JRPP Number	2010SYW032
Application Number	DA10/0429
Applicant	Enviroguard Pty Ltd
Proposed Development	Installation of Landfill Gas Management System
Property Address	50A Quarry Road Erskine Park
Category of Development	Integrated
Report by	Gurvinder Singh

Assessment Report and Recommendation

Executive Summary

Council received a development application from Enviroguard Pty Ltd for the installation of a landfill gas management system at the subject site on 3 May 2010.

The land is zoned E2 Environmental Conservation under State Environmental Planning Policy (Western Sydney Employment Area) 2009. The proposed development is permissible in this zone under the definition of 'Environmental Protection Works'. The capital investment value of the proposed development is more than $5million and under the State Environmental Planning Policy (Major Development) 2005 the application shall be determined by the Joint Regional Planning Panel – Sydney West Region.

The proposed development is an integrated development as an approval is required from the NSW Department of Environment Climate Change and Water under the Protection of the Environment Operations Act 1997.

The development application was advertised in the local newspapers and notified to the adjoining and surrounding property owners/occupants from 1 to 30 September 2010 in accordance with the Penrith Development Control Plan 2006. During the exhibition period no submission was received.

An assessment under Section 79C of the Environmental Planning and Assessment Act 1979 has been undertaken and the application is recommended for approval.

Site and Surrounds

The site is located on the eastern side of Quarry Road, Erskine Park approximately 100m north of the end of Quarry Road. It has an area of 21.94 hectares.

The site is an existing solid waste landfill that is owned and operated by Enviroguard Pty Ltd. A former quarry pit is located at the subject site which is utilised for deposition of waste. A pilot landfill gas management system was installed at the site and the recovered gas is treated by burning in a temporary flare. The applicant has advised that this system, which is recovering gas from a portion of site, is operating at full capacity. The remaining fugitive emissions are discharging uncontrolled to the environment.

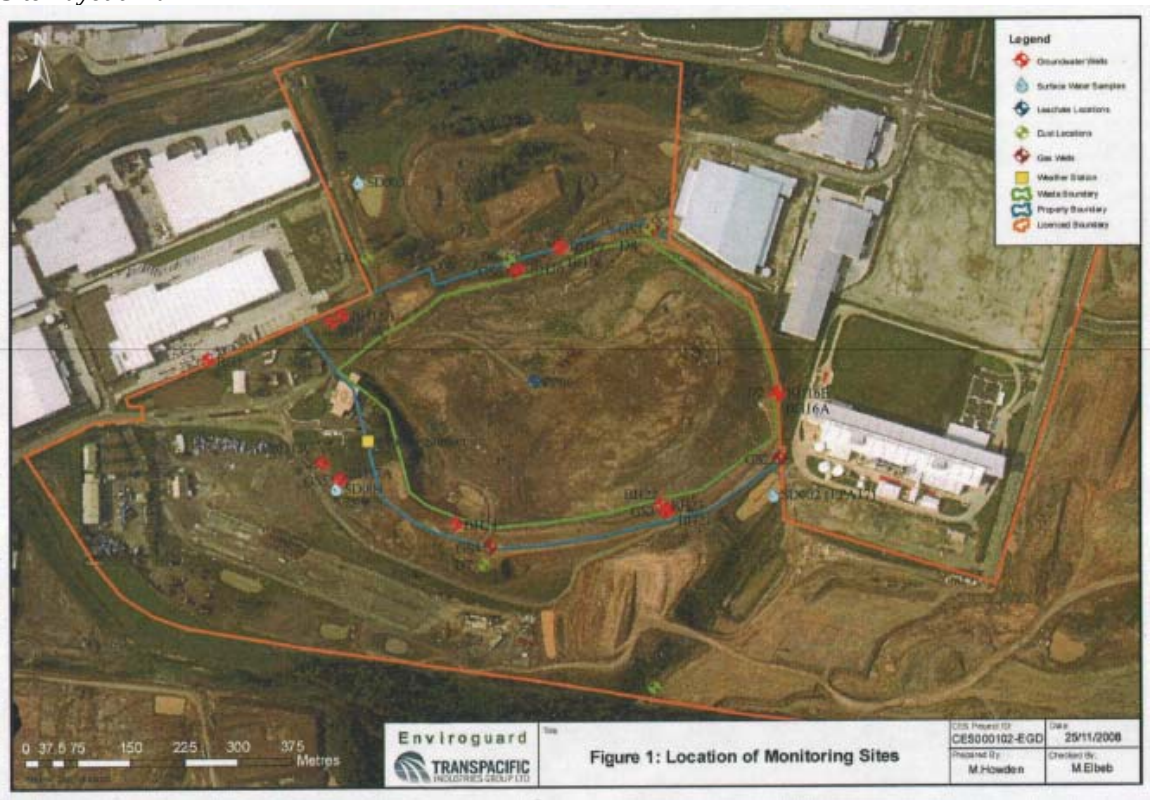
The uses in the immediate locality are mainly industrial (See Locality Map below). The nearest residential area is around 700m north of the site.

Locality Map

The Proposed Development

A landfill gas management system is proposed to be installed at the subject site. The purpose of this management system is to reduce methane emissions into the atmosphere in accordance with the goals of the proposed Carbon Pollution Reduction Scheme (CPRS) legislation. It is proposed to utilise the recovered gas to generate renewable energy with a potential to generate approximately 2 MW of electricity.

Site Layout Plan



The installation of the landfill gas management system will include the following systems, equipment and construction activities:

Landfill Gas Recovery System

This system will have the following components:

Extraction Wells
The extraction wells will comprise a partially slotted pipe that is placed in a vertical cylindrical hole excavated into the refuse. There will be a number of extraction wells distributed throughout the site. Each extraction well will be placed under vacuum and the landfill gas will be extracted.

Header System
The extraction wells will be connected by a header system to a central point, where a blower will draw the gas out of the landfill under vacuum. The header system will comprise welded High Density Polyethylene (HDPE) pipes and it will be located below grade.

Flare Station
The recovered landfill gas will be conveyed to an enclosed flare located inside a fenced compound and treated by burning.

Typical Flare Station

The applicant has advised that the preliminary design of the flare has indicated a stack height of approximately 8 metres above ground level. At this height, the flare tip may not be visible off-site because of the screening effect of surrounding fill areas, overburden stockpiles and existing trees.

Landfill Gas Processing Equipment

Landfill gas compression and treatment equipment will be installed to treat landfill gas to reduce its moisture content and remove particulate matter. Treatment processes will be incorporated in the blower/flare system. A separate treatment unit will be provided for processing gas for the engine generator sets. This will include cooling of the landfill gas and removal of the resultant condensate. Gas compression equipment will be installed to deliver the landfill gas to the engine/generator sets.

Power Generation Plant

It is proposed to install two engine generator sets. Each generator set will be constructed as a self-contained unit. Each unit consists of a landfill gas fuelled internal combustion engine and transformer and module enclosure incorporating all ancillary electrical, cooling and venting equipment.

Each module will be completely enclosed with ducts for the cooling system and the engine exhaust. The modules will be approximately 13 metres long, 3 metres wide and 5 metres high. Module casings will be constructed of steel and lined with acoustic damping material to inhibit noise transmission. All modules will be prefabricated and installed on concrete foundations.

Construction Details

The construction activities will include:

- Installation of the vertical extraction wells, lateral and header pipes, perimeter monitoring wells, blower/flare station and pollution control measures
- Construction of concrete foundations for the generators and transformers.

Operation and Maintenance

The landfill gas recovery system, gas processing units, generator modules, transformers and electrical control equipment will operate 24 hours a day except during the maintenance periods. During peak periods, the facility will operate at full capacity. During off-peak periods a reduced number of engine generator units may be operated. The entire facility will be designed to operate on an automatic basis with monitoring being performed by personnel.

Maintenance activities associated with the power plant will involve routine maintenance of the equipment and servicing when required.

Security and Safeguards

The applicant has advised that access to the site will be limited to authorised personnel only. A two-metre high security fence to prevent unauthorised entry will enclose the compound housing the flare, power plant and ancillary equipment. Should a fault condition arise within the power generation facility or the gas field, automatic protection and control systems will activate. These may, if required, cause a shut down of the facility and disconnection from the electrical system. If shutdown occurs, the facility will remain off line until an operator is able to rectify the situation.

The site plan and other plans submitted with the development application are attached to this report at Appendix 1.

Planning Assessment

The development has been assessed in accordance with the matters for consideration under Sections 91 and 79C of the Environmental Planning and Assessment Act 1979 as follows:

Section 91 – Integrated Development

The proposed development required an approval from the NSW Department of Environment Climate Change and Water (DECCW) under the Protection of Environment Operations Act 1997. The general terms of approval were issued by the DECCW and they are attached to this report.

Section 79C(1)(a)(i) – Any Environmental Planning Instrument

State Environmental Planning Policy (Western Sydney Employment Area) 2009 (SEPP-WSEA)

Permissibility

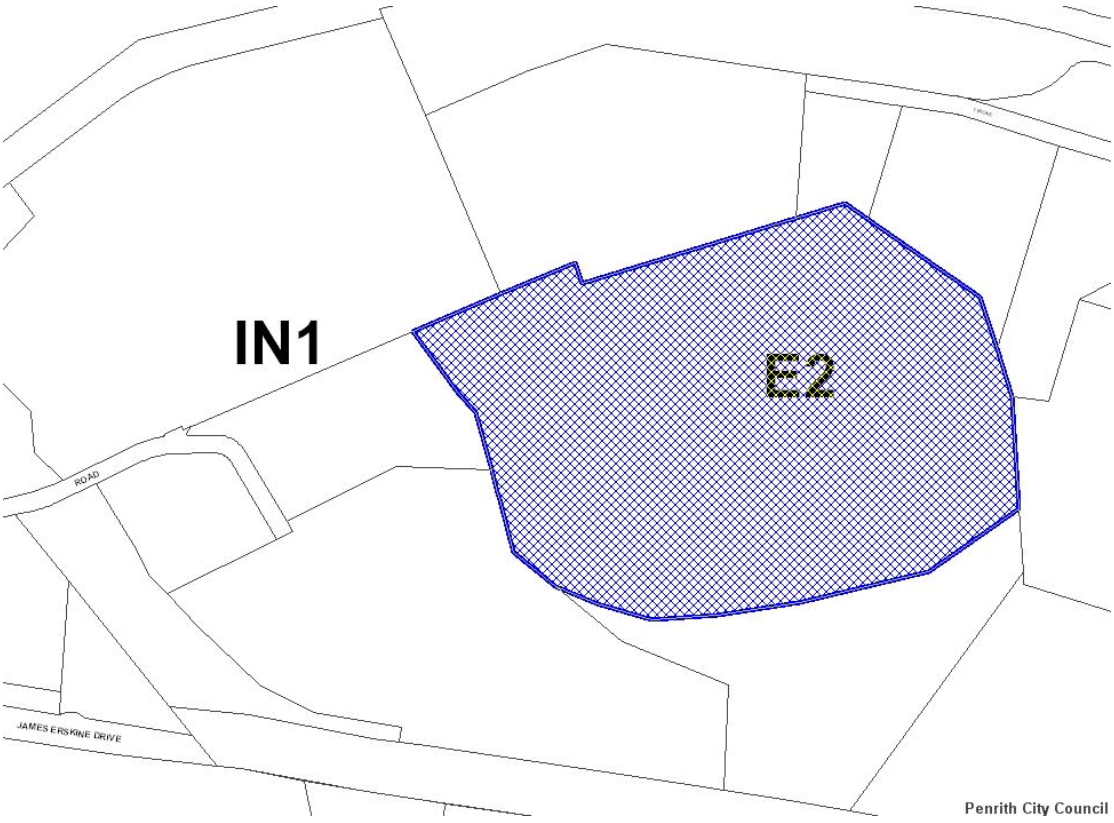
The land is partly zoned IN1 General Industrial and Zone E2 Environmental Conservation under SEPP-WSEA. The part of the site where the landfill gas

management system is proposed is zoned E2 Environmental Conservation. The proposed development is defined as 'Environmental Protection Works' which is permissible with the consent of Council.

Environmental Protection Works are defined as works associated with the rehabilitation of land towards its natural state or any work to protect land from environmental degradation, and includes bush regeneration works, wetland protection works, erosion protection works, dune restoration works and the like.

The proposed works will protect land from environmental degradation by managing landfill gas and using it to generate electricity.

Zoning Plan



Objectives of Zone E2 Environmental Conservation

The relevant objectives of the zone are:

- *To protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.*
- *To prevent development that could destroy, damage or otherwise have an adverse effect on those values.*

The proposed development is consistent with above objectives of the zone as the extraction and utilisation of landfill gas will result in the reduction of

- greenhouse gas emissions to the atmosphere
- potential of fire due to uncontrolled methane emissions
- odour emissions from the landfill site.

These are protection measures that will enhance the ecological value of the site.
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Clause 18 Requirement for development control plans

This clause requires that Council must not grant consent to development on any land to which this Policy applies unless a development control plan has been prepared for that land.

A development control plan was prepared for the land identified as the "Erskine Park Employment Area" under the Penrith Development Control Plan 2006 (approved 21 August 2006 and as in force on 15 December 2006). Clause 18 is satisfied.

Part 5 Principal Development Standards

The relevant principal development standard is addressed below:

Ecologically Sustainable Development

This development standard requires that Council must not grant consent unless it is satisfied that the development contains measures designed to minimise:

- the consumption of potable water, and
- greenhouse gas emissions.

The proposed landfill gas management system will utilise water in its cooling processes. Water used for the cooling process for the power plant will be recirculated. Small volumes or water will be required for make-up purposes in the cooling water systems due to minor leaks and losses in the system. The proposed development will reduce green house gas emissions by controlling methane emissions to the atmosphere. This aspect has been addressed in a further Section '*Air Quality'* of this report.

Sydney Regional Environmental Plan No. 20 – Hawkesbury Nepean River

The aim of SREP 20 is to protect the environment of the Hawkesbury-Nepean River system, by ensuring that the impacts of future land uses are considered in a regional context.

The requirement of SREP 20 to assess potential impacts on water quality particularly during construction operations is relevant to the proposal. A condition of consent is imposed that requires sedimentation and erosion controls to be in place prior to the commencement of any site works. This will ensure that quality of water from the site has no adverse impact on the existing environment of the Hawkesbury-Nepean River system.

State Environmental Planning Policy (Major Development) 2005

State Environmental Planning Policy (Major Development) 2005 identifies development for which regional panels are to exercise specified consent authority functions.

The capital investment value (CIV) of the proposed development is $5million. Given that the CIV is $5million, the proposed development is to be determined by the Joint Regional Planning Panel – Sydney West pursuant to Part 3 - Regional Development of the State Environmental Planning Policy (Major Development) 2005.

Section 79C(1)(a)(ii) – Any Draft Environmental Planning Instruments

Draft Penrith Local Environmental Plan 1999 (Flora and Fauna Conservation)

The activities proposed by this application will not impact on the flora and fauna and it would not result in any inconsistency or non-compliance with the terms of this draft plan.

Section 79C(1)(a)(iii) – Any Development Control Plan

Penrith Development Control Plan (DCP) 2006

The following aspects of the above DCP are relevant to the proposed development:

Crime Prevention Through Environmental Design (CPTED)

The principles of this section of the DCP 2006 require a safe and secure development with adequate lighting, visual access and passive surveillance to all areas of the site.

The applicant has advised that access to the landfill gas management system will only be granted to Enviroguard operators and other authorised personnel. The main equipment associated with the system will be located in a fenced compound and adequately signposted with warning of the danger of high voltage and gas processing.

It is considered that with appropriate safety and security management, the proposed development can provide activation and passive surveillance to reduce the risk of crime.

Conditions are recommended that reflect CPTED principles for maintaining safety and security within and around the property. These conditions include provision of adequate lighting for surveillance and implementation of a safety and security management plan. It is acknowledged, however, that safety will be increased through good management.

Waste Planning

A Waste Management Plan is submitted with the development application which specifies strategies for waste management during construction activities and the operation of the development.

Although there is no demolition to take place on the site, excavation will be required and material will be disposed of in accordance with Council's requirements. All surplus construction materials, including packaging materials, workers facilities and general rubbish will be progressively removed from the site throughout the construction period in accordance with the Waste Management Plan. Conditions are included in the recommendation to ensure the satisfactory operation of the waste management system.

Section 79C (1) (a) (iv) – The Regulations

No matters prescribed in the Regulation are relevant in the consideration of this application.

Section 79C(1)(b) – The Likely Impacts of the Development

Air Quality

The recovery of landfill gas from the site will prevent the gas from penetrating into the atmosphere. There will be a significant reduction in odour and greenhouse gas emissions. All of these are positive outcomes for air quality.

Greenhouse Gas Emissions
Greenhouse gas emissions warm the earth's atmosphere from increased concentration of methane, carbon dioxide and other toxic gases. The combustion and utilisation of landfill gas will result in the reduction of greenhouse gases particularly methane. The production of electricity at the site will reduce the greenhouse effect by offsetting the electricity generation at major power stations that are mainly powered by coal which is a major contributor to greenhouse gas emissions.

Odour
Utilisation of landfill gas will result in the reduction of odour emitted from the waste disposal areas of the site. Movement of landfill gas will be controlled using the gas recovery system and thermal destruction of odorous components by combustion.

Dust
Dust created during construction may cause dust problems to the nearby properties. A condition has been recommended that dust suppression techniques shall be employed during site and constructions works.

Noise

The anticipated noise emissions that will emanate from the landfill gas management system will be from the operation of the electricity generators. The generator modules are designed to attenuate noise to 75dB(A) at a distance of 1 metre from the generator. As these generators will be located away from residential development and public areas the noise generated will not be audible to these areas.

Potential sources of noise during construction will include earthmoving equipment during site preparation, delivery of various items of plant and the subsequent building works to complete the power generation facility. A condition has been imposed that limits the construction hours so that nobody in the surrounding area is prejudiced by

construction noise. It is anticipated that the project will have minimal impact on the existing acoustic amenity.

Traffic

Traffic associated with the construction, operation and maintenance of the proposed development will access the site from Quarry Road Erskine Park. The applicant has advised that the estimated traffic generation during construction will be approximately 2 - 4 heavy vehicle movements per day and 10 light vehicle movements per day. Construction will also involve mobile crane/s to unload and install heavy items and small earthmoving machinery.

The construction and operation of the proposed facility will have a negligible traffic impact on the local road system.

Visual Amenity

As the residential areas are located far away from the site the visual impact of the landfill gas management system will be negligible. The flare will have a stack height of approximately 8 metres above ground level. At this height, the flare tip may not be visible off-site because of the screening effect of surrounding fill areas, overburden stockpiles and existing trees.

Socio-Economic Effects

The installation of the landfill gas management system will result in a number of temporary jobs being created. The operation and maintenance of the system will generate additional employment. The applicant has advised that the revenue from the sale of electricity will assist to offset the costs involved in the installation of the gas collection system. There are environmental benefits of the proposed system which in turn will benefit the community.

Section 79C(1)(c) – The Suitability of the Site for the Development

The site is considered suitable for the proposed development due to its existing use as a landfill. There are no major site constraints and the site is accessible from the local road network.

Section 79C(1)(d) – Any Submissions made in relation to the Development

Referrals

The application was referred to the following Council Officers and their comments and conditions have formed part of the assessment and report:

Council Officer	***Comments/Conditions***
Senior Building Surveyor	No objections subject to recommended conditions

Senior Development Engineer	No objections subject to recommended conditions
Environmental Health Officer	No objections subject to recommended conditions
Department of Environment Climate Change and Water	General Terms of approval have been issued.

Community Consultation

This application was advertised in the local newspapers and notified to the owners and occupants of the adjoining sites from 1 to 30 September 2010 in accordance with Part 2.7-Notification and Advertising of DCP 2006. No submission was received during the exhibition period.

Section 79C(1)(e) – The Public Interest

The landfill gas management system will contribute to the protection of the environment. It will provide social and economic benefits to the community. The surrounding development will have negligible impact as a result of the proposed development. It is considered that the proposal will serve a wider public interest.

Section 94 Contributions

Contributions do not apply to this development proposal.

Conclusion

This application seeks consent to install a landfill gas management system at the existing landfill site. The proposed development will improve the air quality of the existing landfill. The recovered gas will be used to produce electricity which will be a good renewable energy source in the Penrith Local Government Area.

Consideration of all matters has identified that the proposed development is suitable for the site subject to the recommended conditions. After detailed consideration of all matters under Section 79C of the Environmental Planning and Assessment Act 1979 this report recommends that the application be granted consent.

Recommendations

1. The information contained in the report on Development Application DA10/0429 for Installation of Landfill Gas Management System at No.50A Quarry Road Erskine Park be received;

2. The development application (DA10/0429) be granted consent subject to the attached conditions:

Standard Conditions

2.1 The development must be implemented substantially in accordance with the following plans stamped approved by Council, the application form and any supporting information received with the application, except as may be amended in red on the attached plans and by the following conditions:

Drawing Title	Drawing No	Revision	Prepared by	Dated
Gasfield Design Layout	0019-AB-003	D	Run Energy	18/02/2009
Typical Well Installation	RE-LFG-001	A	Run Energy	22/02/2007
Flare General Arrangement	Q9329-01	B	GASCO	22/02/2009

2.2 The development shall not be used or occupied until an Occupation Certificate has been issued.

2.3 Exterior lighting shall be located and directed in such a manner so as not to create a nuisance to surrounding landuses. The lighting shall be the minimum level of illumination necessary for safe operation. The lighting shall be in accordance with AS 4282 "Control of the obtrusive effects of outdoor lighting" (1997).

2.4 The finishes of all structures and buildings are to be maintained at all times and any graffiti or vandalism immediately removed/repaired.

2.5 A **Construction Certificate** shall be obtained prior to commencement of any building works.

2.6 Dust suppression techniques shall be employed during site and constructions works.

2.7 That a safety and security management plan shall be prepared and implemented for the gas management system and electricity generation system.

2.8 Erosion and sediment control measures shall be installed prior to the commencement of works on site including approved clearing of site vegetation. The erosion and sediment control measures are to be maintained in accordance with the approved erosion and sediment control plan(s) for the development and the Department of Housing's "Managing Urban Stormwater: Soils and Construction" 2004.

(Note: To obtain a copy of the publication, you should contact Landcom on (02) 98418600).

The erosion and sediment control measures shall be certified (by way of a Compliance Certificate) as having been installed in accordance with the approved erosion and sediment control plan(s) for the development and

"Managing Urban Stormwater: Soils and Construction" 2004. The Compliance Certificate shall be obtained and issued a minimum 2 days before any other site works are to commence, including earthworks and clearing of the site.

The approved sediment and erosion control measures are to be installed prior to and maintained throughout the construction phase of the development until [the landscaping, driveway and on-site parking areas have been completed for the development. These measures shall ensure that mud and soil from vehicular movements to and from the site does not occur during the construction of the development.

2.9 All waste materials stored on-site are to be contained within a designated area such as a waste bay or bin to ensure that no waste materials are allowed to enter the stormwater system or neighbouring properties. The designated waste storage areas shall provide at least two waste bays / bins so as to allow for the separation of wastes, and are to be fully enclosed when the site is unattended.

2.10 All excavated material and other wastes generated as a result of the development are to be re-used, recycled or disposed of in accordance with the approved waste management plan.

Waste materials not specified in the approved waste management plan are to be disposed of at a lawful waste management facility. Where the disposal location or waste materials have not been identified in the waste management plan, details shall be provided to the Certifying Authority as part of the waste management documentation accompanying the Construction Certificate application.

All receipts and supporting documentation must be retained in order to verify lawful disposal of materials and are to be made available to Penrith City Council on request.

2.11 The operating noise level of plant and equipment shall not exceed 5dB(A) above the background noise level when measured at the boundaries of the premises. The provisions of the Protection of the Environment Operations Act 1997 apply to the development, in terms of regulating offensive noise.

2.12 All aspects of the building design shall comply with the applicable performance requirements of the Building Code of Australia so as to achieve and maintain acceptable standards of structural sufficiency, safety (including fire safety), health and amenity for the on-going benefit of the community. Compliance with the performance requirements can only be achieved by:

(a) complying with the deemed to satisfy provisions, or

(b) formulating an alternative solution which:

- complies with the performance requirements, or
- is shown to be at least equivalent to the deemed to satisfy provision, or

(c) a combination of (a) and (b).

It is the owner's responsibility to place on display, in a prominent position within the building at all times, a copy of the latest fire safety schedule and fire safety certificate/ statement for the building.

2.13 Prior to the issue of a Construction Certificate, a written clearance is to be obtained from Integral Energy stating that electrical services have been made available to the development or that arrangements have been entered into for the provision of services to the development.

In the event that a padmounted substation is necessary to service the development, Penrith City Council shall be consulted over the proposed location of the substation before the Construction Certificate for the development is issued as the location of the substation may impact on other services and building, driveway or landscape design already approved by Council.

2.14 Stamped plans, specifications, a copy of the development consent, the Construction Certificate and any other Certificates to be relied upon shall be available on site at all times during construction.

The following details are to be displayed in a maximum of 2 signs to be erected on the site:

- the name of the Principal Certifying Authority, their address and telephone number,
- the name of the person in charge of the work site and telephone number at which that person may be contacted during work hours,
- that unauthorised entry to the work site is prohibited,
- the designated waste storage area must be covered when the site is unattended, and
- all sediment and erosion control measures shall be fully maintained until completion of the construction phase.

Signage but no more than 2 signs stating the above details is to be erected:

- at the commencement of, and for the full length of the, construction works onsite, and
- in a prominent position on the work site and in a manner that can be easily read by pedestrian traffic.

All construction signage is to be removed when the Occupation Certificate has been issued for the development.

2.15 Prior to the commencement of construction works:

(a) Toilet facilities at or in the vicinity of the work site shall be provided at the rate of one toilet for every 20 persons or part of 20 persons employed at the site. Each toilet provided must be:

- a standard flushing toilet connected to a public sewer, or
- if that is not practicable, an accredited sewage management facility approved by the council, or
- alternatively, any other sewage management facility approved by council.

(b) All excavations and backfilling associated with the erection or demolition of a building must be executed safely and in accordance with the appropriate professional standards. All excavations associated with the erection or demolition of a building must be properly guarded and protected to prevent them from being dangerous to life or property.

2.16 Construction works that are carried out in accordance with an approved consent that involve the use of heavy vehicles, heavy machinery and other equipment likely to cause offence to adjoining properties shall be restricted to the following hours in accordance with the NSW Environment Protection Authority Noise Control Guidelines:

- Mondays to Fridays, 7am to 6pm
- Saturdays, 7am to 1pm (if inaudible on neighbouring residential premises), otherwise 8am to 1pm
- No work is permitted on Sundays and Public Holidays.

Other construction works carried out inside a building/tenancy and do not involve the use of equipment that emits noise are not restricted to the construction hours stated above.

The provisions of the Protection of the Environment Operations Act, 1997 in regulating offensive noise also apply to all construction works.

2.17 Prior to the commencement of any earthworks or construction works on site, the proponent is to:

(a) employ a Principal Certifying Authority to oversee that the said works carried out on the site are in accordance with the development consent and related Construction Certificate issued for the approved development, and with the relevant provisions of the Environmental Planning and Assessment Act and accompanying Regulation, and
(b) submit a Notice of Commencement to Penrith City Council.

The Principal Certifying Authority shall submit to Council an "Appointment of Principal Certifying Authority" in accordance with Section 81A of the Environmental Planning and Assessment Act 1979.

Information to accompany the Notice of Commencement
Two (2) days before any earthworks or construction/demolition works are to commence on site (including the clearing site vegetation), the proponent shall submit a "Notice of Commencement" to Council in accordance with Section 81A of the Environmental Planning and Assessment Act 1979.

2.18 An Occupation Certificate is to be obtained from the Principal Certifying Authority on completion of all works and prior to the occupation of the building/tenancy and commencement of the approved use. The Occupation Certificate shall not be issued if any conditions of this consent, but not the conditions relating to the operation of the development, are outstanding, and the

development does not comply with the provisions of the Environmental Planning and Assessment Act and Regulation.

Before the Occupation Certificate can be issued for the development, [Fire Safety Certificates issued for the building are to be submitted to Penrith City Council and the New South Wales Fire Brigades.

2.19 All civil works shall be designed and constructed in accordance with Penrith City Council's Design and Construction Guidelines and Construction Specification for Civil Works and applicable Australian Standards.

2.20 Detailed engineering plans and specifications relating to the work shall be submitted for consideration and approval **prior to the issue of a Construction Certificate.**

2.21 No fill material is to be imported to the site without the prior approval of Penrith City Council in accordance with Sydney Regional Environmental Plan No.20 (Hawkesbury-Nepean River) (No.2-1997). No recycling of material for use as fill material shall be carried out on the site without the prior approval of Council.

2.22 A noise assessment is to be obtained from a qualified acoustic consultant detailing that the plant and equipment associated with the development have been selected, designed and installed in such a manner that ensures compliance with the provisions of the EPA's Industrial Noise Policy. In doing so the certificate is to undertake the relevant background noise assessments to be used as the bases for the intrusive noise criteria. The assessment is to be provided and approved by Council prior to the operation of the development.

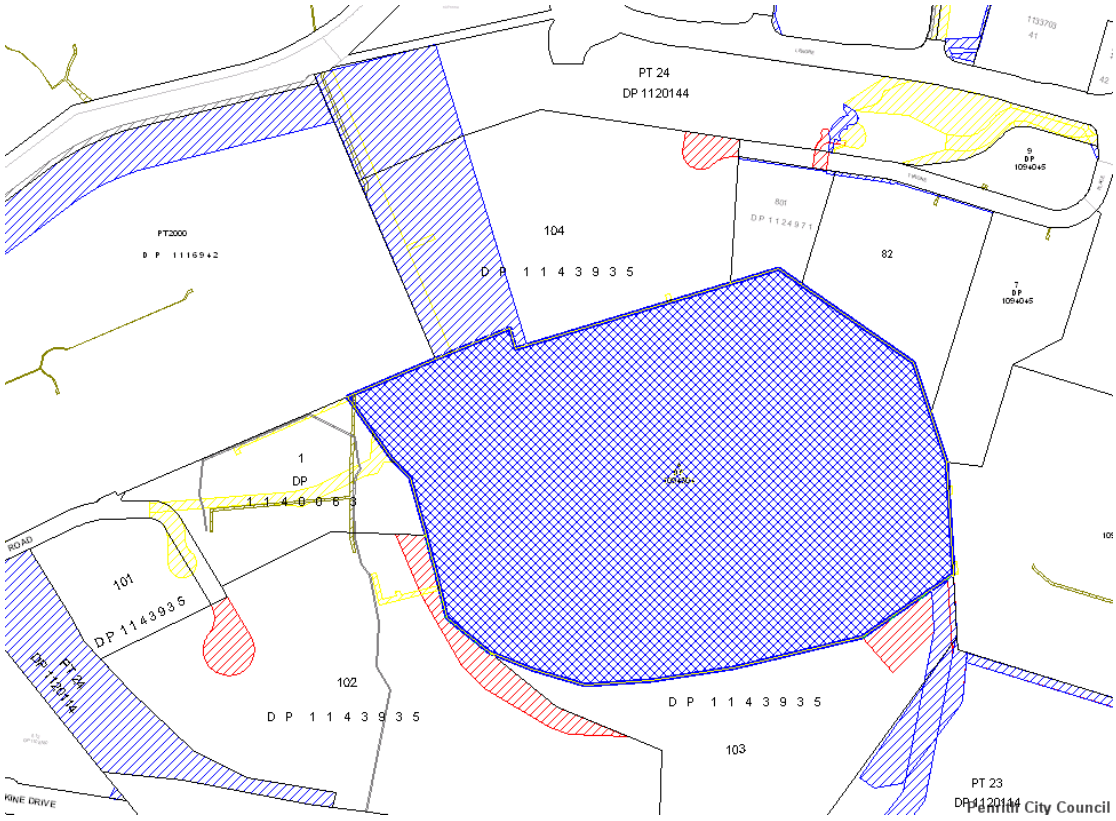
2.23 A plan detailing spill prevention, contingency and emergency procedures for the development shall be submitted for approval **prior to the commencement of operation**. The approved procedures plan shall be implemented in the event of a spill or emergency

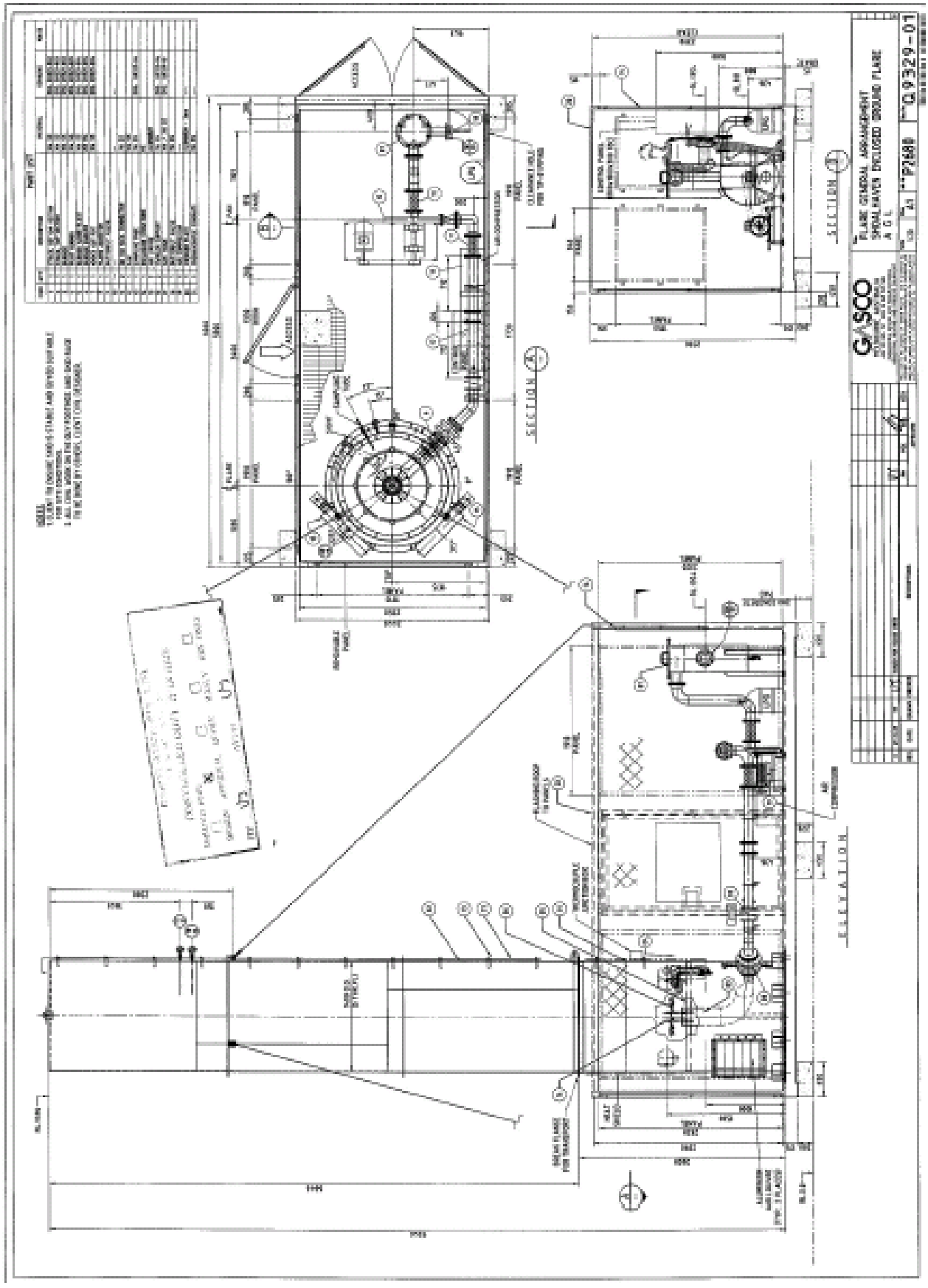
2.24 The air quality impacts assessment and mitigation reports required by DECCW are to be provided to Council prior to the detailed design and construction of the proposed landfill gas management system.

Appendix 1

Site and other Plans

Site Plan

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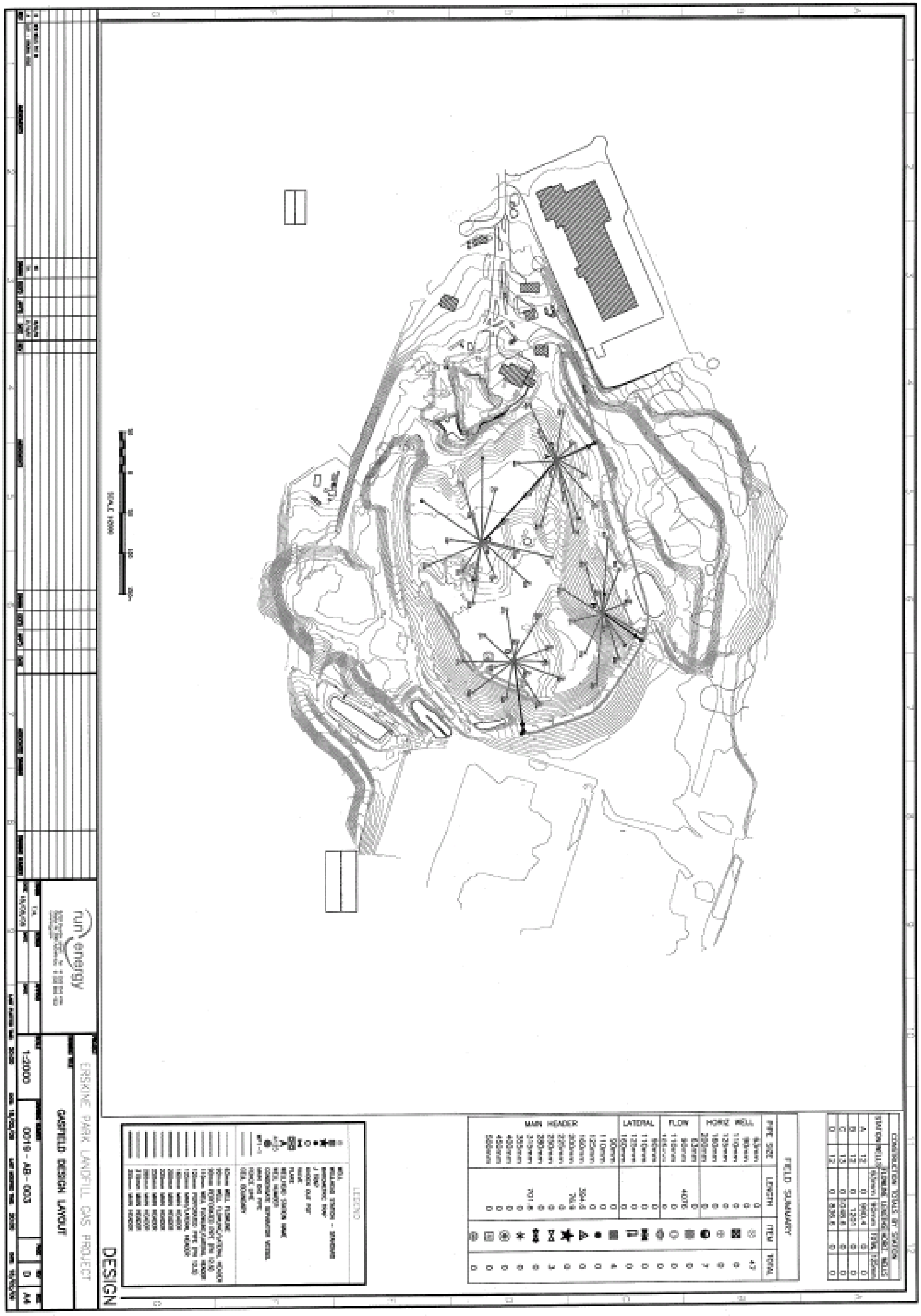
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