Project Approval

Section 75J of the *Environmental Planning and Assessment Act 1979*

Under the Minister for Planning's delegation of 25 January 2010, I approve the project application referred to in Schedule 1, subject to the conditions in Schedules 2 to 5.

These conditions are required to:

- prevent and/or minimise adverse environmental impacts;
- set standards and performance measures for acceptable environmental performance;
- require regular monitoring and reporting; and
- provide for the ongoing environmental management of the project.

Richard Pearson
Deputy Director-General

Sydney 28th June 2010

SCHEDULE 1

Application Number:	08_0163
Proponent:	WSN Environmental Solutions
Approval Authority:	Minister for Planning
Land:	Lot 111 DP 1050235 and Lot 1 DP 233333
Project:	Lucas Heights Alternative Waste Technology Facility Project

TABLE OF CONTENTS

SCHEDULE 2
DEFINITIONS

AWT facility	Alternative Waste Technology Facility
BCA	Building Code of Australia
Construction	Includes any activity requiring a Construction Certificate, significant excavation work, road works, demolition, or any construction related activity as described in Major Project Application 08_0163
Council	Sutherland Shire Council
Day	The period from 7am to 6pm on Monday to Saturday, and 8am to 6pm on Sundays and Public Holidays
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning or its successors in title
Director-General	Director-General of the Department of Planning, or delegate
EA	*Environmental Assessment: Alternative Waste Technology Facility, Lucas Heights Waste and Recycling Centre, Environmental Assessment* (WSN Environmental Solutions, August 2009, Vol 1 and 2) and associated Submissions Report dated 23 December 2009
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence issued under the *Protection of the Environment Operations Act 1997*
Evening	The period from 6pm to 10pm
Feasible	Feasible relates to engineering considerations and what is practical to build
General Solid Waste	Putrescible or non-putrescible waste as defined in the DECCW Waste Guidelines
Incident	An incident causing or threatening material harm to the environment, and/or an exceedance of the limits or performance criteria in this approval
Land	In general, the definition of land is consistent with the definition in the EP&A Act.
LHWRC	Lucas Height Waste Recycling Centre
Material harm to the environment	Harm to the environment is material if it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial
Minister	Minister for Planning, or delegate
Mitigation	Activities associated with reducing the impacts of the project
Night	The period from 10pm to 7am on Monday to Saturday, and 10pm to 8am on Sundays and Public Holidays
NOW	NSW Office of Water
Operation	Includes the receipt, storage and/or processing of waste on-site (including commissioning)
POEO Act	*Protection of the Environment Operations Act, 1997*
POEO Regulation	*Protection of the Environment Operations (Waste) Regulation, 2005*
Project	The development as described in the EA
Proponent	WSN Environmental Solutions (WSN), or its successors on title
Reasonable	Reasonable relates to the application of judgment in arriving at a decision, taking into account: mitigation benefits, costs of mitigation versus benefits provided, community views, and the nature and extent of potential improvements.
Rehabilitation	The treatment or management of land disturbed by the project for the purpose of establishing a safe, stable and nonpolluting environment.
RTA	NSW Roads and Traffic Authority
Site	The land referred to in Schedule 1
Statement of Commitments	The Proponent's statement of commitments (see Appendix 4)
Special Waste	As defined in the DECCW Waste Guidelines

SCHEDULE 3
GENERAL ADMINISTRATIVE CONDITIONS

Obligation to Minimise Harm to the Environment

1. The Proponent must implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation or decommissioning of the project.

Terms of Approval

2. The Proponent must carry out the project generally in accordance with the:
   (a) EA;
   (b) statement of commitments; and
   (c) conditions of this approval.

   Note: The Site Layout of the project is shown in Appendix 1. The Landscape Plan and Landscape Phasing and Prioritisation Plan are shown in Appendices 2 and 3. The Proponent's Statement of Commitments is included as Appendix 4.

3. If there is any inconsistency between the above, then the conditions of this approval shall prevail to the extent of the inconsistency.

4. The Proponent must comply with any reasonable requirement/s of the Director-General arising from the Department's assessment of:
   (a) any reports, plans, strategies or correspondence that are submitted in accordance with this approval; and
   (b) the implementation of any actions or measures contained in these reports, plans, strategies or correspondence.

Limits on Approval

5. Waste operations may only take place for 20 years from the commencement of operations on site.

6. The Proponent must not receive or process more than 100,000 tonnes of general solid waste per year at the site.

Structural Adequacy

7. The Proponent must ensure that any new buildings and structures, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.

   Notes:
   - *Under Part 4A of the EP&A Act, the Applicant is required to obtain construction and occupation certificates for any building works.*
   - *Part 8 of the EP&A Regulation sets out the detailed requirements for the certification of a project.*

Protection of Public Infrastructure

8. Prior to the commencement of construction, the Proponent must:
   a) prepare a dilapidation report of the public infrastructure in the vicinity of the site (including roads, gutters, footpaths, etc) in consultation with Council; and
   b) submit a copy of this report to the Director-General and Council.

9. The Proponent must:
   a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the project; and
   b) relocate, or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the project.

Utilities

10. Prior to the construction of any utility works, the Proponent must obtain the relevant approvals from service providers, including Sydney Water and Council.

Demolition

11. The Proponent must ensure that all demolition work is carried out in accordance with *AS 2601-2001: The Demolition of Structures,* or its latest version.

Operation of Plant and Equipment

12. The Proponent must ensure that any plant and equipment used on site, or in connection with the project, is:
    (a) maintained in a proper and efficient condition; and
    (b) operated in a proper and efficient manner.

Staged Submission of Plans or Programs

13. With the written approval of the Director-General, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis.

SCHEDULE 4
SPECIFIC ENVIRONMENTAL CONDITIONS

WASTE

Limits on Inputs

1. The Proponent must only receive, store or handle the following waste on-site:
   a) general solid waste (putrescible); and
   b) special waste that is authorised for receipt on site under an EPL.

Limits on Outputs

2. With the exception of outputs that are approved for use under the POEO Act (and associated Regulations), the Proponent shall dispose of all outputs produced on site to the LHWRC or an appropriately licenced facility.

Waste Management

3. The Proponent must prepare and implement a Waste Management Plan for the project to the satisfaction of the Director-General. This plan must:
   a) be prepared in consultation with DECCW, and submitted to the Director-General for approval prior to the commencement of the Project's operations on site;
   b) identify standards and performance measures to:
      - screen incoming waste;
      - manage pests, vermin, litter and weeds;
      - manage outputs;
      - monitor resource recovery rates;
      - control composting operations; including measures to address relevant matters referred to in Section 4 and Appendix B of the DECCW's *Environmental Guidelines for Composting & Related Organics Processing Facilities*; and
   c) detail auditable procedures to monitor and review the identified standards and performance measures;
   d) describe what procedures and/or contingency plans would be followed in the event of a non-compliance.

   The Proponent must not carry out any operations on-site before the Waste Management Plan has been approved by the Director-General.

AIR QUALITY

Dust

4. The Proponent must construct, operate and maintain the project in a manner that prevents and/or minimises dust emissions from the site.

5. The Proponent must ensure that all internal road surfaces are paved and regularly cleaned.

Odour

6. The Proponent must not cause or permit the emission of offensive odours from the site, as defined under Section 129 of the POEO Act.

   Note: Section 129 of the POEO Act, provides that the Proponent must not cause or permit the emission of any offensive odour from the site, but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

7. The Proponent must ensure that all waste is processed in negative pressure environments that vent via the approved air quality treatment processes (see Air Quality, Odour and Greenhouse Gas Management Plan, Condition 16 of Schedule 4) designed in consultation with the DECCW. This shall include but not be limited to; the Receival Hall, Processing Hall, digestate decanting, and loading of wastewater treatment plant residuals.

8. The Proponent must ensure that all venting of odorous emissions, identified by the Independent Odour Audit & Validation (see Condition 8 of Schedule 5), from the wastewater treatment system is discharged via treatment processes designed in consultation with the DECCW.

9. If the Independent Odour Audit and Validation (see Condition 8 of Schedule 5) recommends that any part of the facility be enclosed to reduce odour impacts of the project, then the Proponent must enclose those areas to the satisfaction of the Director-General within the timeframe specified by the Director-General.

10. The Proponent must ensure that all stored waste is either immediately covered or stored in negative pressure environments that vent via the approved treatment processes designed in consultation with the DECCW.

11. The Proponent must ensure that all waste onsite is transported in covered vehicles.

Greenhouse Gas

12. The Proponent must implement all reasonable and feasible measures to minimise;
    a) energy use on site; and
    b) the greenhouse gas emissions produced on site;
    to the satisfaction of the Director-General.

Stack Emission Limits

13. Air emissions from the plant (stacks) must comply with the limits set out in Table 1 (in accordance with the EPL). The Proponent must advise the Director-General of any variations to the EPL as approved by DECCW.

Table 1 - Stack Emission Limits

Emission Point(s)	Fuel Type	Pollutant	Units of Measure	100 Percentile Concentration Limits	Average Period	Reference Conditions
Environmental Assessment Stack 1 and 2	Biogas	Nitrogen Dioxide (NO^2) or nitric oxide (NO) or both, as NO^2 equivalent	Milligrams per cubic metre	450	1-hour block	Dry, 273 K, 101.3 kPa, 3% oxygen (O2)

Pollution Discharge Monitoring

14. The Proponent must undertake pollution discharge monitoring in accordance with the project EPL and the approved Air Quality, Odour and Greenhouse Gas Management Plan detailed in Condition 16 of Schedule 4. The Proponent must advise the Department of any variations to the EPL as approved by DECCW

15. The Proponent must ensure that the design and construction of the facility includes sampling positions that comply with TM-1 as set out in the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW.*

Air Quality, Odour and Greenhouse Gas Management

16. The Proponent must prepare and implement an Air Quality, Odour and Greenhouse Gas Management Plan for the project to the satisfaction of the Director-General. The plan must:
    a) be prepared by a suitably qualified and experienced independent expert in consultation with the DECCW;
    b) be submitted to the Director-General for approval prior to commencement of construction;
    c) include details of air quality processes;
    d) describe the measures that would be implemented to minimise and manage air quality, odour and greenhouse gas impacts of the project;
    e) include a program for monitoring the air quality and odour impacts of the project during operation consistent with *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC, 2005); and
    f) include a program for monitoring the effectiveness of these measures, and a protocol for the periodic review of the plan.

    The Proponent must not carry out any construction work on-site before the Air Quality, Odour and Greenhouse Gas Management Plan has been approved by the Director-General.

NOISE

Operating Hours

17. The Proponent must comply with the operating hours in Table 2.

Table 2: AWT Site Operating Hours

Activity	Day	Hours
Construction	Monday - Friday	7 am – 6 pm
	Saturday	8 am – 1 pm
	Sunday & Public Holidays	Nil
Waste receipt, outdoor operations and product dispatch	Monday - Friday	6 am – 4 pm
	Saturday	8 am – 4 pm
	Sunday	8 am – 4 pm
	Public Holidays	6 am – 2 pm
Indoor operations	Monday - Friday	5 am – 9 pm
Biological Plant, Electricity Generation Plant, and Emergency	Monday - Sunday	Anytime

Noise Limits

18. The Proponent must ensure that noise generated from the project does not exceed the noise limits presented in Table 3.

Table 3: Project Noise Limits

Location	Day	Evening	Night	
	LAeq (15 minute) dB(A)	LAeq (15 minute) dB(A)	LAeq (15 minute) dB(A)	LAmax dB(A)
Barden Ridge	35	35	35	45
North Engadine	35	35	35	45
ANSTO Motel	55	45	40	45
ANSTO Nearest Building	65	65	65	

Notes:

- *For the purpose of this condition Day, Evening and Night is defined in Definitions.*
- *Noise from the premises is to be measured at the most affected point or within the residential boundary or at the most affected point within 30 metres of the dwelling (rural situations) where the dwelling is more than 30 metres from the boundary to determine compliance with the $L_{Aeq(15\ minute)}$ noise limits.*
- *Where it can be demonstrated that direct measurement of noise from the development is impractical, the Department and the DECCW may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy).*
- *The modification factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable.*
- *The noise limit in Table 2 applies under all meteorological conditions except for any one of the following:*
  - *wind speed greater than 3 metres/second at 10 metres above ground level; or*
  - *stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or*
  - *stability category G temperature inversion conditions.*
- *For the purposes of Table 2;*
  - *the meteorological data to be used for determining meteorological conditions is the data recorded by the meteorological weather station to be determined in consultation with the DECCW; and*
  - *stability category temperature inversion conditions are to be determined by the sigma-theta method referred to be Part E4 of Appendix E of the NSW industrial Noise Policy.*

Noise Management

19. The Proponent must prepare and implement a Noise Monitoring Program for the project. The plan is to be prepared in consultation with DECCW and submitted to the Director-General for approval prior to the commencement of operation of the project.

SOIL AND WATER

Discharge Limits

20. Except as may be expressly provided in an EPL for the project, the Proponent must comply with section 120 of the *Protection of the Environment Operations Act 1997*

21. The Proponent must discharge all wastewater generated by the project, including treated wastewater, to sewer via the existing LHWRC leachate system in accordance with a Trade Waste Agreement with Sydney Water. Wastewater shall only be reused as process makeup water and not for applications such as dust suppression and vehicle wash down.

22. The Proponent must ensure that process wastewater from the ArrowBio plant is kept separate from the stormwater management system and is stored in a reservoir or tank engineered and designed in accordance with the requirements of the DEC's (1999) *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes*.

Bunding

23. The Proponent must ensure that all above ground tanks and vats, including those used for treating or processing wastewater and fuel storage, are surrounded by a bund with a capacity to contain 110% of the largest tank within the bund. These bunds must be designed and installed in accordance with the requirements of all relevant Australian Standards, and/or DECCW's Environmental Protection Manual *Technical Bulletin Bunding and Spill Management*.

Erosion and Sediment Control

24. During construction, the Proponent must implement suitable erosion and sediment control measures on site, in accordance with the relevant requirements in the latest version of the *Managing Urban Stormwater: Soils and Construction* guidelines.

Soil and Water Management

25. The Proponent must prepare and implement a Soil and Water Management Plan for the project to the satisfaction of the Director-General. This plan must
    a) be prepared in consultation with DECCW and NOW by a suitably qualified and experienced expert whose appointment has been endorsed by the Director-General,
    b) be submitted to the Director-General for approval prior to the commencement of operations on site;
    c) include a water balance for the project;
    d) include details of the wastewater treatment system and processes; and
    e) ensure that suitable measures are implemented to minimise water use, manage stormwater, wastewater and process water, and comply with any discharge limits specified in a trade waste agreement and/or EPL.

TRAFFIC

26. The Proponent must ensure that all internal roads and parking (including driveways, grades, aisle widths, aisle lengths, turning paths, sight distance requirements and parking bay dimensions) associated with the project are in accordance with the latest versions of the Australian Standards 2890.1:2004 and 2890.2:2002, and AUSTROADS for heavy vehicles.

27. The Proponent must ensure that:
    a) all parking generated by the project is accommodated on site, and that no vehicles associated with the project shall park on the public road system at any stage; and
    b) that the project does not result in any vehicles queuing on the public road network.

Transport Code of Conduct

28. The Proponent must prepare and implement a Transport Code of Conduct for the project to the satisfaction of the Director-General. This protocol must:
    c) be prepared in consultation with the RTA and Council, and be submitted to the Director-General for approval prior to the delivery of any waste to site; and
    d) describe the measures to be implemented to minimise the impact of the project on the local and regional road network, including traffic noise.

VISUAL AMENITY

Landscape Design

29. The Proponent must;
    a) undertake landscaping in accordance with the Landscape Phasing and Prioritisation Plan (GHD 31-24359-003 and 006 Rev C 31/08/09) and Planting Plan (GHD Fig 18-2) (see Appendix 2 and 3);
    b) ensure that the landscaping on the site does not impede driver sight distance of vehicles entering or leaving the site;
    c) complete all landscaping prior to commencement of operation; and
    d) maintain landscaping during the life of the project.

Lighting

30. The Proponent must ensure that all external lighting associated with the development:
    a) does not create a nuisance to surrounding properties or roadways; and
    b) complies with *AS 4282(INT) 1995 – Control of Obtrusive Effects of Outdoor Lighting.*

HAZARDS

31. The Proponent must prepare and implement a Bushfire and Emergency Management Plan for the project to the satisfaction of the Director-General. The plan must:
    a) be prepared in consultation with the Rural Fire Service;
    b) include identified Asset Protection Zones; and
    c) provide safe access and egress, including an emergency access gate leading to Little Forest Road**.**

SCHEDULE 5
ENVIRONMENTAL MANAGEMENT, REPORTING & AUDITING

ENVIRONMENTAL MANAGEMENT

1. The Proponent must prepare and implement an Environmental Management Strategy for the project to the satisfaction of the Director-General. This plan must:
   a) be prepared in consultation with the DECCW by a suitably qualified and experienced expert;
   b) be submitted to the Director-General for approval prior to commencement of any construction works;
   c) identify the statutory requirements that apply to the project;
   d) include a copy of the management plans and monitoring programs required in this approval;
   e) describe the procedures that would be implemented to:
      - keep the local community and relevant agencies informed about the operation and environmental performance of the project;
      - receive, handle, respond to, and record complaints;
      - resolve any disputes that may arise during the course of the project;
      - respond to any non-compliances; and
      - respond to emergencies;
   f) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the project.

Construction Management Plan

2. The Proponent must prepare and implement a Construction Management Plan for the project to the satisfaction of the Director-General. The Plan must be submitted to the Director-General for approval prior to commencement of any construction works.

REPORTING

Pre-Construction Compliance

3. Prior to the commencement of construction, the Proponent must certify in writing to the Director-General that all the relevant conditions of this approval have been complied with and advise of the planned construction commencement date.

Pre-Operation Compliance

4. Prior to the commencement of operations, the Proponent must submit 'work as executed' plans to the Department for all the development associated with the project. These plans must be prepared by a suitably qualified and experienced expert, and include plans showing the 'work as executed' plans laid over the approved plans to demonstrate that the development has been carried out in accordance with the approved plans.

Incident Reporting

5. Within 24 hours of detecting an exceedance of the limits/performance criteria in this approval, or the occurrence of an incident that causes (or may cause) harm to the environment, the Proponent must notify the Department and DECCW of the exceedance/incident.

6. Within 6 days of notifying the Department and DECCW, the Proponent must provide a written report to the Department and DECCW that:
   a) describes the date, time, and nature of the incident;
   b) identifies the cause, or likely cause, of the incident; and
   c) describes what action has been taken to date address the incident, and what actions are proposed to be implemented in the future to either address the consequences of the incident or avoid a recurrence of the incident.

ANNUAL REVIEW

7. One year after the commencement of operations, and annually thereafter, the Proponent must review the environmental performance of the project to the satisfaction of the Director-General. This review must:
   a) describe the operations that were carried out in the past year;
   b) analyse the monitoring results and complaints records of the Project over the past year, which includes a comparison of these results against the

- relevant statutory requirements, limits or performance measures/criteria;
- monitoring results of previous years; and
- relevant predictions in the EA;

c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
d) identify any trends in the monitoring data over the life of the Project; and
e) describe what measure will be implemented over the next year to improve the environmental performance of the Project.

INDEPENDENT ODOUR AUDIT & VALIDATION

8. Within 6 months of the commencement of operations of the AWT facility, or within a timeframe otherwise approved by the Director-General, the Proponent shall commission and pay the full cost of an Independent Odour Audit and Validation of the project. This audit must:
   a) be conducted by a suitably qualified, experienced and independent expert whose appointment has been endorsed by the Director-General;
   b) include odour sampling and analysis for all potential odour sources at the site. Odour sampling and analysis must be undertaken in accordance with the requirements of *Approved Methods For Sampling And Analysis Of Air Pollutants In NSW* or alternate methods approved by the DECCW;
   c) be used as input for an air quality impact validation assessment;
   d) demonstrate compliance with DECCW's ground level concentration criteria;
   e) use emissions from the actual performance of the plant;
   f) validate the emissions used and impacts predicted in the EA;
   g) review the Proponent's production data (that are relevant to the odour audit) and complaint records;
   h) audit the effectiveness of the odour controls on site in regard to protecting receivers against offensive odour;
   i) review the Air Quality, Odour and Greenhouse Gas Management Plan for the project;
   j) determine whether the project is complying with the requirements in this approval; and if necessary,
   k) recommend and prioritise measures to either improve the odour controls on site and/or the Air Quality, Odour and Greenhouse Gas Management Plan, such that receivers would be protected against offensive odour from the site.

   Note: The Director-General may vary the frequency of the audit depending on the performance of the project.

9. Within 6 weeks of the completion of this audit, the Proponent shall submit a copy of the audit report to both DECCW and the Department with a response to any recommendations contained in the audit report.

10. Within 1 year of the commencement of operations, and every 3 years thereafter, unless the Director-General directs otherwise, the Proponent must commission and pay the full cost of an Independent Environmental Audit of the project. This audit must:
    a) be carried out by a suitably qualified, experienced and independent audit team containing a waste management specialist and odour expert, whose appointment has been endorsed by the Director-General;
    b) include consultation with DECCW;
    c) assess the environmental performance of the project, and its effects on the surrounding environment;
    d) determine whether the project is complying with the relevant standards, performance measures and statutory requirements;
    e) review the adequacy of the Environmental Management Strategy for the project, compliance with the requirements of this approval, and any other licences and approvals; and, if necessary,
    f) recommend measures or actions to improve the environmental performance of the project, and/or any plan/program required under this approval.

11. Within 3 months of commissioning this audit, or as otherwise agreed by the Director-General, the Proponent shall submit a copy of the audit report to the Director-General, with a response to any recommendations contained in the audit report.

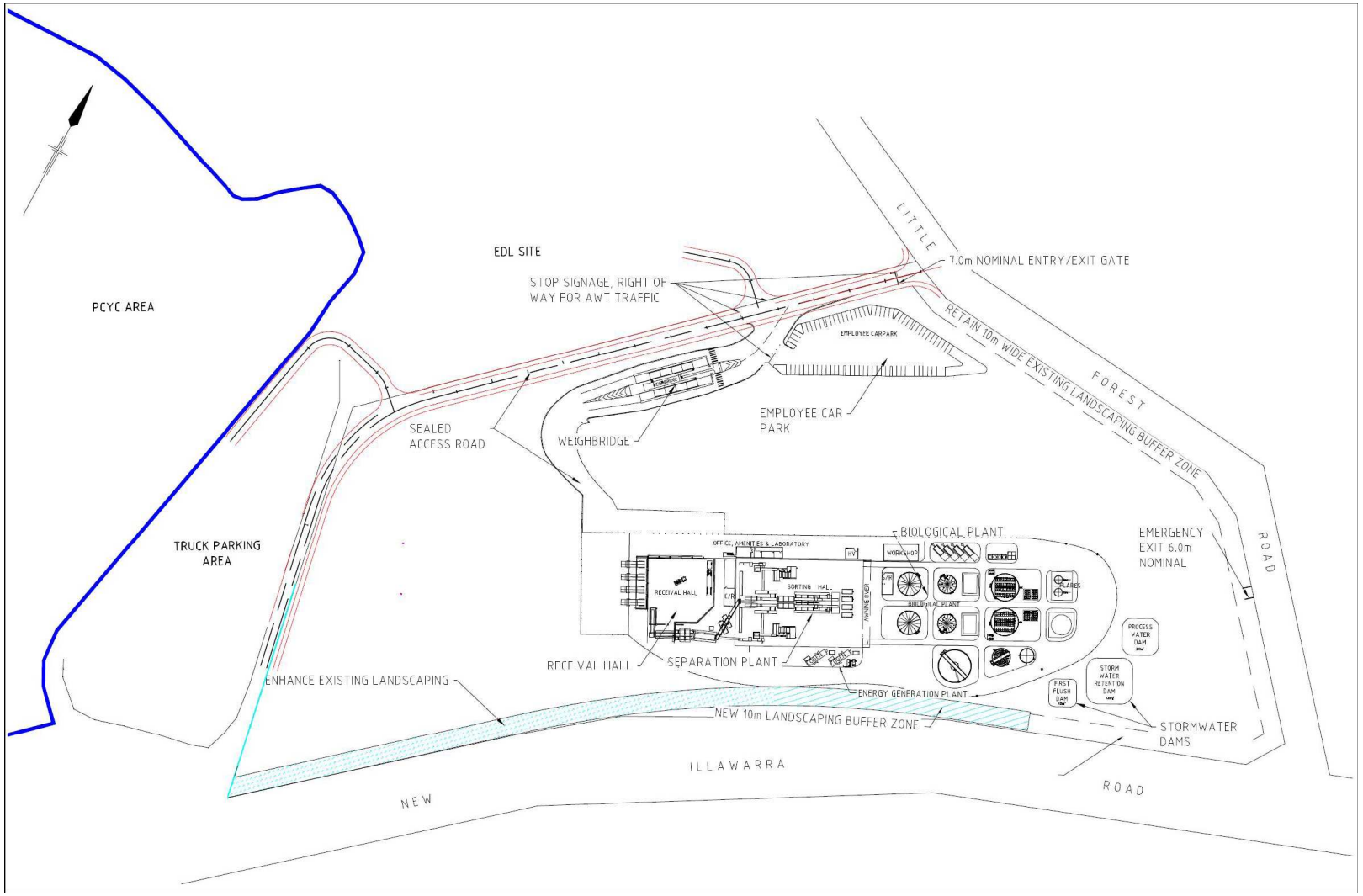
REVISION OF STRATEGIES, PLANS & PROGRAMS

12. Within 3 months of the submission of an:
    a) audit under condition 8 of schedule 5;
    b) incident report under condition 6 of schedule 5; and
    c) annual review under condition 7 of schedule 5,

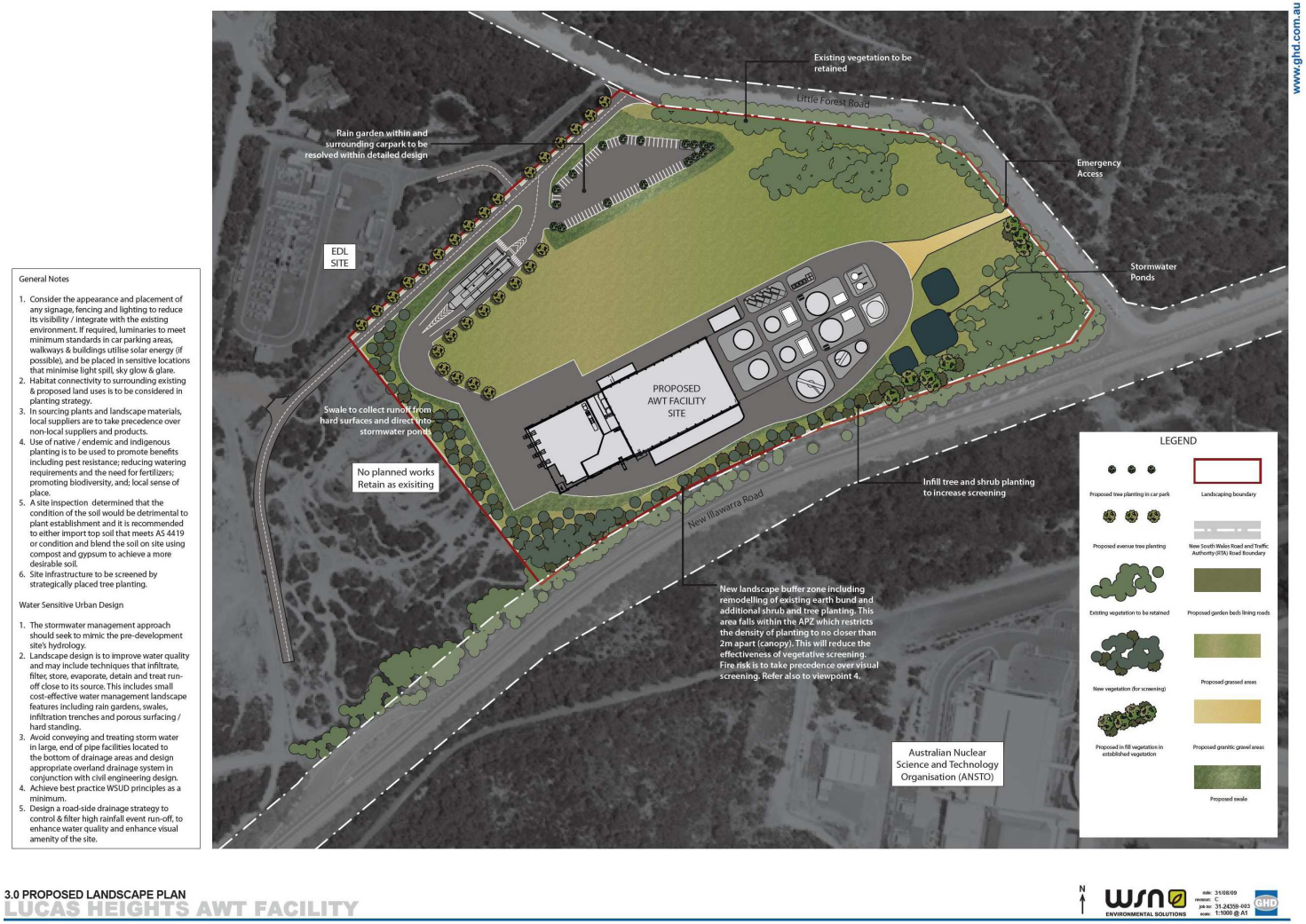
the Proponent must review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Director-General.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the project.

APPENDIX 1: SITE LAYOUT



APPENDIX 2: LANDSCAPE PLAN



General Notes

1. Consider the appearance and placement of any signage, fencing and lighting to reduce its visibility / integrate with the existing environment. If required, luminaries to meet minimum standards in car parking areas, walkways & buildings utilise solar energy (if possible), and be placed in sensitive locations that minimise light spill, sky glow & glare.
2. Habitat connectivity to surrounding existing & proposed land uses is to be considered in planting strategy.
3. In sourcing plants and landscape materials, local suppliers are to take precedence over non-local suppliers and products.
4. Use of native / endemic and indigenous planting is to be used to promote benefits including pest resistance; reducing watering requirements and the need for fertilizers; promoting biodiversity, and; local sense of place.
5. A site inspection determined that the condition of the soil would be detrimental to plant establishment and it is recommended to either import top soil that meets AS 4419 or condition and blend the soil on site using compost and gypsum to achieve a more desirable soil.
6. Site infrastructure to be screened by strategically placed tree planting.

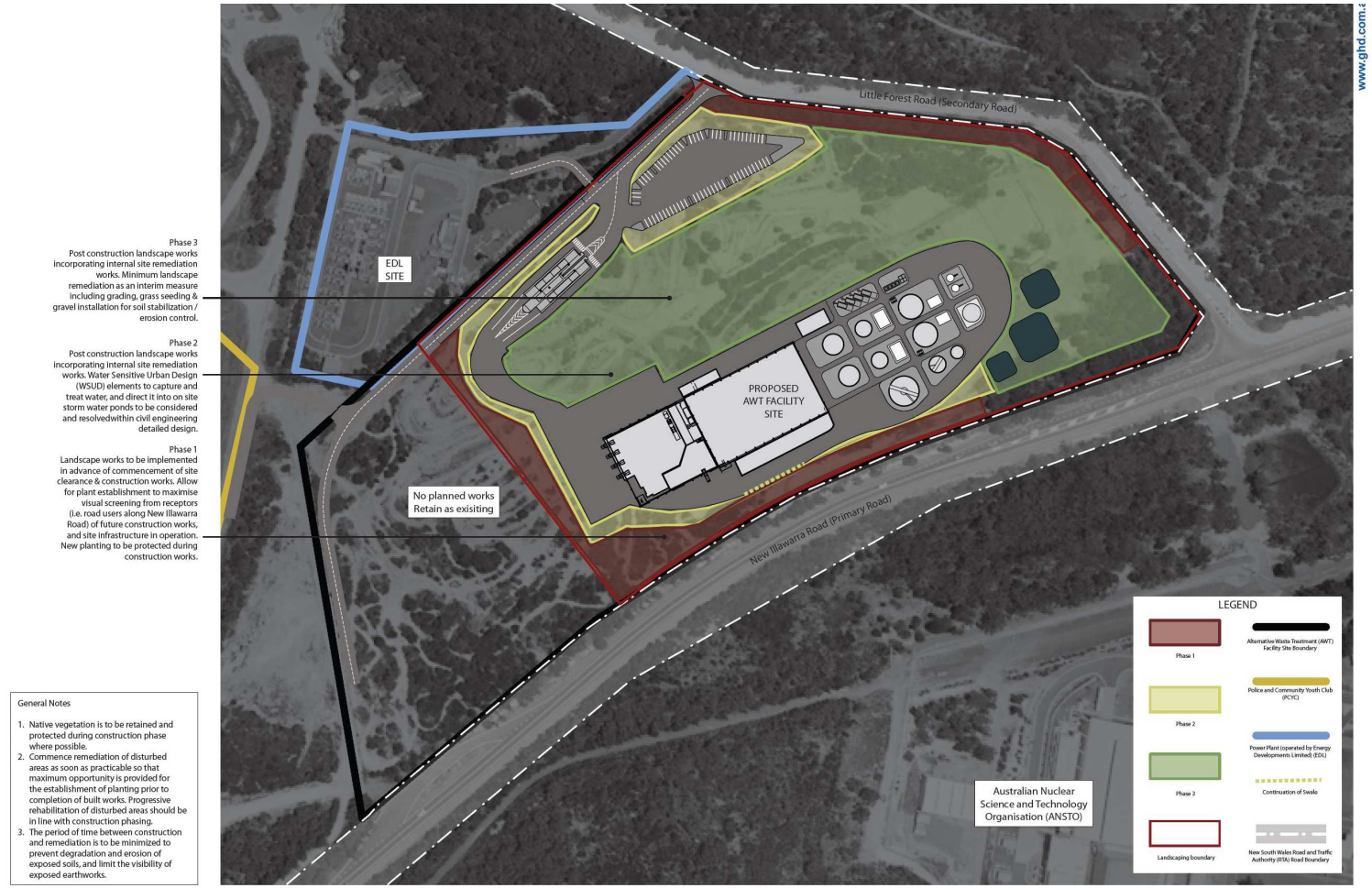
Water Sensitive Urban Design

1. The stormwater management approach should seek to mimic the pre-development site's hydrology.
2. Landscape design is to improve water quality and may include techniques that infiltrate, filter, store, evaporate, detain and treat run-off close to its source. This includes small cost-effective water management landscape features including rain gardens, swales, infiltration trenches and porous surfacing / hard standing.
3. Avoid conveying and treating storm water in large, end of pipe facilities located to the bottom of drainage areas and design appropriate overland drainage system in conjunction with civil engineering design.
4. Achieve best practice WSUD principles as a minimum.
5. Design a road-side drainage strategy to control & filter high rainfall event run-off, to enhance water quality and enhance visual amenity of the site.

3.0 PROPOSED LANDSCAPE PLAN
LUCAS HEIGHTS AWT FACILITY

N
WSN ENVIRONMENTAL SOLUTIONS
date: 31/08/09
version: C
job no: 31-24359-003
scale: 1:1000 @ A1
GHD

APPENDIX 3: LANDSCAPING PHASING & PRIORITISATION



6.0 EXISTING SITE - PROPOSED LANDSCAPE PHASING & PRIORITISATION
LUCAS HEIGHTS AWT FACILITY

APPENDIX 4: WSN's STATEMENT OF COMMITTMENTS

Table 20-1 Statement of Commitments

Issue	Commitment
Environmental management plans	As described in chapter 19, a construction environmental management plan (CEMP) would be prepared and implemented to guide environmental management and monitoring activities during construction. The CEMP would include the following sub-plans: • Noise management plan – The plan would address how noise will be mitigated and managed during construction activities, in accordance with DECC (1994) Environmental Noise Control Manual; • Flora and fauna management plan (including tree clearing protocol) – The plan would address how impacts on flora and fauna would be mitigated and managed during the construction phase, including the measures listed in chapter 13; • Air and dust management plan – The plan would outline mitigation measures to control dust from exposed areas, stockpiles, plant equipment and unsealed roads, including the measures listed in chapter 10; • Waste management plan – The plan would include disposal requirements, measures to prevent the generation and measures to reduce, re-use or recycle wastes where possible; • Soil and water management plan – The plan would address how potential construction impacts on soil and water quality will be mitigated and managed during construction works, including the measures listed in chapter 9; • Traffic management plan – The plan will include truck movements to and from the site, interactions with general public, parking and access requirements for construction personnel and safety signage and training of personnel in traffic management. Similarly, an operational environmental management plan (OEMP) would be prepared and implemented to guide environmental management and monitoring activities during operation. The OEMP would include the following sub-plans: • Stormwater management plan – The plan would include the measures to retain and re-use the maximum amount of water on-site and ensure the surface run-off water is maintained at acceptable levels. The plan would also include erosion and sediment mitigation measures; • Process water management plan – The plan would include measures to optimise reuse and ensure that wastewater generation and need for disposal is minimised; • Air quality management plan – The plan would include mitigation measures for control of odours, dust and particulates and monitoring undertaken. The plan will also outline procedures to handle any complaints. • Noise management plan – The noise management plan will include noise control measures, monitoring and procedures to handle any noise complaints. • Waste management plan – The plan would include disposal requirements, measures to prevent the generation and measures to reduce, re-use or recycle wastes where possible; • Soil and water management plan – The plan would address how potential construction impacts on soil and water quality will be mitigated and managed during operation and the required water quality monitoring; • Pest, vermin and weed control – The plan will outline mitigation measures that will control pest and vermin that may be attracted to the waste facility and minimise the degradation of the local amenity caused by pest, vermin and noxious weeds.

	• Traffic management plan – The plan will include parking and access requirements, safety signage and training of personnel in traffic management. Monitoring would be undertaken according to the EPL for the AWT facility issued by DECCW, which would include monitoring set out in section 19.5 of this environmental assessment.
Soil and Water	The proponent would implement all practicable measures to minimise soil erosion and discharge of sediments from the site. The erosion and sediment control plan prepared as part of the construction environmental management plan would ensure: • Sediment and erosion control measures, such as sediment fences, are installed and maintained, with particular attention where the drainage is towards a surface water body; • Stockpiles are stabilised and remain covered and appropriate sediment and erosion control measures are installed down slope of all stockpiles; and • Spill kits are made available to construction vehicles. The construction environmental management plan would also set out procedures for the management of accidental spills to minimise potential contamination during construction. Areas containing storage tanks would be fully bunded to contain accidental spills. Opportunities for beneficial reuse of excess process water would be investigated. An asbestos identification protocol would be developed for the identification and removal (by a suitability qualified contractor) of asbestos should it be discovered during the earthworks and construction activities
Air Quality and Odour	A dust management plan would be prepared as part of the construction environmental management plan detailing measures for the control of dust generation, including: • Site management measures to limit dust emissions from work sites, including: - Managing stockpiles to suppress dust emissions; - Watering of unsealed haul roads and disturbed surfaces (including construction areas); - Restricting the size of disturbed surfaces as much as practicable; - Prevention of truck over-loading and covering dusty loads; and - Vehicle movement controls, particularly entrance to and exit from construction work sites (and washing down trucks before they leave the site – if necessary). • When conditions are excessively dusty and the dust emissions criteria from operations cannot be maintained, then all dust generating activities must cease until dust suppression can be adequately carried out; and • Dust monitoring would be undertaken during construction. Monitoring would comply with DECCW guidelines for the Sampling and Analysis for Air Pollutants in NSW (DECC 2005). The proponent would ensure the design and operation of the project minimises the potential release of odour emissions. The specifications provided to prospective equipment suppliers would dictate the technical and environmental performance the equipment would be expected to meet, based on the proponent's operational requirements and the conditions of consent for the project.
Traffic and Transport	The proponent would ensure that the layout of the proposed car parking areas, including driveways, aisle widths, grades, parking bay dimensions, sight distance requirements and turn paths is designed in accordance with AS 2890.1-2004 and AS 2890.2-2002 during the detailed design phase. Car parking areas and entry/exit points would be clearly delineated through line marking and signage to ensure smooth, safe traffic flow. During the construction of the project, no mitigation measures are required on the external road network. A construction traffic management plan would

	form part of the construction environmental management plan to ensure safe movement of vehicles and pedestrian into and around the site. The plan would include details on construction vehicle routes, truck numbers, hours of operation, access arrangements and traffic control. The proponent would continue to liaise with the Roads and Traffic Authority regarding the design of Heathcote Road/New Illawarra Road intersection.
Greenhouse gas and energy efficiency	Potential energy efficiency measures including in the areas of lighting, compressed air, ventilation, odour prevention and removal, heating and cooling and process efficiency (as detailed in section 12.6) would be considered in the detailed design phase of the project.
Biodiversity	Biodiversity management measures would be implemented during construction to minimise impacts on remaining vegetation. Management measures would be detailed in the construction environmental management plan and would include: • Chipping/shredding cleared vegetation for use as mulch; • Installation of standard erosion control measures prior to construction to limit erosion which could affect adjacent vegetation communities and watercourses; • Erection of temporary exclusion fencing around areas of vegetation to be retained prior to construction. Locate materials, stockpiles, vehicle access and parking areas on existing cleared and disturbed land; • Stabilisation of steep banks and bare earth areas as soon as possible after construction or removal of vegetation to limit gully and sheet erosion; • Limit backfilling around the base of trees and shrubs to be retained; • Implement a tree clearing protocol to ensure that any native fauna present are not injured during the clearing process; and • Site inductions to include information on workers' obligations regarding the protection of vegetation and fauna habitats. The design of the site layout has used large areas of cleared land to minimise the required vegetation loss at the site. This includes locating site stormwater and process water dams away from the vegetated area. Planting and landscaping would be carried out in accordance with the landscape management plan that has been prepared to guide the improvement and maintenance of vegetation at the site.
Hazards - risk	To ensure the ongoing safe operation of the project, a comprehensive safety management system would be developed and implemented. The safety management system would take into account the results of the PHA, and include: • Installation of bollards or alternative protection around the biogas buffer tank to prevent vehicle collisions with the exposed piping and associated equipment; • All potential ignition sources should be eliminated from areas containing biogas; • Signage should be placed in suitable locations to indicate the presence of flammable substances; • Local exhaust and general room ventilation to prevent accumulation of explosive mixtures; • Handling equipment and tools grounded to prevent sparking; • Depending on the odour properties of the biogas, an additive may be used to odorise the gas e.g. mercaptans in order to improve detection in case of a release; • Permit to work systems for hot work; • Specific materials of construction due to the flammable nature of the process output; • Development of a maintenance regime; and • Suitable emergency response procedures and equipment. In addition, all materials would be stored in accordance with relevant legislation and Australian Standards.
Hazards - bushfires	To minimise potential bushfire risk, asset protection zones would be provided and maintained, appropriate construction materials and methods would be

	used, safe access and egress and an adequate supply of water would be provided: 1. Asset protection zone: • Asset protection zones would be provided as detailed above. • Rubbish and other material would not be stored in asset protection zones unless it is fully enclosed in non-combustible containers and removed on a regular basis (at least weekly). 2. Construction standards: • All building materials would be non-combustible where possible and meet the objectives of construction level 2 of AS 3959-1999. • The administration building would be constructed to level 3 of AS 3959-1999. 3. Access/egress: • Safe access and egress would be provided, including an emergency access gate leading onto Little Forest Road, south of the actual site access. • The Rural Fire Service would be consulted annually as part of the overall fire accreditation for the site with specific consideration of emergency response approaches (fire fighting strategies, evacuation planning). 4. Water supply: • Water supply would meet the requirements of AS 2419.1-2005 Fire hydrant installations. • Two 225,000 L dedicated fire-fighting water tanks would be provided on site. 5. Emergency management: • A bush fire evacuation plan would be prepared and integrated with the • LHWRC emergency management plan and ANSTO requirements. 6. Landscaping and site management: • Landscaping would be maintained to meet the standards of an asset protection zone. • Rubbish and other materials would not be stockpiled within the asset protection zone.
Heritage	GLALC would be contacted if any items of Aboriginal heritage significance are identified during the project construction or operation.
Noise	The project would be designed and operated to ensure that noise criteria are not exceeded. A construction noise management plan would be prepared as part of the construction environmental management plan to detail how construction impacts would be minimised and managed. The operational environmental management plan would include noise control measures, monitoring and procedures to handle any noise complaints. Noise monitoring during construction and operation would be undertaken in accordance with DECCW requirements.
Social and economic	The proponent would undertake consultation with relevant stakeholders including during the construction period. Once operational, tours of the project could also be organised. The proponent would maximise the use of arterial roads for construction access, and place controls over the use of local roads for construction vehicles.
Visual amenity	A landscape zone would be provided along the New Illawarra site boundary to allow for landscaping and screening of the project. Landscaping of the site would be undertaken in accordance with the landscape management plan. The landscape plan includes landscaping and screening of the project along both New Illawarra Road and Little Forest Road boundaries. The design of the project would involve consideration of building materials and treatments to minimise the potential visibility of the project. Design recommendations provided in section 18.4 would be incorporated into the detailed design of the project where practicable.