil impacts or impacts on local salinity. The project is also designed to minimise the likelihood of contamination of soil and water. Any potential contamination would be managed as part of the environmental management plans that would be



developed for the project. This includes development of an asbestos management protocol during earthworks.

During the operational phase, impervious surfaces have the potential to result in changed storm water runoff characteristics.

One additional groundwater monitoring bore would be installed downstream of the AWT facility and included in the groundwater monitoring program for the site. Existing groundwater monitoring would continue as part of the LHWRC monitoring program.

Potential impacts on water would be mitigated by the water management features of the design. These include site grading and channelling of stormwater away from active construction zones and unsealed areas, early construction of all weather access roads and hardstand areas, and the use of sedimentation dams during construction works. A permanent stormwater collection dam and first flush dam would be implemented during the operational phase of the project.

Process water would be treated in an on-site wastewater treatment plant. Treated process water would be stored in a process water dam on the site, which would have a high permeability liner system to protect underlying groundwater.

The resulting impacts of the project on surface water and groundwater quality would be minimal.

Air quality and odour

Construction of the project has the potential to result in minor air quality impacts at various times (e.g. dust disturbance). Impacts on local air quality would depend on equipment usage and local weather conditions. Potential impacts would be managed by implementing environmental management measures such as watering of unsealed areas, as outlined by the construction environmental management plan.

Whilst the facility is a potential source of odour, off-site odour levels are expected to be minimal, and the current amenity of existing developments in the area should not be altered by site operations.

The design of the project includes a number of measures to minimise odour and air quality impacts. These include partial enclosure of the receival hall and processing hall, and deodorisation of air prior to discharge, using a treatment system such as ozone injection.

None of the potential odour and air quality impacts are likely to affect local amenity in residential or commercial areas due to the distance from such receivers.

Traffic and transport

During construction, additional traffic movements would occur for delivery of construction materials and site construction personnel. All vehicles would access the site via a new access off Little Forest Road. Off-street parking would be provided on site for construction workers. The impact of the construction traffic on the road network surrounding the site would be temporary and would be limited to the anticipated 18 month construction period. The traffic assessment concluded that the additional traffic demand on the road network serving the site would be minor.

The project is located on a sub-arterial road, which provides easy access to the arterial road network. Although the project would result in additional traffic visiting the site, the traffic would access the site via the arterial road network and would be accommodated by the existing external road network and intersections.



Traffic generation during operation of the AWT facility pre-2025 (when AWT residual is deposited at the LHWRC landfill) is expected to be approximately 216 vehicles per day, 18 vehicles per hour (two-way) during AM peak periods and 22 vehicles per hour (two-way) during PM peak periods.

Traffic generation during operation of the AWT facility post-2025 (when AWT residual is deposited off-site) is expected to be approximately 230 vehicles per day, 20 vehicles per hour (two-way) during AM peak periods and 24 vehicles per hour (two-way) during PM peak periods.

The additional traffic entering all intersections as a result of the project is considered to be low in comparison to the background traffic levels, which were assumed in the assessment to increase by 2% per annum until 2018 due to natural growth. The traffic impact assessment concluded that the project would not result in any notable changes in external intersection operating characteristics and that the traffic increases can be accommodated by the internal road network and internal intersections.

Access and egress to the proposed AWT facility, proposed truck parking area (separate development application), the relocated PCYC and EDL site would be provided via a new internal access road and intersections. The traffic assessment found that these proposed arrangements would accommodate traffic to and from these areas without compromising on accessibility.

A total of 72 parking spaces would be included at the site, which exceeds Sutherland Shire Council Development Control Plan 2006 requirements for 'industrial facilities' and would accommodate all staff at shift changes and some visitor parking.

Greenhouse gas

Considering scope 1 and scope 2 emissions, the project is expected to result in a net annual greenhouse gas reduction of 3,320 tonnes CO₂-e, which is approximately 0.002% of the state's total emissions in 2007. Hence the project would have a positive environmental impact in terms of greenhouse gas and climate change.

Biodiversity

The site has previously been used for at least 20 years by the Police and Community Youth Club (PCYC) mini-bike club, resulting in significant land degradation. The project would result in the clearance of approximately 1.43 ha of remnant vegetation, including vegetation that would be impacted by the project footprint and vegetation that would need to be removed to satisfy Asset Protection Zone requirements.

The project footprint was selected to maximise use of existing cleared and disturbed areas, and permit much of the existing vegetation on the eastern and southern to remain undisturbed. This would assist in screening the plant from surrounding areas. Vegetation that would be removed consists of weed-infested areas, open grassed areas and disturbed patches of the Sydney Sandstone Ridgetop Woodland vegetation community. This community is not listed as threatened under the *Threatened Species Conservation Act 1995* (TSC Act) and/or *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Although the site does provide some connectivity value, the assessment identified more suitable and substantial vegetated areas adjoining the site, which would provide a 'stepping stone' for mobile fauna species.



The potential for any adverse impacts on threatened fauna and flora species is considered to be low given the highly modified nature of the site, the fact that the project maximises use of disturbed areas, and the large area of quality habitat in the general vicinity of the site.

An assessment of the likely impacts of the project on threatened species and endangered ecological communities concluded that the project is unlikely to have a significant impact on threatened species, endangered ecological communities or their habitat, given that the footprint of the project is located in an area that is already disturbed, and that no threatened species or communities have been recorded on site.

Hazards

A preliminary hazard analysis (PHA) was undertaken for the project. This concluded that the SEPP 33 threshold screening value for dangerous goods is not exceeded by any of the proposed dangerous goods to be stored. Additionally, the transportation screening thresholds would not be exceeded by any of the dangerous goods.

The qualitative risk assessment/hazard identification study identified hazard scenarios, and concluded that only one scenario presented an unacceptable risk – fire or explosion of biogas – but the PHA found that this scenario does not exceed risk criteria and operation and engineering controls would minimise the risk to as low as reasonably practical.

Furthermore, implementing a comprehensive safety management system would ensure that hazards associated with the site are identified and managed, so that all activities are undertaken in a safe manner.

A bushfire assessment was also undertaken, which concluded that the project would meet the aims and objectives of Planning for Bushfire Protection (RFS 2006) and that reasonable overall bush fire protection outcomes would be achieved by implementing appropriate mitigation measures.

Noise

Potential noise impacts of the project during construction and operation are expected to be minimal and would comply with design goals at nearby sensitive receivers. The site is quite distant from residential areas.

Social and economic

The site was previously used by the PCYC for the mini-bike club. Development of the project means that this use of the site would no longer be possible. However, in accordance with the existing masterplan, this activity is being relocated to another area in the LHWRC site. This is expected to occur in mid to late 2009.

The project would generate employment during both construction and operation - an estimated construction workforce of 30-50 people and approximately 69 staff during operation, over three shifts.

The potential for negative amenity impacts would be significantly reduced by the implementation of appropriate design features and stringent environmental management controls guided by the construction and operation environmental management plans.

Potential positive impacts of the project include:

- ▶ Cost effectiveness;



- ▶ Employment;
- ▶ Generation of income;
- ▶ Supply of goods and services;
- ▶ Generation of 'green' energy; and
- ▶ Diversion of waste from landfill.

Economic costs associated with undertaking the proposal include:

- ▶ Capital cost;
- ▶ Infrastructure costs; and
- ▶ Environmental monitoring.

Heritage

No items or places of heritage significance were identified and the heritage assessment concluded that the project would not impact on Aboriginal or historic cultural heritage.

Visual amenity

The construction of the project would generate visual impacts during the 18 month construction period. These impacts would be limited to motorists traveling along New Illawarra Road. During construction works, exposed soils would be visible, along with machinery and equipment required for construction, and the buildings under construction. These impacts would be temporary and limited to the construction period.

A proposed minimum 10 m landscape/screening zone comprising a combination of vegetation enhancement, new vegetation and retainment of existing vegetation, will help to reduce the potential visual impact of the project in the mid to long term (5 years plus). The buildings would be set back approximately 35 m from the site boundary, with an additional 10-15 m of land before the verge of New Illawarra Road. This setback consists of 25 m wide asset protection zones as recommended in the bushfire assessment and a 10 m wide landscape zone. The setback, and the retention of existing vegetation where possible, would significantly reduce the visibility of new structures from New Illawarra Road.

The project would not be visible from residential areas or other significant viewpoints. The nearest residential areas are located over 2 km from the site. Given the relatively non-sensitive nature of the potential views of the project (passing motorists) and the fact there are other industrial/scientific and waste facilities in the surrounding area, the visual impact of the project is not considered to be significant.

PROJECT JUSTIFICATION AND CONCLUSIONS

The justification for the project is based on a number of factors:

- ▶ The project is consistent with the strategic direction for waste management in NSW and the proponent's corporate objectives and strategic drivers;
- ▶ The project meets a need for alternative waste technologies needed to increase resource recovery from municipal waste and divert valuable materials from landfill;



- ▶ The project would assist in satisfying regional demand for more sustainable waste management facilities;
- ▶ The project would enable councils to reduce their long term waste management costs and reduce greenhouse gas emissions associated with landfilling their wastes;
- ▶ The site is suitable for the proposed use; and
- ▶ The project uses innovative technology already operating locally at a similar scale.

This environmental assessment has considered the potential impacts of the proposal to construct and operate an alternative waste technology facility adjacent to the LHWRC at Lucas Heights.

The environmental assessment has examined a number of key issues surrounding the project, including identification of potential negative impacts. There are no major environmental issues with this project. The main potential impacts that need to be managed are:

- ▶ Potential air quality issues such as dust generation associated with construction of the project;
- ▶ Noise-related impacts associated with construction and operation of the project;
- ▶ Hazards and bushfire risks;
- ▶ Visibility of the project to passing traffic and neighbouring sites; and
- ▶ Construction impacts (traffic generation, soil and water management etc).

The environmental assessment concludes that many of the potential issues identified (including air and noise issues) would be effectively managed through project design features. To manage other issues, and in some cases eliminate them completely, a number of mitigation and management measures (commitments) would be implemented.

Commitments made by the proponent include the preparation of a construction environmental management and operational environmental management plan to ensure that the mitigation and management measures are developed, implemented and monitored. These plans would also ensure compliance with relevant legislation and any conditions of approval.