NSW GOVERNMENT | Planning & Infrastructure

Contact: Haley Rich
Phone: 02 9228 6516
Fax: 02 9228 6466
Email: haley.rich@planning.nsw.gov.au

Mr Bill Collingburn
Yamba Welding and Engineering Pty Ltd
C/- Hopkins Consultants Pty Ltd
PO Box 1556
PORT MACQUARIE NSW 2444

Dear Mr Collingburn

Yamba Welding Marine Precinct Project (MP 11_0088)
Director-General's Requirements

The Department has received your application for the Yamba Welding Marine Precinct Project.

I have attached a copy of the Director-General's requirements (DGRs) for the project. These requirements have been prepared in consultation with the relevant agencies, based on the information you have provided to date. I have also attached a copy of the agencies' comments for your information. Please note that the Director-General may alter these requirements at any time.

As outlined in Clarence Valley Council's letter, dated 13 July 2011, Council proposes to rezone the site RU1 Primary Production under the draft Clarence Valley Local Environmental Plan 2010, which is expected to be gazetted in coming months. The Department notes that the proposal would be prohibited in this zone and that the Minister would not have the power to determine the project unless a concurrent rezoning process took place.

Furthermore, the Department remains concerned with the lack of strategic justification for the project and its location. This matter will need to be carefully considered during the assessment of the project and in any associated rezoning applications.

If your proposal is likely to have a significant impact on matters of National Environmental Significance, it will require an approval under the Commonwealth *Environment Protection Biodiversity Conservation Act 1999* (EPBC Act). This approval is in addition to any approvals required under NSW legislation. It is your responsibility to contact the Department of Environment, Water, Heritage and the Arts in Canberra (6274 1111 or http://www.environment.gov.au) to determine if the proposal requires an approval under the EPBC Act. If it is subsequently determined that an approval is required under the EPBC Act, please contact the Department immediately as supplementary Director-General's requirements may need to be issued.

I would appreciate it if you would contact the Department at least two weeks before you propose to submit your Environmental Assessment for the project. This will enable the Department to determine the:

- applicable fee (see Division 1A, Part 15 of the Environmental Planning and Assessment Regulation 2000); and

- number of copies (hard-copy and CD-ROM) of the Environmental Assessment that will be required for exhibition purposes.

Once it receives the Environmental Assessment, the Department will review it in consultation with the relevant agencies to determine if it adequately addresses the Director-General's requirements, and may require you to revise it prior to public exhibition.

The Department is required to make all the relevant information associated with the project publicly available on its website. Consequently, I would appreciate it if you would ensure that all the documents you subsequently submit to the Department are in a suitable format for the web, and arrange for an electronic version of the Environmental Assessment to be hosted on a suitable website.

If you have any enquiries about these requirements, please contact Haley Rich on the above details.

Yours sincerely

Haddad

Sam Haddad
Director-General

25/8/2011

Director-General's Requirements

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

Application Number	11_0088
Project	The relocation and expansion of a comprehensive marine/boat building precinct.
Location	School Road, Palmers Island (Lot 2 DP 598769)
Proponent	Yamba Welding & Engineering Pty Ltd
Date of Issue	August 2011
DGRs Expire	August 2013
General Requirements	The Environmental Assessment of the project must include: • an executive summary; • a detailed description of the project, including the: – strategic justification for the proposed site location, including existing and proposed zoning objectives; – need for the project; – alternatives considered, including a justification for the proposal on economic, social and environmental grounds; – likely staging of the project; and – plans of any proposed building works; • consideration of any relevant statutory provisions and environmental planning instruments, including but not limited to the *Maclean LEP 2001*, *Draft Clarence Valley LEP 2010*, *Draft Marine-Based Industry Policy – Far North Coast & Mid North Coast NSW*; the *Far North Coast Regional Strategy*, the *Marine Industrial Park Feasibility Study*, and SEPP 71. • a risk assessment of the potential environmental impacts of the project, identifying the key issues for further assessment; • a detailed assessment of the key issues specified below, and any other significant issues identified in the risk assessment (see above), which includes: – a description of the existing environment, using sufficient baseline data; – an assessment of the potential impacts of the project, including any cumulative impacts, taking into consideration any relevant guidelines, policies, plans and statutory provisions (see below); – a description of the measures that would be implemented to avoid, minimise, mitigate, rehabilitate/remediate, monitor and/or offset the potential impacts of the project, including detailed contingency plans for managing any significant risks to the environment; • a statement of commitments, outlining all the proposed environmental management and monitoring measures; • a conclusion justifying the project on economic, social and environmental grounds, taking into consideration whether the project is consistent with the objects of the *Environmental Planning & Assessment Act 1979*; and • a signed statement from the author of the Environmental Assessment, certifying that the information contained within the document is neither false nor misleading.
Key Issues	• **Noise** – including construction, operation and traffic noise impacts on nearby sensitive receivers, and the management and mitigation measures proposed. • **Air Quality** – including a quantitative assessment of the potential air quality and odour impacts of the project (including an assessment of the

	primary pollutants such as nitrogen oxides and dust), with consideration to a number of different operating scenarios, from normal to worst case operating conditions. • **Waste** – including accurate estimates of the quantity and classification of all potential sources of liquid and non-liquid waste to be generated by the project and how this waste would be handled, processed and, if necessary, disposed of. • **Traffic** – details of access to the site; – details of the traffic volumes (both road and ship) likely to be generated during construction and operation; – an assessment of the predicted impacts of this traffic on the safety and efficiency of the surrounding road network; – car parking requirements; and – details of any proposed road upgrade works, and the measures that would be implemented to ensure that the relevant road network is appropriately maintained during the life of the project. • **Infrastructure Requirements** – including: – a detailed written and graphical description of the infrastructure required on-site; – the identification of the infrastructure upgrades that are required off-site to facilitate the orderly and economic development of the project. • **Soil and Water** – both surface and groundwater during the construction and operation of the project, including: – an assessment of potential flooding and sea level rise impacts; – a water balance for the site and identification of adequate water sources; – erosion and sediment control plan for the construction works; – stormwater management scheme for the site, including any bunding of dangerous goods or fuel depots; – details of spill management procedures for the loading and unloading of chemicals or fuel at the site; – groundwater management, including measures for preventing groundwater pollution; and – details on any wastewater disposal or trade waste arrangements. • **Hazards** – including an assessment of potential offsite risks and details of fire and incident management procedures/measures. • **Greenhouse Gas & Energy Efficiency** – including: – a quantitative assessment of the potential scope 1 and 2 greenhouse gas emissions of the project, and qualitative assessment of the potential impacts of these emissions on the environment; and – a detailed description of the measures that would be implemented on site to ensure that the project is energy efficient. • **Flora and fauna**, including: – an assessment of any impacts on critical habitats, threatened species, populations of ecological communities and their habitats in the region, and groundwater dependant ecosystems; and – details of measures to enhance and protect any riparian zones. • **Heritage** – including Aboriginal and non-Aboriginal. • **Visual** – including any landscaping, signage and lighting.
References	The environmental assessment of the key issues listed above must take into account relevant guidelines, policies, and plans. While not exhaustive, the following attachment contains a list of some of the guidelines, policies, and plans that may be relevant to the environmental assessment of this project.
Consultation	During the preparation of the Environmental Assessment, you should consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups or affected landowners. In particular you must consult with the: • Office of Environment and Heritage;

	• Office of Environment and Heritage; • The Roads and Traffic Authority; • Clarence Valley Council; • NSW Office of Water; and • NSW Maritime. The consultation process and the issues raised during this process must be described in the Environmental Assessment.
Deemed Refusal Period	60 days

Policies, Guidelines and Plans

Aspect	Policy /Methodology
Risk	
	AS/NZS 4360 Risk Management (Standards Australia)
	HB 203:2006 Environmental Risk Management – Principals and Process
Air Quality	
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC, 2005)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DECC, 2007)
	Protection of the Environment Operations (Clean Air) Regulation 2002
Noise	
	NSW Industrial Noise Policy (DEC, 2000)
	Environmental Criteria for Road Traffic Noise (DEC, 1999)
	Interim Construction Noise Guideline (DECC)
Waste	
	Waste Avoidance and Resource Recovery Strategy 2007 (Resource NSW)
	Waste Classification Guidelines (DECC)
Traffic and Transport	
	Multi-Level Risk Assessment (DUAP, 1997)
	Guide to Traffic Generating Development (RTA, 2002)
	RTAs Road Design Guide (RTA, 1996)
Soil and Water	
Soil	Design Manual for Soil Conservation Works - Technical Handbook No. 5 (DoL, 1987)
	State Environmental Planning Policy No. 55 – Remediation of Land
	Managing Land Contamination – Planning Guidelines SEPP 55 – Remediation of Land (DOP)
Surface Water	National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ, 2001)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ, 2000)
	Using the ANZECC Guidelines and Water Quality Objectives in NSW (DEC, 2006)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC, 2004)
	Managing Urban Stormwater: Soils and Construction (Landcom, 2004)
	Managing Urban Stormwater: Treatment Techniques (EPA, 1997)
	Managing Urban Stormwater: Strategic Framework. Draft (EPA, 1996)
	Managing Urban Stormwater: Source Control. Draft (EPA, 1998)
Groundwater	The NSW State Groundwater Policy Framework Document (DLWC, 1997)
	The NSW State Groundwater Quality Protection Policy (DLWC, 1998)
	The NSW State Groundwater Dependent Ecosystems Policy (DLWC, 2002)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC, 1995)
Hazards	
	The storage and handling of flammable and combustible liquids (Standards Australia, 2004, AS 1940-2004)
	Storing and Handling Liquids: Environmental Protection - Participants Manual (DECC)
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development

	Applying SEPP 33 – Hazardous and Offensive Development Application Guidelines (DUAP, 1997)
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
Greenhouse Gas and Energy Efficiency	
	AGO Factors and Methods Workbook (AGO, 2006)
	Guidelines for Energy Savings Action Plans (DEUS, 2005)
Flora and Fauna	
	Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities. Working Draft (DEC)
	Draft Guidelines for Threatened Species Assessment under Part 3A of the Environmental Planning and Assessment Act 1979 (DEC)
Coastal Planning	
	NSW Coastal Policy 1997 - A sustainable future for the New South Wales coast, NSW Government, 1997 *any relevant coastal zone management/emergency protection works plans for Yamba*
	Practical Consideration of Climate Change – Floodplain Risk Management Guideline (DECC, October 2007)
	NSW Government Sea Level Rise Policy Statement, (DECCW, October 2009)
	Flood Risk Management Guide: Incorporating sea level rise benchmarks in flood risk assessments (DECCW, 2009)
	Coastal Risk Management Guide: Incorporating the sea level rise benchmarks in coastal hazard assessments (DECCW, 2009)
	NSW Coastal Planning Guideline: Adapting To Sea Level Rise (DoP, Aug 2010)

NSW GOVERNMENT | Maritime

18 July 2011

MA11/3172

Ms Felicity Greenway
Team Leader
Mining and Industry Projects
NSW Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attn: Ms Haley Rich

Dear Ms Greenway,

Yamba Welding Marine Precinct, Palmers Island
Request for agency input into DGRs

Thank you for referring the Preliminary Environmental Assessment prepared for the above Major Project under Part 3A of the *Environmental Planning and Assessment* (EP&A) *Act 1979.*

As the agency responsible for safe navigation in the state and as manager of the Port of Yamba, NSW Maritime has an interest in all navigation, recreational boating and commercial shipping issues associated with the proposal.

Following review of the Preliminary Environmental Assessment, NSW Maritime suggests the subsequent matters should be addressed.

From a marine pollution perspective no waste water generated on the site should be allowed to discharge to the river, this includes storm water runoff. Any run off that is to be returned to the river should be treated to the Standards set by NSW Office of Environment and Heritage (OEH).

Although not specifically mentioned, the precinct could be used for cleaning and antifouling boat hulls, therefore, any scraping of hulls must be carried out on the hard stand and all waste products (liquid and solids) disposed of to land fill or sewer or treated on site to a standard set by OEH. In order to reduce the possible transfer of marine species, any vessels, apart from local Clarence River vessels, taken to the precinct for hull cleaning should not be moored in the river, but removed to the hard stand on arrival.

All products stored on site such as fuels, paints and chemicals should be stored in such a manner as to be protected from significant river flooding.

No structure, or vessel moored to any structure, should encroach within 100 metres of the current established Lead Line.

The wharf design and the method of mooring vessels are to take into account the river current, tidal steams and the wave action and hydrodynamic influences of a vessel of length 120m and breadth 20m navigating along the channel, on the Lead Line, so that the drift angle does not exceed 10 to 15 degrees.

Should further discussions on the proposal be required, please contact NSW Maritime's Assessments Officer, Mr Ian Tait on telephone 9563 8812 or email: itait@maritime.nsw.gov.au.

Yours sincerely

Allan Young
Manager Planning, Environment and Spatial Information
Property, Planning and Infrastructure Division

clarence
VALLEY COUNCIL

13 July 2011

Reference: 749838
Contact: Cheryl Sisson

Department of Planning & Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Haley Rich

Dear Haley,

RE: YAMBA WELDING MARINE PRECINCT, PALMERS ISLAND

I refer to your letter dated 21 June 2011 requesting Council's input to the application for the Yamba Welding Marine Precinct at Palmers Island lodged under Part 3A of the *Environmental Planning and Assessment Act, 1979.*

A preliminary assessment of the application by Council's Development Services Section raised the following issues that should be considered when preparing the Environmental Assessment:

- Inconsistencies with the following objectives of the 1(a) Rural (Agricultural Protection) Zone

  (a) to conserve the productive potential of prime crop or pasture land, and
  (b) to provide for new forms of agricultural development, and changing patterns of existing agricultural development, and
  (c) to ensure that commercial farming is not affected adversely by incompatible uses which impair its long term sustainability, and
  (d) to avoid degradation and alienation of prime agricultural land, and
  (e) to enable rural tourism, which does not adversely affect the productive potential of the land, and
  (f) to exclude urban development on all prime crop or pasture land, and
  (g) to restrict the subdivision of prime crop or pasture land, and
  (h) to encourage conservation in farming practices, and
  (i) to control the clearing of vegetation and encourage the retention of vegetation.

- The subject land is proposed to be zoned RU1 Primary Production under the provisions of the Draft Clarence Valley Local Environmental Plan 2010. It is anticipated that the Draft Plan will be adopted shortly. The provisions of the Draft Plan including permissibility of the proposed development and objectives of the zone should be addressed.

- It is expected that during the public exhibition period a number of submissions will be received. Given the significance of the proposed development Council would like the opportunity to provide comment during , and following the closure of the submission period.

Locked Bag 23 GRAFTON NSW 2460
ABN 85 864 095 684 t 02 6643 0200 f 02 6642 7647 e council@clarence.nsw.gov.au w www.clarence.nsw.gov.au

- The heads of consideration under Clauses 2 and 8 of State Environmental Planning Policy 71 Coastal Protection shall be considered as part of the environmental assessment.

Council's Engineering Department raised the following issues to be considered in the preparation of the Environmental Assessment:

- Traffic flows (It is considered that traffic volumes have been underestimated in the preliminary assessment)
- Stormwater quality
- Water quality
- No sewer (alternatives need to be considered and addressed)
- Major flooding issues
- Excavation works
- Acid Sulfate Soils
- Intersection of School Road and Yamba Road (Impact of the development on this intersection)

It should be noted that the former Maclean Shire Council (MSC) supported the idea of a "marine precinct" and as such, a Marine Industrial Park Feasibility Study was undertaken and adopted by the MSC. A copy is attached for your information.

Although there are concerns with the development proposal including the inconsistencies with the zone objectives, potential rural land use conflicts and issues with flooding, the proposal would create positive economic and employment benefits to the area by allowing the expansion of the current business.

Full engineering comments have not been available at this time, however, Council would like to assist the Department during the assessment of the Environmental Impact Assessment when it becomes available. Council would welcome any opportunities to remain updated on, and provide comment for, the proposed development.

If you require further information please contact me on telephone (02) 6643 0200.

Yours faithfully

Cheryl Sisson
A/Coordinator Planning Services

NSW GOVERNMENT | **Office of Water**

Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

c: Brett McCulloch
t: 02 6676 7381
f: 02 6676 7388
e: brett.mcculloch@water.nsw.gov.au

Our ref : ER21557
Your ref:

12 July 2011

Attention: Felicity Greenway

Dear Ms Greenway

Environmental Assessment Requirements for Yamba Welding Precinct, Lot 2 DP598769, School Road, Palmers Island – Clarence Valley LGA

I refer to your letter of 21 June 2011 requesting NSW Office of Water's (NOW) key issues and assessment requirements for inclusion in the Director-General's Requirements (DGRs) in the preparation of an Environmental Assessment (EA) for the proposal.

Key Issues

NSW Office of Water requires that the EA prepared for the proposal should:

1. Take into account the objects, water management principles and statutory provisions of the *Water Management Act 2000* (WMA 2000) including consistency with the rules of any gazetted Water Sharing Plan (WSP) in force and take into account the statutory provisions of the *Water Act 1912* (WA 1912).
2. Identify site water demands and water sources (surface and groundwater) and demonstrate that there is an adequate, reliable and secure water supply for the proposal (including details of any water reticulation infrastructure).
3. Demonstrate that existing and proposed water licensing requirements are in accordance with NSW water legislation.
4. Undertake an assessment of the impact of the proposed development on surface and groundwater sources, groundwater-dependent ecosystems, adjacent licensed water users and basic landholder rights,
5. Provide details of any potential requirement to intercept groundwater, including predicted dewatering volumes, zone of drawdown and associated impact, water quality and disposal methods for the proposed development site and adjacent catchments.
6. Include adequate mitigation and monitoring requirements to address surface and groundwater impacts.
7. Provide a detailed examination of options to remediate and rehabilitate any excavated/disturbed areas and justification for criteria to completion of the project rehabilitation programme.

A general list of environmental assessment requirements to be addressed in the EA is provided in Attachment 1. Further advice for the proponent regarding water licensing is provided below.

If you require further information please contact Brett McCulloch, Planning and Assessment Coordinator on (02) 6676 7381 at the Murwillumbah office.

Yours sincerely

Mark Simons

Mark Simons
A/Manager Major Projects and Assessment

Attachment A

Environmental Assessment Requirements for Yamba Welding Precinct, Lot 2 DP598769, School Road, Palmers Island – Clarence Valley LGA

The NSW Office of Water (the Office) provides the following advice for consideration:

Relevant Legislation

The assessment is required to take into account the requirements of the following legislation (administered by the Office), as applicable:

- *Water Management Act 2000 (WMA)* where a Water Sharing Plan (WSP) has commenced.
- *Water Act 1912,* where a WSP is not yet in place.

In particular, proposals and management plans should be consistent with the Objects (s.3) and Water Management Principles (s.5) of the *WMA*.

Water Sharing Plans

Gazetted water sharing plans (WSP) prepared under the provisions of the WMA 2000 establish rules for access to and the sharing of water between the environmental needs of the surface or groundwater source and water users. The proposal is located within the proposed *Water Sharing Plans for the Clarence River (Surface Water) and Clarence Coastal Sands (Groundwater)*. Therefore, the area is governed by the WA 1912 until the WSPs are gazetted and commenced. It should be noted that the project area is subject to WA 1912 order under Section 22BA (Governement Gazette No.76, 2 July 1999, pg 4679) relating to surface water license applications.

Relevant Policies

The assessment is required to take into account the following NSW Government policies, as applicable:

- *NSW Groundwater Policy Framework Document – General (August 2007)*
- *NSW Groundwater Quality Protection Policy (1998)*
- *NSW State Groundwater Dependent Ecosystem Policy (2002)*
- *NSW State Rivers and Estuaries Policy (1991)*
- *NSW Sand and Gravel Extraction Policy for Non-Tidal Rivers (1992)*
- *NSW Wetlands Management Policy (1996)*
- *Guidelines for the Assessment and Management of Groundwater Contamination (2007)*
- *Guidelines for Groundwater Protection in Australia (1995)*
- *MDBC Guidelines on Groundwater Flow Modelling (2000)*
- *NSW Farm Dams Policy (1999)*
- *NSW Weirs Policy*
- *Guideline to the Policy for Groundwater Transfers in Inland NSW Outside Water Sharing Plan Areas (August 2009)*
- *NSW Inland Groundwater Shortage Zones Embargo Order 1 and 2 (December 2008)*
- *Draft Water Sharing Plan for the NSW Murray Darling Basin Fractured Rock Groundwater Sources*
- *Water Sharing Plan for the Lachlan Regulated River Water Source*

These documents can be found at:
http://www.water.nsw.gov.au/Water-Management/Law-and-Policy/Key-policies/default.aspx and http://www.water.nsw.gov.au/Water-Management/Water-availability/Groundwater/default.aspx

Guidelines

The assessment is required to take into account the following Guidelines for Controlled Activities (August 2010), as applicable:

- Riparian corridors (and associated Vegetation Management Plans)
- Watercourse crossings
- Laying pipes and cables in watercourses
- Outlet structures
- In-stream works

Refer to: http://www.water.nsw.gov.au/Water-Licensing/Approvals/Controlled-activities/default.aspx

Groundwater

The Office is responsible for the management of groundwater resources so they can sustain environmental, social and economic uses for the people of New South Wales.

Groundwater Source

The assessment is required to identify groundwater issues and potential degradation to the groundwater source and provide the following:

- Details of the predicted highest groundwater table at the development site.
- Details of any works likely to intercept, connect with or result in pollutants infiltrating into the groundwater sources.
- Details of any proposed groundwater extraction, including purpose, location and construction details of all proposed bores and expected annual extraction volumes.
- Describe the flow directions and rates and the physical and chemical characteristics of the groundwater source.
- Details of the predicted impacts of any final landform on the groundwater regime.
- Details of the existing groundwater users within the area (including the environment) and
  include details of any potential impacts on these users.
- Assessment of the quality of the groundwater for the local groundwater catchment.
- Details of how the proposed development will not potentially diminish the current quality of groundwater, both in the short and long term.
- Details on preventing groundwater pollution so that remediation is not required.
- Quantification of impacts on groundwater dependent ecosystems (GDEs).
- Details on protective measures to minimise any impacts on groundwater dependent ecosystems.
- Details of proposed methods of the disposal of waste water and approval from the relevant authority.
- Assessment of the potential for saline intrusion of the groundwater and measures to prevent such intrusion into the groundwater aquifer.
- Details of the results of any models or predictive tools used to predict groundwater drawdown, inflows to the site and impacts on affected water sources.

Contingency Measures

Where potential impact/s are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing groundwater resource and any dependent groundwater environment or water users, including information on:

- Details of any proposed monitoring programs, including water levels and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information.
- An assessment of any groundwater source/aquifer that may be sterilised as a consequence of the proposal.

- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated (this may entail water level triggers or a beneficial use category).
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going groundwater monitoring for the nominated period.
- Any other assurances to account for the post-closure impacts such as retiring held water licences or ongoing pumping return proposals to minimise base flow losses.

Licensing

- All proposed groundwater works, including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified in the proposal and an approval obtained from the Office prior to their installation.
- All predicted groundwater take must be accounted for through adequate licensing.

Groundwater Dependent Ecosystems (GDEs)

The assessment is required to identify any impacts on GDEs. GDEs are ecosystems which have their species composition and natural ecological processes wholly or partially determined by groundwater. GDEs represent a vital component of the natural environment. GDEs can vary dramatically in how they depend on groundwater from having occasional or no apparent dependence through to being entirely dependent. GDEs occur across both the surface and subsurface landscapes ranging in area from a few metres to many kilometres. Increasingly, it is being recognised that surface and groundwaters are often interlinked and aquatic ecosystems may have a dependence on both.

Ecosystems that can depend on groundwater and that may support threatened or endangered species, communities and populations, include:

- Terrestrial vegetation that show seasonal or episodic reliance on groundwater.
- River base flow systems which are aquatic and riparian ecosystems in or adjacent to streams/rivers dependent on the input of groundwater to base flows.
- Aquifer and cave ecosystems.
- Wetlands.
- Estuarine and near-shore marine discharge ecosystems.
- Fauna which directly depend on groundwater as a source of drinking water or that live within water which provide a source.

The *NSW Groundwater Dependent Ecosystem Policy* provides guidance on the protection and management of GDEs. It sets out management objectives and principles to:

- Ensure the most vulnerable and valuable ecosystems are protected.
- Manage groundwater extraction within defined limits thereby providing flow sufficient to sustain ecological processes and maintain biodiversity.
- Ensure sufficient groundwater of suitable quality is available to ecosystems when needed.
- Ensure the *precautionary principle* is applied to protect GDEs, particularly the dynamics of flow and availability and the species reliant on these attributes.

A number of gazetted WSPs list and map priority GDEs and set out the management strategies and actions for sharing and protecting groundwater quality, quantity and dependent ecosystems. As indicated above, any GDEs that may be affected significantly need to be clearly identified and the impacts quantified to enable proper assessment.

It is noted that the property boundary of the project area is located approximately 1.2 km from a SEPP14 Coastal Wetland. The NSW Groundwater Dependent Ecosystems (GDEs) Policy provides guidance on the protection and management of GDEs and sets out objectives and principles. The assessment is required to identify any impacts on GDEs and address the following:

- Identification of potential GDEs within the development site and adjacent area.
- Current GDEs condition, water quantity and quality required by the ecosystems (minimum 2 year fortnightly baseline data).
- Flora and fauna assessment for all ecosystems which includes macro invertebrate and macrophyte diversity and abundance assessments within all water courses within and adjacent to the development site.
- Determine critical thresholds for negligible impacts.
- Manage groundwater extraction within defined limits thereby providing flow sufficient to sustain ecological processes and maintain biodiversity.
- Ensure sufficient groundwater of suitable quality is available to ecosystems when needed.
- Ensure the precautionary principle is applied to protect GDEs, particularly the dynamics of flow and availability and the species reliant on these attributes.
- Details on protective measures to minimise any impacts on GDEs and any potential offset areas which will be monitored and protected.

Surface Water

The Office is responsible for the management of rivers, estuaries, wetlands and adjacent riverine plains so they can sustain environmental, social and economic uses for the people in New South Wales.

Watercourse/Riparian

The assessment is required to consider the impact of the proposal on the watercourses and associated riparian vegetation within the site and provide the following:

- Identify the sources of surface water.
- Details of stream order (using the Strahler System).
- Details of any proposed surface water extraction, including quantity, purpose, location of existing pumps, dams, diversions, cuttings and levees.
- Details of available surface water licences that could be purchased to account for any proposed extractions.
- Detailed description of any proposed development or diversion works including all construction, clearing, draining, excavation and filling.
- An assessment of the impacts of the proposed methods of excavation, construction and material placement on the watercourse and associated vegetation.
- A detailed description of all potential water related environmental impacts of any proposed development in terms of riparian vegetation, sediment movement, water quality and hydrologic regime.
- A description of the design features and measures to be incorporated into any proposed development to guard against anything more than minimal long term actual and potential environmental disturbances, particularly in respect of maintaining the natural hydrologic regime and sediment movement patterns and the identification of riparian buffers. (See note below)
- Details of the impact on water quality and remedial measures proposed to address more than minimal adverse effects.

Riparian corridors form a transition zone between terrestrial and aquatic environments and perform a range of important environmental functions. The protection or restoration of vegetated riparian areas is important to maintain or improve the geomorphic form and ecological functions of watercourses through a range of hydrologic conditions in normal seasons and also in extreme events.

Note: Recommended Core Riparian Zones (as applicable):

- Minimum of 10m for any intermittently flowing 1st order watercourse;
- 20m for any permanently flowing 1st order watercourse or any 2nd order watercourse;
- 20m – 40m (merit based assessment) for any 3rd order or greater watercourse.

Refer to NSW Office of Water Guidelines for Controlled Activities (August 2010) - available via: http://www.water.nsw.gov.au/Water-Licensing/Approvals/Controlled-activities/default.aspx

Water Management Structures/Dams

The Office is responsible for the management and licensing of these structures under water legislation. If the proposal includes existing or proposed water management structures/dams, the assessment should provide information on the following:

- Date of construction (for existing structure/s).
- Details of the legal status/approval for existing structure/s.
- Details of any proposal to change the purpose of existing structure/s.
- Details if any remedial work is required to maintain the integrity of the existing structure/s.
- Clarification if the structure/s is on a watercourse.
- Details of the purpose, location and design specifications for the structure/s.
- Size and storage capacity of the structure/s.
- Calculation of the Maximum Harvestable Right Dam Capacity (MHRDC) for the site.
- Details if the structure/s is affected by flood flows.
- Details of any proposal for shared use, rights and entitlement of the structure/s.
- Details if the proposed development/subdivision has the potential to bisect the structure/s.

NSW Office of Water's Farm Dams Assessment Guide provides details on harvestable rights and the calculation of the MHRDC. Refer to: *http://www.water.nsw.gov.au/Water-Licensing/Basic-water-rights/Harvesting-runoff/Harvesting-runoff/default.aspx*

Contingency Measures

Where potential impacts to surface water systems are identified the assessment will need to identify limits to the level of impact and contingency measures that would remediate, reduce or manage potential impacts to the existing surface water resource and any dependent ecosystems or water users, including information on:

- Details of any proposed monitoring programs, including flow rates and quality data.
- Reporting procedures for any monitoring program including mechanism for transfer of information to NOW.
- An assessment of any surface water source that may be sterilised as a consequence of the proposal.
- Identification of any nominal thresholds as to the level of impact beyond which remedial measures or contingency plans would be initiated
- Description of the remedial measures or contingency plans proposed.
- Any funding assurances covering the anticipated post development maintenance cost, for example on-going monitoring for the nominated period.

Stormwater Control and Treatment
NOW requires that all structural works including works for stormwater capture and treatment are located outside any riparian buffers however, consideration may be given to the construction of on-line works on minor streams with adequate justification.

Any stormwater management plan for the site must maintain environmental flows and inundation patterns in the watercourse so that post development flow match or better pre-development flows.

Basic Landholder Rights
The *WMA* identifies Basic Landholder Rights (BLRs) for access to water whereby landholders over an aquifer or with river or lake frontage can access water for domestic (household) purposes or to water stock without the need for a water licence (although a works approval may still be required for a bore utilising BLR). Pipeline constructions and easements may therefore affect existing BLR users and therefore all potentially affected BLR users need to be identified and the impacts quantified.

Sustainable Water Supply
Competition for water in NSW is extremely high. In areas where a Water Sharing Plan (WSP) has commenced, a long term average extraction limit has been established which constrains overall growth in extractions in an area. In these areas there are limited types of new licenses that can be issued, for example for aboriginal cultural purposes or growth in town water supplies. Therefore in most instances new enterprises are required to enter the water market to purchase adequate water licences to meet their water demand requirements.

In areas where a WSP has not yet commenced, the NSW Government has established embargoes on applying for new licences. There are limited exemptions in some areas which need to be considered and applied for by a proponent. If an exemption does not apply, then again new enterprises need to enter the water market to purchase the required water licences. In some areas where a WSP has not yet commenced, there is still available water and the proponent may be able to apply for a new licence to account for the water taken from that water source.

The onus is on the proponent to assess which of the above is relevant and identify the potential sources of water of an appropriate reliability and quantity to meet their water supply requirements. The water supply requirements and potential water available should be identified in the EA to enable NOW to assess the viability of the water supply required. Assurances should also be made that the proponent will enter the water market as required.

Therefore the assessment is required to address the issue of provision of a sustainable water supply for any project proposal. The assessment should include Water Management Plans detailing how a sustainable water supply can be sourced and implemented. Through the implementation of BASIX, Integrated Water Cycle Management and Water Sensitive Urban Design, any proposed development should also exhibit high water use efficiency.

End Attachment A
12 July 2011

NSW GOVERNMENT | Environment, Climate Change & Water

Notice No: 1130370

PCU023917

Department of Planning and Infrastructure
Mining and Industry Projects
GPO Box 39
SYDNEY NSW 2001

Attention: Ms Felicity Greenway

RE: Director General's Requirements – Yamba Welding Marine Precinct – Lot 2 DP598769, School Road, Palmers Island

Issued pursuant to Clause 73 Environmental Planning and Assessment Regulation 2000

I refer to your request for the Office of Environment and Heritage (OEH) Director General's Requirements (DGR's) for the proposed Yamba Welding Marine Precinct, Palmers Island received by OEH on 24 June 2011.

OEH has considered the details of the proposal and has identified the information it requires to be included in the DGR's. The proponent must clearly demonstrate how they intend to manage these and all other issues to ensure that there are no unacceptable impacts on the environment and /or nearby residences.

OEH's requirements are detailed in Attachment 'A' and 'B'. In summary, OEH's key information requirements for the proposal include an adequate assessment of:

a) Air quality impacts, particularly relating to dust management;
b) Noise impacts (assessment as per NSW Industrial Noise Policy);
c) Soil & Water management;
d) Flora and fauna; and
e) Aboriginal cultural heritage.

The guidelines provided in Attachment 'A' and 'B' should be used to inform the development of impact assessment documents for this proposal. They address OEH's responsibilities relating to environmental management & pollution control, flora, fauna, cultural heritage and threatened species, populations, ecological communities and their habitats.

It should be noted that these are only guidelines and it is up to the proponent (and the determining authority after appropriate consultation) to determine the detail and comprehensiveness of the surveys and level of assessment required to form legally defensible conclusions regarding the impact of the proposal. The scale and intensity of the proposed development should dictate the level of investigation. It is important that all conclusions are supported by adequate data.

The environmental assessment (EA) should also assess the development in relation to the requirements of Section 5A of the *Environmental Planning and Assessment Act 1979,* and determine whether a permit to disturb Aboriginal objects under Part 6 s87, or whether a licence to destroy, deface or damage Aboriginal objects may be required under Part 6 s90, of the *National Parks and Wildlife Act 1974.*

Statutory Matters

To assist OEH in assessing the EA it is requested that the document follow the format of the Department of Planning and Infrastructure's EA guidelines and addresses OEH's specific requirements as outlined in the following attachments. If the necessary information is not adequately provided in the EA then delays in the development application process may occur.

The proposed development is scheduled under the *Protection of the Environment Operations Act (1997)*, and will therefore require an Environment Protection Licence to carry out a scheduled activity. The applicant will need to make a separate application to OEH to obtain this licence. General information on licence requirements can be obtained from OEH's *Environment Line* on 131555 or on the OEH website at http://www.environment.nsw.gov.au/licensing/whoneeds.htm.

OEH requests that the applicant provide 2 copies of the EA. These documents should be lodged at OEH's Grafton office - PO Box 498 GRAFTON NSW 2460 and marked to the attention of the Regional Manager.

If you have any queries regarding this matter please contact Ian Greenbank of the Grafton Office on (02) 6640 2510.

Yours sincerely,

ROB DONOHOE
Acting Head Environmental Management Unit North Coast
Environment Protection and Regulation
Office of Environment and Heritage
Department of Premier and Cabinet

ATTACHMENT A: EA REQUIREMENTS FOR PROPOSED YAMBA WELDING MARINE PRECINCT – LOT 2 DP598769, SCHOOL ROAD, PALMERS ISLAND.

A. EXECUTIVE SUMMARY

The executive summary should include a brief discussion of the extent to which the proposal achieves identified environmental outcomes.

B. THE PROPOSAL

1. Objectives of the proposal

2. Location & Description of the proposal

The proponent must provide location details along with an accurate description of the proposal which addresses the following:

- General overview of site – context setting
- Air quality
- Noise & Vibration
- Water Quality
- Soil Management
- Waste & Chemicals
- Flora & Fauna
- Aboriginal Cultural Heritage
- Ecologically Sustainable Development
- Rehabilitation
- Justification for the proposal

In preparing the site description the proponent should consider:

- Using map(s) showing the locality of the proposed development in a regional and local context. Local context maps should be based on 1:25 000 topographic plans. Photographs of the site's key attributes may provide useful documentation.
- The area subject to development should be clearly identified on an appropriately scaled plan. This includes all ancillary works such as buildings and other structures, parking areas, loading/processing/treatment areas, access roads, and material stockpiling areas.
- The applicability or otherwise of Local Environment Plans (LEP), Regional Environment Plans (REP) and State Environmental Planning Policies (SEPP) and Regional Vegetation Management Plans (RVMPs) to the site should be determined and detailed. In particular, your attention is drawn to SEPP No. 14 - Coastal Wetlands, SEPP No. 26 - Littoral Rainforest, SEPP No. 44 - Koala Habitat Protection and the Native Vegetation Conservation Act 1997.

C. THE ENVIRONMENTAL ISSUES

1. General

- The potential impacts identified in the scoping study need to be assessed to determine their significance, particularly in terms of achieving environmental outcomes, and minimising environmental pollution.
- Identify gaps in information and data relevant to significant impacts of the proposal and any actions proposed to fill those information gaps so as to enable development of appropriate management and mitigation measures. This is in accordance with ESD requirements.

  Note: The level of detail should match the level of importance of the issue in decision making which is dependent on the environmental risk.

Describe baseline conditions

- Provide a description of existing environmental conditions for any potential impacts.

Assess impacts

- For any potential impacts relevant for the assessment of the proposal provide a detailed analysis of the impacts of the proposal on the environment including the cumulative impact of the proposal on the receiving environment especially where there are sensitive receivers.
- Describe the methodology used and assumptions made in undertaking this analysis (including any modelling or monitoring undertaken) and indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the predicted impacts.
- The analysis should also make linkages between different areas of assessment where necessary to enable a full assessment of environmental impacts eg assessment of impacts on air quality will often need to draw on the analysis of traffic, health, social, soil and/or ecological systems impacts; etc.
- The assessment needs to consider impacts at all phases of the project cycle including: exploration (if relevant or significant), construction, routine operation, start-up operations, upset operations and decommissioning if relevant.
- The level of assessment should be commensurate with the risk to the environment.

Describe management and mitigation measures

- Describe any mitigation measures and management options proposed to prevent, control, abate or mitigate identified environmental impacts associated with the proposal and to reduce risks to human health and prevent the degradation of the environment. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.
- Proponents are expected to implement a 'reasonable level of performance' to minimise environmental impacts. The proponent must indicate how the proposal meets reasonable levels of performance. For example, reference technology based criteria if available, or identify good practice for this type of activity or development. A 'reasonable level of performance' involves adopting and implementing technology and management practices to achieve certain pollutant emissions levels in economically viable operations. Technology-based criteria evolve gradually over time as technologies and practices change.
- Use environmental impacts as key criteria in selecting between alternative sites, designs and technologies, and to avoid options having the highest environmental impacts.

- Outline any proposed approach (such as an Environmental Management Plan) that will demonstrate how commitments made in the EA will be implemented. Areas that should be described include:

  a) operational procedures to manage environmental impacts
  b) monitoring procedures
  c) training programs
  d) community consultation
  e) complaint mechanisms including site contacts
  f) strategies to use monitoring information to improve performance
  g) strategies to achieve acceptable environmental impacts and to respond in event of exceedances.

2. Air

Describe baseline conditions

- Provide a description of existing air quality and meteorology, using existing information and site representative ambient monitoring data.

Assess impacts

- Identify all pollutants of concern and estimate emissions by quantity (and size for particles), source and discharge point.
- Estimate the resulting ground level concentrations of all pollutants. Where necessary (eg potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with the OEH.
- Describe the effects and significance of pollutant concentration on the environment, human health, amenity and regional ambient air quality standards or goals.
- Describe the contribution that the development will make to regional and global pollution, particularly in sensitive locations.
- Reference should be made to *Approved Methods and Guidance for the Modelling and Assessment of Air Pollutants in NSW* (EPA, 2001); *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* (EPA, 2001).

Describe management and mitigation measures

- Outline specifications of pollution control equipment (including manufacturer's performance guarantees where available) and management protocols for both point and fugitive emissions. Where possible, this should include cleaner production processes.

3. Noise and vibration

Any residences that surround the proposed site could be subject to unacceptable noise impacts if not managed appropriately.

A Noise Impact Assessment (NIA) for the proposal must be conducted by an appropriately qualified acoustics consultant. The NIA must be conducted in accordance with the State Government's *Industrial Noise Policy* and address the potential impacts of the quarry operations on any nearby residents including the following:

Describe baseline conditions

- Determine the existing background (L_{A90}) and ambient (L_{Aeq}) noise levels in accordance with the *NSW Industrial Noise Policy*.

- Determine the existing road traffic noise levels in accordance with the *NSW Environmental Criteria for Road Traffic Noise*, where road traffic noise impacts may occur.
- The noise impact assessment report should provide details of all monitoring of existing ambient noise levels including:
  a) details of equipment used for the measurements
  b) a brief description of where the equipment was positioned
  c) a statement justifying the choice of monitoring sites, including the procedure used to choose the sites, having regards to the definition of 'noise sensitive locations(s)' and 'most affected locations(s)' described in Section 3.1.2 of the *NSW Industrial Noise Policy*
  d) details of the exact location of the monitoring site and a description of land uses in surrounding areas
  e) a description of the dominant and background noise sources at the site
  f) day, evening and night assessment background levels for each day of the monitoring period
  g) the final Rating Background Level (RBL) value
  h) graphs of the measured noise levels for each day should be provided
  i) a record of periods of affected data (due to adverse weather and extraneous noise), methods used to exclude invalid data and a statement indicating the need for any re-monitoring under Step 1 in Section B1.3 of the *NSW Industrial Noise Policy*
  j) determination of L_{Aeq} noise levels from existing industry.

Assess impacts

- Determine the project specific noise levels for the site. For each identified potentially affected receiver, this should include:
  a) determination of the intrusive criterion for each identified potentially affected receiver
  b) selection and justification of the appropriate amenity category for each identified potentially affected receiver
  c) determination of the amenity criterion for each receiver
  d) determination of the appropriate sleep disturbance limit.
- Maximum noise levels during night-time period (10pm-7am) should be assessed to analyse possible affects on sleep. Where $L_{A1(1min)}$ noise levels from the site are less than 15 dB above the background L_{A90} noise level, sleep disturbance impacts are unlikely. Where this is not the case, further analysis is required. Additional guidance is provided in Appendix B of the *NSW Environmental Criteria for Road Traffic Noise*.
- Determine expected noise level and noise character (e.g. tonality, impulsiveness, vibration, etc) likely to be generated from noise sources during:
  site establishment
  construction
  operational phases
  transport including traffic noise generated by the proposal
  other services.
- Determine the noise levels likely to be received at the most sensitive locations (these may vary for different activities at each phase of the development). Potential impacts should be determined for any identified significant adverse meteorological conditions. Predicted noise levels under calm conditions may also aid in quantifying the extent of impact where this is not the most adverse condition.
- The noise impact assessment report should include:
  a) a plan showing the assumed location of each noise source for each prediction scenario
  b) a list of the number and type of noise sources used in each prediction scenario to simulate all potential significant operating conditions on the site
  c) any assumptions made in the predictions in terms of source heights, directivity effects, shielding from topography, buildings or barriers, etc

d) methods used to predict noise impacts including identification of any noise models used. Where modelling approaches other than the use of the ENM or SoundPlan computer models are adopted, the approach should be appropriately justified and validated
e) an assessment of appropriate weather conditions for the noise predictions including reference to any weather data used to justify the assumed conditions
f) the predicted noise impacts from each noise source as well as the combined noise level for each prediction scenario under any identified significant adverse weather conditions as well as calm conditions where appropriate
g) for developments where a significant level of noise impact is likely to occur, noise contours for the key prediction scenarios should be derived
h) an assessment of the need to include modification factors as detailed in Section 4 of the *NSW Industrial Noise Policy*.

- Discuss the findings from the predictive modelling and, where relevant noise criteria have not been met, recommend additional mitigation measures.
- The noise impact assessment report should include details of any mitigation proposed including the attenuation that will be achieved and the revised noise impact predictions following mitigation.
- Where relevant noise/vibration criteria cannot be met after application of all feasible and cost effective mitigation measures the residual level of noise impact needs to be quantified by identifying:
  a) locations where the noise level exceeds the criteria and extent of exceedance
  b) numbers of people (or areas) affected
  c) times when criteria will be exceeded
  d) likely impact on activities (speech, sleep, relaxation, listening, etc)
  e) change on ambient conditions
  f) the result of any community consultation or negotiated agreement.
- For the assessment of existing and future traffic noise, details of data for the road should be included such as assumed traffic volume; percentage heavy vehicles by time of day; and details of the calculation process. These details should be consistent with any traffic study carried out in the EA.

Describe management and mitigation measures

- Determine the most appropriate noise mitigation measures and expected noise reduction including both noise controls and management of impacts for both construction and operational noise. This will include selecting quiet equipment and construction methods, noise barriers or acoustic screens, location of stockpiles, temporary offices, compounds and vehicle routes, scheduling of activities, etc.
- For traffic noise impacts, provide a description of the ameliorative measures considered (if required), reasons for inclusion or exclusion, and procedures for calculation of noise levels including ameliorative measures. Also include, where necessary, a discussion of any potential problems associated with the proposed ameliorative measures, such as overshadowing effects from barriers. Appropriate ameliorative measures may include:
  a) use of alternative transportation modes, alternative routes, or other methods of avoiding the new road usage
  b) control of traffic (eg: limiting times of access or speed limitations)
  c) resurfacing of the road using a quiet surface
  d) use of (additional) noise barriers or bunds
  e) treatment of the façade to reduce internal noise levels buildings where the night-time criteria is a major concern
  f) more stringent limits for noise emission from vehicles (i.e. using specially designed 'quite' trucks and/or trucks to use air bag suspension
  g) driver education
  h) appropriate truck and machinery routes
  i) limit usage of exhaust breaks
  j) use of premium muffles on trucks and machinery

k) reducing speed limits for trucks
l) ongoing community liaison and monitoring of complaints
m) phasing in the increased road use.

4. Water

Describe baseline conditions

- Describe existing surface and groundwater quality – an assessment needs to be undertaken for any water resource likely to be affected by the proposal and for all conditions (e.g. a wet weather sampling program is needed if runoff events may cause impacts).
- Provide site drainage details and surface runoff yield.
- State the ambient Water Quality and River Flow Objectives for the receiving waters. These refer to the community's agreed environmental values and human uses endorsed by the Government as goals for the ambient waters. These environmental values are published on the website: www.environment.nsw.gov.au/ieo. The EIS should state the environmental values listed for the catchment and waterway type relevant to your proposal.
- State the indicators and associated trigger values or criteria for the identified environmental values. This information should be sourced from the ANZECC 2000 *Guidelines for Fresh and Marine Water Quality* (http://www.deh.gov.au/water/quality/nwqms/volume1.html
- State any locally specific objectives, criteria or targets, which have been endorsed by the government e.g. the Healthy Rivers Commission Inquiries (www.hrc.nsw.gov.au) or the NSW Salinity Strategy (DLWC, 2000) (www.dlwc.nsw.gov.au/care/salinity/#Strategy).
- Where site specific studies are proposed to revise the trigger values supporting the ambient Water Quality and River Flow Objectives, and the results are to be used for regulatory purposes (e.g. to assess whether a licensed discharge impacts on water quality objectives), then prior agreement from the OEH on the approach and study design must be obtained.
- Describe the state of the receiving waters and relate this to the relevant Water Quality and River Flow Objectives (i.e. are Water Quality and River Flow Objectives being achieved?). Proponents are generally only expected to source available data and information. However, proponents of large or high risk developments may be required to collect some ambient water quality / river flow / groundwater data to enable a suitable level of impact assessment. Issues to include in the description of the receiving waters could include:
  a) lake or estuary flushing characteristics
  b) specific human uses (e.g. exact location of drinking water off take)
  c) sensitive ecosystems or species conservation values
  d) a description of the condition of the local catchment e.g. erosion levels, soils, vegetation cover, etc
  e) an outline of baseline groundwater information, including, but not restricted to, depth to watertable, flow direction and gradient, groundwater quality, reliance on groundwater by surrounding users and by the environment
  f) historic river flow data where available for the catchment.

Assess impacts

- No proposal should breach clause 120 of the *Protection of the Environment Operations Act* 1997 (i.e. pollution of waters is prohibited unless undertaken in accordance with relevant regulations).
- Identify and estimate the quantity of all pollutants that may be introduced into the water cycle by source and discharge point including residual discharges after mitigation measures are implemented.
- Include a rationale, along with relevant calculations, supporting the prediction of the discharges.

- Describe the effects and significance of any pollutant loads on the receiving environment. This should include impacts of residual discharges through modelling, monitoring or both, depending on the scale of the proposal. Determine changes to hydrology (including drainage patterns, surface runoff yield, flow regimes, wetland hydrologic regimes and groundwater).
- Describe water quality impacts resulting from changes to hydrologic flow regimes (such as nutrient enrichment or turbidity resulting from changes in frequency and magnitude of stream flow).
- Identify any potential impacts on quality or quantity of groundwater describing their source.
- Identify potential impacts associated with geomorphologic activities with potential to increase surface water and sediment runoff or to reduce surface runoff and sediment transport. Also consider possible impacts such as bed lowering, bank lowering, in stream siltation, floodplain erosion and floodplain siltation.
- Identify impacts associated with the disturbance of acid sulfate soils and potential acid sulfate soils.
- Containment of spills and leaks shall be in accordance with the technical guidelines section 'Bunding and Spill Management' of the *Authorised Officers Manual* (EPA, 1995) (http://www.environment.nsw.gov.au/mao/bundingspill.htm) and the most recent versions of the Australian Standards referred to in the Guidelines. Containment should be designed for no-discharge.
- The significance of the impacts listed above should be predicted. When doing this it is important to predict the ambient water quality and river flow outcomes associated with the proposal and to demonstrate whether these are acceptable in terms of achieving protection of the Water Quality and River Flow Objectives. In particular the following questions should be answered:
  a) will the proposal protect Water Quality and River Flow Objectives where they are currently achieved in the ambient waters; and
  b) will the proposal contribute towards the achievement of Water Quality and River Flow Objectives over time, where they are not currently achieved in the ambient waters.
- Consult with the OEH as soon as possible if a mixing zone is proposed (a mixing zone could exist where effluent is discharged into a receiving water body, where the quality of the water being discharged does not immediately meet water quality objectives. The mixing zone could result in dilution, assimilation and decay of the effluent to allow water quality objectives to be met further downstream, at the edge of the mixing zone). The OEH will advise the proponent under what conditions a mixing zone will and will not be acceptable, as well as the information and modelling requirements for assessment.

  Note: The assessment of water quality impacts needs to be undertaken in a total catchment management context to provide a wide perspective on development impacts, in particular cumulative impacts.

- Where a licensed discharge is proposed, provide the rationale as to why it cannot be avoided through application of a reasonable level of performance, using available technology, management practice and industry guidelines.
- Where a licensed discharge is proposed, provide the rationale as to why it represents the best environmental outcome and what measures can be taken to reduce its environmental impact.
- Reference should be made to *Managing Urban Stormwater- Soils and Construction* (Landcom, 2004), *Guidelines for Fresh and Marine Water Quality* ANZECC 2000).

Describe management and mitigation measures

A Soil & Water Management Plan should be developed which outlines all management and mitigation measures relating to stormwater management and erosion control. The Soil & Water Management Plan should:

- Outline stormwater management to control pollutants at the source and contain them within the site. Also describe measures for maintaining and monitoring any stormwater controls.
- Outline erosion and sediment control measures directed at minimising disturbance of land, minimising water flow through the site and filtering, trapping or detaining sediment. Also include measures to maintain and monitor controls as well as rehabilitation strategies.
- Describe wastewater treatment measures that are appropriate to the type and volume of wastewater and are based on a hierarchy of avoiding generation of wastewater; capturing all contaminated water (including stormwater) on the site; reusing/recycling wastewater; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- The sediment basins must meet the design and operational standards of *Managing Urban Stormwater: Soils and Construction.*
- Outline pollution control measures relating to storage of materials, possibility of accidental spills (eg preparation of contingency plans), appropriate disposal methods, and generation of leachate.
- Describe hydrological impact mitigation measures including:
  a) site selection (avoiding sites prone to flooding and waterlogging, actively eroding or affected by deposition)
  b) minimising runoff
  c) minimising reductions or modifications to flow regimes
  d) avoiding modifications to groundwater.
- Describe groundwater impact mitigation measures including:
  a) site selection
  b) retention of native vegetation and revegetation
  c) artificial recharge
  d) providing surface storages with impervious linings
  e) monitoring program.
- Describe geomorphologic impact mitigation measures including:
  a) site selection
  b) erosion and sediment controls
  c) minimising in-stream works
  d) treating existing accelerated erosion and deposition
  e) monitoring program.
- Any proposed monitoring should be undertaken in accordance with the *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (DEC 2004).

5. Soils and contamination

Describe baseline conditions

- Provide any details (in addition to those provided in the location description - Section C) that are needed to describe the existing situation in terms of soil types and properties and soil contamination.

Assess impacts

- Identify any likely impacts resulting from the construction or operation of the proposal, including the likelihood of:
  a) disturbing any existing contaminated soil
  b) contamination of soil by operation of the activity
  c) subsidence or instability
  d) soil erosion
  e) disturbing acid sulfate or potential acid sulfate soils.

- Reference should be made to *Contaminated Sites – Guidelines for Consultants Reporting on Contaminated Sites* (EPA, 1997)*; Contaminated Sites – Guidelines on Significant Risk of Harm and Duty to Report* (EPA, 1999). Environmental Actions for Marinas, Boatsheds and Slipways (DECC, 2007).

Describe management and mitigation measures

- Describe and assess the effectiveness or adequacy of any soil management and mitigation measures during construction and operation of the proposal including:
  a) erosion and sediment control measures
  b) proposals for site remediation – see *Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)
  c) proposals for the management of these soils – see *Assessing and Managing Acid Sulfate Soils,* Environment Protection Authority, 1995 (note that this is the only methodology accepted by the DECCW).

6. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise impacts from the handling, transporting, storage, processing and reprocessing of waste and/or chemicals.
- Reference should be made to *Environmental Guidelines: Assessment, Classification and Management of Liquid and Non-Liquid Wastes* (EPA, 1999).

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to avoid the generation of waste and promote the re-use and recycling and reprocessing of any waste.
- Outline measures to support any approved regional or industry waste plans.

7. Flora & Fauna Impacts

Flora

An assessment of vegetation on the site must include:

- A comprehensive description of the vegetation on the site. This will include an assessment of the condition of the plant communities present, including the designation of conservation significance at a local, regional and State level, and an assessment of the likely occurrence of any threatened species, populations or ecological communities listed under Schedules 1 or 2 of the *Threatened Species Conservation Act 1995* and any Rare or Threatened Australian Plant (ROTAP) species.

- A plan showing the distribution of any threatened or ROTAP species and the vegetation communities on the site, and the extent of vegetation proposed to be cleared. This plan should be at the same scale as the plan of the area subject to development in order to assist in the assessment the impact of the proposal on the existing vegetation.
- Where the assessment concludes that threatened species, populations or ecological communities, or their habitats, exist on or in proximity to the subject land, the effect of the proposed development should be determined in accordance with the Assessment Of Significance described in Section 5A of the *Environmental Planning and Assessment Act* 1979. An assessment of the impact of the development on the plant communities and/or ROTAP species should also be provided.
- A description of the measures proposed to mitigate and/or ameliorate the impact of the development on the plant communities, threatened and ROTAP species.

Fauna

An assessment of fauna on site must include:

- A fauna survey to identify the distribution and abundance of fauna species known or likely to utilise the site, including a description of available fauna habitats and an assessment of the conservation status of each of the faunal components at a local, regional and State level.
- A plan showing the results of the above survey. This plan should be at the same scale as the plan of the area subject to development to assist in the assessment of the impact of the proposal on fauna.
- An assessment of the impact of the development on the identified fauna.
- An assessment of the existence or likely occurrence of threatened species, populations or ecological communities, or their habitats on the subject land. Where the assessment concludes that threatened species, populations or ecological communities, or their habitats exist on or in proximity to the subject land, the effect of the proposed development should be determined in accordance with the Assessment Of Significance described in Section 5A of the Environmental Planning and Assessment Act 1979.
- A description of the measures proposed to mitigate and/or ameliorate the impact of the development on fauna.

Surveys & Assessments

- Surveys and assessments should be undertaken by suitably qualified persons and the qualifications and experience of the persons undertaking the work detailed.
- Dates, site locations, design, methodology, analysis techniques, and weather conditions at the time of the assessments and surveys must be described. The limitations of surveys should be identified and the results interpreted accordingly.
- Conclusions drawn in surveys and assessments should be substantiated by evidence resulting from those surveys and assessments. The document being supported by the surveys and assessments should reflect these conclusions and clearly state where recommendations of the survey and assessments have been incorporated in the proposal.

8. Aboriginal Cultural Heritage

An assessment of aboriginal cultural heritage of the site must include:

- The presence or absence of Aboriginal objects should be identified and the significance of the area to the local Aboriginal community must be determined. Accordingly, a search of the DEC Aboriginal Heritage Information Management System (AHIMS) should be made and the local Aboriginal community should also be consulted with regard to any Aboriginal heritage issues associated with the proposed development.

- Aboriginal objects and places of significance to the Aboriginal community are to be detailed on a plan. This plan should be at the same scale as the plan of the area subject to development to assist in the assessment of the impact of the proposal on the identified cultural components.
- An assessment of the impact of the development on the identified cultural sites.
- A description of the measures proposed to mitigate and/or ameliorate the impact of the development on the identified cultural sites.
- A contingency plan that details the measures to be taken in the event that archaeological sites are discovered during the course of operations must be prepared.

Surveys & Assessments

- Cultural surveys and assessments should be undertaken by suitably qualified persons and the qualifications and experience of the persons undertaking the work detailed.
- Dates, site locations, design, methodology, analysis techniques, and weather conditions at the time of the assessments and surveys must be described. The limitations of surveys should be identified and the results interpreted accordingly.
- Conclusions drawn in surveys and assessments should be substantiated by evidence resulting from those surveys and assessments. The document being supported by the surveys and assessments should reflect these conclusions and clearly state where recommendations of the survey and assessments have been incorporated in the proposal.

9. Office of Environment & Heritage Estate

- Where the proposal may result in impacts on OEH estate or is on land adjacent to OEH estate, an assessment of the impact of the development on OEH estate.
- A description of the measures proposed to mitigate and/or ameliorate the impact of the development on the OEH estate.

10. Matters of National Significance

- Your attention is also drawn to the Commonwealth legislation, the Environment Protection and Biodiversity Conservation Act 2000. The Act specifically focuses on matters of national environmental significance (NES matters) which include listed threatened species and ecological communities, World Heritage properties, Ramsar wetlands of international importance, internationally protected migratory species and Commonwealth Marine Areas. If any NES matters under this legislation may be affected by the proposal, approval for the development may also be required from Environment Australia.

11. OEH Databases

- The OEH can provide records of flora and fauna held in the Wildlife Atlas and / or Rare or Threatened Australian Plants (ROTAP) databases. In addition searches of the OEH AHIMS database can be made. These services generally attract a fee. It should be noted that these databases are not comprehensive, should only be used as a guide and do not negate the need for specific site investigations. Enquires should be made to OEH Hurstville office, telephone (02) 9585 6444.

12. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions to which this proposal will contribute.
- Assess the impact of the proposal against the long term air, noise and water quality objectives for the area or region.

- Identify infrastructure requirements flowing from the proposal (eg water and sewerage services, transport infrastructure upgrades).
- Assess likely impacts from such additional infrastructure and measures reasonably available to the proponent to contain such requirements or mitigate their impacts (eg travel demand management strategies).

13. Greenhouse Emissions

OEH requires the following in relation to greenhouse emissions:

- A comprehensive assessment of and report on the project's predicted greenhouse gas emissions (tCO_2e), including emissions on:
- a tonnes per unit of production basis;
- a total annual emissions basis; and
- a total project lifetime basis.

The emissions associated with the project should include direct emissions, indirect emissions (e.g. those associated with electricity use) and any significant upstream and/or downstream emissions associated with the project. The emissions should be estimated using an appropriate methodology (eg AGO's Factors and Methods Workbook 2006).

Annual emissions should be compared against:

- 'best practice' emissions for the activity; and
- total annual NSW emissions, so the impact of the proposal on NSW emission reduction targets can be evaluated.

The proponent should evaluate and report on the feasibility of measures to reduce emissions.

D. List of Approvals and Licences

- Identify all approvals and licences required under environment protection legislation including details of all scheduled activities, types of ancillary activities and types of discharges (to air, land, water).

E. Compilation of Mitigation Measures

- Outline how the proposal and its environmental protection measures would be implemented and managed in an integrated manner so as to demonstrate that the proposal is capable of complying with statutory obligations under OEH licences or approvals (eg outline of an environmental management plan).
- The mitigation strategy should include the environmental management and cleaner production principles which would be followed when planning, designing, establishing and operating the proposal. It should include two sections, one setting out the program for managing the proposal and the other outlining the monitoring program with a feedback loop to the management program.

F. Justification for the Proposal

- Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts.

ATTACHEMENT B: Guidance Material

Title	Web address
Marina and Boat Repair Facilities	
Marinas, Boatsheds & Slipways	http://www.environment.nsw.gov.au/sustsinbus/marinas.htm
Marinas & Related Facilities	http://www.planning.nsw.gov.au/rdaguidelines/documents/Section_D_Marinas.pdf
Relevant Legislation	
	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+13+1979+cd+0+N
Commonwealth Environment Protection and Biodiversity Conservation Act 1999	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/
Contaminated Land Management Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+140+1997+cd+0+N
Environmentally Hazardous Chemicals Act 1985	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+14+1985+cd+0+N
Environmental Planning and Assessment Act 1979	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+203+1979+cd+0+N
Fisheries Management Act 1994	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+38+1994+cd+0+N
Marine Parks Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+64+1997+cd+0+N
National Parks and Wildlife Act 1974	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+80+1974+cd+0+N
Protection of the Environment Operations Act 1997	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+156+1997+cd+0+N
Threatened Species Conservation Act 1995	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+101+1995+cd+0+N
Water Management Act 2000	http://www.legislation.nsw.gov.au/maintop/view/inforce/act+92+2000+cd+0+N
Licensing	
OEH Guide to Licensing	www.environment.nsw.gov.au/licensing/licenceguide.htm
Aboriginal Cultural Heritage	
Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation (2005)	Available from DPI.
Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010)	http://www.environment.nsw.gov.au/licences/consultation.htm
Code of Practice for the Archaeological Investigation of Aboriginal Objects in New South Wales (DECCW, 2010)	http://www.environment.nsw.gov.au/licences/archinvestigations.htm
Aboriginal Site Impact Recording Form	http://www.environment.nsw.gov.au/licences/DECCAHIMSSiteRecordingForm.htm
Aboriginal Heritage Information Management System (AHIMS) Registrar	http://www.environment.nsw.gov.au/contact/AHIMSRegistrar.htm

Title	Web address
	Air Issues
Air Quality	
Approved methods for modelling and assessment of air pollutants in NSW (2005)	http://www.environment.nsw.gov.au/resources/air/ammodelling05361.pdf
POEO (Clean Air) Regulation 2002	http://www.legislation.nsw.gov.au/maintop/view/inforce/subordleg+642+2002+cd+0+N
Greenhouse Gas	
The Greenhouse Gas Protocol: Corporate Standard, World Council for Sustainable Business Development & World Resources Institute	http://www.ghgprotocol.org/standards/corporate-standard
National Greenhouse Accounts (NGA) Factors, Australian Department of Climate Change (Latest release),	http://www.climatechange.gov.au/publications/greenhouse-acctg/national-greenhouse-factors.aspx
National Greenhouse and Energy Reporting System, Technical Guidelines (latest release)	http://www.climatechange.gov.au/en/government/initiatives/national-greenhouse-energy-reporting/tools-resources.aspx
National Carbon Accounting Toolbox	http://www.climatechange.gov.au/government/initiatives/ncat.aspx
Australian Greenhouse Emissions Information System (AGEIS)	http://ageis.climatechange.gov.au/
	Biodiversity
BioBanking Assessment Methodology (DECC, 2008)	http://www.environment.nsw.gov.au/resources/biobanking/08385bbassessmethod.pdf
BioBanking Assessment Methodology and Credit Calculator Operational Manual (DECCW, 2008)	http://www.environment.nsw.gov.au/biobanking/operationalmanual.htm
Threatened Species Survey and Assessment Guidelines: Field Survey Methods for Fauna -Amphibians (DECCW, 2009)	http://www.environment.nsw.gov.au/resources/threatenedspecies/09213amphibians.pdf
Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities - Working Draft (DEC, 2004)	http://www.environment.nsw.gov.au/resources/nature/TBSAGuidelinesDraft.pdf
Guidelines for Threatened Species Assessment (Department of Planning, July 2005)	Draft available from DPI
DECCW Threatened Species website	http://www.environment.nsw.gov.au/threatenedspecies/
Atlas of NSW Wildlife	http://wildlifeatlas.nationalparks.nsw.gov.au/wildlifeatlas/watlas.jsp
BioBanking Threatened Species Database	http://www.environment.nsw.gov.au/biobanking/biobankingtspd.htm
Vegetation Types databases	http://www.environment.nsw.gov.au/biobanking/vegtypedatabase.htm
PlantNET	http://plantnet.rbgsyd.nsw.gov.au/

Title	Web address
Online Zoological Collections of Australian Museums	http://www.ozcam.org/
Threatened Species Assessment Guideline - The Assessment of Significance (DECCW, 2007)	http://www.environment.nsw.gov.au/resources/threatenedspecies/tsaguide07393.pdf
Principles for the use of biodiversity offsets in NSW	http://www.environment.nsw.gov.au/biocertification/offsets.htm
	OEH Estate
Aquatic Reserves	
List of aquatic reserves	www.environment.nsw.gov.au/nationalparks/parktypes.aspx?type=aquaticreserve
Land reserved or acquired under the NPW Act	
List of national parks	http://www.environment.nsw.gov.au/NationalParks/parksearchatoz.aspx
OEH Revocation of Land Policy	http://www.environment.nsw.gov.au/policies/RevocationOfLandPolicy.htm
Guidelines for developments adjoining land and water managed by the Department of Environment, Climate Change and Water (DECCW, 2010)	http://www.environment.nsw.gov.au/resources/protectedareas/10509devadjdeccw.pdf
Marine Parks	
List of marine parks	*http://www.mpa.nsw.gov.au/contact.html*
	Noise and Vibration
Interim Construction Noise Guideline (DECC, 2009)	http://www.environment.nsw.gov.au/noise/constructnoise.htm
Assessing Vibration: a technical guideline (DEC, 2006)	http://www.environment.nsw.gov.au/noise/vibrationguide.htm
Australian and New Zealand Environment Council – Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC, 1990)	http://www.environment.nsw.gov.au/noise/blasting.htm
Industrial Noise Policy	http://www.environment.nsw.gov.au/noise.htm
Environmental Criteria for Road Traffic Noise (EPA, 1999)	http://www.environment.nsw.gov.au/noise/traffic.htm
Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DECC, 2007)	http://www.environment.nsw.gov.au/noise/railinfranoise.htm
Environmental assessment requirements for rail traffic-generating developments	http://www.environment.nsw.gov.au/noise/railnoise.htm
Waste	
Environmental Guidelines: Solid Waste Landfills (EPA, 1996)	http://www.environment.nsw.gov.au/resources/waste/envguidlns/solidlandfill.pdf
Draft Environmental Guidelines - Industrial Waste Landfilling (April 1998)	http://www.environment.nsw.gov.au/resources/waste/envguidlns/industrialfill.pdf

Title	Web address
Waste Classification Guidelines (DECC, 2008)	http://www.environment.nsw.gov.au/waste/envguidlns/index.htm
OEH Resource recovery exemption	http://www.environment.nsw.gov.au/waste/RRecoveryExemptions.htm
Chemicals subject to Chemical Control Orders	
Chemical Control Orders (regulated through the EHC Act)	http://www.environment.nsw.gov.au/pesticides/CCOs.htm
National Protocol - Approval/Licensing of Trials of Technologies for the Treatment/Disposal of Schedule Wastes - July 1994	Available in libraries
National Protocol for Approval/Licensing of Commercial Scale Facilities for the Treatment/Disposal of Schedule Wastes - July 1994	Available in libraries
	Water and Soils
Acid sulphate soils	
Acid Sulfate Soils Planning Maps	http://canri.nsw.gov.au/download/
Acid Sulfate Soils Manual (Stone et al. 1998)	Manual available for purchase from: http://www.landcom.com.au/whats-new/the-blue-book.aspx Chapters 1 and 2 are on DPI's Guidelines Register at: Chapter 1 Acid Sulfate Soils Planning Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Planning%20Guidelines.pdf Chapter 2 Acid Sulfate Soils Assessment Guidelines: http://www.planning.nsw.gov.au/rdaguidelines/documents/NSW%20Acid%20Sulfate%20Soils%20Assessment%20Guidelines.pdf
Acid Sulfate Soils Laboratory Methods Guidelines (Ahern et al. 2004)	http://www.derm.qld.gov.au/land/ass/pdfs/lmg.pdf
Contaminated Sites Assessment and Remediation	
Managing land contamination: Planning Guidelines – SEPP 55 Remediation of Land	http://www.planning.nsw.gov.au/DevelopmentAssessments/RegisterofDevelopmentAssessmentGuidelines/tabid/207/language/en-US/Default.aspx
Guidelines for Consultants Reporting on Contaminated Sites (EPA, 2000)	http://www.environment.nsw.gov.au/resources/clm/97104consultantsglines.pdf
Guidelines for the NSW Site Auditor Scheme - 2nd edition (DEC, 2006)	http://www.environment.nsw.gov.au/resources/clm/auditorglines06121.pdf
Sampling Design Guidelines (EPA, 1995)	Available by request from DECCW's Environment Line
National Environment Protection (Assessment of Site Contamination) Measure 1999 (or update)	http://www.ephc.gov.au/taxonomy/term/44
Flooding and Coastal Erosion	
Reforms to coastal erosion management	http://www.environment.nsw.gov.au/coasts/coastalerosionmgmt.htm

Title	Web address
Floodplain development manual	http://www.dnr.nsw.gov.au/floodplains/manual.shtml
Coastline management manual	http://www.environment.gov.au/coasts/publications/nswmanual/index.html **Note:** To be replaced by the Guidelines for preparing coastal zone management plans, due for release by end of 2010. This document will be available on DECCW's website – draft currently available at http://www.environment.nsw.gov.au/coasts/coastalmgtdocs.htm.
Estuary management manual	Available on request from OEH or on interlibrary loan **Note:** To be replaced by the Guidelines for preparing coastal zone management plans, due for release by end of 2010. This document will be available on OEH's website – draft currently available at http://www.environment.nsw.gov.au/coasts/coastalmgtdocs.htm.
Soils – general	
Soil and Landscape Issues in Environmental Impact Assessment (DLWC 2000)	http://www.dnr.nsw.gov.au/care/soil/soil_pubs/pdfs/tech_rep_34_new.pdf
Managing urban stormwater: soils and construction, vol. 1 (Landcom 2004) and vol. 2 (A. Installation of services; B Waste landfills; C. Unsealed roads; D. Main Roads; E. Mines and quarries) (DECC 2008)	Vol 1 - Available for purchase at http://www.landcom.com.au/whats-new/publications-reports/the-blue-book.aspx Vol 2 - http://www.environment.nsw.gov.au/stormwater/publications.htm
Landslide risk management guidelines	http://www.australiangeomechanics.org/resources/downloads/
Local Government Salinity Initiative Booklets	http://www.environment.nsw.gov.au/salinity/solutions/urban.htm
Water	
Water Quality Objectives	http://www.environment.nsw.gov.au/ieo/index.htm
ANZECC (2000) Guidelines for Fresh and Marine Water Quality	http://www.mincos.gov.au/publications/australian_and_new_zealand_guidelines_for_fresh_and_marine_water_quality
Applying Goals for Ambient Water Quality Guidance for Operations Officers – Mixing Zones	http://deccnet/water/resources/AWQGuidance7.pdf
Approved Methods for the Sampling and Analysis of Water Pollutant in NSW (2004)	http://www.environment.nsw.gov.au/resources/legislation/approvedmethods-water.pdf