



**Environment,
Climate Change
& Water**

Our reference: DOC11/51724
Contact: Susan Fox (02) 9995 5754

Ms Kerry Hamman
Planning Officer
Major Development Assessment
GPO Box 39
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EMAIL & STANDARD POST

Dear Ms Hamman

**Input into Director Generals Requirements – s78A(8A) of the Environmental Planning and
Assessment Act, 1979
Proposed Camellia Recycling Centre - 37 Grand Avenue, Camellia**

I refer to the draft Director Generals Requirements ("DGRs") including the preliminary Environmental Impact Assessment (prepared by Veolia Environmental Services (Australia) Pty Ltd) from the Department of Planning and Infrastructure (DP&I) on the 19 October 2011 requesting input into the DGRs for the proposed Veolia Environmental Services (Australia) Pty Ltd Recycling Centre ("the Proposal"), located at 37 Grand Avenue, Camellia (Lot 2 DP 539890) ("the Premises"). I also refer to the Planning Focus Meeting and site inspection of the Premises attended by the EPA on 3 November 2011.

The Proposal relates to the construction of a general solid waste (non-putrescible) waste recycling centre at the Premises.

Please note that Veolia Environmental Services (Australia) Pty Ltd holds an existing environment protection licence No. 4806 to undertake the activities of Waste Storage (hazardous, restricted solid, liquid, clinical and related waste and asbestos waste) and (non-thermal treatment of hazardous and other waste) at the Premises. It is understood that the Proponent is not undertaking these activities at present due to commercial issues on the Premises, but will continue the Scheduled Activity once the commercial arrangements have been finalised.

The EPA is unlikely to allow the storage and processing of liquid waste and the storage and processing resource recovered waste on the one licence. The EPA is likely to issue a separate licence for the Proposal due to administrative purposes.

The EPA has reviewed the preliminary Environmental Impact Assessment for the Proposal and has reviewed the draft Director Generals Requirements for the Proposal. The EPA agrees to the draft requirements and has attached the topics to address in the Environmental Impact Statement ("EIS") (under Attachment A and Attachment B).

If you have any questions, please don't hesitate to contact Susan Fox (02) 9995 5754

Yours sincerely

Jacques 21/11/11

JACQUELINE INGHAM

Unit Head Waste Operations

Environment Protection Authority

Attachment A and B : Requirement for EIS

ATTACHMENT A

KEY ISSUES FOR PROPOSED CAMELLIA RECYCLING CENTRE

Contaminated site issues

Note: Requirements under the Contaminated Land Management Act 1997

The EPA understands that the Premises was declared a *Remediation Site* in 2005, under the *Contaminated Land Management Act, 1997* ("CLM Act, 1997") due to contamination of soil, groundwater and surface water by hexavalent chromium. The EPA understands that the Proponent has entered into Voluntary Remediation Proposal ("VRP") has not been signed yet. The VRP consists of investigation works to determine the final design of a permeable reactive barrier (PRB). A second VRP is to be submitted regarding the installation of the PRB. The exact location of the PRB has not been agreed to yet, however it is anticipated that the PRB will be located near the northern boundary closer to the Parramatta River.

The EPA understands that the proponent is required to submit an Environment Management Plan in response to requirements specified by the EPA's Contaminated Site's Section for the Voluntary Remedial Proposal

The EPA requires Veolia Environmental Services (Australia) Pty Ltd ensure the proposed development does not impact on the remedial works.

Commercial & Industrial Resource Recovery Facility

The EIS must provide details of:

- Proposed sources of the commercial and industrial waste ("C&I waste").
- The likely composition of the C&I waste.
- The time proposed for the waste to be processed and sorted and removed from the Premises.

Geotechnical Assessment

The EPA understands that there may be some issues with subsidence in the Camellia Peninsula associated with historical fill material. The EPA requests that the Proponent undertake a geotechnical assessment addressing any potential issues subsidence may have on the construction of the recycling facility and the remediation works.

Waste

The EPA requests that the EIS provide details of the types of waste (classified in accordance with the EPA's *Waste Classification Guidelines, (2009)* and quantities of waste to be stored at the Premises. Also provide any information in regards to how the proposed waste recycling facility will operate in conjunction with the existing liquid waste treatment plant.

Water

The EPA requests that the EIS provide details of alternative options to discharging leachate from the Premises to the Parramatta River.

General

The EA must provide details of:

- The Lot and DP of the site.
- The nature of any waste that is proposed to be **stored outside the building** (including wastes such as pre-stabilised or stabilised garden waste, dry recyclables etc); the proposed

locations for storage of that waste; the quantities of that waste; the period of time that waste will be stored outside; and any mitigation measures to be implemented to ensure that the waste does not generate odour or dust emissions.

- Details of any runoff (being leachate and stormwater) that will be collected and stored in a structure that is not a tank (i.e. a "stormwater pond" etc) and how odours from that runoff will be mitigated.
- Details of the leachate and waste water treatment systems for proposed recycling facility giving specific consideration to managing, storing and re-using leachate from each facility separately and avoiding cross-contamination.

Construction

- Detailed description of all stages of construction including timeframes for completion.
- If any waste is proposed to be brought onto the site during the construction period (i.e. for "fill" purposes), the proponent must provide details of the classification of the waste; the quantities of the waste; and the source location of that waste.

Note: the application of waste-derived material to land is an activity that may require a licence under the Protection of the Environment Operations Act 1997. However, a licence is not required by the occupier of land if the only material applied to land is virgin excavated natural material or waste-derived material that is subject of a resource recovery exemption under clause 51A of the POEO (Waste) Regulation 2005.

- If any waste is proposed to be transported off the site during the construction phase, the EA must provide details of:
 - The types of waste leaving the site;
 - The quantities of waste leaving the site;
 - The transporters of the waste; and
 - The final disposal or re-use location for the waste.

Note: Receipts or invoices demonstrating lawful disposal of the waste (particularly asbestos waste) must be retained by the proponent and be made available to EPA when needed.

ATTACHMENT B:
GENERAL ENVIRONMENTAL IMPACT STATEMENT REQUIREMENTS FOR
THE PROPOSED CAMELIA RECYCLING CENTRE AT
37 GRAND AVENUE, CAMELLIA

November 2011

Input into Director General Requirements

The EPA input into the General Requirements has been structured in the following way:

- A. Executive summary
- B. The proposal
- C. The location
- D. Identification and prioritisation of issues
- E. The environmental issues
- F. List of approvals and licences
- G. Compilation of mitigation measures
- H. Justification of the proposal
- I. References

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

The objectives of the proposal should be clearly stated and refer to:

- a) the size and type of the operation, the nature of the processes and the products, by-products and wastes produced
- b) a life cycle approach to the production, use or disposal of products
- c) the anticipated level of performance in meeting required environmental standards and cleaner production principles
- d) the staging and timing of the proposal and any plans for future expansion
- e) the proposal's relationship to any other industry or facility.

2. Description of the proposal

General

- Outline the production process including:
 - a) the environmental "mass balance" for the process – quantify in-flow and out-flow of materials, any points of discharge to the environment and their respective destinations (sewer, stormwater, atmosphere, recycling, landfill etc)
 - b) any life-cycle strategies for the products.
- Outline cleaner production actions, including:
 - a) measures to minimise waste (typically through addressing source reduction)
 - b) proposals for use or recycling of by-products
 - c) proposed disposal methods for solid and liquid waste
 - d) air management systems including all potential sources of air emissions, proposals to re-use or treat emissions, emission levels relative to relevant standards in regulations, discharge points
 - e) water management system including all potential sources of water pollution, proposals for re-use, treatment etc, emission levels of any wastewater discharged, discharge points, summary of options explored to avoid a discharge, reduce its frequency or reduce its impacts, and rationale for selection of option to discharge
 - f) soil contamination treatment and prevention systems.
- Outline construction works including:
 - a) actions to address any existing soil contamination
 - b) any earthworks or site clearing; re-use and disposal of cleared material (including use of spoil on-site)
 - c) construction timetable and staging; hours of construction; proposed construction methods
 - d) environment protection measures, including noise mitigation measures, dust control measures and erosion and sediment control measures.

Air

- Identify all sources of air emissions from the development.

Note: emissions can be classed as either point (eg emissions from stack or vent) or fugitive (from wind erosion, leakages or spillages associated with loading or unloading, conveyors, storage facilities, plant and yard operation, vehicle movements and associated dust from roads, exhausts, loss from load, land clearing and construction works)

- Provide details of the project that are essential for predicting and assessing air impacts including:
 - a) the quantities and physio-chemical parameters (eg concentration, moisture content, bulk density, particle sizes etc) of materials to be used, transported, produced or stored
 - b) an outline of procedures for handling, transport, production and storage
 - c) the management of solid, liquid and gaseous waste streams with potential for significant air impacts.

Noise and vibration

- Identify all noise sources from the development (including both construction and operation phases). Detail all potentially noisy activities including ancillary activities such as transport of goods and raw materials.
- Specify the times of operation for all phases of the development and for all noise producing activities.
- For projects with a significant potential traffic noise impact provide details of road alignment (include gradients, road surface, topography, bridges, culverts etc), and land use along the proposed road and measurement locations – diagrams should be to a scale sufficient to delineate individual residential blocks.

Water

- Provide details of the project that are essential for predicting and assessing impacts to waters:
 - a) including the quantity and physio-chemical properties of all potential water pollutants and the risks they pose to the environment and human health, including the risks they pose to Water Quality Objectives in the ambient waters (as defined on www.environment.nsw.gov.au/ieo, using technical criteria derived from the Australian and New Zealand Guidelines for Fresh and Marine Water Quality, ANZECC 2000)
 - b) the management of discharges with potential for water impacts
 - c) drainage works and associated infrastructure; land-forming and excavations; working capacity of structures; and water resource requirements of the proposal.
- Outline site layout, demonstrating efforts to avoid proximity to water resources (especially for activities with significant potential impacts i.e. effluent ponds) and showing potential areas of modification of contours, drainage etc.
- Outline how total water cycle considerations are to be addressed showing total water balances for the development (with the objective of minimising demands and impacts on water resources). Include water requirements (quantity, quality and source(s)) and proposed storm and wastewater disposal, including type, volumes, proposed treatment and management methods and re-use options.

Waste and chemicals

- Provide details of the quantity and type of any waste that is generated, received, handled, processed or disposed of at the premises. Waste must be classified according to EPA's *Waste Classification Guidelines* (2009).
- Provide details of the quantity, type and specifications for all output products proposed to be produced from the facility. The description should include the physical, chemical and biological characteristics (including contaminant concentrations) of those output products as well as relevant accredited standards against which the products would comply.
- Provide details of intended (or potential) end uses for output products from the facility and the relevant product standards which would be used to assess those products against.
- Provide details of the layout of the facility, the production process and the environmental controls proposed to be installed at the facility. This should include details of any staged development, with proposed timeframes for completion.
- Provide details of all waste management at the facility, including:
 - a) the transportation, assessment and handling of waste arriving at or generated at the site
 - b) any stockpiling of wastes or recovered materials at the site
 - c) any waste processing related to the facility, including reuse, recycling, reprocessing or treatment both on- and off-site
 - d) the method for disposing of all wastes or recovered materials at the facility
 - e) the emissions arising from the handling, storage, processing and reprocessing of waste at the facility
 - f) the proposed controls for managing the environmental impacts of these activities.
- Provide details of spoil disposal with particular attention to:
 - a) the quantity of spoil material likely to be generated
 - b) proposed strategies for the handling, stockpiling, reuse/recycling and disposal of spoil
 - c) the need to maximise reuse of spoil material in the construction industry
 - d) identification of the history of spoil material and whether there is any likelihood of contaminated material, and if so, measures for the management of any contaminated material
 - e) designation of transportation routes for transport of spoil.
- Provide details of procedures for the assessment, handling, storage, transport and disposal of all hazardous and dangerous materials used, stored, processed or disposed of at the site, in addition to the requirements for liquid and non-liquid wastes.
- Provide details of the type and quantity of any chemical substances to be used or stored and describe arrangements for their safe use and storage.
- In documenting or describing the composition of output products and/or wastes generated from the proposed facility reference should be made to EPA's *Waste Classification Guidelines* (2009).
- The EA should also provide details of any proposed leachate collection and management systems for contaminated run-off water from stored organic waste and product.

Ecologically Sustainable Development (ESD)

- Demonstrate that the planning process and any subsequent development incorporates objectives and mechanisms for achieving ESD, including:
 - a) an assessment of a range of options available for use of the resource, including the benefits of each option to future generations
 - b) proper valuation and pricing of environmental resources
 - c) identification of who will bear the environmental costs of the proposal.

3. Rehabilitation

- Outline considerations of site maintenance, and proposed plans for the final condition of the site (ensuring its suitability for future uses).

4. *Consideration of alternatives and justification for the proposal*

- Consider the environmental consequences of adopting alternatives, including alternative:
 - a) sites and site layouts
 - b) access modes and routes
 - c) materials handling and production processes
 - d) waste and water management
 - e) impact mitigation measures
 - f) energy sources
- Selection of the preferred option should be justified in terms of:
 - a) ability to satisfy the objectives of the proposal
 - b) relative environmental and other costs of each alternative
 - c) acceptability of environmental impacts and contribution to identified environmental objectives
 - d) acceptability of any environmental risks or uncertainties
 - e) reliability of proposed environmental impact mitigation measures
 - f) efficient use (including maximising re-use) of land, raw materials, energy and other resources.

C. The location

1. *General*

- Provide an overview of the affected environment to place the proposal in its local and regional environmental context including:
 - a) meteorological data (eg rainfall, temperature and evaporation, wind speed and direction)
 - b) topography (landform element, slope type, gradient and length)
 - c) surrounding land uses (potential synergies and conflicts)
 - d) geomorphology (rates of landform change and current erosion and deposition processes)
 - e) soil types and properties (including erodibility; engineering and structural properties; dispersibility; permeability; presence of acid sulfate soils and potential acid sulfate soils)
 - f) ecological information (water system habitat, vegetation, fauna)
 - g) availability of services and the accessibility of the site for passenger and freight transport.

2. *Air*

- Describe the topography and surrounding land uses. **Provide details of the exact locations of dwellings, schools, shopping centres, childcare centres and hospitals.** Where appropriate provide a perspective view of the study area such as the terrain file used in dispersion models.
- Describe surrounding buildings that may effect plume dispersion.
- Provide and analyse site representative data on following meteorological parameters:

- a) temperature and humidity
- b) rainfall, evaporation and cloud cover
- c) wind speed and direction
- d) atmospheric stability class
- e) mixing height (the height that emissions will be ultimately mixed in the atmosphere)
- f) katabatic air drainage
- g) air re-circulation.

3. *Noise and vibration*

- Identify any noise sensitive locations likely to be affected by activities at the site, such as residential properties, schools, churches, shopping centres, childcare centres and hospitals. Typically, the location of any noise sensitive locations in relation to the site should be included on a map of the locality.
- Identify the land use zoning of the site and the immediate vicinity and the potentially affected areas.

4. *Water*

- Describe the catchment including proximity of the development to any waterways and provide an assessment of their sensitivity/significance from a public health, ecological and/or economic perspective. The Water Quality and River Flow Objectives on the website: www.environment.nsw.gov.au/leo should be used to identify the agreed environmental values and human uses for any affected waterways. This will help with the description of the local and regional area.

5. *Soil Contamination Issues*

- Provide details of site history – if earthworks are proposed, this needs to be considered with regard to possible soil contamination (any likely contamination of soil from liquid treatment plant, historical contaminants hexavalent chromium and asbestos), for example if the site was previously a landfill site or if irrigation of effluent has occurred.

6. *Threatened Species, population, ecological communities and their habitat*

- Identify any threatened species or endangered ecological communities likely to be affected by the development in accordance with EPA's *Threatened Species Assessment Guidelines – Assessment of Significance* (2007).

D. Identification and prioritisation of issues/scoping of impact assessment

- Provide an overview of the methodology used to identify and prioritise issues. The methodology should take into account:
 - a) Relevant NSW government guidelines
 - b) Industry guidelines
 - c) Environmental Assessments/ Environmental Impact Statements for similar projects
 - d) Relevant research and reference material
 - e) Relevant preliminary studies or reports for the proposal
 - f) Consultation with stakeholders.
- Provide a summary of the outcomes of the process including:
 - a) all issues identified including local, regional and global impacts (i.e. increased/ decreased greenhouse emissions)
 - b) key issues which will require a full analysis (including comprehensive baseline assessment)
 - c) issues not needing full analysis though they may be addressed in the mitigation strategy
 - d) justification for the level of analysis proposed (the capacity of the proposal to give rise to high concentrations of pollution compared with the ambient environment or environmental outcomes is an important factor in setting the level of assessment).

E. 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 Environmental Assessment 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 exceedences.

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 (e.g. potentially significant impacts and complex terrain effects), use an appropriate dispersion model to estimate ambient pollutant concentrations. Discuss choice of model and parameters with EPA if needed.
- 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.
- For potentially odorous emissions, provide the emission rates in terms of odour units (determined by techniques compatible with EPA procedures). Use sampling and analysis

techniques for individual or complex odours and for point or diffuse sources, as appropriate. This analysis must consider the **cumulative** impacts of all odour emissions from the premises and other potentially odorous activities in the surrounding area.

Note: With dust and odour, it may be possible to use data from existing similar activities to generate emission rates.

- Reference should be made to relevant guidelines e.g. *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); *Assessment and Management of Odour from Stationary Sources in NSW* (EPA, 2001); *Technical Notes: Draft Policy: Assessment and Management of Odour from Stationary Sources in NSW* (EPA, 2001).

Describe management and mitigation measures

- Outline specifications of pollution control equipment to be used at the site (including manufacturer's performance guarantees where available).
- Describe management protocols and procedures for both point and fugitive emissions. Where possible, this should include cleaner production processes.
- Describe management protocols and procedures for preventing and/or minimising **point and fugitive odour** emissions from all potential odour sources and odour generating activities at the site.

3. Noise and vibration

Describe baseline conditions

- Determine the existing background (L_{A90}) and ambient (L_{Aeq}) noise levels in accordance with EPA's *NSW Industrial Noise Policy* (2000).
- Determine the existing road traffic noise levels in accordance with EPA's *NSW Environmental Criteria for Road Traffic Noise* (1999) 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 site, including the procedure used to choose the site, having regards to the definition of 'noise sensitive locations(s)' and 'most affected locations(s)' described in Section 3.1.2 of EPA's *NSW Industrial Noise Policy* (2000)
 - 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 EPA's *NSW Industrial Noise Policy* (2000)
 - 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 EPA's *NSW Environmental Criteria for Road Traffic Noise* (1999).
- Determine expected noise level and noise character (eg tonality, impulsiveness, vibration, etc) likely to be generated from noise sources during:
 - a) site establishment
 - b) construction
 - c) operational phases
 - d) transport including traffic noise generated by the proposal
 - e) other services.

Note: The noise impact assessment report should include noise source data for each source in 1/1 or 1/3 octave band frequencies including methods for references used to determine noise source levels. Noise source levels and characteristics can be sourced from direct measurement of similar activities or from literature (if full references are provided).

- 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 EPA's *NSW Industrial Noise Policy* (2000)
 - i) 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 exceedence
 - 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 Environmental Assessment.

Describe management and mitigation measures

- Outline the hours of operation for the proposed facility and provide justification for same.
- 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 routes
 - i) limit usage of exhaust breaks
 - j) use of premium muffles on trucks
 - 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).

Note: Methods of sampling and analysis need to conform to an accepted standard (e.g. Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC 2004) or be approved and analyses undertaken by accredited laboratories).

- Provide site drainage details and surface runoff yield.
- State the ambient Water Quality and River Flow Objectives for the Parramatta River. 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 Environmental Assessment should state the environmental values listed for the catchment and waterway type relevant to your proposal. NB: A consolidated and approved list of environmental values are not available for groundwater resources. Where groundwater may be affected the Environmental Assessment should identify appropriate groundwater environmental values and justify the choice.
- 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>) (Note that, as at 2004, the NSW Water Quality Objectives booklets and website contain technical criteria derived from the 1992 version of the ANZECC Guidelines. The Water Quality Objectives remain as Government policy, reflecting the community's environmental values and long-term goals, but the technical criteria are replaced by the more recent ANZECC 2000 Guidelines). NB: While specific guidelines for groundwater are not available, the ANZECC 2000 Guidelines endorse the application of the trigger values and decision trees as a tool to assess risk to environmental values in groundwater.
- State any locally specific objectives, criteria or targets, which have been endorsed by the government e.g. the Healthy Rivers Commission Inquiries (<http://www.nrc.nsw.gov.au>) or the NSW Salinity Strategy (DLWC, 2000) (<http://www.naturalresources.nsw.gov.au/salinity/government/govt-docs.htm>).
- 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 EPA 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 offtake)
 - 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 geomorphological 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, instream 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/water/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 EPA 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). DECC 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 relevant guidelines e.g. *Managing Urban Stormwater: Soils and Construction* (Landcom, 2004), *Guidelines for Fresh and Marine Water Quality* (ANZECC 2000).

Describe management and mitigation measures

- 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 waste water treatment measures that are appropriate to the type and volume of waste water and are based on a hierarchy of avoiding generation of waste water; capturing all contaminated water (including stormwater) on the site; reusing/recycling waste water; and treating any unavoidable discharge from the site to meet specified water quality requirements.
- 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 geomorphological impact mitigation measures including:
 - a) site selection
 - b) erosion and sediment controls
 - c) minimising instream 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 Attachment A and Section C that are needed to describe the existing situation in terms of soil types and properties and soil contamination at the Site.

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 relevant guidelines e.g. *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).

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)

6. Waste and chemicals

Describe baseline conditions

- Describe any existing waste or chemicals operations related to the proposal.
- Describe current recycling activities at the site including the types and volumes of waste received, the types and volumes recycled, and the types and volumes transported off-site for recycling.

Assess impacts

- Assess the adequacy of proposed measures to minimise natural resource consumption and minimise environmental impacts (eg. odours, noise, water pollution) from the handling, transporting, storage, recycling, processing and reprocessing of waste and/or chemicals.
- Reference should be made to relevant guidelines e.g. EPA's *Waste Classification Guidelines* (2008) and EPA's *Environmental Guidelines: Composting and Related Organics Processing Facilities* (2004).

Describe management and mitigation measures

- Outline measures to minimise the consumption of natural resources.
- Outline measures to minimise environmental impacts from the recycling activities, including any increase/decrease on the current types and volumes of waste recycled at the site.
- 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. Cumulative impacts

- Identify the extent that the receiving environment is already stressed by existing development and background levels of emissions (including **odour 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).

8. *Impacts on threatened species, population, ecological communities and their habitat*

EPA acknowledges that the site is highly disturbed and therefore the presence of threatened species is unlikely. Nonetheless, the EA should, if applicable, include a brief field survey of the site. If any TS are identified then likely impacts on threatened species and their habitat need to be assessed, evaluated and reported on. The EA must describe the actions that will be taken to avoid or mitigate impacts or compensate for unavoidable impacts of the project on threatened species and their habitat. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented.

9. **Impacts on Aboriginal cultural heritage values**

EPA acknowledges that the site is highly disturbed and therefore the presence of Aboriginal cultural heritage artefacts is unlikely. Nonetheless, the EIS should if applicable:

- Address and document the information requirements set out in the draft *Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation* involving surveys and consultation with the Aboriginal community;
- Identify the nature and extent of impacts on Aboriginal cultural heritage values across the project area;
- Describe the actions that will be taken to avoid or mitigate impacts or compensate to prevent unavoidable impacts of the project on Aboriginal cultural heritage values. This should include an assessment of the effectiveness and reliability of the measures and any residual impacts after these measures are implemented; and
- Demonstrate that effective community consultation with Aboriginal communities has been undertaken in determining and assessing impacts, developing options and making final recommendations.

F. **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).

G. **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 EPA licences or approvals (eg outline of a detailed 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.

H. Justification of the proposal

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

I. 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.

Guidelines, Policies and Plans

Aspect	Policy /Methodology
Risk	- AS/NZS 4360 Risk Management (Standards Australia) - HB 203:2006 Environmental Risk Management – Principals and Process
Contamination	- Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC & NHMRC) - National Environment Protection (Assessment of Site Contamination) Measure (NEPC) - EnHealth – Environmental Health Risk Assessment – Guidelines for assessing human health risks from environmental hazards - Managing Land Contamination - Planning Guidelines SEPP 55 – Remediation of Land (DUAP and EPA) - Contaminated Sites: Sampling Design Guidelines (NSW EPA) - Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (NSW EPA) - Contaminated Sites: Guidelines for the NSW Auditor Scheme (NSW EPA) - Contaminated Sites: Guidelines on Significant Risk of Harm from Contaminated Land and Duty to Report (NSW EPA) - Guidelines for the Assessment and Management of Groundwater Contamination (DECC)
Traffic and Transport	- Guide to Traffic Generating Development (RTA) - RTAs Road Design Guide (RTA)
Air Quality	- Technical Framework: Assessment and Management of Odour from Stationary Sources in NSW (DEC) - Technical Notes: Assessment and Management of Odour from Stationary Sources in NSW (DEC)

Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DEC)
 Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (DEC)
 Protection of the Environment Operations (Clean Air) Regulation

Soil and Water

Soil Managing Urban Stormwater: Soils & Construction (Landcom)
 Surface Water Managing Urban Stormwater: Treatment Techniques (EPA)
 Managing Urban Stormwater: Source Control. Draft (EPA)
 Managing Urban Stormwater: Harvesting and Reuse (DEC)
 National Water Quality Management Strategy - Guidelines For Water Recycling: Managing Health And Environmental Risks (Phase1) (EPHC, NRMCC & AHMC)
 National Water Quality Management Strategy: Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ);
 National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ);
 Using the ANZECC Guidelines and Water Quality Objectives in NSW (DEC);
 Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (DEC)
 Storing and Handling Liquids: Environmental Protection - Participants Manual (DECC)
 Environmental Compliance Report: Liquid Chemical Storage, Handling and Spill Management - Part B Review of Best Practice and Regulation (DEC)

Health

Environmental Health Risk Assessment Guidelines for Assessing Human Health Risks from Environmental Hazards (Department of Health and Ageing and enHealth Council)

Flora and Fauna

Policy & Guidelines - Aquatic Habitat Management and Fish Conservation (NSW Fisheries)
 Primefacts. Mangroves (DPI)
 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)

Hazards

Multi-Level Risk Assessment (DUAP)
 Hazardous Industry Planning Advisory Paper No 6 - Guidelines for Hazard Analysis

Noise

Industrial Noise Policy (DEC)
 Environmental Criteria for Road Traffic Noise (DEC)
 Environmental Noise Control Manual (DEC)

Waste

Waste Classification Guidelines 2009 (EPA)
 Environmental guidelines: Solid Waste Landfills (NSW EPA)