# Concrete Works

## EIS Guideline

**New South Wales**
**Department of Urban Affairs and Planning**

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# Executive summary

This guideline identifies some important factors to be considered when preparing an environmental impact statement (EIS).

The preparation of the EIS should be preceded by early effective consultation and technical discussions with relevant government agencies and councils.

A high priority should be given to:

- considering environmental factors in site selection
- evaluating alternative sites
- ascertaining the suitability of the intended location.

There should be an early evaluation of alternatives, taking into consideration the factors in Part 4 of this guideline.

The analysis of alternative design, processing and management practices should consider the environmental implications of options. The justification for the selection of the preferred options should consider biophysical, social and economic factors, and the consistency with ecological sustainability principles.

The assessment process should focus on key environmental issues. These issues should be identified early in the environmental impact assessment (EIA) process, usually at a planning focus meeting and through consultation with the community. The assessment process should clearly identify the environmental (including biophysical, social and economic) costs and benefits of the proposal.

Key issues for concrete works usually include:

- air quality issues
- water quality issues
- traffic.

Appendix 4 lists other organisations who may need to be consulted to identify key issues for particular proposals.

The EIS should outline commitments to the ongoing environmental management of the proposal, including monitoring.

The level of analysis of individual issues in the EIS should reflect the level of significance of their impacts. The analysis should focus on key issues. The information in the EIS should be accurate and presented clearly and concisely. There should be emphasis on quality and not quantity. The EIS need not be long.

# Contents

# 1. Purpose and scope of the guideline

## 1.1 Background

The purpose of this guideline is to identify matters which are relevant to the environmental impact assessment of concrete works. The guideline is intended for applicants of concrete works proposals as well as government agencies and consent authorities involved in the approval process for these developments. The guideline considers the following specific matters:

- factors to be considered when preparing an environmental impact statement (EIS)
- locational considerations for concrete works
- issues which may be relevant for an environmental assessment of a concrete works proposal.

The guideline applies to proposals for new concrete works, and significant alterations or additions to existing facilities, whether fixed or mobile plants. However, not all matters referred to in the guideline will apply to every proposal. The EIS should be tailored to suit the scale of the proposal and its potential impacts. It is essential to focus on key environmental issues. If the EIS considers the relevant matters identified in this guideline, there should be sufficient information for the assessment of most concrete works.

The issues in this guideline apply whether an EIS, statement of environmental effects (SEE) or review of environmental factors (REF) is being prepared.

This guideline should be read in conjunction with any relevant EPA environmental management guidelines for concrete works.

## 1.2 Concrete works covered by this guideline

Concrete works produce concrete by mixing cement, fly ash and other additives with water and aggregate materials such as sand or gravel. The concrete may be used on-site for construction or for the production of concrete masonry or precast forms such as pipes, sleepers, girders or panels, or transported off-site in batches for use at construction sites. This guideline applies to concrete works associated with facilities for the manufacture of concrete products as well as off-site ready-mix operations.

All concrete works have the potential to cause significant environmental impacts. Careful site selection and ongoing environmental management are necessary to ensure that concrete works operate in an ecologically sustainable manner.

## 1.3 When is an EIS required?

An EIS may be required for concrete works under Part 4 or Part 5 of the *Environmental Planning and Assessment (EP&A) Act, 1979.*

Environmental impact assessment (EIA) under Part 4 applies when a concrete works proposal requires development consent under the provisions of an environmental planning instrument. If this is the case, then Schedule 3 of the EP&A Regulation 1994 applies. Concrete works are designated in Schedule 3 when there is an intended production capacity of more than 150 tonnes per day or 30 000 tonnes per annum of concrete or concrete products, or when they are located in certain environmentally sensitive areas. Some temporary facilities described in Schedule 3 are not designated (see Appendix 6).

If a development is designated, an EIS must be prepared and lodged with a development application (DA). If a concrete works is not designated, a SEE must be prepared to accompany the DA. Appendix 2 provides a summary of the EIA procedures.

Part 5 of the EP&A Act applies to any proposals not requiring development consent but requiring an approval from the EPA or another government authority. Under Part 5, a determining authority (i.e. an authority required to grant a licence, lease or approval for funding) must consider whether the proposal has the potential to cause significant environmental impacts. If significant impacts are likely, an EIS must be prepared. If an EIS is not required, a REF should be prepared to assess impacts and proposed mitigation strategies.

# 2. Factors to consider when preparing an EIS

The aim of environmental impact assessment (EIA) is to enable the approving authority, the public, the local council, government authorities and the proponent to properly consider the potential environmental consequences of a proposal. It is important to provide sufficient information for the approving authority to make a decision on whether to approve a proposal and if so, under what conditions. The EIS provides the basis for sound ongoing environmental management.

It is the proponent's responsibility to identify and address, as fully as possible, the matters relevant to the specific proposal and to comply with the statutory requirements for EIS preparation. The following factors are important when preparing an EIS.

## 2.1 Early consideration of the strategic context

The need for the proposal should be clearly identified along with its relationship to broader strategic plans and goals. Consideration of the strategic context is essential when selecting options for the proposal. Strategic mechanisms such as policies and plans which illustrate how the proposal has been developed, should be discussed in the EIS so that the information is available and relevant. It is not the role of the project EIS to undertake an environmental assessment of strategic mechanisms related to the proposal. However the EIS should report upon and apply them to the proposal.

Any existing relevant cumulative or strategic environmental studies should be considered when formulating and justifying undertaking a proposal. Air and water quality studies, state of the environment reports and local and regional environmental studies should also be taken into consideration as applicable.

## 2.2 Early assessment of options

The objectives for the proposal should be developed to fulfil any identified need and should encompass the principles of ecologically sustainable development (ESD). ESD principles (outlined in Appendix 1) should be considered when identifying options for all aspects of the proposal. All feasible alternatives that could satisfy the objectives of the proposal should be considered. When weighing up options, the biophysical, economic and social costs and benefits throughout the whole life cycle of the proposal should be considered. The 'do nothing' option should also be included in these considerations.

Careful option selection can lower community concerns and reduce potential costs of mitigation and management required to control environmental (including social) impacts. Early adoption of ecologically sustainable strategies can reduce possible conflicts, and additional costs and delays at later stages of the approval process.

## 2.3 Identifying issues

The general framework for an EIS is prescribed in Schedule 2 of the EP&A Regulation (see Appendix 1). The Director-General's requirements provide specific matters to be addressed in an EIS. In addition to the specific legal requirements, the proponent has a broader responsibility to consider all potential environmental issues in relation to the proposal.

As a precursor to identifying potential environmental issues, the proponent must be able to outline:

- the important characteristics of the project which will determine the scope of the potential impacts
- the proposed site and a preliminary assessment of the sensitivity of the site.

If either the project characteristics or the site should change, then the potential impacts may also change. If at any time changes occur, the scoping process for the EIS should be reviewed. If major changes occur, the Director-General may need to be reconsulted to amend their requirements.

In addition to the issues outlined in this guideline, other sources of information which may assist in the identification of potential issues include:

- any relevant guidelines produced by other NSW government authorities (e.g. *Environmental Noise Control Manual* (EPA, 1994a), other States or overseas
- EISs for similar projects, and any relevant commission of inquiry report, determination report and conditions of approval
- relevant research and reference material on similar proposals.

There are a number of approaches or mechanisms which help identify issues relating to a particular proposal in a particular location. They may involve fairly unstructured mechanisms with a low level of consultation or a structured process with a high level of consultation with all stakeholders. The choice of the approach should depend on the scale and type of proposal and the sensitivity of the environment. These may include:

- consultation outlined in Part 3
- checklist, matrix, network, GIS or overlay methods or similar approaches such as the tables in *Is an EIS required*? (Department of Planning, 1995)

## 2.4 Prioritising issues

The EIA process generally will benefit from focusing attention on key issues of concern. Not all issues identified will have the same degree of relevance for all proposals. The relative importance placed on different issues will vary from case to case, and is a function of the type and size of the proposal and the sensitivity of the receiving environment. Issues should therefore be prioritised according to their importance in the decision-making process.

When prioritising issues, consideration should be given to the potential severity, temporal and spatial extent of any beneficial and adverse effects; their direct impacts as well as any indirect, secondary, tertiary or cumulative impacts; and whether the effects are continuous or intermittent, temporary and reversible or permanent and irreversible.

**The outcome of the identification and prioritisation process should result in:**

1. **a list of all issues with a preliminary estimate of the relative significance of their impacts**
2. **identification of the key issues**
3. **an explanation as to why other issues are not considered to be key.**

The EIS should address the key issues as fully as practicable. However the level of analysis should reflect the level of significance of the impacts and their importance for the proposal. Lesser attention should be given to those issues which have lesser significance. For these latter issues, there should be sufficient analysis to develop a sustainable mitigation strategy for any potential adverse impacts.

## 2.5 Impact analysis, prediction and presentation

Discussion of likely impacts should include predictions of the nature and extent of potential impacts and the effectiveness of mitigation strategies. This information is fundamental to deciding the potential ecological sustainability and hence the acceptability of a particular proposal.

### a) Presentation

Information provided should be clear, succinct, objective and where appropriate, supported by maps or other descriptive detail. Repetitive or general non-specific data is distracting and is not relevant to the decision-making process. The use of jargon should be avoided. It is recommended that the EIS be edited to ensure consistency of style and accuracy of transference of information from any appendices to the main document. External review of technical analysis will help ensure that the information to be included is relevant.

The EIS should make reference to all relevant studies and investigations that have been carried out in support of the proposal or other studies, reports or literature used in the EIS. These should be made available during the public display of the EIS.

## b) Baseline information

Where baseline data is to be collected first-hand, careful consideration must be given to the design of the sampling program. Matters to consider include:

- the degree of understanding of the processes in question
- the reasons for the data collection program
- sampling program design
- data collection procedures
- data analysis methodologies
- relevant quality assurance procedures.

The need for long-term sampling to discern the variability of the environment should also be assessed as early as possible so that it is not overlooked or avoided due to time constraints. Assumptions and extrapolations used to draw conclusions from the data should be justified.

In some circumstances, there may be sufficient existing data available for assessment purposes without the need for additional data collection. Where existing data is used, its adequacy and appropriateness for impact assessment of the proposal should be reviewed and discussed, taking into consideration the above points for first-hand data collection. Shortfalls or uncertainty in knowledge should be clearly identified.

In all cases, sampling programs and analysis procedures should reflect current scientific approaches. Peer review of study design, sampling methodology, data analysis and interpretation of results may help identify inadequacies.

## c) Predictions of impacts and mitigation

Impact prediction should consider magnitude, duration, extent, direct and indirect effects, beneficial and adverse effects and whether impacts are reversible or permanent. All predictions of impacts and the likely success of mitigation strategies have an element of uncertainty associated with them. The proponent should identify and, where possible, indicate the level of uncertainty associated with these predictions and mitigation measures. This information is fundamental in developing appropriate management strategies and informs the proponent, community, government agencies and the decision-maker of the degree of risk associated with the proposal and the importance of that risk.

When predicting impacts, a clear distinction must be made between those impacts which can be assessed quantitatively and those for which only a qualitative assessment can be made. Predictive models used should be justified in terms of appropriateness for the task, outlining its strengths and weaknesses. Whenever conclusions and recommendations have been made based substantially on judgements instead of facts or objective analytical results, the basis of the judgements should be clearly identified. A precautionary approach should be adopted where there is a significant chance a proposal may lead to irreversible consequences.

## d) Reference to standards or indicators

Where possible, discussion of impact assessment and mitigation measures should make reference to recognised standards or indicators for sustainability. Standards such as the *Australian Water Quality Guidelines for Fresh and Marine Waters* (ANZECC, 1992) will provide a useful reference against which to measure the acceptability of potential outcomes. In some cases, indicators may have been developed for a region or area, for instance by the Healthy Rivers Commission for specific catchments. In other cases they may be developed as a result of regional strategic environmental or cumulative studies. Some indicators for sustainability may relate to the specific characteristics of the location and can only be developed as a result of the analysis undertaken in the EIS.

## e) Mitigation strategies

Mitigation strategies must be considered both in relation to individual impacts and collectively for all impacts. This helps to avoid conflict between mitigation strategies and ensures that measures applied with respect to one (or more) potential impacts do not increase the magnitude or significance of other likely impacts. The mitigation strategy should include the

environmental management principles which would be followed in the planning, design, construction and operation of the proposal and include:

- a compilation of locational, layout, design or technology features described in the EIS
- an outline of ongoing environmental management and monitoring plans.

Predictions made in the EIS should be monitored in an environmental management plan (EMP). With projects with potentially controversial environmental impacts, it may be appropriate to:

- consult with government authorities, council and the community when preparing the EMP
- establish a community committee to consult in relation to the ongoing management of the proposal
- exhibit an annual environmental management report outlining the environmental performance of the proposal.

It is not expected that a detailed EMP be prepared for the EIS. However an outline of the content and structure and commitment to prepare an EMP is required.

## 2.6 A question of adequacy

The NSW Land and Environment Court has made a number of observations about the adequacy of EISs during its judgements (see Gilpin, 1995). Gilpin's summary of the Court's observations includes:

- The purpose of an EIS is to bring matters to the attention of members of the public, the decision maker, and the Department of Urban Affairs and Planning so the environmental consequences of a proposal can be properly understood
- The purpose of the EIS is to assist the decision-maker. An EIS is not a decision-making end in itself, but a means to a decision-making end
- The EIS must be sufficiently specific to direct a reasonably intelligent and informed mind to possible or potential environmental consequences
- The EIS should be written in understandable language
- The EIS should contain material which would alert both lay persons and specialists to potential problems
- An EIS would be unacceptable if it was superficial, subjective or non-informative
- An EIS would be acceptable if it was objective in its approach and alerted relevant parties to the environmental effects and community consequences of carrying out or not carrying out the proposal.

## 2.7 Ecologically sustainable development

Under the EP&A Regulation, it is necessary to justify the proposal having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development (ESD).

Ecological sustainability requires a combination of good planning and an effective and environmentally sound approach to design, operation and management. The proponent should have regard to the principles of ESD throughout the whole project life cycle, and especially:

- when developing the objectives for the project
- during project formulation, planning and design
- when considering project options and alternatives
- during construction
- for the operational life of the proposal
- afterwards during decommissioning, site rehabilitation and reuse.

Continual reference should be made to the question 'Is this proposal ecologically sustainable?'

# 3. Consultation

Early consultation with the local community, industry, councils and government agencies can be of great assistance in making a preliminary assessment of the potential viability of a proposal at a particular site. It can also assist in ensuring that the EIS is focused on those matters which will add value to the decision-making process.

Effective consultation should enable an applicant to:

- clarify the objectives for the proposal in terms of community needs and concerns, and the relationship of the proposal to any relevant strategic plans, government policy directions and statutory or planning constraints
- identify feasible alternatives (in particular alternative sites) and clarify their relative merits in terms of biophysical, social and economic factors
- identify environmental issues to:
  - prioritise the issues and identify those key to the decision-making process
  - establish the scope of the studies for key issues so that there will be adequate information for the decision-making process
  - where possible, identify performance objectives or indicators for key issues
  - when appropriate, identify experts (in government agencies or from other sources) who can assist in guiding the assessment of a key issue or peer review the assessment
- if appropriate, identify processes for continued community involvement.

The following consultation procedures are recommended:

## 3.1 Consultation with government agencies

It is intended that this guideline should replace the need to undertake routine consultation with government agencies on general matters to be included in an EIS, statement of environmental effects (SEE) or review of environmental factors (REF).

However, consultation with councils and relevant government agencies is recommended to help identify alternatives and to provide a preliminary view on their acceptability within the strategic context. To maximise the benefits of consultation with government authorities, requests for advice should be accompanied by adequate information on the proposal and proposed locations. The consultation request should be targeted towards identifying key issues, and should specifically relate to the particulars of the location, design and operation of the proposed facility.

To facilitate consultation with relevant government agencies, it may be appropriate to hold a planning focus meeting (PFM). The Department recommends that PFMs be held for all major or potentially controversial proposals. The principal approval authority would usually be responsible for organising the PFM. In addition to including government authorities which have an approval role, other agencies with expertise in the area, catchment management committees or independent technical experts may also need to be included depending on the location, site characteristics and management options.

**For a concrete works proposal, the following organisations should be invited to a PFM or otherwise consulted:**

- **relevant local councils**
- **Department of Urban Affairs and Planning**
- **Environment Protection Authority**
- **Roads and Traffic Authority**
- **NSW Health**
- **any relevant water authority**

**Appendix 4 lists other organisations who may need to be consulted to identify key issues for particular proposals.**

For smaller projects, less formal meetings or discussions with relevant authorities, particularly the local council, should be undertaken. Issues such as whether a proposal is consistent with the council's strategic plan for the area and is permissible at the particular site should be clarified at the outset.

## 3.2 Formal consultation required under legislation

Under the provisions of the EP&A Regulation, an applicant or proponent must formally consult the Director-General of Department of Urban Affairs and Planning (DUAP) regarding the content of an EIS. It is recommended that the PFM or preliminary discussions with council occur before the proponent consults the Director-General and that the minutes of the PFM or issues canvassed in the discussions be forwarded to DUAP when the Director-General's requirements are requested.

If a proposal is on land that contains a 'critical habitat' or is likely to significantly affect threatened species, populations or ecological communities or their habitats, the Director-General of National Parks and Wildlife should be consulted regarding the contents of a species impact statement (see Appendix 3 for further information).

## 3.3 Consultation with the community

The community likely to be affected, whether directly or indirectly, should be informed of the proposal and consulted early in the EIA process. Consultation should aim to include affected individuals, community groups and groups with special interests such as local Aboriginal Land Councils.

For major or controversial projects, a program of community consultation may need to be undertaken as part of the preparation of the EIS. This program would usually include two phases, one seeking to inform the community (for instance involving public meetings, public displays or newsletters) and one seeking to gain input on issues of community concern, to identify community values and to identify and evaluate alternatives (for instance involving community focus meetings, 'issues' workshops and community surveys).

# 4. Site selection procedures

**Principles of selection for concrete works proposals**

**Consideration must be given to whether:**

- **the land use is permissible**
- **environmentally sensitive areas are avoided**
- **the use is compatible with nearby land uses**
- **initial site investigations indicate the site is fundamentally suitable for concrete works.**

## 4.1 Site selection

The appropriate location of a concrete works is an important environmental management tool in ensuring that the facility operates in an environmentally acceptable manner. While operational and market considerations are important factors in selecting sites, the environmental and social characteristics of the location should also be given high priority. Careful site selection will:

- reduce the potential environmental impacts and consequently, the need for impact mitigation and ongoing management measures
- reduce levels of public controversy
- avoid potential delays in the approval process.

It is recommended that the following matters be considered when selecting a site for a concrete works.

## 4.2 Permissibility of proposal

At a very early stage in the site selection process, it is essential to consult with the local council to ensure that the proposal is a permissible use under the relevant planning controls. If the proposal is not permissible under the zoning, then discussions should be held with councils about the appropriateness of changing the zoning, or seeking an alternative site.

## 4.3 Initial site assessment

An initial assessment of the intended location can help ensure that the proposal can be operated in an environmentally acceptable manner. An initial site assessment can provide a basis for the comparative evaluation of potential sites. It is recommended that an initial assessment be undertaken before committing to a particular site or proceeding with a more detailed assessment in an EIS or SEE.

This initial site assessment should focus on the characteristics of the site itself, as well as the surrounding environment. Matters to consider in an initial locational assessment are shown in Table 1. The list is not necessarily exhaustive.
In addition to biophysical factors, the locational assessment should also consider community amenity. Conflicts often arise when the community perceives that its amenity is being threatened by particular impacts such as traffic, air or water quality impacts. Any potential conflicts and possible options for resolving them should be considered as early as possible. In general, if concrete works are designed to control dust and vibration impacts, there will be wider locational options.

In assessing the acceptability of a proposed site, consideration should be given to its compatibility with surrounding land uses. Consideration may need to be given to acquiring sufficient land to provide adequate on-site separation from nearby sensitive land uses. Such separation can help minimise impacts and maintain the amenity of the surrounding areas. Factors to consider in determining appropriate separation distances include:

- the character of the surrounding environment and its sensitivity to impact
- the characteristics of the impacts, in particular their predictability
- proposed impact mitigation and management strategies and their predictability.

However, separation distances should not be viewed as the primary means of ameliorating impacts as this can lead to unnecessary land sterilisation. Instead, separation distances should be thought of in the context of a locational attribute providing confidence that the amenity of existing land uses can be maintained. The EPA does not accept impact reduction solely by separation distances for air or water pollution. Therefore, the role of site separation as an impact mitigation measure should simply reinforce the impact mitigation measures provided by other means.

## Table 1. Matters to be Considered in Initial Site Assessment

| | |
|---|---|
| **Operational requirements** | • Does the site provide sufficient land area for present and future requirements?<br>• Is there easy access and transport networks of an appropriate standard?<br>• Does the site provide for safe truck entry and exit and on-site queuing of trucks?<br>• Is this an efficient site relative to the market?<br>• Can services be efficiently supplied to the site (e.g. power, water)? |
| **Topographic and meteorological assessment** | • Are the rainfall patterns or prevailing wind directions likely to cause management difficulties?<br>• Are the local climatic conditions (e.g. air movement, rainfall) in combination with the topography likely to result in microclimatic conditions which will adversely increase impacts on the community? |
| **Water issues** | • Are there any site constraints which make on-site water management difficult (including both process water and stormwater)?<br>• Are there risks of surface water pollution because of the proximity or pathways to waterbodies?<br>• Can any required separation distances from waterbodies under any existing legislation or guidelines be complied with?<br>• Are there risks of groundwater pollution because of shallow or rising groundwater tables, or proximity to groundwater recharge areas, or areas with a high vulnerability to pollution? (This will require consultation with the Department of Land and Water Conservation.)<br>• Is the site susceptible to flooding? |
| **Flora and fauna issues** | • Can clearing of natural vegetation be avoided?<br>• Can clearing of vegetation of high significance be avoided (e.g. vegetation used for visual screening, riparian vegetation, vegetation used as corridors for the movement of fauna)?<br>• Are threatened flora or fauna species, populations and ecological communities or their habitats liked to be affected? Will a SIS be required?<br>• Will a development application for vegetation clearing be required under SEPP 46? |
| **Geological or soils issues** | • Are there any topography or geological characteristics which will cause difficulties in managing impacts (subsidence, slippage, seismic)?<br>• Are the soils highly erodible? Identify any potential sediment management problems.<br>• Are there existing soil problems (e.g. contaminated soils, acid sulfate or saline soils)? |
| **Transport issues** | • Can the standard and capacity of the road network accommodate traffic likely to be generated by the proposal?<br>• Can truck traffic avoid residential areas, hospitals, schools and commercial areas?<br>• If inadequacies exist, can the road network or traffic management be changed to minimise any impacts particularly on residential areas? |
| **Community issues** | • Is the proposal likely to be compatible with surrounding existing or proposed land uses, particularly any residential, special uses (such as schools, hospitals, community buildings), any sites of outstanding natural or environmental value or high tech industries?<br>• Is there likely to be a problem in meeting sustained compliance with dust, noise or water quality requirements due to the proximity and nature of nearby land uses?<br>• Is the proposal likely to pose health risks?<br>• Is the proposal likely to affect the heritage significance of any Aboriginal or non-Aboriginal heritage items found or likely to be found on the site?<br>• Is the site highly visible? Will there be significant visual impacts? |
| **Cumulative issues** | • Is the proposal at this site likely to contribute to any existing cumulative problems? |

# 5. Summary of EIS requirements

The statutory requirements for an EIS are prescribed in Schedule 2 of the EP&A Regulation (Appendix 1).

A summary of the specific requirements for an EIS for a concrete works are provided in the box on the right. These requirements are discussed in detail in Part 6. All issues nominated will not have the same degree of relevance for all proposals. Depending on the characteristics of the proposal, some of the requirements may be more relevant than others, while others will not be applicable at all. The EIS should be tailored to the specific proposal and should focus on the key issues.

## Summary of requirements

**A. Executive summary**

**B. The proposal**
1. Objectives of the proposal
2. Description of the proposal
3. Site layout plans
4. Site preparation and construction
5. Existing concrete facilities at the location
6. Consideration of alternatives and justification for the preferred proposal

**C. The location**
1. Planning context, site description and locality information
2. Overview of the affected environment

**D. Identification and prioritisation of issues**
1. Overview of the methodology
2. Outcomes of the process

**E. The environmental issues**
1. Energy issues
2. Air quality
3. Water issues
4. Transport and traffic issues
5. Social issues
6. Noise issues
7. Health issues
8. Visual issues
9. Soil issues
10. Flora and fauna issues
11. Heritage issues
12. Hazards issues
13. Economic issues
14. Cumulative impacts

**F. List of approvals and licences**

**G. Compilation of mitigation measures**

**H. Justification for the proposal**

# 6. Specific requirements for an EIS

## A. Executive summary

An executive summary should be provided in the EIS and should be available separately for public information. The summary should give a short overview of the proposal and the potential environmental impacts, and should include a clear map or aerial photograph of the location. It should be written in non-technical language to facilitate understanding of the proposal by the general public.

## B. The proposal

### 1. Objectives of the proposal

The objectives of the proposal should be clearly stated and justified in terms of ecological sustainability. The statement should refer to:

a) the size and type of facility
b) the products to be produced, including their proposed end use
c) the proposed production in terms of tonnage, including typical day and peak days (maximum hourly, daily and annual production) and truck movements; maximum daily production of the plant if operated at full capacity of plant and transport facilities; anticipated annual production
d) anticipated levels of performance in meeting required environmental standards
e) staging and timing of the proposal and any plans for future expansion
f) the proposal's relationship to any other related works.

### 2. Description of the proposal

The following information should be included:

**Production process**

a) the receival, storage and on-site management systems for all materials, and the proposed dispatch schedule and maximum capacity for all storages (including stockpiles, in-ground bins, overhead bins) should be provided — materials to consider include:
   i) cement, fly ash, silica (quantities, potential sources and characteristics)
   ii) aggregates (potential sources and characteristics)
   iii) admixtures
   iv) acids, solvents or other chemicals
   v) fuels (including LPG), oils, lubricants;
b) the transfer systems including from receival or storage facilities to overhead bins or silos (such as conveyor belts and pipelines)
c) the batching system
d) any protection or safety systems or management practices to minimise environmental impacts from the materials storage, transfer, batching and dispatch facilities, including provisions to deal with spills or accidental releases, storms and wind impacts (e.g. bunding, spill trays, sprays, shrouds, covers, exhaust systems, negative pressure systems, colour codes, filter systems, bag houses, over-fill protection systems, shut-down systems, inspection, monitoring or detection systems); specifically outline:
   i) delivery and transfer control systems
   ii) dispatch control systems
   iii) dust control systems
   iv) alarms and safeguards.

**Waste management systems**

The following information should be included:

a) the potential quantities and characteristics of solid or slurry waste, including yard, plant and truck cleanings, settling sump cleanings and waste concrete
b) proposals for reusing and recycling solid wastes; the system to manage returned or waste concrete including the production of concrete precast forms
c) intended method and location of temporary or permanent disposal of solid or slurry waste including provisions to manage leachate
d) the site water management system including:
   i) the system (including the capacity) to collect, store and recycle wastewater from

the wash down of mixer bowls, trucks and loading areas; agitation, treatment, separation and reuse systems

ii) yard drainage systems including separation of 'dirty' and 'clean' areas; the bunding systems, first flush system (including design criteria), holding, agitation, treatment and reuse systems

iii) the water quality standards of any wastewater discharged from the site to sewer, stormwater or natural drainage systems; discharge points.

**Other operational factors**

The following information should be included:

a) the hours of operation including times of peak activity (particularly truck movements) and use of lights (during construction and operation)
b) the number of employees
c) the layout of the internal road system, means of site ingress and egress, parking areas and associated facilities
d) administration, maintenance compound, laboratory, stores, washdown areas, parking, weighbridge, security systems and other infrastructure needs
e) landscaping or visual, dust or noise barriers.

## 3. Site layout plans

Provide site layout and schematic plans for all components of the facility including:

a) receival, transfer and storage areas or silos; conveyors, dispatch bays, weighbridge, parking spaces and queuing areas
b) all plant associated with the batching process and dispatch system including loading bays, control and alarm systems
c) administration, laboratory, maintenance and machinery storage buildings, chemical and fuel storage facilities
d) any discharge points for air and water emissions
e) any air or noise management devices or systems
f) water management systems including bunding, drains, first flush system, storage pits, sumps or reservoirs
g) solid waste management system
h) landscaping.

## 4. Site preparation and construction

Describe works required before commencing the proposal, including:

a) any earthworks or site clearing including any vegetation or buildings; disposal/reuse of cleared material
b) the construction timetable and any staging of the construction, hours of construction works; proposed construction methods; equipment and access roads to be used
c) pollution control systems such as erosion and sediment control systems, bunding, wastewater holding tanks and noise mitigation measures.

## 5. Existing concrete facilities at the location

Where applicable, outline:

a) the nature of any past or existing concrete or related facilities on the proposed site
b) a review of past environmental performance, including the impacts of the operation on the environment and the effectiveness of any impact mitigation; previous controls which applied on the site
c) the relationship of the proposed development to previous or existing operations.

## 6. Consideration of alternatives and justification for the preferred proposal

Consideration should include an assessment of the environmental consequences of adopting alternatives, including alternative:

a) sites and site layouts, (having regard to the results of the site selection process described in Part 4)
b) truck routes and access
c) materials handling and batching
d) water and waste management
e) impact mitigation measures, particularly air quality and noise measures.

Consideration should be given to the consequences of not carrying out the proposal.

The selection of the preferred option should be justified in terms of:

a) the ability to satisfy the objectives of the proposal; the relative environmental,

economic and social costs and benefits of each alternative; significant non-monetary and non-quantifiable costs and benefits, which should be described and qualitatively assessed
b) the acceptability of environmental impacts including biophysical, economic and social (including health) impacts
c) the acceptability of any environmental risks or uncertainties, particularly in meeting environmental standards and minimising public health risks; the reliability of the individual environmental impact mitigation measures; the ability of the options to handle abnormal events such as stormwater intrusion, flooding or accidental discharge of chemicals
d) the efficiency with which the proposal meets present demand; the flexibility of the proposal to meet future demand
e) the efficiency of use of land, raw materials, energy, water and other resources; the opportunity to maximise the recycling and reuse of wastes.

# C. The location

## 1. Planning context, site description and locality information

The following information should be provided:

a) zonings, permissibility
b) the compatibility of the proposal with any planning provisions or land use constraints including:
   i) any easements or other restrictions affecting the site, including any heritage or environmental protection provisions
   ii) any relevant provisions of any state environmental planning policy, regional or local environmental plan, or development control plan
   iii) any relevant catchment management plans, regional strategies or management plans for the area
c) title details; land tenure; owner's consent (if not the proponent)
d) where Crown land is involved, any constraint associated with the form of lease or tenure — where appropriate, the Native Title status of the land should be addressed and an outline provided of the procedures to be followed to satisfy the requirements of the Commonwealth's *Native Title Act (1993)*
e) maps, plans or aerial photographs clearly identifying the location of the proposal in relation to:
   i) the surrounding roads, adjoining communities or dwellings and any land use or natural features likely to be affected by the proposal
   ii) utilities including transmission lines, pipelines, cables or easements
   iii) sight-lines from dwellings or public places such as roads
   iv) other activities which in combination with the concrete works have the potential to generate significant cumulative impacts (such as traffic, air, noise or water impacts).

## 2. Overview of the affected environment

An overview of the environment should be provided in order to place the proposal in its local and regional environmental context. This overview should be general. Specific details should be provided when assessing the environmental impacts of the proposal.

General information to be provided includes an overview of:

a) meteorological characteristics which may influence dust or noise impacts
b) the use and vulnerability of any natural waterbodies likely to be affected by the proposal; general water quality characteristics
c) the use and vulnerability of groundwater; general water quality characteristics
d) characteristics of land likely to be affected in terms of general soil characteristics
e) predominant vegetation communities in areas to be disturbed, their potential habitat and conservation values

f) the heritage, conservation, archaeological, historical, cultural, scientific, or scenic significance of any buildings, items, places or areas likely to be affected.

# D. Identification and prioritisation of issues

## 1. Overview of the methodology

Outline the procedures or methodology used to identify and prioritise issues. Factors to consider may include:

a) the outcome of a review of relevant sources of information on potential issues, including:
   i) guidelines by any relevant government authorities
   ii) the provisions of any relevant environment protection legislation
   iii) any industry guidelines
   iv) EISs for similar projects, any relevant commissions of inquiry reports, determination reports and conditions of approval
   v) relevant research or reference material
   vi) relevant strategic plans or policies
   vii) relevant preliminary studies
b) the outcome of consultation with stakeholders including:
   i) planning focus meetings, community focus meetings, community workshops or issues groups
   ii) meetings with stakeholders (e.g. government agencies, particularly EPA, councils, major market representatives)
c) the use of methodology such as *Is an EIS required?* (Department of Planning, 1995) or checklists or similar approaches.

## 2. Outcomes of the process

Summarise the outcome of the identification and prioritisation process, including:

a) all the issues identified
b) the key issues which will need a full analysis in the EIS (including comprehensive baseline assessment)
c) the issues which will not need a full analysis in the EIS, though they may be addressed in the mitigation strategy; the justification for the proposed level of analysis.

# E. The environmental issues

The following specific issues are nominated as being potentially important when assessing impacts, and for decision-making in relation to concrete works. The outline of the issues is not exhaustive and the degree of relevance of each will vary. The EIS should only deal with relevant issues as applicable to the particular proposal.

**Assessment of potential impacts**

**The following should be included for any potential impact which is relevant for the assessment of a specific proposal:**

- **a description of the existing environmental conditions (baseline conditions)**
- **a detailed analysis of the potential impacts of the proposal on the environment; the analysis should indicate the level of confidence in the predicted outcomes and the resilience of the environment to cope with the impacts**
- **the proposed mitigation, management and monitoring program, including the level of confidence that the measures will effectively mitigate or manage the impacts.**

**With each issue, the level of detail should match the level of importance of the issue in decision-making.**

## 1. Energy issues

The following should be considered:

a) energy requirements including electricity, gas or diesel; energy supply for the operation; any new or upgraded transmission facilities including lines and substations; the potential impacts from the provision of these services
b) an assessment of the efficiency of energy use; alternative energy use management procedures and design measures; measures to conserve energy.

## 2. Air quality

Issues to consider include:

a) for concrete works located in areas where the environment is sensitive to dust, a review of the local air quality; any existing cumulative

air quality issues; any nearby land uses likely to be sensitive to dust impacts

b) the potential sources of air pollution during the construction and operation of the facility, including during the transport, receival, handling, transfer and storage of materials, batching or loading of trucks

c) the performance of the air quality management system in relation to:
   i) vehicle movements such as sealing of trafficable areas on-site; proposals for limiting speeds on the site, proposals for washing down of vehicles
   ii) windshields at unloading and stockpile areas, water sprayers, including automatic spray systems; sweeping or washing down of operational areas
   iii) enclosed transfer points, swivel shute areas, storage, batching and loading facilities (silos, bins, conveyors with spill trays); dust cleaning devices, such as on conveyor belts; procedures for removing material collected within the system
   iv) the air filter systems (such as bag filters), including the performance criteria and the maintenance regime
   v) the measures to prevent dust leakages from the cement or flight loading and dispatch system, including airtight connections and valves systems
   vi) mechanisms to minimise impacts of dust emissions in the event of system failure, including the location of any system outlet points, any alarm/indicator system and shut-off valves to avoid spillage during any stage of the operations

d) the potential impacts on air quality; dust dispersion particularly in relation to land uses identified as being susceptible to dust impact, the local climatic conditions and topography; the likely affects on human health and the natural ecology; if significant include:
   i) likely quantity, characteristics, frequency and times of emissions taking into consideration production peak rates
   ii) dispersion characteristics having regard to the influence of local topography and weather — this may involve modeling dust deposit contours

e) mitigation, management and monitoring practices to manage impacts including location of any monitoring stations; nomination of an acceptable level of dust at various locations; proposals for remedial action if these levels are exceeded.

## 3. Water issues

### Surface water issues

Issues to consider include:

a) if waterbodies are at risk of contamination because of the proximity of pathways (including stormwater reticulation system) to the waterbody, an outline of baseline information including locations, use, drainage and flow characteristics and existing water quality

b) potential sources of pollution from designed and accidental sources as well as potential pollution pathways including:
   i) overflow of drains, first flush or holding tanks
   ii) run-off from stockpiles, waste storage areas, roads, parking areas or any disturbed areas
   iii) run-off of contaminated stormwater
   iv) any discharge points for wastewater into stormwater or the environment

c) assessing the adequacy of water management systems to prevent impacts on water quality, taking into consideration the average rainfall and storm patterns, including:
   i) the yard drainage system; the performance of the system including the ability of the system to minimise the quantity of 'dirty' water and the locations, capacity, management and maintenance of yard bunding, drains, first flush, sumps and storage tanks; the proposed use, storage or disposal of both 'clean' and 'dirty' yard water; any connection of the yard system to the wastewater system; any discharge points including pre-treatment and monitoring
   ii) the wastewater system; the design, capacity, management and maintenance of wastewater collection systems; the agitation, settlement, treatment and storage systems; proposals for use of the wastewater at the facility, water balance/ storage requirements; if disposal is required, the proposed treatment before disposal (e.g. by acidification) and discharge points (sewer, stormwater, environment)

d) if natural waterbodies are likely to be polluted, assess the potential impacts of the proposal on water quality, particularly in relation to water users identified as being susceptible to loss of water quality
e) management and monitoring practices to manage adverse impacts, including location of any monitoring stations; nomination of an acceptable level of water quality at monitoring locations; proposals for remedial action if these levels are exceeded.

**Groundwater issues**
Issues to consider include:

a) if groundwater is vulnerable because of its depth, overlying geological characteristics or the presence of recharge areas in the vicinity of the site or if local groundwater is used as drinking water, baseline information including its quality of water and users
b) potential sources of pollution from designed and accidental sources as well as potential pollution pathways, including contamination from seepage from holding tanks, fuel or chemical storage facilities or from contaminated surface water
c) assessing the adequacy of proposed measures to prevent groundwater contamination including bunding fuel and chemical storages, sealing site surfaces
d) assessing the potential impacts on the groundwater, groundwater related environments and any users
e) management and monitoring practices to manage adverse impacts including monitoring the integrity of all sealed surfaces, bunding systems and maintenance of inground collection and storage tanks; proposals for remedial action if pollution occurs.

**Water supply issues**
Issues to consider include:

a) water requirements for the facility and the proposed water source including off-site water supply sources, and opportunities for on-site recycling
b) assessing the adequacy of water supply sources and the potential impact on any community water supply or groundwater resource; the need to upgrade or augment the water supply or reticulation system
c) assessing the efficiency of use of water in the operation of the concrete works including:
   i) proposals to minimise on-site water usage
   ii) proposals to recycle on-site water in the process, for wash down, dust suppression and landscaping.

**Stormwater management issues**
Issues to consider include:

a) reviewing those aspects of the proposal which will impact on the stormwater impacts on neighbouring properties including the need to divert natural flow channels
b) assessing the effectiveness of on-site stormwater management.

## 4. Transport and traffic issues

A road traffic impact study should be undertaken for all proposals involving significant numbers of vehicle movements during establishment or operation. Matters for the study include:

a) truck movements and routes for transporting raw materials, chemicals and concrete; considering alternative routes or transport modes
b) the ability of the roads to handle the traffic, including:
   i) the physical condition of the roads and bridges on the proposed routes
   ii) any upgrading proposals or requirements
c) the potential impact of the proposal on the route's maintenance program
d) current traffic on roads leading to the site, including volumes and vehicle types
e) estimated average and maximum daily and weekly truck movements to be generated by the proposal
f) identifying noise- and odour-sensitive land uses along the route such as schools, hospitals, nursing homes; potential impacts on these land uses and proposed mitigation measures
g) road safety issues, including:
   i) assessing the adequacy of the road network to deal with the traffic
   ii) identifying potential conflicts (particularly if truck routes are used by school buses) or areas of high risk, including any sight distance constraints, particularly in relation to access to the site, existing congestion or poor road standards

iii) identifying potential risks associated with the transport of any hazardous substances, given the road and traffic regime
iv) proposed measures to improve safety; the need for turning bays, additional traffic management devices, and road upgrades.

## 5. Social issues

Issues to consider include:

a) a review of any community consultation process; any issues raised in community consultation
b) assessing the effect of the proposal on future community development in the area; the potential impact on the community's profile, structure or cohesion
c) potential impacts of the construction or operation on the amenity of the area, considering factors such as noise, vibration, dust, traffic
d) social equity considerations such as means to offset any loss of amenity suffered by local residents.

## 6. Noise issues

Issues to consider include:

a) for concrete works located in areas where the environment is sensitive to noise, identifying present and proposed land uses such as hospitals, schools and residences likely to be affected by noise from the facility and reviewing the existing acoustic environment including meteorological conditions, topographical features and buffer zones which will influence the noise impacts
b) identifying potential fixed and mobile noise sources, including safety or security systems (including where relevant sound power levels) during:
   i) construction
   ii) operation of the facility including dispatch and transfer of raw materials (including front-end loader use), any on-site crushing or separation activities, batching and loading operations and transport of concrete
   iii) environmental and waste management activity including dust, wastewater, slurry and solid waste management systems
c) outlining proposed times when noise impacts are likely; predicting noise levels at the boundaries of the development and at potentially affected dwellings during the hours of operation (including night operations if appropriate); predicting worst case noise scenarios including traffic noise
d) outlining all noise management measures including design, management and training measures in relation to the concrete plant and vehicles for instance:
   i) the location of site access
   ii) the design of the site so that noisy activities (e.g. aggregate unloading) are far from sensitive land uses, within acoustical enclosures or behind screens or bunds
   iii) developing protocols for the use of horns, phones, PA systems, safety or security signals; the use of silencers on equipment
   iv) controlling hours of operation
e) assessing the adequacy of mitigation and management measures to control the generation of noise to meet appropriate noise standards such as the *Environmental Noise Control Manual* (EPA, 1994a); where noise impacts are likely to exceed EPA standards, demonstrating the application of Best Available Technology Economically Achievable (BATEA) or Best Management Practices (BMP)
f) the proposed monitoring program including location of monitoring sites.

## 7. Health issues

Issues to consider include:

a) overviewing the public health risk associated with any existing facilities
b) assessing the potential health implications of the proposal including potential chronic and acute risks associated with:
   i) the likelihood of the facility increasing any existing health problems in the community
   ii) air quality, water quality, road safety issues likely to affect health
   iii) potential exposure pathways
c) if there is a significant health risk, developing a full health assessment considering potential impacts from direct exposure to or aspiration of substances with high health risk

implications during the operation of the facility
d) assessing the adequacy of proposed design, management, mitigation and monitoring with regard to health risks
e) assessing the adequacy of separation distances from dwellings, recreational areas and public roads given the potential health risk
f) assessing the potential improvements to community health as a result of the proposal.

## 8. Visual issues

For concrete works located in areas where visual impacts are likely to be a concern, issues to consider include:

a) the visibility of the proposal from the surrounding areas; considering the proposal in the context of any landscapes of local or regional significance
b) the visual impacts caused by clearing of vegetation, stock piles, bins, towers or other structures, lights, dust on access roads; views to the site from nearby land uses, as well as from strategic locations adjacent to and in the vicinity of the site, particularly from higher elevations; any night time impacts due to lighting
c) proposed mitigation and management measures to reduce visual impacts, such as:
   i) layout, design, colour scheme, fencing, screening or visual treatment
   ii) landscaping; species to be planted, taking into consideration the potential alkali environment
   iii) protocols for transport vehicles.

## 9. Soil issues

If earthworks are proposed or if soil contamination is likely, issues to consider include:

a) describing surface characteristics including contours, slope gradient and length, terrain stability; characteristics of the soil, identifying any soil constraints such as erodibility, permeability, contamination, or presence of potential or actual acid sulfate soils
b) identifying any impacts likely to result during the construction or operation of the facility; include the likelihood of:
   i) disturbing any existing contaminated soil (the local council should be consulted to determine if the site is considered 'potentially contaminated')
   ii) contamination of soil by the operation of the facility, particularly from seepage from storage facilities
   iii) soil erosion
   iv) disturbing acid sulfate soils
c) assessing the effectiveness or adequacy of any soil management and mitigation measures during construction and operation, including:
   i) erosion and sediment control measures
   ii) if contaminated land is present, proposals for soil management or site remediation if appropriate or necessary
   iii) if potential or actual acid sulfate soils are present, proposals for the management of acid sulfate soils
d) any proposed maintenance and monitoring.

## 10. Flora and fauna issues

If land is to be cleared, or vegetation or fauna habitats are likely to be disturbed, issues to consider include:

a) identifying plant and animal habitats and ecological communities, and where appropriate, populations and species in areas that may be directly or indirectly affected by the proposal
b) indicating the local and regional scarcity of these habitats, ecological communities, populations and species
c) if relevant, identifying the following, indicating their incidence on the site:
   i) threatened species, populations or ecological communities listed in Schedule 1 or 2 of the *Threatened Species Conservation Act 1995* (see Appendix 3)
   ii) rare plant species listed in *Rare or Threatened Australian Plants* (ROTAP) (Briggs J.D. 1988)
   iii) areas protected under SEPP 14 — Coastal Wetlands, SEPP 26 — Littoral Rainforest, SEPP 44 — Koala Habitat Protection or other environmental planning instruments
   iv) vegetation or fish species protected under the *Fisheries Management Act 1994*; indicating the economic significance of any potentially affected fish species
   v) trees listed in councils' Significant Tree Registers
d) potential impacts on species, populations or ecological communities or their habitats:
   i) directly through removal by clearing
   ii) indirectly through changes in water quantity, quality or groundwater regime

iii) through impacts on the number, distribution and size of habitats

e) the sensitivity of species or communities to disturbance; the potential impacts of disturbance on biodiversity; the potential for recolonisation following rehabilitation — if relevant, assess the significance of the area for koalas under the provisions of SEPP 44 — Koala Habitat Protection

f) the significance of flora or fauna for other biota, including biota not directly affected by the proposal but which interact with potentially disturbed flora and fauna

g) landscaping and rehabilitation proposals and their role in mitigating impacts such as compensatory rehabilitation with indigenous species; the provision of new appropriate habitats; opportunities for colonisation; timing of major disturbances

h) identifying potential weed and introduced species and describing measures to control and prevent their spread into localities adjacent to the proposal

i) proposed monitoring to determine the effectiveness of mitigation and to verify predictions.

***Note:*** Appendix 3 provides guidance on determining when a species impact statement (SIS) is required. An SIS must accompany any proposal dealing with critical habitats or where there is likely to be a significant effect on threatened species, populations or ecological communities or their habitats.

## 11. Heritage issues

This section is relevant if land clearing, earthworks, disturbance of existing items (buildings, works, relics or places) or reduction of the heritage curtilage will occur as a result of the proposal. Issues which may need to be considered include:

a) identifying any items of heritage significance on the site (including underwater) and in the area affected by the proposal. This should include two steps:
**Step 1:** collate information from any relevant heritage study or conservation plan for the site or area — this source may need to be supplemented with information from the following:
i) relevant historical research on the area
ii) consultation with the Aboriginal Land Council, local historical societies and the local council
iii) inspection of heritage registers, schedules, databases or lists, Heritage Council Register, heritage and conservation registers (various government agencies), local or regional environmental plans, archaeological zoning plans, Aboriginal Sites Register (National Parks and Wildlife Service (NPWS)), National Estate Register (Australian Heritage Commission), other registers (National Trust, Institution of Engineers Australia, Royal Australian Institute of Architects)
**Step 2:** survey the area likely to be affected, to identify any items of potential heritage significance.

For non-Aboriginal heritage:

a) assess the significance of any non-Aboriginal heritage items identified on the site, using criteria for assessing heritage significance published in the *NSW Heritage Manual 1996*

b) assess the potential impacts of the proposal on the heritage significance — non-Aboriginal heritage items, protected under the *Heritage Act 1977* or a conservation instrument, require approval from the Heritage Council before disturbance can be undertaken; items identified in planning instruments require the consent of the nominated consent authority (usually council); shipwrecks protected under the *Historic Shipwrecks Act 1976* require the approval of the Director of the NSW Heritage Office

c) propose measures to mitigate impacts to conserve items of heritage significance — if items of significance are to be disturbed a conservation management plan may need to be prepared in consultation with the Heritage Office.

For Aboriginal heritage:

a) assess the archaeological and anthropological significance of any Aboriginal relic or place identified on the site in consultation with the Land Council, Department of Aboriginal Affairs and NPWS

b) assess the potential impact of the proposal on the heritage significance; Aboriginal relics or places cannot be disturbed without written consent from the Director-General of National Parks and Wildlife
c) propose measures to mitigate impacts or to conserve the heritage significance of the area, relic or place — if items of significance are to be disturbed, a conservation management plan may need to be prepared in consultation with the NPWS, Land Councils, the Department of Aboriginal Affairs and the Heritage Office.

For natural heritage:

a) assess the heritage significance of any natural areas including geological or palaeontological features or ecological communities
b) assess the potential impact of the proposal on the heritage significance (note: items identified in planning instruments or in conservation areas require the consent of the nominated approval authority)
c) propose measures to mitigate impacts or to conserve the heritage significance — if natural areas of heritage significance are to be disturbed a conservation management plan may need to be prepared in consultation with the relevant authorities.

Consider the acceptability of impacts on heritage significance and assess the adequacy of the measures to mitigate impacts during all stages of the proposal.

## 12. Hazards issues

Consider the following potential hazards:

a) the accidental release of toxic substances, explosions or fires
b) natural events (including bushfire, landslip, flooding or subsidence).

All potential hazards and associated scenarios should be identified, and the significance of their consequences assessed.

For concrete works with a risk of release of chemical substances, the need for a preliminary hazard analysis (PHA) should be considered. In considering the need for a PHA, it is not sufficient to state that all dangerous goods will be stored in accordance with NSW WorkCover Authority requirements or as required by the relevant Australian Standard. The procedure identified in *Applying SEPP 33* (Department of Planning, 1994) should be considered. If a PHA is required, it should be prepared in accordance with *Hazardous Industry Planning Advisory Paper (HIPAP) No. 6 — Guidelines for Hazard Analysis* (Department of Planning, 1992a) and *Hazardous Industry Planning Advisory Paper (HIPAP) No. 4 — Risk Criteria for Land Use Safety Planning* (Department of Planning, 1992b). Most important elements of a PHA include:

a) making a list of all substances to be used, stored or disposed of on-site which have a Dangerous Goods classification, and their quantities
b) identifying the hazard scenarios associated with the use or storage of these substances and the likelihood of occurrence
c) the consequences in relation to public safety or impact on the environment if a hazardous event were to occur
d) a quantified risk assessment
e) identifying hazard mitigation measures; assessing the adequacy of operational and emergency procedures involving dangerous and hazardous goods.

For sites located in a flood hazard area, the following issues should be considered:

a) flooding status, including the likely frequency of flooding and depth of flooding
b) if flood liable:
    i) the direction of flood flow; the vulnerability of the storage, batching and waste management facilities
    ii) the potential impacts from inundation of the facility including the management of contaminated waters
    iii) the potential for the proposal to increase the flood liability of surrounding land; the potential impacts of any increased flooding levels
    iv) any proposed flood mitigation measures that may influence the impacts of the proposal on the environment.

For concrete works located in areas of other natural risks including high bushfire risk the following issues should be considered:

a) an assessment of the risks given the climate, surrounding topography, vegetation, geological formation and on-site management practices

b) an assessment of the likely performance of the concrete works and potential environmental impacts during exposure to natural hazards, taking into consideration:
   i) design and layout
   ii) protocols to reduce the risks of on-site fires including firebreaks; provision for firefighting on the site including access, water supply and firefighting equipment
   iii) provision for training and maintenance
c) hazard mitigation measures — these will be dependent upon the extent of the hazards identified.

### 13. Economic issues

Issues to consider include:

a) the cost and benefits to the community of the facility taking into consideration environmental impacts identified in the EIS as well as the project factors. Significant non-monetary costs and benefits should be described and qualitatively assessed.
b) if economic factors are a major issue, the analysis should consider:
   i) any economic implications for resources in the region, and on infrastructure, residential or industrial development or activities in waterbodies likely to be affected by the proposal
   ii) possible economic benefits from the reuse or recycling of wastes
   iii) flow-on costs from the need to upgrade any infrastructure; the offset of s. 94 contributions or other contributions for the provision or upgrading of infrastructure
   iv) any additional employment as a result of the proposal
   v) the potential impact on property values
c) any proposal for a performance bond — any bond could consider failure of safeguards resulting in a significant environmental impact.

### 14. Cumulative impacts

Cumulative impacts may result from a number of activities with similar impacts interacting with the environment in a region. They may also be caused by the synergistic and antagonistic effects of different individual impacts. They may be due to the temporal or spatial characteristics of the activities and impacts. Issues to consider that relate to concrete proposals include:

a) the extent to which the surrounding environment is already stressed by existing development including the potential for cumulative impacts from:
   i) other existing concrete/cement works in the area/region
   ii) other activities with similar impacts
b) any advantages or disadvantages from clustering industry in the area considering the environmental characteristics
c) any likely long-term and short-term cumulative impacts having regard to air quality, noise or traffic disturbance, visual impacts, surface water and groundwater issues, public health or loss of heritage items, vegetation or fauna habitat
d) considering the receiving environment's ability to achieve and maintain environmental objectives.

## F. List of approvals and licences

All approvals and licences required under any legislation must be identified. This is to alert other relevant authorities as early as possible to their potential involvement in the project and to ensure an integrated approach to the granting of approvals. This list also identifies for the community, the relevant authorities involved in the assessment and regulation of the proposal.

## G. Compilation of mitigation measures

A critical component in the EIS is the mitigation strategy. This demonstrates how the proposal and its environmental safeguards would be implemented and managed in an integrated and feasible manner. This section should also demonstrate that the proposal is capable of complying with statutory obligations under other licences or approvals.

The mitigation strategy should outline the environmental management principles which would be followed when planning, designing, establishing and operating the proposal and include:

- specific locational, layout, design or technology features and
- an outline of ongoing management and monitoring plans.

In some circumstances, separate environmental management strategies should be outlined for the construction and operational stages of the project.

**An environmental management plan**

An environmental management plan (EMP) is a document designed to ensure that the commitments in the EIS, subsequent assessment reports, approval or licence conditions are fully implemented. It is a comprehensive technical document which is usually finalised during or following detailed design of the proposal after approval of the development application. It should provide a framework for managing or mitigating environmental impacts for the life of the proposal. It should also make provisions for auditing the effectiveness of the proposed environmental protection measures and procedures.

With major or controversial projects, it may be appropriate to:

- establish a community committee to consult in relation to the ongoing management and monitoring of the proposal
- exhibit an annual environmental management report outlining the environmental performance of the proposal.

Although the level of detail required in an EMP is usually not considered necessary for the EIS or a statement of environmental effects (SEE), a comprehensive outline of the structure of EMP with a summary of the environmental management principles which would be followed in the planning, design, construction and operation of the proposal should be provided. It should be noted that with key issues, where there are high levels of risk or uncertainty, it may be essential to present details of how these issues would be managed in the EIS.

At the development approval stage, it is essential for the applicant to establish that the environmental impacts can be managed in an integrated and feasible manner.

Two sections should be included, one setting out the program for managing the proposal (see section [a] below), and the other outlining the monitoring program with a feedback loop to the management program (see section [b] below).

**a) Environmental management outline**

The management strategy should demonstrate that sound environmental practice will be followed during the establishment, operation, rehabilitation and end use of the concrete works facility. This should include:

i) the management of construction impacts; if appropriate, erosion and sedimentation management and revegetation for areas disturbed by construction activities
ii) the management of operational impacts; if appropriate, include:
    - materials management on site, including cement, chemicals and fuel
    - water and dust management
    - transport management
    - maintenance and site security plans
    - contingency plans to respond to emergencies, incidents or any breakdown in environmental performance
iii) strategies to feed information from the monitoring program back into the management practices and action plans to improve the environmental performance and sustainability of all components of the proposal
iv) training programs for operational staff and incentives for environmentally sound performance
v) an indication of how compliance with licensing and approval requirements will be achieved and due diligence attained
vi) if applicable, a reporting mechanism on environmental performance and performance bond and relevant performance parameters.

**b) Monitoring outline**

This program should be carefully designed and related to the predictions made in the EIS and the key environmental indicators which would demonstrate the potential ecological sustainability of the proposal. The EIS should outline the need for and use of any proposed monitoring, monitoring intervals and reporting procedures.

Parameters which may be relevant include:

i) performance indicators in relation to critical operational issues including:
    - the quality of water discharged or leaching to groundwater, surface water or soil
    - noise and air quality
    - any relevant public health indicators

ii) waste management; performance indicators in relation to recycling and reuse
iii) monitoring of complaints received.

The program outline should describe the following monitoring details:

i) the key information that will be monitored, its criteria and the reasons for monitoring (which may be compliance with regulatory requirements)
ii) the monitoring locations, intervals and duration
iii) procedures to be undertaken if the monitoring indicates a non-compliance or abnormality
iv) internal reporting procedures and links to management practices and action plans
v) reporting procedures to relevant authorities and, if appropriate, to the consent authority and the community.

## H. Justification for the proposal

Reasons should be included which justify undertaking the proposal in the manner proposed, having regard to the potential environmental impacts and compliance with the principles of ecologically sustainable development.

The principles of ecologically sustainable development are:

a) the precautionary principle — namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation
b) inter-generational equity — namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
c) conservation of biological diversity and ecological integrity
d) improved valuation and pricing of environmental resources.

The sustainability of the proposal should be outlined in terms of the ability of the proposal to:

a) meet project objectives
b) demonstrate economic efficiency in meeting the short and long term community requirements for the products and in the use of raw materials
c) meet environmental performance requirements including improved conservation or protection of natural resources and reduced environmental costs
d) meet site specific environmental performance requirements considering the vulnerability of the groundwater, surface waters, soil, ecological communities, heritage or social factors
e) safeguard public health.

# Appendix 1. Schedule 2 — Environmental Impact Statements

**This appendix contains an extract from the Environmental Planning and Assessment Regulation 1994. Schedule 2 outlines the matters that must be addressed in an EIS pursuant to clauses 51 and 84 of the EP&A Regulation.**

1. A summary of the environmental impact statement.
2. A statement of the objectives of the development or activity.
3. An analysis of any feasible alternatives to the carrying out of the development or activity, having regard to its objectives, including:
   a) the consequences of not carrying out the development or activity; and
   b) the reasons justifying the carrying out of the development or activity.
4. An analysis of the development or activity, including:
   a) a full description of the development or activity; and
   b) a general description of the environment likely to be affected by the development or activity, together with a detailed description of those aspects of the environment that are likely to be significantly affected; and
   c) the likely impact on the environment of the development or activity, having regard to:
      i) the nature and extent of the development or activity; and
      ii) the nature and extent of any building or work associated with the development or activity; and
      iii) the way in which any such building or work is to be designed, constructed and operated; and
      iv) any rehabilitation measures to be undertaken in connection with the development or activity; and
   d) a full description of the measures proposed to mitigate any adverse effects of the development or activity on the environment.
5. The reasons justifying the carrying out of the development or activity in the manner proposed, having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development.
6. A compilation (in a single section of the environmental impact statement) of the measures referred to in item 4 (d).
7. A list of any approvals that must be obtained under any other Act or law before the development or activity may lawfully be carried out.

**Note:** For the purposes of this Schedule, **"the principles of ecologically sustainable development"** are as follows:

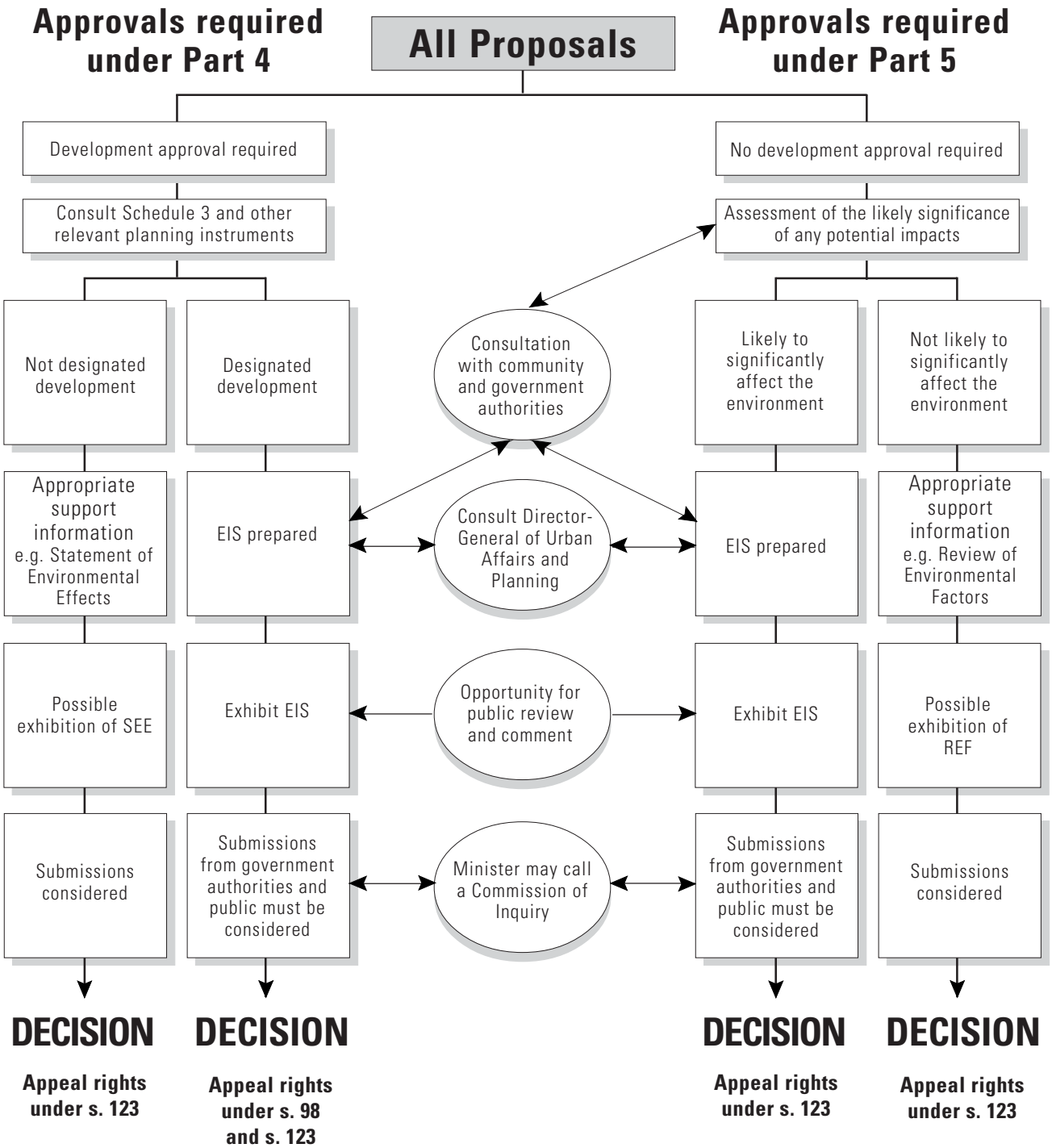
a) The precautionary principle — namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.
b) Inter-generational equity — namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.
c) Conservation of biological diversity and ecological integrity.
d) Improved valuation and pricing of environmental resources.

**Note:** The matters to be included in item 4 (c) might include such of the following as are relevant to the development or activity:

a) the likelihood of soil contamination arising from the development or activity;
b) the impact of the development or activity on flora and fauna;
c) the likelihood of air, noise or water pollution arising from the development or activity;
d) the impact of the development or activity on the health of people in the neighbourhood of the development or activity;
e) any hazards arising from the development or activity;
f) the impact of the development or activity on traffic in the neighbourhood of the development or activity;

g) the effect of the development or activity on local climate;
h) the social and economic impact of the development or activity;
i) the visual impact of the development or activity on the scenic quality of land in the neighbourhood of the development or activity;
j) the effect of the development or activity on soil erosion and the silting up of rivers or lakes;
k) the effect of the development or activity on the cultural and heritage significance of the land.

# Appendix 2. EIA Procedures under the EP&A Act



# Appendix 3. Threatened Species Conservation Act

**This appendix contains an extract from the *Threatened Species Conservation Act 1995* and the provisions for assessing impacts on the conservation of critical habitats and threatened species, populations or ecological communities and their habitats.**

## What are critical habitats, threatened species, populations or ecological communities and threatening processes?

**Critical habitats are prescribed in Part 3 of the *Threatened Species Conservation (TSC) Act 1995*. Threatened species, populations or ecological communities and threatening processes are prescribed in Part 2 and Schedules 1 and 2 of the TSC Act.**

## When is a Species Impact Statement required?

Under section 77 (3) (d1) and section 112 (1B) of the EP&A Act, if a proposal:

- is on land that contains a "critical habitat" or
- is likely to significantly affect threatened species, populations or ecological communities, or their habitats,

a species impact statement (SIS) must be prepared in accordance with Division 2 of Part 6 of the *TSC Act.*

## Factors when deciding if an SIS is required

The following factors must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats:

a) in the case of a threatened species, whether the life cycle of the species is likely to be disrupted such that a viable local population of the species is likely to be placed at risk of extinction,
b) in the case of an endangered population, whether the life cycle of the species that constitutes the endangered population is likely to be disrupted such that the viability of the population is likely to be significantly compromised,
c) in relation to the regional distribution of the habitat of a threatened species, population or ecological community, whether a significant area of known habitat is to be modified or removed,
d) whether an area of known habitat is likely to become isolated from currently interconnecting or proximate areas of habitat for a threatened species, population or ecological community,
e) whether critical habitat will be affected,
f) whether a threatened species, population or ecological community, or their habitats, are adequately represented in conservation reserves (or other similar protected areas) in the region,
g) whether the development or activity proposed is of a class of development or activity that is recognised as a threatening process,
h) whether any threatened species, population or ecological community is at the limit of its known distribution.

## Form and content of an SIS

**Under section 110 of the TSC Act, the general requirements on the form and content of an SIS are as follows.**

### General information

1. A species impact statement must include a full description of the action proposed, including its nature, extent, location, timing and layout and, to the fullest extent reasonably practicable, the information referred to in this section.

## Information on threatened species and populations

2. A species impact statement must include the following information as to threatened species and populations:
   a) a general description of the threatened species or populations known or likely to be present in the area that is the subject of the action and in any area that is likely to be affected by the action,
   b) an assessment of which threatened species or populations known or likely to be present in the area are likely to be affected by the action,
   c) for each species or population likely to be affected, details of its local, regional and State-wide conservation status, the key threatening processes generally affecting it, its habitat requirements and any recovery plan or threat abatement plan applying to it,
   d) an estimate of the local and regional abundance of those species or populations,
   e) a general description of the threatened species or populations known or likely to be present in the area that is the subject of the action and in any area that is likely to be affected by the action,
   f) a full description of the type, location, size and condition of the habitat (including critical habitat) of those species and populations and details of the distribution and condition of similar habitats in the region,
   g) a full assessment of the likely effect of the action on those species and populations, including, if possible, the quantitative effect of local populations in the cumulative effect in the region,
   h) a description of any feasible alternatives to the action that are likely to be of lesser effect and the reasons justifying the carrying out of the action in the manner proposed, having regard to the biophysical, economic and social considerations and the principles of ecologically sustainable development,
   i) a full description and justification of the measures proposed to mitigate any adverse effect of the action on the species and populations, including a compilation (in a single section of the statement) of those measures,
   j) a list of any approvals that must be obtained under any other Act or law before the action may be lawfully carried out, including details of the conditions of any existing approvals that are relevant to the species or population.

## Information on ecological communities

3. A species impact statement must include the following information as to ecological communities:
   a) a general description of the ecological community present in the area that is the subject of the action and in any area that is likely to be affected by the action,
   b) for each ecological community present, details of its local, regional and State-wide conservation status, the key threatening processes generally affecting it, its habitat requirements and any recovery plan or any threat abatement plan applying to it,
   c) a full description of the type, location, size and condition of the habitat of the ecological community and details of the distribution and condition of similar habitats in the region,
   d) a full assessment of the likely effect of the action on the ecological community, including, if possible, the quantitative effect of local populations in the cumulative effect in the region,
   e) a description of any feasible alternatives to the action that are likely to be of lesser effect and the reasons justifying the carrying out of the action in the manner proposed, having regard to the biophysical, economic and social considerations and the principles of ecologically sustainable development,
   f) a full description and justification of the measures proposed to mitigate any adverse effect of the action on the ecological community, including a compilation (in a single section of the statement) of those measures,
   g) a list of any approvals that must be obtained under any other Act or law before the action may be lawfully carried out, including details of the conditions of any existing approvals that are relevant to the ecological community.

### Credentials of persons undertaking an SIS

4. A species impact statement must include details of the qualifications and experience in threatened species conservation of the person preparing the statement and of any other person who has conducted research or investigations relied on in preparing the statement.

### State-wide conservation status

5. The requirements of subsections (2) and (3) [above] in relation to information concerning the State-wide conservation status of any species or population, or any ecological community, are taken to be satisfied by the information in that regard supplied to the principal author of the species impact statement by the NPWS, which information that Service is by this subsection authorised and required to provide.

## Procedures for preparing an SIS

**Under Section 111 of the TSC Act, the Director-General of National Parks and Wildlife must be consulted in writing for the requirements for an SIS. These requirements must be provided within 28 days from when a request is made.**

**Because of the circumstances of the case, the Director-General of National Parks and Wildlife may limit or modify the extent of matters prescribed in section 110. In other cases if the impacts are considered to be trivial or negligible, the Director-General of National Parks and Wildlife may dispense with the requirement for an SIS to be prepared.**

**An SIS may be prepared as a separate document or incorporated in an EIS. If the SIS is separate to the EIS, it must be exhibited concurrently with the EIS.**

**The SIS must be in writing and be signed by the principal author of the document and the applicant/proponent.**

# Appendix 4. Consultation and approvals

It is the responsibility of the person preparing the EIS to determine what approvals will be required as a result of the proposal and to demonstrate that the proposal can meet all approval and licensing requirements. In preparing the EIS, consultation with relevant parties should be undertaken early in the EIA process and their comments taken into account in the EIS.

Approvals or consultation which may be required include:

**local councils** for development approvals under Part 4 of the EP&A Act and any building approval under the *Local Government Act 1993*, also for any alteration to local roads or buildings or trees of local heritage significance

**Department of Urban Affairs and Planning** for concurrence if the proposal impacts on SEPP 14 — Coastal Wetlands, SEPP 26 — Littoral Rainforest, potential or actual koala habitat under SEPP 44 — Koala Habitat Protection

**Environment Protection Authority** for air, water and noise licences, approvals and certificates of registration under relevant pollution control legislation; regulation of waste generation, transportation and disposal; licences for transport of dangerous goods under the Dangerous Goods Act; licences for chemicals subject to chemical control orders under the Environmentally Hazardous Chemicals Act

**Department of Land and Water Conservation**
Soil and Vegetation Management for information on soils; design and construction of erosion and sediment controls and rehabilitation; approvals on protected lands;
State Lands Services regarding effect of development on any Crown land; for leasing, licence, or purchase; whether the land is subject to Aboriginal land claim or Native Title legislation; if Crown Reserves and dedicated lands exist, whether the proposal is compatible with the stated public purpose;
State Water Management regarding impact on ground or surface water resources; clearing riparian vegetation; works within 40 metres of a stream;
Coastal and Rivers Management regarding flooding and coastal areas;
Water Services Policy regarding approvals under the *Local Government Act 1993*

**relevant service authorities** such as water, electricity, gas, telecommunication, drainage, flood mitigation, sewerage or other utility organisations

**National Parks and Wildlife Service** if land clearing or impacts on natural vegetation are likely, particularly in relation to the provisions of the Threatened Species Conservation Act; or if sites of Aboriginal heritage significance or land managed by the Service are likely to be affected

**NSW Fisheries** if fish or fish habitat is affected (including dredging or reclamation works, impeding fish passage, damaging marine vegetation, desnagging, use of explosives or other dangerous substances in or adjacent to a waterway which may result in fish kills)

**NSW Agriculture** if the proposal is on land with high agricultural value or will cause dislocation to the agricultural industry

**NSW Health Department** with regard to the potential health hazard caused by the operation and siting of the facility

**WorkCover** for responsibilities regarding handling of dangerous goods and hazardous substances

**Heritage Council of NSW** if the proposal is likely to affect any place or building having State heritage significance or if the proposal is affected by Interim Conservation Orders (ICO) or Permanent Conservation Orders (PCO)

**Department of Aboriginal Affairs** if the proposal is in an area of significance to the Aboriginal community

**Department of Mineral Resources** if a resource management plan applies or if the proposal is in an area of important mineral resources, concerning its responsibilities under Sydney REP No 9 — Extractive Industry, and for safety and blasting

**Mining Subsidence Board** if the proposal is in an underground mining area

**State Rail Authority (SRA)** if the proposal impacts on SRA operations

**Office of Marine Safety and Port Strategy** on any activities on navigable waters

**Roads and Traffic Authority** if the proposal is likely to result in significant traffic impacts

**State Forests of NSW** in relation to impacts on State Forests

**Department of Bushfire Services** if the area is in a location of bushfire hazard

**Catchment Management Committees or Trusts**

**Local Aboriginal Land Councils**

**relevant industry organisations**

**Commonwealth EPA,** if Commonwealth land is likely to be affected or if Commonwealth funding applies

**the owner or operator of any nearby airports and airport safety organisations.**

# Appendix 5. References

The following are some references that may be of assistance in preparing an EIS for concrete works. This list is by no means exhaustive.

APHA (1992) *Standard Methods for the Examination of Water and Wastewater including Bottom Sediments and Sludges,* 18 ed New York: American Public Health Association, American Society Water Works Association and the Water Environment Federation

Australian and New Zealand Environment and Conservation Council (ANZECC) (1992) *Australian Water Quality Guidelines for Fresh and Marine Waters*

Briggs, J.D. and Leigh, J.H. (1988) *Rare or Threatened Australian Plants,* (ROTAP) Special Publication 14, NPWS, Canberra, ACT

Cox, G. (1994) *Social Impact Assessment,* Office on Social Policy, NSW Social Policy Directorate.

Department of Planning (1992a) *Hazardous Industry Planning Advisory Paper (HIPAP) No 6 — Guidelines for Hazard Analysis,* Department of Planning, NSW

Department of Planning (1992b) *Hazardous Industry Planning Advisory Paper (HIPAP) No 4 — Risk Criteria for Land Use Safety Planning,* Department of Planning, NSW

Department of Planning (1994) *Applying SEPP 33: hazardous and offensive development application guidelines*, Department of Planning, NSW

Department of Planning (1995) *Is an EIS required? Best practice guidelines for Part 5 of the Environmental Planning and Assessment Act 1979*, Department of Planning, NSW

Environment Protection Authority (1995a) *EPA Authorised Officers Manual, Concrete Waste Guideline,* EPA, Sydney

Environment Protection Authority (1995b) *Assessing and Managing Acid Sulfate Soils,* EPA, Sydney

Environment Protection Authority (1994a) *Environmental Noise Control Manual* — Noise Control Guidelines, Concrete Batching Plants, (Chapter 168), EPA, Sydney

Environment Protection Authority (1994b) *Water Quality Investigations Manual, Preferred Methods for Sampling and Analysis (Draft),* EPA, Sydney

Gilpin, A. (1995) *Environmental Impact Assessment: Cutting Edge for the 21st Century,* Cambridge Press, Melbourne

Harden, G.J. (1990) *Flora of New South Wales,* Volumes 1–4 University Press, Sydney

James, D. and Boer, B. (1988) *Application of Economic Techniques in Environmental Impact Assessment Preliminary Report,* prepared for the Australian Environment Council

McDonald, R.C., Isbell, R.F., Speight, J.G., Walker, J. and Hopkins, M.S. (1990) *Australian Soil and Land Survey Field Handbook,* Inkata Press, Melbourne

National Health and Medical Research Council (1994) *National Framework for Environmental and Health Impact Assessment,* AGPS, Canberra

National Ready Mixed Concrete Association (NSW) Limited (1988) *Environmental Control Manual*

National Ready Mixed Concrete Association (Queensland) Limited (1993) *Environmental Management Manual for Concrete Batching Plants*

Northcote, K.H. (1979) *A Factual Key to the Recognition of Australian Soils,* CSIRO, Rellim Technical Publications, Glenside, SA

USA Environmental Protection Authority (1991) *Handbook: Groundwater Volume II Methodology (EPA 625/6-90/016b),* US Government Printing Office

York, A., Binns, D. and Shields, J. (1991) *Flora and Fauna Assessment in NSW State Forests,* Survey Guidelines, Procedures for Sampling Flora and Fauna for Environmental Impact Statements, Forestry Commission of NSW

# Appendix 6. Schedule 3 — Designated development

**This appendix is an extract from Schedule 3 of the EP&A Regulation 1994 and prescribes concrete works which are designated under Part 4 of the EP&A Act. This designation only applies to proposals which require development consent under the provisions of a planning instrument.**

**Concrete works** that produce pre-mixed concrete or concrete products and:

1) have an intended production capacity of more than 150 tonnes per day or 30,000 tonnes per annum of concrete or concrete products; or
2) are located:
   a) within 100 metres of a natural waterbody or wetlands; or
   b) within 250 metres of a residential zone or dwelling not associated with the development.

This designation of concrete works does not include concrete works located on or adjacent to a construction site exclusively providing material to the development carried out on that site:

a) for a period of less than 12 months; or
b) for which the environmental impacts were previously assessed in an environmental impact statement prepared for that development.

## Are alterations or additions designated development?

### Is there a significant increase in the environmental impacts of the total development?

1. Development involving alterations or additions to development (whether existing or approved) is not designated development if, in the opinion of the consent authority, the alterations or additions do not significantly increase the environmental impacts of the total development (that is the development together with the additions or alterations) compared with the existing or approved development.

### Factors to be taken into consideration

2. In forming its opinion, a consent authority is to consider:

a) the impact of the existing development having regard to factors including:
   i) previous environmental management performance, including compliance with:
      - conditions of any consents, licences, leases or authorisations by a public authority; and
      - any relevant codes of practice; and
   ii) rehabilitation or restoration of any disturbed land; and
   iii) the number and nature of all past changes and their cumulative effects; and
b) the likely impact of the proposed alterations or additions having regard to factors including:
   i) the scale, character or nature of the proposal in relation to the development; and
   ii) the existing vegetation, air, noise and water quality, scenic character and special features of the land on which the development is or is to be carried out and the surrounding locality; and
   iii) the degree to which the potential environmental impacts can be predicted with adequate certainty; and
   iv) the capacity of the receiving environment to accommodate changes in environmental impacts; and
c) any proposals:
   i) to mitigate the environmental impacts and manage any residual risk; and
   ii) to facilitate compliance with relevant standards, codes of practice or guidelines published by the Department of [Urban Affairs and] Planning or other public authorities.