

**DETERMINATION OF A DEVELOPMENT APPLICATION
FOR STATE SIGNIFICANT, DESIGNATED AND INTEGRATED DEVELOPMENT
UNDER SECTION 80 OF THE
ENVIRONMENTAL PLANNING AND ASSESSMENT ACT, 1979**

I, the Minister for Planning, under Section 80 of the *Environmental Planning and Assessment Act 1979* ("the Act"), determine the development application ("the Application") referred to in Schedule 1 by granting consent subject to the conditions set out in Schedule 2.

The reasons for the imposition of conditions are:

- a) to minimise any adverse environmental impacts associated with the development;
- b) to ensure consistency of the development with the relevant provisions of the Forest Agreement and Integrated Forestry Operations Approval for the South-Coast Sub-Region of the Southern Regional Forestry Agreement;
- c) to ensure consistency and integration of the environmental management of the development with other developments comprising the Australian Silicon Project.

Andrew Refshauge MP
Deputy Premier
Minister for Planning
Minister for Aboriginal Affairs
Minister for Housing

Sydney,

2002

File No. S99/01393

SCHEDULE 1

Application made by: Australian Silicon Operations Pty Ltd ("the Applicant");

To: The Minister for Planning;

In respect of: Lot 544 DP 736015, Parish of Tomaga, County of St Vincent, Eurobodalla local government area;

For the following: The construction and operation of a wood processing and metallurgical carbon production facility and associated infrastructure ("the development");

Development Application: Integrated DA No. 317-11-2001-i, lodged with the Department of Urban Affairs and Planning on 15

November 2001, accompanied by *Wood Processing and Metallurgical Carbon Facility, Environmental Impact Statement for Australian Silicon Operation Pty Ltd* (two volumes), dated 6 November 2001 and prepared by Environmental Resources Management Australia Pty Ltd (ERM);

State Significant Development

The proposed development is classified as State Significant development by virtue of a declaration made by the Minister for Urban Affairs and Planning on 13 August 2001 under section 76A of the *Environmental Planning and Assessment Act*;

BCA Classification:

Class 5 - offices and amenities;
Class 8 - wood processing facility;
metallurgical carbon retorts;
Class 10a - metallurgical carbon storage and truck loading areas;
workshop and store;
Class 10b weighbridge;
diesel and LPG tanks.

Note: If the Applicant is dissatisfied with this determination, section 97 of the Act grants him or her a right of appeal to the Land and Environment Court, which is exercisable within 12 months of receiving notice of this determination.

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SCHEDULE 2

In this consent, except in so far as the context or subject-matter otherwise indicates or requires, the following terms have the meanings indicated:

Act	<i>Environmental Planning and Assessment Act, 1979</i>
AEMR	Annual Environmental Management Report
Applicant	Australian Silicon Operations Pty Ltd
BCA	Building Code of Australia
carbon reductant facility	the development to which this consent relates
commissioning	any activity, prior to the commencement of operation of the carbon reductant facility, with the aim of testing or verifying any component of the facility, but without the production, or intended production, of charcoal or fluxwood to be transported for use in a silicon smelter
construction	any activity requiring a Construction Certificate
Council	Eurobodalla Shire Council
Department	NSW Department of Planning
Director-General	Director-General of the NSW Department of Planning, or delegate
DLWC	NSW Department of Land and Water Conservation
dust	any solid material that may become suspended in air
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence issued under the <i>Protection of the Environment Operations Act, 1997</i>
Minister	Minister for Planning, or delegate
operation	any activity that results in the production, or intended production, of quantities of charcoal or fluxwood to be transported for use in a silicon smelter
preload material	any material brought to the site for the purpose of preloading the site, or any area of the site
Principal Certifying Authority	the Minister or an accredited certifier, appointed under section 109E of the Act, to issue a Part 4A Certificate as provided under section 109C of the Act
Regulation	<i>Environmental Planning and Assessment Regulation, 2000</i>
NPWS	NSW National Parks and Wildlife Service
POEO Act	<i>Protection of the Environment Operations Act, 1997</i>
residue timber	has the same meaning as provided in the NSW Southern Region Forest Agreement
RTA	NSW Roads and Traffic Authority
site	the land to which this consent applies
site preparation	all activities required to be undertaken on the site prior to the commencement of construction of the carbon reductant facility, including vegetation clearing.
utility	any infrastructure or service associated with water supply, sewerage, electricity supply, telecommunications or gas supply

1. GENERAL

Obligation to Minimise Harm to the Environment

- 1.1 ¹The Applicant shall implement all practicable measures to prevent or minimise any harm to the environment that may result from the construction, commissioning, operation and where relevant, the decommissioning of the carbon reductant facility.

Scope of Development

- 1.2 ²The Applicant shall carry out the development generally in accordance with:
- a) Development Application No. 317-11-2001-i, lodged with the Department of Urban Affairs and Planning on 15 November 2001;
 - b) *Wood Processing and Metallurgical Carbon Facility - Environmental Impact Statement for Australian Silicon Operations Pty Ltd* (two volumes), dated 6 November 2002 and prepared by Environmental Resources Management Australia Pty Ltd;
 - c) additional information supplied by facsimile dated 17 December 2001, from Environmental Resources Management Australia Pty Ltd to the EPA, in relation to water supply and discharge, cooling water, conveyors, small equipment service bay and vacuum sweeper;
 - d) *Carbon Plant Biological Treatment Plant*, prepared by Environmental Resources Management Australia Pty Ltd and supplied to the EPA on 24 December 2001;
 - e) additional information supplied by letter dated 9 January 2002, from Environmental Resources Management Australia Pty Ltd to the EPA, in relation to water supply and discharge, biological treatment plant and cooling system, afterburner noise and general issues;
 - f) *Revisions to the Water Balance Modelling for the Wood Processing and Metallurgical Carbon Facility at Moruya - Advisory*, 15 January 2002 and prepared by Environmental Resources Management Pty Ltd;
 - g) additional information supplied by facsimile dated 23 January 2002, from Environmental Resources Management Australia Pty Ltd to the EPA, in relation to revised water balance modelling report and carbon fines;
 - h) additional information supplied by email on 30 January 2002, from Environmental Resources Management Australia Pty Ltd to the EPA, in relation to potential for reuse of off-gases;
 - i) additional information dated 18 February 2002 and supplied by facsimile on 27 February 2002, from Environmental Resources Management Australia Pty Ltd to the EPA, in relation to stormwater management;
 - j) additional information supplied by facsimile on 5 March 2002, from Environmental Resources Management Australia Pty Ltd to the EPA, in relation to an indirect cooling water system;
 - k) additional information dated 23 April 2002 and supplied on 24 April 2002, from Environmental Resources Management Australia Pty Ltd to the EPA, in relation to monitoring of noise;
 - l) *Wood Processing & Metallurgical Carbon Facility – Additional Information/Clarification Requirements*, dated March 2002 and prepared by Environmental Resources Management Pty Ltd;
 - m) *Wood Processing and Metallurgical Carbon Facility - Surveys for the Yellow-Bellied Glider, Southern Brown Bandicoot and Long-Nosed Bandicoot*, dated March 2002 and prepared by Environmental Resources Management Pty Ltd; and
 - n) all relevant correspondence from the Department or EPA to the Applicant (or Environmental Resources Management Pty Ltd on behalf of the Applicant) between 15 November 2001 and the date of this consent;

¹ Incorporates an EPA General Term of Approval

² Incorporates an EPA General Term of Approval

- o) the conditions of this consent.

1.3 In the event of an inconsistency between:

- a) the conditions of this consent and any document listed from condition 1.2a) to 1.2n) inclusive, the conditions of this consent shall prevail to the extent of the inconsistency; and
- b) any document listed from condition 1.2a) to 1.2n) inclusive, and any other document listed from condition 1.2a) to 1.2n) inclusive, the most recent document shall prevail to the extent of the inconsistency.

Interaction with Other Consents

1.4 In implementing this consent, the Applicant is to have due regard to the requirements of the following development consents:

- a) development application 177/95 for the continued operation of a gravel extraction operation at Lot 544 DP 736015, Parish of Tomaga, as approved by Eurobodalla Shire Council on 19 December 1995;
- b) development application 268-11-99 for the construction and operation of a silicon smelter and associated facilities, as approved by the Minister for Urban Affairs and Planning on 2 November 2000; and
- c) development application 295-12-99 for the construction and operation of a quartz mine and associated facilities, as approved by the Minister for Urban Affairs and Planning on 2 November 2000.

Note: notwithstanding condition 1.4 of this consent, nothing in this consent revokes or modifies any requirement under the development consent (177/95) for the continued operation of a gravel extraction operation at Lot 544 DP 736015, Parish of Tomaga, as approved by Eurobodalla Shire Council on 19 December 1995.

1.5 Charcoal and fluxwood produced at the carbon reductant facility shall be used exclusively at the silicon smelter the subject of development application 268-11-99, as approved by the Minister for Urban Affairs and Planning on 2 November 2000.

Interaction with Forestry Operations

1.6 Unless otherwise approved by the Minister, the carbon reductant plant shall only receive timber that:

- a) has been specifically allocated to the purpose of charcoal production under the NSW Southern Region Forest Agreement; and
- b) is the subject of an Integrated Forestry Operations Approval.

Note: the purpose of condition 1.6 of this consent is to ensure that the wood source for the carbon reductant facility has been appropriately assessed.

The beneficial use of "waste" wood (for example off cuts) from other sources, such as sawmills, for the production of charcoal or fluxwood may represent an environmental improvement over the sourcing of timber from the Southern Region Forest Agreement. This consent does not permit the Applicant to obtain timber from these sources, however, the consent may be amended in accordance with the provisions of the *Environmental Planning and Assessment Act 1979* once the Applicant identifies an appropriate "waste" wood source and adequately demonstrates to the Minister that the environmental impacts of sourcing timber from that location would lie within acceptable environmental limits.

1.7 The carbon reductant facility shall receive no more than 200,000 tonnes of timber per annum (refer to condition 1.6).

Operation and Lapse of Consent

- 1.8 In accordance with section 83 of the Act, this consent becomes effective from:
- the expiration of 28 days from the date endorsed on this consent, if no appeal has been made under section 97 or section 98 of the Act; or
 - from the date of determination of an appeal made under section 97 or section 98 of the Act, except where that determination is to refuse development consent.
- 1.9 In accordance with section 95(1) of the Act, this consent shall lapse five years after the date from which it operates (refer to condition 1.8 of this consent), unless the use of any land, building or work the subject of this consent is commenced before the date on which the consent lapses.
- 1.10 This consent shall cease to operate:
- when the consent for the silicon smelter, the subject of development application 268-11-99, approved by the Minister for Urban Affairs and Planning on 2 November 2000, ceases to operate; or
 - when the NSW Southern Region Forest Agreement and/ or associated Integrated Forestry Operations Approval ceases to operate;

whichever is the sooner.

Note: condition 1.10 should be read in the context of condition 1.6 of this consent. Should this consent be modified in accordance with the *Environmental Planning and Assessment Act 1979* to permit timber for the carbon reductant facility to be obtained from a source other than that the subject of the NSW Southern Region Forest Agreement, condition 1.10b) would no longer apply and would be amended accordingly.

Provision of Documents

- 1.11 Where practicable, the Applicant shall provide all documents and reports required to be submitted to the Director-General under this consent in an appropriate electronic format. Provision of documents and reports to other parties, as required under this consent, shall be in a format acceptable to those parties and shall aim to minimise resource consumption.

Note: at the date of this consent, an appropriate electronic format for submission to the Director-General is the "portable document format" (pdf) or another format that may be readily converted to portable document format.

- 1.12 Nothing in this consent prevents the Applicant from combining reporting requirements under this consent with identical or similar reporting requirements for submission to another relevant party. Reporting requirements shall only be combined with the prior agreement of the Director-General of Planning and the Director-General (or equivalent) of the other relevant party.
- 1.13 Nothing in this consent prevents the Applicant from combining reporting requirements under this consent with identical or similar reporting requirements required under the following consents:
- development application 268-11-99 for the construction and operation of a silicon smelter and associated facilities, as approved by the Minister for Urban Affairs and Planning on 2 November 2000; and

- b) development application 295-12-99 for the construction and operation of a quartz mine and associated facilities, as approved by the Minister for Urban Affairs and Planning on 2 November 2000.

Note: the purpose of conditions 1.11 and 1.12 is to provide for minimisation of resource utilisation (particularly paper) associated with administration of this consent.

Statutory Requirements

- 1.14 The Applicant shall ensure that all licences, permits and approvals are obtained and kept up-to-date as required throughout the life of the carbon reductant facility. No condition of this consent removes the obligation for the Applicant to obtain, renew or comply with such licences, permits or approvals.

Dispute Resolution

- 1.15 In the event that a dispute arises between the Applicant and Council or the Applicant and a public authority other than the Department, in relation to a specification or requirement applicable under this consent, the matter shall be referred by either party to the Director-General, or if not resolved, to the Minister, whose determination of the dispute shall be final and binding on all parties. For the purpose of this condition, "public authority" has the same meaning as provided under section 4 of the Act.

Note: Section 121 of the *Environmental Planning and Assessment Act 1979* provides mechanisms for resolution of disputes between the Department, the Director-General, councils and public authorities.

Participation in Cumulative and Regional Studies

- 1.16 The Applicant shall provide all relevant information for and participate in, as may be required the Director-General, the following independent cumulative/ regional studies:
- a) social and amenity impact study;
 - b) impact on tourism study; and
 - c) impact on human health and safety study.

Note: the studies referred to under condition 1.16 of this consent would be undertaken under the auspices of the Director-General, in consultation with Council and relevant State Government agencies.

2. COMPLIANCE

- 2.1 The Applicant shall ensure that employees, contractors and sub-contractors are aware of, and comply with, the conditions of this consent relevant to their respective activities.
- 2.2 Prior to each of the events listed from a) to c) below, an independent person(s) or organisation(s), approved by the Director-General, shall certify in writing to the satisfaction of the Director-General, that the Applicant has complied with all conditions of this consent applicable prior to that event. Where an event is to be undertaken in stages, the Applicant may, subject to the agreement of the Director-General, stage the submission of compliance certification consistent with the staging of activities relating to that event.

- a) commencement of site preparation works;
 - b) commencement of construction of the carbon reductant facility; and
 - c) commencement of operation of the carbon reductant facility.
- 2.3 Notwithstanding condition 2.2 of this consent, the Director-General may require an update report on compliance with all, or any part, of the conditions of this consent. Any such update shall meet the requirements of the Director-General and be submitted within such period as the Director-General may agree.
- 2.4 The Applicant shall meet the requirements of the Director-General in respect of the implementation of any measure necessary to ensure compliance with the conditions of this consent, and general consistency with the documents listed under condition 1.2 of this consent. The Director-General may direct that such a measure be implemented in response to the information contained within any report, plan, correspondence or other document submitted in accordance with the conditions of this consent, within such time as the Director-General may agree.
- 2.5 Any compliance report or compliance update required under condition 2.2 or 2.3 of this consent shall be made available for public inspection on request.

3. CONSTRUCTION CERTIFICATION

- 3.1 In relation to the construction and occupation of the carbon reductant facility, the Applicant shall provide to the Director-General and Council the with following:
- a) written notification of the appointment of a Principal Certifying Authority;
 - b) copies of all Construction Certificates issued for the carbon reductant facility;
 - c) written notification of the intention to commence construction work, to be received at least two working days prior to the commencement of construction. In the event that more than one Construction Certificate is issued, notification shall be provided prior to the commencement of construction the subject of each Certificate;
 - d) copies of all Occupation Certificates issued for the carbon reductant facility; and
 - e) written notification of the intention to occupy the carbon reductant facility, to be received at least two working days prior to occupation. In the event that more than one Occupation Certificate is issued, notification shall be provided prior to the occupation the subject of each Certificate.

Note: Part 4A of the *Environmental Planning and Assessment Act 1979* provides specific certification requirements.

- 3.2 The Applicant shall provide all information necessary for the Principal Certifying Authority to determine that the carbon reductant facility will comply with the Building Code of Australia, and all relevant provisions of the Act, including the payment of a long service levy under section 34 of the *Building and Construction Industry Long Service Payments Act 1986*.

4. INFRASTRUCTURE AND UTILITIES

- 4.1 This consent does not permit the construction or operation of the notional water supply pipeline indicated in Figure 3.2 of *Wood Processing and Metallurgical Carbon Facility - Environmental Impact Statement for Australian Silicon Operations Pty Ltd*, dated 6 November 2002 and prepared by Environmental Resources Management Australia Pty Ltd.

Note: nothing in this consent prohibits the construction and operation of water supply infrastructure provided that infrastructure has been subject to an appropriate assessment and approvals process in accordance with the *Environmental Planning and Assessment Act 1979*.

- 4.2 Prior to the commencement of construction of the carbon reductant facility, or within such period as otherwise agreed by the Director-General, the Applicant shall certify to the satisfaction of the Director-General that appropriate arrangements have been established for the supply of relevant utilities to the site. This certification shall include results of discussions with relevant utility providers to establish or confirm arrangements for the provision of relevant utilities to the site (including capacity and infrastructure requirements).

5. ENVIRONMENTAL PERFORMANCE

Air Quality Impacts

- 5.1 The Applicant shall construct, maintain and operate a meteorological monitoring station on or in the vicinity of the site, to be used for meteorological monitoring required under condition 6.2 of this consent. The station shall be located to meet the requirements of the EPA. The meteorological monitoring station shall be installed prior to the commencement of operation of the carbon reductant facility.
- 5.2 Only clean timber and cardboard scrap, free from paints, residues, metals, plastics and other contaminants, are to be used during start-up of the carbon reductant facility.
- 5.3 ³All gas condensates shall be collected and directed to the biological wastewater treatment plant on the site, unless otherwise approved by the Director-General.

Note: condition 5.3 does not relieve the Applicant from the requirement for any assessment process that may be required under the *Environmental Planning and Assessment Act 1979* for an alternative treatment and/ or disposal route for gas condensates.

- 5.4 The Applicant shall not burn any sawdust, wood waste, charcoal fines, activated sludge or similar waste or by-product materials on the site.

Note: condition 5.2 has been imposed as the Environmental Impact Statement for the carbon reductant facility did not adequately demonstrate that these materials could be burned within acceptable environmental limits.

³ Incorporates and EPA General Term of Approval

- 5.5 ⁴For the purposes of this consent, air discharge/ air monitoring points, where relevant, shall be identified as provided in Table 1 below.

Table 1 - Identification of Air Discharge/ Monitoring Points

Discharge/ Monitoring Point Identification Number	Discharge/ Monitoring Point Description
1	carbonisation retort 1 stack
2	carbonisation retort 2 stack
3	carbonisation retort 3 stack
4	carbonisation retort 4 stack
5	carbonisation retort 5 stack
6	wood fines surge bin dust collector discharge
7	product handling dust collector discharge
8	retort dust collector discharge
9	finer hopper dust collector discharge
10	product storage bin dust collector discharge
11	carbonisation retort 1 afterburner
12	carbonisation retort 2 afterburner
13	carbonisation retort 3 afterburner
14	carbonisation retort 4 afterburner
15	carbonisation retort 5 afterburner

Odour

- 5.6 ⁵In accordance with section 129 of the *Protection of the Environment Operations Act 1997*, the Applicant shall not permit any offensive odour to be emitted from the site. For the purpose of this condition, "offensive odour" has the same meaning as provided by the *Protection of the Environment Operations Act 1997*.

Note: subject to the provisions of section 129 of the *Protection of the Environment Operations Act 1997*, emission of offensive odour from the site may be an offence under that Act.

The Applicant has made a commitment to install an indirect cooling water system to mitigate odour impacts.

Dust Emissions

- 5.7 ⁶The Applicant shall design, construct, operate and maintain the carbon reductant facility in a manner that minimises dust emissions from the site.

Note: the Applicant has advised that materials less than 5 millimetres in size will be managed by collecting and bagging in a fully-enclosed system.

- 5.8 The Applicant shall take all practicable measures to ensure that all vehicles entering or leaving the site, carrying a load that may generate dust, are covered at all times, except during loading and unloading. Any such vehicles shall be covered or enclosed in a manner that will prevent emissions of dust from the vehicle at all times.
- 5.9 ⁷All conveyors on the site used to transfer materials that may generate dust (including charcoal and sawdust) shall be enclosed to the greatest extent practicable to minimise the emission of dust.

⁴ Incorporates an EPA General Term of Approval

⁵ Incorporates an EPA General Term of Approval

⁶ Incorporates an EPA General Term of Approval

⁷ Incorporates an EPA General Term of Approval

Discharge Limits

- 5.10 ⁸The Applicant shall design, construct, operate and maintain the carbon reductant facility to ensure that the concentration of each pollutant listed in Table 2 below (at the reference conditions and over the averaging periods specified) does not exceed the maximum allowable discharge concentration limit for that pollutant at the discharge/ monitoring point indicated. Discharge/ monitoring points indicated in Table 2 are as defined by condition 5.1 of this consent.

Table 2 - Maximum Allowable Discharge Concentration Limits (Air)

Pollutant	Discharge/ Monitoring Points	Maximum Allowable Discharge Limit	Reference Conditions	Averaging Period
sulfuric acid mist (H ₂ SO ₄) or sulfur trioxide (SO ₃) or both (as SO ₃)	1, 2, 3, 4, 5	50 mgm ⁻³	dry, 273K, 101.3 kPa, 7% O ₂	as per test method
nitrogen dioxide (NO ₂) or nitric oxide (NO) or both (as NO ₂)	1, 2, 3, 4, 5	350 mgm ⁻³	dry, 273K, 101.3 kPa, 7% O ₂	as per test method
solid particles	1, 2, 3, 4, 5	100 mgm ⁻³	dry, 273K, 101.3 kPa, 7% O ₂	as per test method
	6, 7, 8, 9, 10	20 mgm ⁻³	dry, 273K, 101.3 kPa	as per test method
opacity	1, 2, 3, 4, 5	20 %	gas stream temperature above dew point and path length corrected to stack exit diameter	6-minute average
carbon monoxide (CO)	1, 2, 3, 4, 5	125 mgm ⁻³	dry, 273K, 101.3 kPa, 7% O ₂	rolling 1-hour average
volatile organic compounds (as n-hexane)	1, 2, 3, 4, 5	77 mgm ⁻³	dry, 273K, 101.3 kPa, 7% O ₂	rolling 1-hour average
solid particles	6, 7, 8, 9, 10	20 mgm ⁻³	dry, 273K, 101.3 kPa	as per test method

- 5.11 ⁹The Applicant shall design, construct, operate and maintain the carbon reductant facility to ensure that each parameter listed in Table 3 below (over the averaging periods specified) is equal to or greater than the minimum allowable parameter limit for that parameter at the point indicated. Discharge/ monitoring points indicated in Table 3 are as defined by condition 5.1 of this consent.

Table 3 - Minimum Allowable Parameter Limits (Air)

Parameter	Discharge/ Monitoring Points	Minimum Allowable Limit	Averaging Period
residence time	11, 12, 13, 14, 15	2 s	instantaneous
temperature	11, 12, 13, 14, 15	980°C	instantaneous

- 5.12 ¹⁰In the event that the minimum allowable limit for any parameter specified under condition 5.11 of this consent is not met, timber feed to the carbonisation process shall automatically cease until the minimum allowable limit for the parameter is re-established.

⁸ Incorporates an EPA General Term of Approval

⁹ Incorporates an EPA General Term of Approval

¹⁰ Incorporates an EPA General Term of Approval

- 5.13 ¹¹In the event of an emergency failure of an afterburner, gases from the affected carbonisation retort shall be flared. All emergency flaring shall be undertaken in accordance with section 284 of the *Protection of the Environment Operations Act 1997*.

Note: section 284 of the *Protection of the Environment Operations Act 1997* relates to compliance with an Environment Protection Licence in the event of an emergency.

- 5.14 ¹²The Applicant shall develop and implement measures so that relevant employees are made aware of any failure of the gas cooling column spray system to operate in a satisfactory manner.

- 5.15 ¹³The Applicant shall design, construct, operate and maintain the carbon reductant facility so that there are no visible emissions during charging of timber to the carbonisation retorts.

Design and Construction

- 5.16 ¹⁴The Applicant shall design, construct, operate and maintain carbonisation retort stacks (identified as discharge/ monitoring points 1 to 5 inclusive under condition 5.5 of this consent) to have a height no less than 34 metres above ground-level and an internal diameter of no less than 0.6 metres at the point of discharge.

- 5.17 ¹⁵The Applicant shall design, construct, operate and maintain all stacks associated with the carbon reductant facility in accordance with good engineering practice in order to minimise the effects of stack tip downwash and building wake effects on ground-level air pollutant concentrations.

Note: the EPA refers to the following documents for determining "good engineering practice":

- a) USEPA, 1985, *Guideline for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations)*, Revised EPA-450/4-80-023R, United States Environmental Protection Agency, Washington DC, USA;
- b) USEPA, 1995, *User's Guide to the Building Profile Input Program*, Revised February 1995, EPA-454/R-93-038, United States Environmental Protection Agency, Washington DC, USA; and
- c) USEPA, 1997, *Addendum to ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model*, United States Environmental Protection Agency, Washington DC, USA.

Soil and Land Management

Acid Sulfate Soils

- 5.18 ¹⁶Prior to the commencement of site preparation works, the Applicant shall undertake acid sulfate soil testing for areas of the site to be disturbed during site preparation and construction. Acid sulfate soil testing shall be consistent with the

¹¹ Incorporates an EPA General Term of Approval

¹² Incorporates an EPA General Term of Approval

¹³ Incorporates an EPA General Term of Approval

¹⁴ Incorporates an EPA General Term of Approval

¹⁵ Incorporates an EPA General Term of Approval

¹⁶ Incorporates an EPA General Term of Approval

NSW EPA's Environmental Guideline *Assessing and Managing Acid Sulfate Soil* and the Acid Sulfate Soil Management Advisory Committee (ASSMAC) document *Acid Sulfate Soil Manual*. All results of testing for acid sulfate soils shall be submitted to the Director-General and the EPA.

Should testing indicate that any potential or actual acid sulfate soils may be disturbed during site preparation works or the construction of the carbon reductant facility, the Applicant shall prepare an Acid Sulfate Soil Management Plan (refer to condition 8.4).

Water Quality Impacts

5.19 ¹⁷For the purposes of this consent, water discharge/ monitoring points, where relevant, shall be identified as provided in Table 4 below.

Table 4 - Identification of Water Discharge/ Monitoring Points

Discharge/ Monitoring Point Identification Number	Discharge/ Monitoring Point Description
16	stormwater collection dam
17	overflow from bund wall near south east corner of the site

5.20 ¹⁸The Applicant shall ensure that all activities associated with the carbon reductant facility do not pollute surface or groundwater, and comply with section 120 of the *Protection of the Environment Operations Act 1997*.

5.21 ¹⁹Town water shall only be brought to the site for domestic purposes.

Domestic Wastewater

5.22 ²⁰The Applicant shall install and operate a wastewater management system for employees' amenities in accordance with the *Environment and Health Protection Guidelines for On-site Sewage Management for Single Households*.

Surface Water

5.23 ²¹The Applicant shall not apply any biomass or other waste/ by-product from the biological wastewater treatment to any land area of the site.

5.24 All trafficable areas of the site associated with the carbon reductant facility, including internal roads, carparks, process areas and stockpile areas shall be fully sealed.

5.25 ²²The Applicant shall design, construct, operate and maintain all stormwater infrastructure to direct all stormwater to the Run-Off Pond in the south-eastern corner of the site.

5.26 ²³The Applicant shall design, construct and maintain all hardstand areas of the site associated with the carbon reductant facility to:

- a) allow the use of heavy machinery without breaking-up the hardstand surface; and
- b) prevent the contamination of groundwater.

¹⁷ Incorporates an EPA General Term of Approval
¹⁸ Incorporates an EPA General Term of Approval
¹⁹ Incorporates an EPA General Term of Approval
²⁰ Incorporates an EPA General Term of Approval
²¹ Incorporates an EPA General Term of Approval
²² Incorporates an EPA General Term of Approval
²³ Incorporates an EPA General Term of Approval

- 5.27 ²⁴The Applicant shall design, construct, operate and maintain the Run-Off Pond and the bund wall around the perimeter of the carbon reductant facility so that there is no uncontrolled discharge of water under dry weather conditions, or under wet weather conditions up to a 1 in 50 year, 1 hour duration, average recurrence interval. Upon completion of construction of the Run-Off Pond, the Applicant shall demonstrate to the satisfaction of the Director-General and the EPA that the Pond can meet the requirements of this condition.

Note: the storm event referred to under condition 5.27 is equivalent to approximately 90 millimetres per hour of rainfall, which has been estimated using *Australian Rainfall and Runoff*, prepared by the Institution of Engineers, Australia.

- 5.28 ²⁵The Applicant shall design, construct, operate and maintain the Process Water Collection Dam so as to prevent any discharge to waters from the Dam. Upon completion of construction of the Process Water Collection Dam, the Applicant shall demonstrate to the satisfaction of the Director-General and the EPA that the Dam can meet the requirements of this condition.

- 5.29 ²⁶Process waters shall not be directed to or allowed to contaminate the Stormwater Collection Dam.

Groundwater

- 5.30 ²⁷The Applicant shall design, construct, operate and maintain all water collection infrastructure on the site, including the Process Water Collection Dam, so that the internal surfaces of those infrastructure are equivalent to, or better than, a clay liner of permeability $1 \times 10^{-9} \text{ ms}^{-1}$ or less and a thickness of no less than 900 mm. Prior to the commencement of construction of any such dam on the site, the Applicant shall provide details of the lining material to the Director-General and the EPA, demonstrating that the aforementioned performance criterion will be met.

Flooding

- 5.31 ²⁸The Applicant shall design, construct, operate and maintain the carbon reductant facility to protect the facility from flood inundation resulting from flood events up to a 1 in 100-year flood event.

Hazards and Risk Impacts

Bunding and Spill Management

- 5.32 ²⁹The Applicant shall store and handle all dangerous goods, as defined by the Australian Dangerous Goods Code, strictly in accordance with:
- a) all relevant Australian Standards;
 - b) a minimum bund volume requirement of 110% of the volume of the largest single stored volume within the bund; and
 - c) the EPA's Environment Protection Manual Technical Bulletin *Bunding and Spill Management*.

In the event of an inconsistency between the requirements listed from a) to c) above, the most stringent requirement shall prevail to the extent of the inconsistency.

²⁴ Incorporates an EPA General Term of Approval

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Emergency Coordination

- 5.33 Prior to the commencement of operation of the carbon reductant facility, the Applicant shall develop an **Emergency Services Cooperation Agreement** in consultation with the emergency response teams (NSW Fire Brigades, State Emergency Services etc, where relevant). The Agreement shall provide, but not necessarily be limited to:
- a) policies and procedures for the on-going supply of hazards information related to the carbon reductant facility to the emergency response teams, including quantities and locations of dangerous goods inventories and possible hazardous events associated with the carbon reductant facility;
 - b) policies and procedures for communication with the emergency response teams, and notification in the event of an emergency;
 - c) any arrangement for the provision of firefighting/ emergency response equipment from the carbon reductant facility in the event of a bushfire or other emergency; and
 - d) any arrangement for access to water stores on the site in the event of a bushfire.

The Emergency Services Cooperation Agreement shall be consistent with the Emergency Plan required under condition 8.8h) of this consent. The Applicant shall supply a copy of the Emergency Services Cooperation Agreement to the Director-General prior to the commencement of operation of the carbon reductant facility.

Traffic and Transport Impacts

On-site Parking and Manoeuvring

- 5.34 Prior to the commencement of construction of the carbon reductant facility, the Applicant shall demonstrate to the satisfaction of the Director-General that adequate provision has been made for parking and vehicle manoeuvring on the site. The demonstration shall be in writing and shall include, but not necessarily be limited to:
- a) details of the number and location of parking and standing areas for all vehicles likely to be located on the site at any time;
 - b) demonstration that on-site parking and internal roads have been designed in accordance with relevant Australian Standards and RTA/ Council guidelines (including relevant Development Control Plans); and
 - c) demonstration that internal roads have been designed to minimise the need for heavy vehicles to reverse on the site (to minimise noise impacts from reversing alarms).

The Applicant shall meet the requirements of the Director-General in relation to the provision of adequate carparking and manoeuvring areas on the site.

Road Infrastructure and Maintenance

- 5.35 Prior to the commencement of site preparation works, the Applicant shall provide evidence to the Director-General of an arrangement for the construction of the roadworks listed from a) to b) below. The evidence provided to the Director-General shall identify the party or parties responsible for undertaking and/ or funding the necessary works.
- a) a channelised right turn (CHR) and an auxiliary left turn (AUL) treatment at the junction of the site access road (Springwater Road) and the Princes Highway to meet the standard outlined in the RTA's *Road Design Guide*; and
 - b) full road construction of the site access road (Springwater Road) from the Princes Highway to the site boundary, with a level standing platform to the Princes Highway.

The roadworks the subject of this condition shall be completed prior to the commencement of operation of the carbon reductant facility. Roadworks shall be completed to meet the requirements of Council and the RTA, as applicable.

- 5.36 The Applicant shall contribute to the cost of maintenance of the site access road (Springwater Road), for the length of that road trafficked by vehicles associated with the carbon reductant facility, the existing quarry and existing residential users. The Applicant shall bear the cost of maintenance as follows:
- a) if the Applicant is the owner of Lot 544 DP 736015, Parish of Tomaga (and therefore the holder of the development consent for the existing quarry), the Applicant shall bear the full cost of road maintenance; or
 - b) if the Applicant is not the owner of Lot 544 DP 736015, Parish of Tomaga, the Applicant shall establish by negotiation with the holder of the development consent for the existing quarry, proportional contributions to road maintenance to be paid by the respective parties. Should proportional contributions not be able to be negotiated between the parties, the disagreement shall be resolved in accordance with condition 1.15 of this consent.

The site access road shall be maintained to a reasonable standard acceptable to Council and DLWC, as applicable. The maintenance cost contributions the subject of this condition shall be to the satisfaction of the Director-General, in consultation with Council.

Heavy Vehicle Transport Routes

- 5.37 The Applicant shall ensure that all heavy vehicles associated with the carbon reductant, travelling between the carbon reductant facility and the silicon smelter the subject of development application 268-11-99 (approved by the Minister for Urban Affairs and Planning on 2 November 2000) follows the route: Springwater Road, Princes Highway/ F6, Picton Road, Hume Highway, Narellan Road, The Northern Road and Great Western Highway.
- 5.38 Notwithstanding condition 5.37 of this consent, should the route referred to under that condition not be trafficable (for example due to roadworks), or an alternative, more environmentally appropriate route become available, the Applicant may seek the Director-General's approval to vary from the route referred to under condition 5.37. This condition does not relieve the Applicant of any obligation to seek approval under the *Environmental Planning and Assessment Act 1979*, or any other relevant legislation, should such an approval be required for the use of an alternative route.
- 5.39 Heavy vehicles associated with the carbon reductant facility, travelling between the carbon reductant facility and the silicon smelter the subject of development application 268-11-99 (approved by the Minister for Urban Affairs and Planning on 2 November 2000) may only travel along the Kings Highway during emergency periods in which the route referred to under condition 0 is not trafficable for an extended period of time. The use of the Kings Highway shall be subject to the prior approval of the Director-General and the RTA, in consultation with Council.

Noise Impacts

Noise Limit Interpretation and Measurement

- 5.40 For the purpose of noise conditions forming part of this consent, receptor locations (Location 1 to Location 7 inclusive) shall be defined as indicated in Figure 8.1 - Noise Monitoring and Assessment Locations provided in *Wood Processing and Metallurgical Carbon Facility - Environmental Impact Statement for Australian Silicon Operations Pty Ltd* (two volumes), dated 6 November 2002 and prepared by Environmental Resources Management Australia Pty Ltd.

- 5.41 ³⁰All noise limits specified as part of this consent apply under:
- a) wind speeds up to 3 ms⁻¹ at 10 metres above ground level; and
 - b) temperature inversion conditions up to 3°C per 100 metres.
- 5.42 ³¹For the purpose of assessment of noise levels specified in this consent, noise from the carbon reductant facility shall be:
- a) measured at the most affected point on or within the receptor site boundary, or at the most affected point within 30 metres of the dwelling where the dwelling is more than 30 metres from the boundary to determine compliance with L_{Aeq(15 minute)} noise limits;
 - b) measured at 1 metre from the dwelling façade to determine compliance with L_{A1(1 minute)} noise limits; and
 - c) subject to the modification factors provided in Section 4 of the *New South Wales Industrial Noise Policy* (EPA, 2000).
- 5.43 ³²Notwithstanding condition 5.42 of this consent, should direct measurement of noise from the site be impractical, the Applicant may employ an alternative noise assessment method deemed acceptable by the EPA (refer to Section 11 of the *New South Wales Industrial Noise Policy* (EPA, 2000)). Details of such an alternative noise assessment method accepted by the EPA shall be submitted to the Director-General prior to the implementation of the assessment method.

Construction Noise

- 5.44 ³³Prior to the commencement of site preparation works on the site, the Applicant shall certify in writing to the Director-General and the EPA that it has implemented, or made arrangements for the implementation of, those construction noise mitigation measures detailed in section 8.6.1 of *Wood Processing and Metallurgical Carbon Facility - Environmental Impact Statement for Australian Silicon Operations Pty Ltd*.
- 5.45 ³⁴Site preparation works and construction activities associated with the carbon reductant facility, except for those activities that would not generate an audible noise at a residential premises, shall be restricted to the following times:
- a) from 7:00 am to 6:00 pm, Monday to Friday inclusive;
 - b) from 8:00 am to 1:00 pm on Saturday; and
 - c) at no time on Sunday or a public holiday.

Operation Noise - General

- 5.46 ³⁵Prior to the commencement of operation of the carbon reductant, the Applicant shall certify in writing to the Director-General and the EPA that it has implemented, or made arrangements for the implementation of, those operation noise mitigation measures detailed in section 8.5.4 and 8.6.2 of *Wood Processing and Metallurgical Carbon Facility - Environmental Impact Statement for Australian Silicon Operations Pty Ltd*.

Operation Noise - Acquisition

- 5.47 ³⁶Prior to the commencement of operation of the carbon reductant facility, the Applicant shall attempt to enter into a negotiated agreement with the owner of the land identified as Location 1 in relation to noise impacts from the site. A copy of any

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negotiated agreement, or evidence of such an agreement, shall be provided to the Director-General and the EPA as soon as practicable after entering into the agreement.

Should the Applicant be unable to enter into an agreement with the owner of the land identified as Location 1, the Applicant shall, within six months of receipt of a written request from the owner of that land, proceed to acquire the whole of the property in accordance with the acquisition procedure detailed under conditions 10.1 to 10.6 of this consent.

5.48 In the event that the noise from the site exceeds an $L_{Aeq(15 \text{ minute})}$ noise criterion of 40dB(A):

- a) at any existing residential dwelling as at the date of this consent; or
- b) at any residential dwelling for which development consent has been obtained prior to the date of this consent, but has not commenced, or has yet to complete, construction; or
- c) over 25% or more of the area of a vacant allotment;

then the Applicant shall attempt to enter into a negotiated agreement with the owner of the property. A copy of any negotiated agreement, or evidence of such an agreement, shall be provided to the Director-General and the EPA as soon as practicable after entering into the agreement. Should the Applicant be unable to enter into an agreement with the owner of the property, the Applicant shall, within six months of receipt of a written request from the owner of that land, proceed to acquire the whole of the property in accordance with the acquisition procedure detailed under conditions 10.1 to 10.6 of this consent. Conditions 5.40 to 5.42 of this consent detail the meteorological conditions under which noise limits apply and the locations at which noise limits are to be assessed.

Operation Noise - Residual Noise Management

5.49 In the event that noise from the site exceeds an $L_{Aeq(15 \text{ minute})}$ noise criterion of 35dB(A) at:

- a) any existing residential dwelling as at the date of this consent; or
- b) any residential dwelling for which development consent has been obtained prior to the date of this consent, but has not commenced, or has yet to complete, construction; or

then the Applicant shall actively manage residual noise (ie that noise contribution in excess of 35dB(A)) at the affected receptor. Residual noise shall be managed in accordance with the residual noise management measures detailed in an approved Noise Management Plan (refer to condition 8.8c) of this consent). Conditions 5.40 to 5.42 of this consent detail the meteorological conditions under which noise limits apply and the locations at which noise limits are to be assessed.

Operation Noise - Sleep Disturbance

5.50 ³⁷To protect against sleep disturbance, noise from the site shall not exceed an $L_{A1(1 \text{ minute})}$ noise level of 45 dB(A) at any residential dwelling between 10:00 pm to 7:00 am from Monday to Saturday, or 10:00 pm to 8:00 am on Sundays and public holidays. Conditions 5.40 to 5.42 of this consent detail the meteorological conditions under which noise limits apply and the locations at which noise limits are to be assessed.

³⁷ Incorporates an EPA General Term of Approval

Impacts on Flora and Fauna

- 5.51 Prior to the commencement of site preparation works, the Applicant shall clearly mark the extent of vegetation to be cleared to guard against accidental clearing of any vegetation to be retained on the site. The Applicant shall consult with NPWS to establish a marking method that would not adversely impact on flora or fauna.
- 5.52 This consent does not permit the removal of vegetation from, or any construction activity within, the areas marked as "future use" in Figure 3.3 of *Wood Processing and Metallurgical Carbon Facility - Environmental Impact Statement for Australian Silicon Operations Pty Ltd* (two volumes), dated 6 November 2002 and prepared by Environmental Resources Management Australia Pty Ltd.
- 5.53 Prior to commencement of construction of the carbon reductant facility, the Applicant shall, in consultation with NPWS and Council, and to the satisfaction of the Director-General, establish a program to enhance connectivity of vegetation along the perimeter of the site (the "buffer area"). Connectivity enhancement shall aim to revegetate cleared sections within the buffer area (particularly along the northern boundary of the site) and those areas marked as "future use" in Figure 3.3 of *Wood Processing and Metallurgical Carbon Facility - Environmental Impact Statement for Australian Silicon Operations Pty Ltd*, dated 6 November 2002 and prepared by Environmental Resources Management Pty Ltd (refer to condition 5.51 of this consent). Flora species for connectivity enhancement shall:
- be endemic to the region;
 - include feed tree species for the Yellow-bellied Glider (*Petaurus australis*), particularly Red Bloodwoods (*Corymbia gummifera*);
 - include tree species that may develop into den sites for the Yellow-bellied Glider, including Blackbutt (*Eucalyptus pilularis*), Woollybutt (*Eucalyptus longifolia*), Red Bloodwood (*Corymbia gummifera*) and Silvertop Ash (*Eucalyptus sieberi*); and
 - be propagated from seeds obtained from existing vegetation on the site, where practicable.
- 5.54 The Applicant shall retain buffer areas on the site consistent with Figure 6 of *Wood Processing and Metallurgical Carbon Facility - Surveys for the Yellow-Bellied Glider, Southern Brown Bandicoot and Long-Nosed Bandicoot*, dated March 2002 and prepared by Environmental Resources Management Pty Ltd (also noting the further requirement to retain "future use" areas specified under condition 5.51).
- 5.55 The Applicant shall not destroy any tree known to be a feed tree for the Yellow-bellied Glider (*Petaurus australis*). "Known" feed trees shall be those identified in *Wood Processing and Metallurgical Carbon Facility - Surveys for the Yellow-Bellied Glider, Southern Brown Bandicoot and Long-Nosed Bandicoot* and those that may be identified in accordance with condition 5.56 of this consent.
- 5.56 An independent, qualified ecologist, approved by the Director-General in consultation with NPWS, with appropriate expertise and experience with mammalian species, particularly the Yellow-Bellied Glider (*Petaurus australis*) shall attend all vegetation clearing activities undertaken on the site. The ecologist shall:
- identify any feed trees for the Yellow-Bellied Glider to ensure compliance with condition 5.55 of this consent;
 - confirm that any hollow-bearing tree to be removed from the site is not being used as den tree by the Yellow-Bellied Glider at the time of removal.

The Applicant shall also invite a representative of NPWS to attend vegetation clearing activities.

- 5.57 Prior to the commencement of vegetation clearing, the independent, qualified ecologist (refer to condition 5.56) shall certify in writing to the satisfaction of the Director-General, in consultation with NPWS, that he/ she has undertaken appropriate investigations of the site to establish the intended extent of clearing and to establish any specific measures to minimise the impact of site preparation activities on vegetation to be retained, including feed trees and den trees, where applicable.
- 5.58 At the conclusion of site preparation works, the independent, qualified ecologist (refer to condition 5.56) shall certify in writing to the satisfaction of the Director-General, in consultation with NPWS, that all vegetation clearing has been completed to meet the requirements of this consent.

Indigenous Heritage

- 5.59 Prior to the commencement of site preparation works, the Applicant shall clearly indicate the locations of known aboriginal relics on the site, and ensure that all employees and contractors are aware of those locations, to prevent the known relics being impacted during site preparation and construction.
- 5.60 The Applicant shall invite a representative of a relevant Local Aboriginal Land Council to attend all site preparation works. Should such a representative be unable to attend site preparation works, the Applicant shall ensure an independent, qualified person, with appropriate skills and experience in Aboriginal culture and heritage, and approved by the Director-General attends all site preparation activities.

Waste Management Impacts

- 5.61 ³⁸The Applicant shall not cause, permit or allow any waste generated outside the site to be received at the site for storage, treatment, processing, reprocessing or disposal, or any waste generated at the site to be disposed of at the site, except as expressly permitted by a licence under the *Protection of the Environment Operations Act 1997*. This condition only applies to the storage, treatment, processing, reprocessing or disposal of waste at the site if it requires an Environment Protection Licence under the *Protection of the Environment Operations Act 1997*.

Timber approved for use at the carbon reductant facility (refer to condition 1.6 of this consent) does not constitute waste for the purpose of this condition.

- 5.62 ³⁹All liquid and non-liquid wastes generated at the carbon reductant facility shall be assessed, classified and managed in accordance with the EPA's *Environmental Guidelines Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (EPA, 1999).
- 5.63 ⁴⁰Any waste generated at the carbon reductant facility (including sludges, slurries, dusts, sawdust, trash wood or other similar material) shall only be transported to an EPA-approved waste management facility for treatment, recycling and/ or disposal, where relevant.

Visual Amenity

- 5.64 All external lighting associated with the carbon reductant facility shall comply with Australian Standard *AS4282(INT) 1995 - Control of Obtrusive Effects of Outdoor Lighting*. Prior to the commencement of operation of the carbon reductant facility, the Applicant shall certify in writing, to the satisfaction of the Director-General, that

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all relevant lighting associated with the carbon reductant facility will meet the requirements of this condition, and has generally been designed and installed to minimise lighting impacts outside the carbon reductant facility.

- 5.65 Prior to the commencement of construction of the carbon reductant facility, the Applicant shall submit for the approval of the Director-General, details of a colour scheme for the facility. Colours selected for use on the carbon reductant facility shall aim to minimise the visual impact of the facility on surrounding land uses and maximise the ability of the carbon reductant facility to "blend into" local vegetation.

Section 94 Contributions

- 5.66 The Applicant shall consult with Council to establish an appropriate financial and/ or in kind contribution generally in accordance with Council's *Development Contributions Plan 2001*. The contribution shall reflect the likely increase in demand for public facilities and services as a result of the carbon reductant facility and shall take into account any mitigating circumstances to which the Applicant and Council may agree. Prior to the payment of any contribution, the Applicant shall refer details of the contribution for the approval of the Director-General accompanied by written evidence of Council's agreement with the contribution.

6. ENVIRONMENTAL MONITORING AND AUDITING

General Monitoring Requirements

- 6.1 The results of all monitoring required under this consent shall be
- a) in a legible form, or in a form that can readily reduced to a legible form;
 - b) kept for at least four years after the monitoring or event to which the results relate took place; and
 - c) produced in a legible form to any authorised officer of the EPA or the Director-General, upon request; and
 - d) kept with the following details for each sample required to be collected:
 - i) the date(s) on which the sample was collected;
 - ii) the time(s) at which the sample was collected;
 - iii) the point at which the sample was collected; and
 - iv) the name of the person who collected the sample.

Meteorological Monitoring

- 6.2 ⁴¹The Applicant shall prepare and implement a **Meteorological Monitoring Program** to monitor meteorological conditions in the vicinity of the carbon reductant facility (refer to condition 5.1). The Program shall meet the requirements of the EPA. Unless otherwise agreed by the EPA, the Program shall include continuous monitoring for the parameters specified in Table 5, employing the method and units specified in the Table over the averaging period indicated.

Table 5 - Meteorological Monitoring Parameters

Parameter	Units of Measure	Averaging Period	Method
wind speed at 10 metres	ms ⁻¹	1 hour	AM-2 and AM-4
wind direction at 10 metres	°	1 hour	AM-2 and AM-4
sigma theta at 10 metres	°	1 hour	AM-2 and AM-4
temperature at 2 metres	K	1 hour	AM-4
temperature at 10 metres	K	1 hour	AM-4
solar radiation at 10 metres	Wm ⁻²	1 hour	AM-4
evaporation	mmhr ⁻¹	1 hour	AM-4
rainfall	mmhr ⁻¹	1 hour	AM-4

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The Applicant shall make the Meteorological Monitoring Program and any monitoring results available for public inspection on request. The Director-General may make monitoring results available on the Department's internet site.

Note: the purpose of condition 6.2 of this consent is to provide a mechanism for collection and recording meteorological data relevant to the site for use in on-going air quality assessment.

Air Quality Monitoring

6.3 ⁴²The Applicant shall determine the relevant pollutant concentrations and emission parameters specified in Table 6 below, at the discharge points indicated and employing the sampling and analysis method specified. All relevant pollutant concentrations and emission parameters for each discharge point shall be determined concurrently and at the frequency specified in the table, from the commencement of commissioning of the carbon reductant facility (other than for selection of sampling points, which need only be determined once). Discharge/monitoring points are as defined by condition 5.1 of this consent.

Table 6 - Discharge Point Pollutant and Parameter Monitoring (Air)

Pollutant/ Parameter	Discharge/ Monitoring Points	Units	Method	Frequency
sulfuric acid mist (H ₂ SO ₄) or sulfur trioxide (SO ₃) or both (SO ₃)	1 to 5 inclusive	mgm ⁻³	TM-3	annually
nitrogen dioxide (NO ₂) or nitric oxide (NO) or both (as NO ₂)	1 to 5 inclusive	mgm ⁻³	TM-11	annually
solid particles	1 to 10 inclusive	mgm ⁻³	TM-15	annually
opacity	1 to 5 inclusive	%	CEM-1	continuous
carbon monoxide (CO) OR volatile organic compounds (VOC)	1 to 5 inclusive	mgm ⁻³	OM-1 (CO) OR OM-2 (VOC)	quarterly
carbon monoxide (CO) OR volatile organic compounds (VOC)	1 to 5 inclusive	mgm ⁻³	CEM-4 (CO) OR CEM-8 (VOC)	continuous
velocity	1 to 10 inclusive	ms ⁻¹	TM-2	annually
volumetric flowrate	1 to 10 inclusive	m ³ s ⁻¹	TM-2	annually
	1 to 5 inclusive	m ³ s ⁻¹	CEM-6	continuous
temperature	1 to 10 inclusive	°C	TM-2	annually
	1 to 5 inclusive	°C	TM-2	continuous
	11 to 15 inclusive	°C	TM-2	continuous
moisture	1 to 10 inclusive	%	TM-22	annually
	1 to 5 inclusive	%	TM-22	continuous
dry gas density	1 to 10 inclusive	kgm ⁻³	TM-23	annually
molecular weight of stack gases	1 to 10 inclusive	g.mol ⁻¹	TM-23	annually
oxygen	1 to 5 inclusive	%	TM-25	annually
	1 to 5 inclusive	%	CEM-3	continuous
selection of sampling points	1 to 10 inclusive	-	TM-1	-

In relation to monitoring for carbon monoxide (CO) and volatile organic compounds (VOC):

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- a) if carbon monoxide is monitored on a continuous basis, periodic monitoring for volatile organic compounds shall also be undertaken; or
- b) if volatile organic compounds are monitored on a continuous basis, periodic monitoring for carbon monoxide shall also be undertaken.

The Applicant shall make all monitoring results obtained under this condition available for public inspection on request. The Director-General may make monitoring results available on the Department's internet site.

- 6.4 ⁴³The Applicant may seek the approval of the Director-General to alter the frequency of any pollutant concentration or emission parameter determination required under condition 6.3 of this consent. Any request for approval shall only be made provided:
- a) concentration/ parameter determination has been undertaken for a period of no less than 24 months (measured from the commencement of operation of cold mill facility);
 - b) there has been no exceedence of any limit placed on the subject concentration/ parameter by this consent within the 24-month period;
 - c) there has been no reasonable complaint received from the public in relation to the subject concentration/ parameter within the preceding 24-month period (refer to condition 7.3 of this consent); and
 - d) the request is accompanied by written agreement of the EPA with the proposed alteration to the frequency of parameter determination.

Note: condition 6.4 recognises that on-going monitoring may demonstrate that air quality limits imposed under this consent are consistently met, and the need for rigorous and frequent monitoring may be relaxed.

- 6.5 ⁴⁴Within 90 days of the commencement of operation of the carbon reductant facility, and during a period in which the facility is operating under design loads and normal operating conditions, the Applicant shall undertake a program to confirm the air emission performance of the facility. The program shall meet the requirements of the EPA, and shall include, but not necessarily be limited to:
- a) point source emission testing at each discharge point (as defined by condition 5.5 of this consent) subject to the sampling and analysis requirements listed under condition 6.3;
 - b) point source emission testing at relevant discharge points for "hazardous substances", being Sb, As, Be, Cd, Cr, Co, Pb, Mn, Hg, Ni, Se, Sn and V;
 - c) a comprehensive air quality impact assessment, using actual air emission data collected under a) and b). The assessment shall be undertaken strictly in accordance with the methods outlined in *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2001);
 - d) a comparison of the results of the air quality impact assessment required under c) above, and the predicted air quality impacts detailed in the documents listed under condition 1.2b) to n) inclusive (ie EIS and additional information documents). Efficiencies of relevant air pollution control equipment shall also be calculated;
 - e) a comparison of the results of the air quality impact assessment required under c) above, and the impact assessment criteria detailed in *Approved Methods and Guidance for the Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2001) and the relevant requirements of the *Clean Air (Plant and Equipment) Regulation 1997*; and

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- f) details of any entries in the Complaints Register (condition 7.3 of this consent) relating to air quality impacts.

A report providing the results of the program shall be submitted to the Director-General and the EPA with 28 days of completion of the testing required under a). The Applicant shall make the report on the results of the program available for public inspection on request. The Director-General may provide the report available on the Department's internet site.

6.6 In the event that the program undertaken to satisfy condition 6.5 of the consent indicates that the operation of the carbon reductant facility, under design loads and normal operating conditions, will lead to:

- a) greater point source emissions or ground-level concentrations of air pollutants than predicted in the documents listed under condition 1.2b) to n) inclusive (ie EIS and additional information documents); or
- b) greater point source emissions or ground-level concentrations of air pollutants than the impact assessment criteria detailed in *Approved Methods and Guidance for the Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2001);

then the Applicant shall provide details of remedial measures to be implemented to reduce point source emissions or ground-level concentrations of air pollutants to no greater than that predicted in the documents listed under condition 1.2b) to n) inclusive (ie EIS and additional information documents) and to meet the impact assessment criteria detailed in *Approved Methods and Guidance for the Sampling and Analysis of Air Pollutants in New South Wales* (EPA, 2001). Details of the remedial measures and a timetable for implementation shall be submitted for the approval of the Director-General, within such period as the Director-General may require, and be accompanied by evidence that the EPA is satisfied that the remedial measures are acceptable.

The Applicant shall make details of remedial measures available for public inspection on request. The Director-General may provide details of the remedial measure on the Department's internet site.

Note: the purpose of conditions 6.5 and 6.6 of this consent is to confirm the air quality performance of the carbon reductant facility, as predicted in the EIS. Condition 6.6 provides a mechanism for the implementation of additional mitigating measures, should the air quality performance, as predicted in the EIS and required under this consent, cannot be demonstrated under a real, operational situation.

Noise Monitoring

6.7 Within 90 days of the commencement of operation of the carbon reductant facility, and during a period in which the facility is operating under design loads and normal operating conditions, the Applicant shall undertake a program to confirm the noise emission performance of the facility. The program shall meet the requirements of the EPA, and shall include, but not necessarily be limited to:

- a) noise monitoring, consistent with the guidelines provided in the *New South Wales Industrial Noise Policy* (EPA, 2000), at relevant locations surrounding the site;
- b) a comprehensive and accurate mapping of those areas surrounding the site that would be subject to noise levels greater than or equal to the land acquisition noise criterion of 40dB(A) (refer to condition 5.48 of this consent) or noise levels greater than or equal to the residual noise management criterion of 35 dB(A) (refer to condition 5.49 of this consent);

- c) a comparison of the results of the noise monitoring required under a) above, and the predicted noise impacts detailed in the documents listed under condition 1.2b) to n) inclusive (ie EIS and additional information documents); and
- d) details of any entries in the Complaints Register (condition 7.3 of this consent) relating to noise impacts.

A report providing the results of the program shall be submitted to the Director-General, the EPA and Council with 28 days of completion of the testing required under a). The Applicant shall make the report on the results of the program available for public inspection on request. The Director-General may provide the report available on the Department's internet site.

Note: mapping of the land acquisition and residual noise management noise levels, as required under condition 6.7 of this consent, is for land use planning purposes. Provision of this data to Council will allow inclusion of the data in relevant planning certificates (refer to section 149 of the *Environmental Planning and Assessment Act 1979*) and permit consideration of noise contributions from the carbon reductant facility in future land use planning decisions.

- 6.8 In the event that the program undertaken to satisfy condition 6.7 of the consent indicates that the operation of the carbon reductant facility, under design loads and normal operating conditions, will lead to greater noise impacts than permitted under condition 5.47 of this consent, then the Applicant shall provide details of remedial measures to be implemented to reduce noise impacts to levels required by that condition. Details of the remedial measures and a timetable for implementation shall be submitted to the Director-General for approval within such period as the Director-General may require, and be accompanied by evidence that the EPA is satisfied that the remedial measures are acceptable.

The Applicant shall make details of remedial measures available for public inspection on request. The Director-General may provide details of the remedial measure on the Department's internet site.

Water Quality Monitoring

- 6.9 ⁴⁵The Applicant shall prepare and implement a **Discharge Water Quality Monitoring Program** to monitor the quality of water discharged from the site during both dry and wet weather. The Program shall meet the requirements of the EPA and DLWC. The Program shall include, but not necessarily be limited to the following procedures:

- a) at least one sample of stormwater discharged from the site to be taken daily during any overflow or any controlled discharge from the site;
- b) samples shall be taken with the first hour of discharge as grab samples from discharge points 16 and 17 (refer to condition 5.19 of this consent);
- c) samples shall be analysed for the following pollutants and parameters, and any other pollutants that may be characteristic of unit processes or stockpile areas contributing potential pollutants to the discharge;
 - i) pH, analysed in-situ;
 - ii) dissolved oxygen (DO), analysed in-situ;
 - iii) temperature, analysed in-situ;
 - iv) oil and grease;
 - v) biological oxygen demand (BOD), in duplicate;
 - vi) total nitrogen (TN), in duplicate;
 - vii) total phosphorous (TP), in duplicate;

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- viii) total suspended solids (TSS) and turbidity;
 - ix) hardness;
 - x) zinc, in duplicate;
 - xi) tannins and lignins; and
 - xii) conductivity.
- d) the following information shall be collected for each discharge:
- i) the date, time and period of discharge;
 - ii) the volume of discharge;
 - iii) the weather conditions prior to discharge, including rainfall volume in the preceding 24-hour and 3-day periods;
 - iv) the location of the point at which the discharge enters the receiving waters or wetland, and the route it follows to reach the receiving waters or wetland;
 - v) an assessment of whether the discharge is causing scour erosion;
 - vi) a summary report shall be prepared containing all results of monitoring and a description of sampling and analytical methodologies.
- e) a preliminary report on discharge water quality monitoring shall be submitted to the EPA as soon as practicable after each discharge.

The Discharge Water Quality Monitoring Program shall be submitted for the approval of the Director-General prior to the commencement of operation of the carbon reductant facility, or within such period as the Director-General may agree. The Applicant shall make the Discharge Water Quality Monitoring Program and any monitoring results available for public inspection on request. The Director-General may make monitoring results available on the Department's internet site.

6.10 ⁴⁶The Applicant shall prepare and implement a **Collected Stormwater Monitoring Program** to monitor the quality of water collected on the site. The Program shall meet the requirements of the EPA. The Program shall include, but not necessarily be limited to:

- a) a sampling design showing the proposed sampling and analytical methodologies, and statistical basis for the monitoring to produce representative data with a high level of statistical certainty;
- b) a minimum of five samples shall be collected and analysed;
- c) dilutions at which testing will be conducted, test species to be used, specific endpoints, quality assurance measures and statistical procedures for analysis of data;
- d) acute and chronic toxicity testing shall be conducted to establish reliable acute and chronic toxicity ratios for collected stormwater. Acute and chronic toxicities shall be calculated as LC₅₀ and IC₂₅ values in addition to any other relevant expressions of toxicity, where appropriate;
- e) consideration of toxicities for at least two relevant phyla, each tested over at least 12 months;
- f) justification for the type of testing proposed including on-site or off-site testing and use of renewal, static or flow-through testing;
- g) justification for the type of sampling used, including grab and composite sampling;
- h) where samples are found to have toxicities greater than 30/ LC₅₀ or 100/ IC₂₅, toxicity identification evaluation testing shall be undertaken to identify particular pollutants which contribute to its toxicity; and
- i) an assessment of the likely source of pollutants on the site that contribute to the toxicity.

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The Program shall be undertaken over a period of no less than 12 months and commence with the first rainfall after the commencement of operation of the carbon reductant facility. The Program shall be submitted for the approval of the Director-General prior to the commencement of operation of the carbon reductant facility, or within such period as the Director-General may agree. The Applicant shall make the Collected Stormwater Monitoring Program and any monitoring results available for public inspection on request. The Director-General may make monitoring results available on the Department's internet site.

6.11 ⁴⁷The Applicant shall prepare and implement a **Hydrological Catchment Monitoring Program** to monitor the quality of water in the hydrological catchment and to provide an early warning mechanism for any potential impacts associated with the carbon reductant facility. The Program shall meet the requirements of the EPA and DLWC. The Program shall include, but not necessarily be limited to:

- a) identification of appropriate monitoring locations, including Lynchs Creek, Candlagan Creek, Longvale Swamp and the confluence of Kelly, Candlagan and Lynchs Creeks;
- b) water quality monitoring for at least six months prior to the commencement of the operation of the carbon reductant facility to provide background water quality data;
- c) procedures for monitoring water quality during the operation of the carbon reductant facility, including monitoring methodologies and standards to be employed;
- d) details of variables and pollutants for which monitoring is to be undertaken;
- e) demonstration of the representativeness of sampling;
- f) determination of monitoring frequencies based on rainfall events;
- g) a time frame for program implementation and on-going monitoring; and
- h) details of how results will be assessed and reported.

The Program shall be submitted for the approval of the Director-General prior to the commencement of operation of the carbon reductant facility, or within such period as the Director-General may agree. The Applicant shall make the Hydrological Catchment Monitoring Program and any monitoring results available for public inspection on request. The Director-General may make monitoring results available on the Department's internet site.

Yellow-Bellied Glider Monitoring

6.12 The Applicant shall prepare and implement a **Yellow-Bellied Glider Monitoring Program** to monitor the effects of the construction and operation of the carbon reductant facility on populations of the Yellow-Bellied Glider (*Petaurus australis*) that may utilise the site. The Program shall be developed in consultation with NPWS and Council. The Program shall include annual surveys for the Yellow-Bellied Glider for at least three years after the commencement of construction. The Applicant shall make the Yellow-Bellied Glider Monitoring Program and any monitoring results available for public inspection on request. The Director-General may make monitoring results available on the Department's internet site.

Independent Auditing

6.13 Twelve months after the commencement of operation of the carbon reductant facility, or within such period as otherwise agreed by the Director-General, the Applicant shall commission an independent, qualified person or team to undertake a Hazard Audit of the carbon reductant facility. The independent person or team shall be approved by the Director-General prior to the commencement of the Audit. A **Hazard Audit Report** shall be submitted for the approval of the Director-General no

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later than one month after the completion of the Audit. Further Hazard Audits shall be undertaken every three years, or as required by the Director-General. Hazard Audits shall be carried out in accordance with the Department's publication *Hazardous Industry Planning Advisory Paper No. 5 - Hazard Audit Guidelines*. The Applicant shall meet the requirements of the Director-General to address the findings of the Hazard Audit Report, within such period as the Director-General may require.

- 6.14 Every year for the first five years after the commencement of operation of the carbon reductant facility, and every three years thereafter, or as otherwise required by the Director-General, the Applicant shall commission an independent person or team to undertake an Environmental Audit of the carbon reductant facility. The independent person or team shall be approved by the Director-General prior to the commencement of the Audit. An **Environmental Audit Report** shall be submitted for comment to the Director-General, DLWC, the EPA, NPWS, the RTA and Council within one month of the completion of the Audit. The Audit shall:
- a) be carried out in accordance with *ISO 14010 - Guidelines and General Principles for Environmental Auditing* and *ISO 14011 - Procedures for Environmental Auditing*;
 - b) assess compliance with the requirements of this consent, and other licences and approvals that apply to the carbon reductant facility;
 - c) assess the carbon reductant facility against the predictions made and conclusions drawn in the documents referred to under condition 1.2 of this consent;
 - d) review the effectiveness of the environmental management of the carbon reductant facility, including any environmental impact mitigation works; and
 - e) independently review and validate monitoring systems and outcomes.

The Director-General may, having considered any submission made by DLWC, the EPA, NPWS, the RTA or Council in response to the Environmental Audit Report, require the Applicant to undertake works to address the findings or recommendations presented in the Report. Any such works shall be completed within such time as the Director-General may require. The Applicant shall make the Environmental Audit Report available for public inspection on request. The Director-General may make the Environmental Audit Report available on the Department's internet site.

- 6.15 The Applicant shall provide a compliance report(s) to the Director-General detailing the implementation of the recommendations of the Environmental Audit Report (refer to condition 6.14). The compliance report(s) shall be submitted to the Director-General within such time, and at such frequency, as the Director-General may require. The Applicant shall make the compliance report(s) available for public inspection on request. The Director-General may make the compliance report(s) available on the Department's internet site.

7. COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT

- 7.1 Subject to commercial confidentiality, as and if applicable, the Applicant shall make all documents required under this consent available for public inspection on request.

Complaints Procedure

- 7.2 ⁴⁸Prior to the commencement of construction of the carbon reductant facility, the Applicant shall ensure that the following are available for community complaints:
- a) a telephone number on which complaints about the carbon reductant facility may be registered;

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- b) a postal address to which written complaints may be sent; and
- c) an email address to which electronic complaints may be transmitted.

The telephone number, the postal address and the email address shall be advertised on at least one occasion in at least one appropriate local newspaper prior to the commencement of construction of the carbon reductant facility. These details shall also be provided on the Applicant's internet site, should one exist.

- 7.3 The Applicant shall record details of all complaints received through the means listed under condition 7.2 of this consent in an up-to-date Complaints Register. The Register shall record, but not necessarily be limited to:
- a) the date and time, where relevant, of the complaint;
 - b) the means by which the complaint was made (telephone, mail or email);
 - c) any personal details of the complainant that were provided, or if no details were provided, a note to that effect;
 - d) the nature of the complaint;
 - e) any action(s) taken by the Applicant in relation to the complaint, including any follow-up contact with the complainant; and
 - f) if no action was taken by the Applicant in relation to the complaint, the reason(s) why no action was taken.

The Complaints Register shall be made available for inspection by the EPA or the Director-General upon request. The Applicant shall also make summaries of the Register, without details of the complainants, available for public inspection.

Community Participation Program

- 7.4 Prior to the commencement of site preparation works for the carbon reductant facility, or within such period otherwise agreed by the Director-General, the Applicant shall establish a Community Reference Panel to be consulted during the preparation of the Community Participation Program referred to under condition 7.5 of this consent. The Panel shall be formed to provide input into the Community Participation Program and to provide suggestions and advice to the Applicant on how to tailor its community consultation activities to meet the needs and interests of the local community. In establishing the Community Reference Panel, the Applicant shall:
- a) place an advertisement in a newspaper circulating in the Eurobodalla local government area and covering readers surrounding the site. The advertisement shall invite interested members of the community to be nominated to form part of the Community Reference Panel. A period of no less than 14 days shall be allowed from the date of the advertisement to the close of nominations. The advertisement shall clearly indicate the purpose of the Panel and the role/ responsibilities of the Panel members;
 - b) select suitable nominees to act on the Panel, having regard to the purpose of the Panel and the requirement to represent the broader interests of the local community, particularly:
 - i) landowners and occupiers in the vicinity of the site;
 - ii) relevant socio-economic and ethnic groups contributing to the community; and
 - iii) relevant environment, business and community interest groups.
 - c) provide details of those nominees selected for the approval of the Director-General, indicating how the requirements of b) have been satisfied;

The Community Reference Panel shall be chaired by an independent person appointed by the Director-General.

- 7.5 Prior to the commencement of construction of the carbon reductant facility, or within such period otherwise agreed by the Director-General, the Applicant shall prepare and implement Community Participation Program, on an on-going basis through the construction and operation of the carbon reductant facility, in consultation with the Community Participation Panel established under condition 7.4 of this consent. The Program shall include, but not necessarily be limited to:
- a) the general types of information about the environmental management and impacts of the carbon reductant facility that the community would receive;
 - b) the means by which the information referred to under a) would be provided to the community (for example, presented at regular meetings, published in regular newsletters etc);
 - c) a mechanism through which the community can provide feedback to the Applicant in relation to the environmental management and impacts of the carbon reductant facility;
 - d) a system and procedures to address community complaints.

The Program shall be submitted for the approval of the Director-General, in consultation with Council, prior to the commencement of construction of the carbon reductant facility. In submitting the Program, the Applicant shall specifically highlight where input from the Community Reference Panel has been included in the Program, and where input has been excluded, with justification for the exclusion.

8. ENVIRONMENTAL MANAGEMENT

Environmental Training Program

- 8.1 Prior to the commencement of operation of the carbon reductant facility, the Applicant shall develop and submit for the approval of the Director-General, an **Environmental Training Program**. The Program shall be developed to establish a framework in which relevant employees will be trained in environmental management and the operation of pollution control equipment, where relevant. The Program shall include, but not necessarily be limited to:
- a) identification of relevant employment positions associated with the carbon reductant facility that have an operational or management role related to environmental performance;
 - b) details of appropriate training requirements for relevant employees;
 - c) a program for training relevant employees in operational and/ or management issues associated with environmental performance;
 - d) a program to confirm and update environmental training and knowledge during employment of relevant persons.

Environmental Officer

- 8.2 Prior to the commencement of construction of the carbon reductant facility, the Applicant shall nominate one or more suitably qualified and experienced Environmental Officer(s), approved by the Director-General. The Applicant shall employ an Environmental Officer(s) on a full-time basis throughout the life of the carbon reductant facility. The Environmental Officer(s) shall be:
- a) the primary contact point for the Department, the EPA, DLWC, the RTA, NPWS, Council and the community, as applicable, in relation to the environmental performance of the carbon reductant facility;
 - b) responsible for all Management Plans and Monitoring Programs required under this consent;
 - c) responsible for considering and advising on matters specified in the conditions of this consent, and all other licences and approvals related to the environmental performance and impacts of the carbon reductant facility;

- d) responsible for receiving and responding to complaints in accordance with condition 7.3 of this consent; and
- e) given the authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur.

The Applicant shall notify the Director-General, EPA, DLWC, the RTA, NPWS and Council of the name and contact details of the Environmental Officer upon appointment, and any changes to that appointment that may occur from time to time.

Note: the Environmental Officer(s) referred to under condition 8.2 of this consent need not necessarily be limited to environmental management duties and may be any employee with appropriate qualifications. Equally, nothing in this consent prohibits the Applicant nominating a single Environmental Officer to act for the carbon reductant facility as well as the associated quartz mine and silicon smelter.

Site Preparation Environmental Management

- 8.3 The Applicant shall prepare and implement an **Erosion and Sedimentation Management Plan** to detail measures to minimise erosion during site preparation works and construction of the carbon reductant facility. The Plan shall address the requirements of the EPA, DLWC and Council. The Plan shall include, but not necessarily be limited to:
- a) results of investigations into soils associated with the site, in particular the stability of the soil and its susceptibility to erosion;
 - b) details of erosion, sediment and pollution control measures and practices to be implemented during site preparation works and construction of the carbon reductant facility;
 - c) demonstration that erosion and sediment control measures will conform with, or exceed, the relevant requirements and guidelines provided in DLWC's publication *Urban Erosion and Sedimentation Handbook*, the EPA's publication *Pollution Control Manual for Urban Stormwater* and the Department of Housing's publication *Managing Urban Stormwater: Soils and Construction*;
 - d) design specifications for diversionary works, banks and sediment basins;
 - e) an erosion monitoring program during site preparation works and construction of the carbon reductant facility; and
 - f) measures to address erosion, should it occur, and to rehabilitate/ stabilise disturbed areas of the site;

The Erosion and Sedimentation Control Plan shall be submitted for the approval of the Director-General no later than one month prior to the commencement of site preparation works, or within such period otherwise agreed by the Director-General. The Applicant shall make the Erosion and Sedimentation Management Plan available for public inspection on request.

- 8.4 ⁴⁹The Applicant shall prepare and implement an **Acid Sulfate Soil Management Plan** to detail measures to be implemented in relation to the management and handling of any potential or actual acid sulfate soils identified in accordance with condition 5.18 of this consent. The Plan shall be prepared in accordance with guidance provided in *Acid Sulfate Soil Manual* (Acid Sulfate Soil Management Advisory Committee, 1998) and to meet the requirements of DLWC. The Acid

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Sulfate Soil Management Plan need only be prepared should potential or actual acid sulfate soils be identified on the site. The Acid Sulfate Soil Management Plan, should such a Plan be required, shall be submitted for the approval of the Director-General no later than one month prior to the commencement of site preparation works, or within such period otherwise agreed by the Director-General. The Applicant shall make the Acid Sulfate Soil Management Plan, if prepared, available for public inspection on request.

Construction Environmental Management Plan (CEMP)

8.5 The Applicant shall prepare and implement a **Construction Environmental Management Plan (CEMP)** to outline environmental management practices and procedures to be followed during the construction of the carbon reductant facility. The Plan shall include, but not necessarily be limited to:

- a) a description of all activities to be undertaken on the site during construction of the carbon reductant facility, including an indication of stages of construction, where relevant;
- b) statutory and other obligations that the Applicant is required to fulfil during construction, including all approvals, consultations and agreements required from authorities and other stakeholders, and key legislation and policies;
- c) specific consideration of measures to address any requirements of the Department, the EPA, the RTA, NPWS, DLWC and Council during construction;
- d) details of how the environmental performance of the construction works will be monitored, and what actions will be taken to address identified adverse environmental impacts;
- e) a description of the roles and responsibilities for all relevant employees involved in the construction of the carbon reductant facility;
- f) the studies listed under condition 8.6 of this consent;
- g) arrangements for community consultation and complaints handling procedures during construction;
- h) reference to the relevant parts of the Erosion and Sedimentation Management Plan required under condition 8.3 of this consent; and
- i) reference to the relevant parts of the Acid Sulfate Soil Management Plan, should such a Plan be required under condition 8.4 of this consent.

The CEMP shall be submitted for the approval of the Director-General no later than one month prior to the commencement of construction of the carbon reductant facility, or within such period otherwise agreed by the Director-General. Construction shall not commence until written approval has been received from the Director-General. Upon receipt of the Director-General's approval, the Applicant shall supply a copy of the CEMP to Council, the EPA, the RTA, NPWS and DLWC as soon as practicable. The Applicant shall make the CEMP available for public inspection on request.

8.6 As part of the CEMP for the carbon reductant facility, required under condition 8.5 of this consent, the Applicant shall prepare and implement the following studies:

- a) a **Fire Safety Study** for the carbon reductant facility, covering all aspects detailed in the Department's publication *Hazardous Industry Planning Advisory Paper No. 2 - Fire Safety Guidelines* and the New South Wales Government's *Best Practice Guidelines for Contaminated Water Retention and Treatment Systems*. The Study shall specifically include:
 - i) details of an appropriate, reliable source of firefighting water, including a demonstration that the source has sufficient capacity and head to fight the likely worst-case fire incident on the site; and
 - ii) details of stockpile management procedures and separation distances to minimise the potential for fire propagation/ escalation.

- b) a **Hazard and Operability Study** of the carbon reductant facility chaired by an independent, qualified person or team. The independent person or team shall be approved by the Director-General prior to the commencement of the Study. The Study shall be carried out in accordance with the Department's publication *Hazardous Industry Planning Advisory Paper No. 8 - HAZOP Guidelines*. The Study shall specifically focus on pollution control equipment and LPG storage/ distribution systems;
- c) a **Final Hazard Analysis** for the carbon reductant facility, prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 6 - Guidelines for Hazard Analysis*;
- d) a **Construction Safety Study** for the carbon reductant facility, prepared in accordance with the Department's *Hazardous Industry Planning Advisory Paper No. 7 - Construction Safety Study Guidelines*;
- e) a **Roadworks and Construction Traffic Management Plan** to detail how roadworks and construction traffic will be scheduled and managed to minimise environmental impacts. The Plan shall be developed to meet the requirements of the RTA and Council. The Plan shall include, but not necessarily be limited to:
 - i) a schedule for roadworks established to minimise disruption to traffic utilising the Princes Highway or the site access road;
 - ii) results of consultation with existing users of the site access road to establish measures to be implemented to minimise amenity impacts of traffic along that road during construction of the carbon reductant facility;
 - iii) details for the transport of oversized process components to the site, including times, routes, site access arrangements and safety measures to be implemented.

Operation Environmental Management Plan (OEMP)

8.7 The Applicant shall prepare and implement an **Operation Environmental Management Plan (OEMP)** to detail an environmental management framework, practices and procedures to be followed during the operation of the carbon reductant facility. The Plan shall include, but not necessarily be limited to:

- a) identification of all statutory and other obligations that the Applicant is required to fulfil in relation to operation of the carbon reductant facility, including all consents, licences, approvals and consultations;
- b) a description of the roles and responsibilities for all relevant employees involved in the operation of the carbon reductant facility;
- c) overall environmental policies and principles to be applied to the operation of the carbon reductant facility;
- d) standards and performance measures to be applied to the carbon reductant facility, and a means by which environmental performance can be periodically reviewed and improved;
- e) management policies to ensure that environmental performance goals are met and to comply with the conditions of this consent;
- f) the Management Plans listed under condition 8.8 of this consent;
- g) the environmental monitoring requirements outlined under conditions 6.1 to 6.11 of this consent, inclusive.

The OEMP shall be submitted for the approval of the Director-General no later than one month prior to the commencement of operation of the carbon reductant facility, or within such period otherwise agreed by the Director-General. Operation shall not commence until written approval has been received from the Director-General. Upon receipt of the Director-General's approval, the Applicant shall supply a copy of the OEMP to Council, the EPA, the RTA, NPWS and DLWC as soon as practicable. The Applicant shall make the OEMP available for public inspection on request.

8.8 As part of the OEMP for the carbon reductant facility, required under condition 8.7 of this consent, the Applicant shall prepare and implement the following Management Plans:

- a) an **Air Quality Management Plan** to outline measures to minimise impacts from the carbon reductant facility on local and regional air quality. The Plan shall address the requirements of the EPA and Council, should there be any. The Plan shall include, but not necessarily be limited to:
 - i) identification of all major sources of particulate and gaseous air pollutants that may be emitted from the carbon reductant facility, being both point-source and diffuse emissions, including identification of the major components and quantities of these emissions;
 - ii) monitoring for gaseous and particulate emissions from the carbon reductant facility, consistent with the requirements of this consent and any relevant Environment Protection Licence for the site;
 - iii) protocols for regular maintenance of process equipment to minimise the potential for leaks and fugitive emissions; and
 - iv) a contingency plan should an incident, process upset or other initiating factor lead to elevated air quality impacts, whether above normal operating conditions or environmental performance goals/ limits;
- b) an **Energy Management Plan**. The Plan shall include, but not necessarily be limited to:
 - i) design features of all equipment and buildings to reduce energy consumption (for heating, cooling and lighting etc);
 - ii) procedures and methods for monitoring energy consumption by the development;
 - iii) protocols for monitoring heat exchanger efficiency and fouling, including procedures for cleaning and maintenance of all heat exchangers;
 - iv) protocols for monitoring the efficiency of pumps and all other electrically-driven process equipment, including procedures for maintenance of these items; and
 - v) consideration of the insulation requirements of all pipes and vessels containing process fluids other than at ambient temperature, and procedures for the maintenance of such insulation material;
- c) a **Noise Management Plan** to detail measures to minimise noise impacts during the operation of the carbon reductant facility and to manage residual noise (refer to condition 5.49 of this consent). The Plan shall be developed in consultation with Council and to meet the requirements of the EPA. The Plan shall include, but not necessarily be limited to:
 - i) a program to investigate and monitor noise levels from the carbon reductant facility on periodic basis;
 - ii) measures to manage activities on the site to minimise undertaking noisy activities at night;
 - iii) a protocol for handling noise complaints;
 - iv) a program to investigate additional noise mitigation measures for the carbon reductant facility on an on-going basis;
 - v) longer-term strategies for the minimisation of noise from the carbon reductant facility with an aim to not exceed 35dB(A) at any residential receptor;
 - vi) a specific program to identify and implement, where appropriate, noise mitigation measures on the site, or at the receptor, to reduce residual noise impacts at the receptors subject to condition 5.49 of this consent; and

- vii) a program to identify other forms of benefit or amelioration that may be applied, upon agreement of the Applicant and the landowner, at receptors the subject of condition 5.49 of this consent.
- d) a **Surface Water Management Plan** to outline measures to control and manage surface water (including erosion and sedimentation), stormwater and process water associated with the carbon reductant facility. The Plan shall address the requirements of the EPA, DLWC and Council, should there be any. The Plan shall include, but not necessarily be limited to:
 - surface water, erosion and sedimentation management**
 - i) measures to be implemented to minimise the potential for erosion from the site, during the operation of the carbon reductant facility and measures to maintain all erosion mitigating works;
 - ii) demonstration that erosion and sedimentation control measures will conform with, or exceed, the relevant requirements and guidelines provided in DLWC's publication *Urban Erosion and Sedimentation Handbook*, the EPA's publication *Pollution Control Manual for Urban Stormwater* and the Department of Housing's publication *Soil and Water Management for Urban Development*;
 - iii) measures to rehabilitate erosion-affected areas and areas the subject of excavation, including tree, shrub and/ or cover crop species and implementation;
 - iv) management procedures for all surface water collection and storage structures on the site, including a maintenance program for associated infrastructure (eg pumps, pipes, dam walls etc) and a program for desilting of those structures, where relevant
 - stormwater management**
 - i) procedures for planting and maintaining vegetation along all stormwater channels and detention systems, to minimise the potential for erosion;
 - ii) procedures for the installation and maintenance of gross pollutant traps to screen run-off from the site;
 - iii) a demonstration of consistency with the stormwater management plan for the catchment, should one exist, or with the EPA's publication *Managing Urban Stormwater: Council Handbook* should a stormwater management plan for the catchment not exist;
- e) a **Process Water Management Plan** to outline measures to control and manage surface water (including erosion and sedimentation), stormwater and process water associated with the carbon reductant facility. The Plan shall address the requirements of the EPA. The Plan shall include, but not necessarily be limited to:
 - i) details of how site water consumption will be minimised through water reuse and recycling;
 - ii) details of all process water treatment systems for the carbon reductant facility, including procedures for maintenance of the systems and water quality monitoring regimes, where relevant;
 - iii) a program to monitor consumption of water at the site;
 - iv) procedures for monitoring and management of the performance of the biological wastewater treatment plant.
- f) ⁵⁰an **Off-Gas Reuse Strategy** to detail measures to investigate and pursue options for the beneficial reuse of relevant off-gases from the carbon reductant facility. The Strategy shall be developed in consultation with the EPA and shall focus on opportunities to reuse off-gases for heat/ energy generation on the site. The Strategy shall include consideration of timeframes for the

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implementation of any viable reuse option identified through the on-going application of the Strategy.

- g) ⁵¹a **Collected Water Reuse Strategy** to detail measures investigate and pursue options for the beneficial reuse of collected stormwater from the site. The Strategy shall be developed in consultation with the EPA. The Strategy shall include consideration of timeframes for the implementation of any viable reuse option identified through the on-going application of the Strategy.
- h) A **Bushfire Management Plan** for the site, developed in consultation with Council and relevant emergency services. The Plan shall be consistent with any bushfire management measures for State Forests and National Parks in the region;
- i) an **Emergency Plan** for the carbon reductant facility. The Plan shall be prepared in accordance with the Department's publication *Hazardous Industry Planning Advisory Paper No. 1 - Industry Emergency Planning Guidelines*.
- j) a **Safety Management System**, covering all operations at the carbon reductant facility and associated transport activities involving hazardous materials. The System shall clearly specify all safety-related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to safety procedures. The System shall be developed in accordance with the Department's publication *Hazardous Industry Planning Advisory Paper No. 9 - Safety Management*.
- k) an **Environmental Emergency Contingency Plan** to detail measures to be implement and actions to be taken in the event of an emergency leading to adverse environmental impacts. The Plan shall be developed to meet the requirements of the EPA, DLWC, the RTA, Council and NPWS, where applicable. The Plan shall include, but need not necessarily be limited to:
- i) threats to the biophysical and built environments, and public health, that may arise from an emergency or disruption at the carbon reductant facility;
 - ii) subsequent direct or indirect environmental effects of an emergency or disruption at the carbon reductant facility that may impact on quarry operations on the site;
 - iii) pollution that would result due to any emergency or disruption at the carbon reductant facility, and what impact that pollution would have on the biophysical environment and human health;
 - iv) appropriate measures to alert operators of any pollution control failures or unsatisfactory performance, including but not necessarily limited to a suitably displayed and audible fail-safe system for emission control;
 - v) appropriate contingency measures for the management of wastes, particularly sawdust, in the even that those wastes cannot be beneficially reused;
 - vi) actions to respond to any possible impacts as a result of overflows from water pollution controls including the identification of measures to effectively rehabilitate the receiving environment as soon as possible;
 - vii) actions to effectively respond to disruptions to the operation of the carbon reductant facility to minimise the risk of pollution; and
 - viii) a communications strategy for alerting relevant parties, including relevant Government bodies and the potentially affected community in the event of a disruption to the operation of the carbon reductant facility that may lead to significant pollution.
- l) a **Traffic Management Plan** to outline measures to minimise traffic impacts associated with the carbon reductant facility. The Plan shall address the requirements of Council and the RTA. The Plan shall include specific

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- measures to minimise the impact of heavy vehicles, including restrictions on routes and times (particularly in relation to peak hours, holiday periods and times immediately before and after school hours);
- m) a **Transport Code of Conduct** to outline minimum requirements for the movement of heavy vehicles to and from the site. The Code shall meet the requirements of Council and the RTA, should there be any. The Code shall include, but not necessarily be limited to:
- i) restrictions to routes (consistent with the Transport Management Plan required under l) above, where relevant);
 - ii) speed limits to be observed along routes to and from the site;
 - iii) restrictions to the hours of transport operations to avoid travelling through built-up areas late at night or at times of high traffic flows in those areas;
 - iv) minimum requirements for vehicle maintenance to address noise and exhaust emissions;
 - v) behavioural requirements for drivers; and
 - vi) load coverage requirements.
- n) a **Security and Crime Management Plan** to detail measures to prevent unauthorised access to the site and minimise the potential for crime at, and in the vicinity of the site. The Plan shall be developed in consultation with the NSW Police Service and Council. The Plan shall include, but not necessarily be limited to:
- i) details of security measures to prevent unauthorised access to the site, including physical exclusion measures, detection devices and management mechanisms;
 - ii) procedures for addressing security issues;
 - iii) specific design features intended to discourage the incidence of crime at and in the vicinity of the site;
 - iv) lighting considerations, including light intensity (noting condition 5.64 of this consent), direction and hours of operation at, and in the immediate vicinity of the site, with the aim of minimising areas that may encourage crime;
 - v) policies and procedures for the management and removal of graffiti, amelioration of vandalism etc, should it occur at or on the site or any component of the carbon reductant facility;
 - vi) policies and procedures for the management and removal of illegal or inappropriate bill-posting and illegally dumped materials, should it occur at or on the site or any component of the carbon reductant facility; and
 - vii) a demonstration that the Plan is consistent with the aims, objectives and guidelines provided in *Crime Prevention and the Assessment of Development Applications* (DUAP, 2001);
 - viii) results of consultation with NPWS to ensure that infrastructure aimed at security (eg fences) does not impede the movement of fauna on, through, over, or adjacent to the site.
- o) a **Landscape Management Plan** to outline measures to ensure appropriate development and maintenance of landscaping on the site. The Plan shall address the requirements of Council, should there be any. The Plan shall include, but not necessarily be limited to:
- i) details of all landscaping to be undertaken on the site;
 - ii) maximisation of flora species endemic to the locality in landscaping the site;
 - iii) details of car parking and measures to prevent vehicle encroachment onto landscaped areas; and
 - iv) a program to ensure that all landscaped areas on the site are maintained in a tidy, healthy state.

- p) a **Yellow-Bellied Glider Management Plan** to detail measures to minimise impacts on populations of Yellow-Bellied Glider (*Petaurus australis*) that may utilise the site during the operation of the carbon reductant facility. The Plan shall be developed in consultation with NPWS and Council.
- q) a **Waste Management Plan** to outline measures to minimise the production and impact of waste produced at the carbon reductant facility during commissioning and operation, through the implementation of waste reduction, reuse and recycling principles. The Plan shall meet the requirements of the EPA and Council, should there be any. The Plan shall include, but not necessarily be limited to:
 - i) identification of the types and quantities of waste materials produced on the site during commissioning and operation of the carbon reductant facility;
 - ii) programs aimed at minimising the production of waste at the site through the implementation of operational and management measures;
 - iii) details of potential reuse and recycling avenues for waste materials produced on the site, including collection and handling procedures;
 - iv) details of appropriate disposal routes in the event that reuse and recycling avenues are not available or are not practicable; and
 - v) programs for involving and encouraging employees and contractors to minimise domestic waste production on the site and reuse/ recycle where appropriate.

8.9 Within three years of the commencement of operation, and at least every three years thereafter, the Applicant shall undertake a formal review of the Operation Environmental Management Plan (OEMP) required under condition 8.7 of this consent. The review shall ensure that the OEMP is up-to-date and all changes to procedures and practices since the previous review have been fully incorporated into the OEMP. The Applicant shall notify the Director-General, Council, the EPA DLWC, NPWS and the RTA of the completion of each review, and shall supply a copy of the updated OEMP to those parties on request. The Applicant shall also make any revised OEMP available for public inspection on request.

9. ENVIRONMENTAL REPORTING

Incident Reporting

- 9.1 The Applicant shall notify the EPA and the Director-General of any incident with significant off-site impacts on people or the biophysical environment as soon as practicable after the occurrence of the incident. The Applicant shall provide written details of the incident to the EPA and the Director-General within seven days of the date on which the incident occurred.
- 9.2 The Applicant shall meet the requirements of the Director-General to address the cause or impact of any incident, as it relates to this consent, reported in accordance with condition 9.1 of this consent, within such period as the Director-General may agree.

Note: Condition 9.2 of this consent does not limit or preclude the EPA from requiring any action to address the cause or impact of any incident, in the context of the EPA's statutory role in relation to the carbon reductant facility.

Annual Performance Reporting

- 9.3 The Applicant shall, throughout the life of the carbon reductant facility, prepare and submit for the approval of the Director-General, an **Annual Environmental Management Report** (AEMR). The AEMR shall be prepared by an independent,

qualified person(s), approved by the Director-General. The AEMR shall review the performance of the carbon reductant facility against the Operation Environmental Management Plan (refer to condition 8.7 of this consent), the conditions of this consent and other licences and approvals relating to the carbon reductant facility. The AEMR shall include, but not necessarily be limited to:

- a) details of compliance with the conditions of this consent;
- b) a copy of the Complaints Register (refer to condition 7.3 of this consent) for the preceding twelve-month period (exclusive of personal details), and details of how these complaints were address and resolved;
- c) a comparison of the environmental impacts and performance of the carbon reductant facility against the environmental impacts and performance predicted in the EIS;
- d) results of all environmental monitoring required under this consent and other approvals, including interpretations and discussion by a suitably qualified person;
- e) a list of all occasions in the preceding twelve-month period when environmental performance goals for the carbon reductant facility have not been achieved, indicating the reason for failure to meet the goals and the action taken to prevent recurrence of that type of incident;
- f) identification of trends in monitoring data over the life of the carbon reductant facility to date;
- g) a list of variations obtained to approvals applicable to the carbon reductant facility and to the site during the preceding twelve-month period;
- h) environmental management targets and strategies for the following twelve-month period, taking into account identified trends in monitoring results.

The Applicant shall submit a copy of the AEMR to the Director-General, the EPA, DLWC, the RTA, NPWS and Council every year, with the first AEMR to be submitted no later than twelve months after the commencement of operation of the carbon reductant facility. The Applicant shall make the AEMR available for public inspection on request.

- 9.4 The Director-General may require the Applicant to address certain matters in relation to the environmental performance of the carbon reductant facility, in response to review of the Annual Environmental Report and any comments received from the EPA, DLWC or Council. Any action required to be undertaken shall be completed within such period as the Director-General may agree.

10. LAND ACQUISITION PROCESS

- 10.1 The owner of any dwelling or vacant land for which the acquisition criteria specified under condition 5.47 or 5.48 of this consent have been met, may request in writing that the Applicant purchase the whole of the affected property. Should the Applicant receive such a written request from an owner of an affected dwelling or vacant land, the Applicant shall negotiate and purchase the whole of the affected property within six months of the receipt of the written request from the landowner, subject to the acquisition process detailed under conditions 10.2 to 10.6 of this consent.
- 10.2 In respect of a request to purchase a property, as referred to under condition 10.1, the Applicant shall pay the owner the acquisition price, which shall take into account and provide payment for:
- a) a sum not less than the current market value of the owner's interest in the property at the date of this consent, as if the property were unaffected by the carbon reductant facility the subject of this consent, having regard to:
 - i) the existing use and permissible use of the land in accordance with the applicable environmental planning instruments at the date of the written request to purchase the property;

- ii) the presence of improvements on the land and/ or any approved building or structure which, although substantially commenced at the date of the request to purchase the property, is completed subsequent to that date;

The sum outlined above shall not include the value associated with any business operating on the land (eg annual turnover/ profit or goodwill), and is limited to physical structures and improvements.

- b) the owner's reasonable compensation for disturbance allowance and relocation costs within the Eurobodalla local government area, or within such other location as may be determined by the Director-General in exceptional circumstances; and
- c) the owner's reasonable costs for obtaining legal advice and expert witnesses for the purposes of determining the acquisition price of the land and the terms upon which it is to be acquired.

10.3 In the event that the Applicant and the relevant owner cannot agree, within six months of the receipt of a request to acquire the subject property, on the acquisition price referred to under condition 10.2 of this consent and/ or the terms of the acquisition then:

- a) either party may refer the matter to the Director-General, who shall request that the President of the Australian Property Institute appoint a qualified, independent valuer, or Fellow of the Institute, who shall determine, after consideration of any submissions from the owner, a fair and reasonable acquisition price for the land as described under condition 10.2 of this consent and/ or the terms upon which the property is to be acquired;
- b) in the event of a dispute between the Applicant and the owner that cannot be resolved, the independent valuer/ Fellow of the Institute shall refer the matter to the Director-General, recommending the appointment of a qualified panel. The Director-General, if satisfied that there is a need for a qualified panel, shall arrange for the constitution of the panel. The panel shall consist of the appointed independent valuer/ Fellow of the Institute, the Director-General (or nominee and the President of the Law Society (or nominee). The qualified panel shall determine a fair and reasonable acquisition price, as referred to under condition 10.2 of this consent, and/ or the terms upon which the property is to be acquired.

10.4 The Applicant shall bear the costs of any valuation or survey assessment required by the independent valuer/ Fellow of the Institute, the qualified panel or the Director-General in executing the dispute resolution process referred to under condition 10.3 of this consent, and all relevant costs associated with determination of the acquisition price incurred through the processes referred to under conditions 10.2 10.3 of this consent.

10.5 With 14 days of determination of an acquisition price in accordance with condition 10.2 or condition 10.3 of this consent, the Applicant shall make a written offer to the owner of the subject property to acquire the property at a price not less than the determined acquisition price. Should the Applicant's offer to acquire the property not be accepted within six months of the offer being made, the Applicant's obligations to purchase the property shall cease, unless otherwise agreed by the Director General.

10.6 In the event that the Applicant and the landowner agree that only part of a property the subject of an acquisition request under condition 10.1 of this consent, the Applicant shall bear the reasonable costs associated with obtaining approval for any plan of subdivision and registration of the plan with the Office of the Registrar-General.

10.7 Nothing in this consent prevents the Applicant from negotiating and acquiring, upon request of the landowner, any property not specifically the subject of the acquisition provisions of this consent.
