

# Guidelines

for the preparation of a  
Public Environmental Report

## **Port Pirie Smelter Transformation (Mid North)**

Proposal by Nyrstar Port Pirie Pty Ltd

May 2013



*Development  
Assessment  
Commission*



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May 2013

### **Department of Planning, Transport and Infrastructure**

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# 1 INTRODUCTION

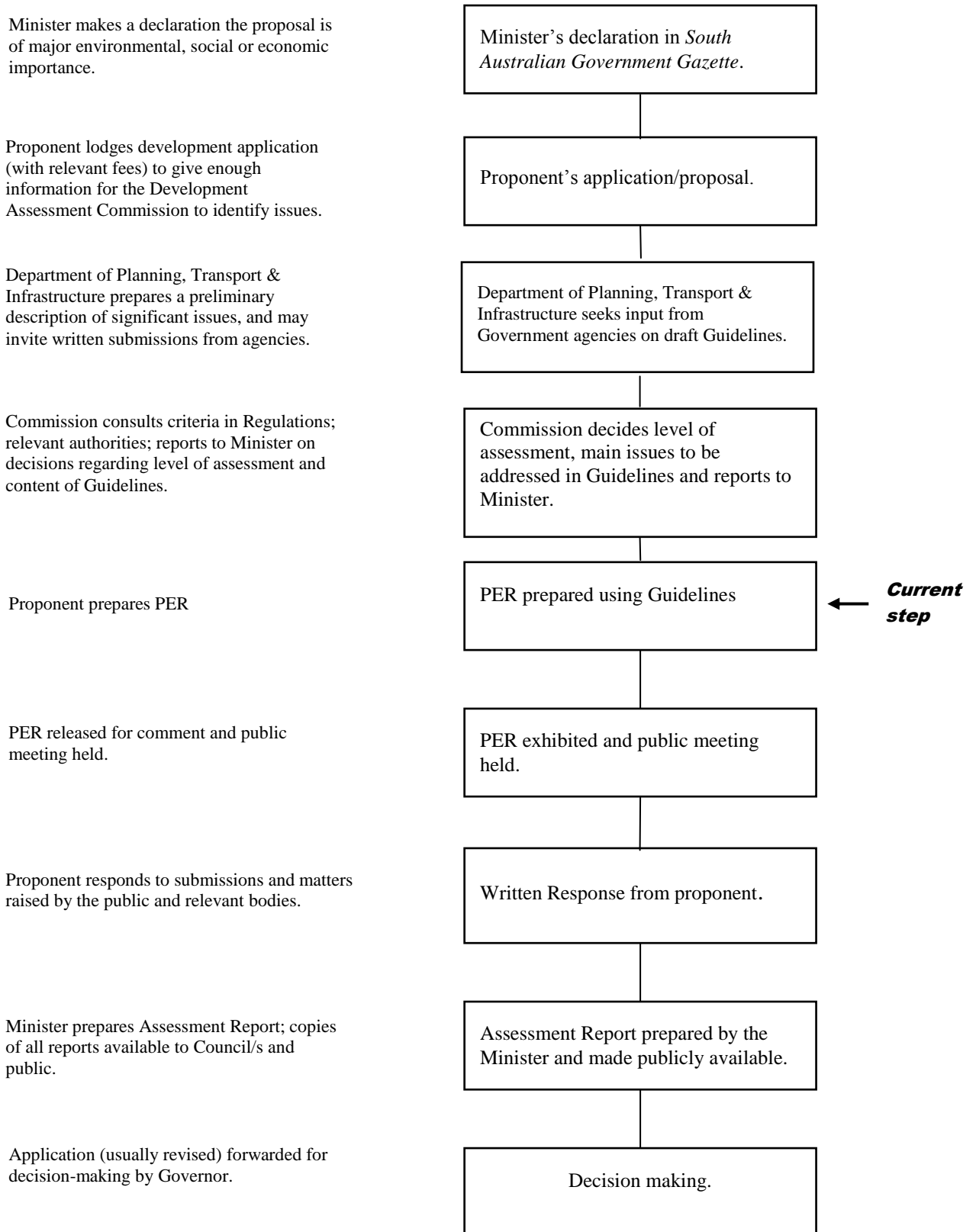
- 1.1 On 28 February 2013, the Minister for Planning ('the Minister') made a declaration in the Government Gazette for a proposed Port Pirie Smelter Transformation by to be assessed as a Major Development under the provisions of Section 46 of the *Development Act 1993*.
- 1.2 The proposed development comprises an upgrade and redevelopment of the existing sintering plant, blast furnace, acid making operations and associated infrastructure and equipment. The site is located within the existing smelter site on the northern boundary of the regional city of Port Pirie (i.e. within Port Pirie Regional Council area).
- 1.3 The Development Assessment Commission (DAC) is an independent statutory authority that has the task of determining the appropriate form of assessment for a Major Development, namely an Environmental Impact Statement (EIS); Public Environmental Report (PER) or a Development Report (DR), and setting Guidelines.
- 1.4 Following consideration of the implications of the proposal, the DAC has determined that the proposal will be subject to the processes and procedures of a Public Environmental Report (PER), as set out in Section 46C of the *Development Act 1993*. A PER was considered appropriate due to a range of issues to be investigated, including:
  - The ability to achieve proposed reductions of contaminated air emissions (especially for lead and sulphur dioxide) and the consequent benefits to public health and the environment.
  - Economic costs and benefits (including employment and investment opportunities).
  - Sustainability and climate change implications.
  - Potential temperature and salinity impacts on the coastal and marine environment (including Upper Spencer Gulf Marine Park) from the discharge of cooling water.
  - Effect on infrastructure and the community (including road and traffic impacts).
- 1.5 It should be noted the *Development Act 1993* requires a PER to be publicly exhibited for a period of at least 30 business days, and for a public meeting to be held during this period.
- 1.6 The DAC has now prepared Guidelines for the proposed Port Pirie Smelter Transformation, based on the significant issues relating to the proposed development. The PER should be prepared in accordance with these Guidelines and should describe what the proponent wants to do, what the environmental effects will be and how the proponent plans to manage the project.

- 1.7 The PER should be prepared to cover both the construction and ongoing operation of the development and, where possible, should outline opportunities to incorporate best practice design and management.
- 1.8 For the purposes of environmental impact assessment under the *Development Act 1993*, the meaning of ‘environment’ is taken to include an assessment of environmental (biological and physical), social and economic effects associated with the development and the means by which those effects can be managed.
- 1.9 An opportunity for public comment will occur when the completed PER is released for public exhibition. At that time, an advertisement will be placed in *The Advertiser* and local newspapers to indicate where the PER is available and the length of the public exhibition period. During the exhibition period, written submissions on the proposal can be made to the Minister for Planning.
- 1.10 The DAC’s role in the assessment process is now fulfilled. The Minister will continue with the assessment process under Section 46 of the *Development Act 1993* from this point. The object of Section 46 is to ensure that matters affecting the environment, the community or the economy to a significant extent are fully examined and taken into account in the assessment of this proposal.
- 1.11 The documentation and the analyses from the assessment process will then be used by the Governor in the decision-making process, under Section 48 of the *Development Act 1993*, to decide whether the proposal can be approved, and the conditions that would apply.
- 1.12 The key stages in the assessment process under the Major Developments or Projects provisions of the *Development Act 1993* are shown in Figure 1.



**FIGURE 1**

**MAJOR DEVELOPMENTS - ASSESSMENT PROCESS AND DECISION-MAKING**





## 2 BACKGROUND

- 2.1 The proponent of the proposed Port Pirie Smelter Transformation is Nyrstar Port Pirie Pty Ltd (Nyrstar).
- 2.2 Nyrstar proposes to upgrade and redevelop parts of the existing smelter plant, infrastructure and operations. If approved, the transformation project would develop the smelter into an advanced poly-metallic processing and recovery facility. The upgraded facility would also be able to meet stringent environmental standards and secure a viable long-term future for the smelter operations. It is anticipated the new technology would substantially reduce emissions (especially lead and sulphur dioxide) and improve air quality and public health within the Port Pirie Community.
- 2.3 The proposal comprises the upgrade and redevelopment of the current sintering plant, blast furnace, acid making operations (and associated infrastructure and equipment) and would involve the construction and operation of:
- A new Stage 1 Enclosed Bath Smelting Furnace system to replace the current sinter plant.
  - A new Stage 1 Oxygen Plant Facility.
  - A new Stage 2 Enclosed Bath Smelting Furnace system to replace the current blast furnace.
  - A new Sulphur capture (Acid Plant) to replace the existing acid plant.
  - Storage areas for mineral concentrate and raw materials.
  - An upgraded sea water intake cooling system and expanded cooling water discharge system.
  - Decommissioning and/or demolition of the current sinter plant, blast furnace and acid plant (and associated infrastructure).

Refer to Appendix B for a copy of the relevant plans of the proposal.

- 2.4 The DAC has determined that the proposal will be subject to the processes and procedures of a Public Environmental Report (PER), as set out in Section 46C of the *Development Act 1993*.
- 2.5 The proponent has been advised by the Minister for Planning that a Public Environmental Report is required to assist the Government in assessing the environmental, social and economic impacts of the proposal.
- 2.6 The DAC has prepared these Guidelines for the proponent based on the significant issues relating to the proposed development. These Guidelines identify the issues associated with the proposal that must be addressed in the PER.



### **3 THE PUBLIC ENVIRONMENTAL REPORT PROCESS**

- 3.1 A PER, as defined in Section 46C of the *Development Act 1993*, includes a description and analysis of issues relevant to the development and the means by which those issues can be addressed.
- 3.2 The PER should detail the expected environmental, social and economic effects of the development. The PER must consider the extent to which the expected effects of the development are consistent with the provisions of any Development Plan, the Planning Strategy and any matter prescribed by the Regulations under the Act. The PER should also state the proponent's commitments to meet conditions (if any) placed on any approval that may be given to avoid, mitigate or satisfactorily control and manage any potential adverse impacts of the development on the environment. Further to this, any other information required by the Minister must be considered.
- 3.3 In preparing the PER, the proponent should bear in mind the following aims of the PER and public review process:
  - 3.3.1 To provide a source of information from which interested individuals and groups may gain an understanding of the proposal, the need for the proposal, the alternatives, the environment that would be affected, the impacts that may occur and the measures to be taken to minimise these impacts.
  - 3.3.2 To provide a forum for public consultation and informed comment on the proposal.
  - 3.3.3 To provide a framework in which decision-makers may consider the environmental aspects of the proposal in parallel with social, economic, technical and other factors.
- 3.4 Following the release of the Guidelines adopted by the DAC:
  - 3.4.1 The PER must be prepared by the proponent in accordance with these Guidelines.
  - 3.4.2 The PER is referred to the Port Pirie Regional Council and to any prescribed authority or body, and to other relevant authorities or bodies for comment.
  - 3.4.3 Public exhibition of the PER document by advertisement is undertaken for a least 30 business days. Written submissions are invited.
  - 3.4.4 A public meeting is held in the locality by the Department of Planning, Transport and Infrastructure (Planning Division) during the period for making submissions, in order to provide information on the development or project, to explain the PER document and processes, and to assist interested persons to make submissions under the Act.

- 3.4.5 Copies of the submissions from the public, Council and other relevant agencies will be given to the proponent (Nyrstar) soon after closing of the public comment period.
- 3.4.6 The proponent must then prepare a written response in a ‘Response Document’ to the matters raised by a Minister, Council, any prescribed or specified authority or body and the public. The proponent is nominally given two months to provide this to the Minister.
- 3.4.7 The Minister then prepares an Assessment Report, taking into account any submissions and the proponent’s response to them. Comments from any other authority or body may be considered as the Minister thinks fit.
- 3.4.8 The Assessment Report and the Response Document are to be kept available for inspection and purchase at a place and period determined by the Minister. Availability of each of these documents will be notified by advertisements in *The Advertiser* newspaper and local press.
- 3.4.9 Copies of the PER, the Response Document and the Assessment Report will be given to the Port Pirie Regional Council for distribution purposes.
- 3.4.10 The Governor is the relevant decision maker under Section 48 of the Act, when a development application is subject to the PER process.
- 3.4.11 In arriving at a decision, the Governor must have regard to:
- The provisions of the appropriate Development Plan and Regulations.
  - If relevant, the Building Rules.
  - The Planning Strategy.
  - The PER, Response Document and Assessment Report.
  - If relevant, the *Environment Protection Act 1993*.
  - If relevant, the objects of the *River Murray Act 2003* and any obligations under the Murray-Darling Basin Agreement.
  - If relevant, the objects of the *Adelaide Dolphin Sanctuary Act 2005*.
  - If relevant, the objects of the *Marine Parks Act 2007*.
- 3.5 The Governor can at any time, and prior to completion of the assessment process, determine that the development will not be granted authorisation. This may occur if it is clear that the development is inappropriate or cannot be managed properly. This is commonly referred to as an “early no”.

## **4 THE PUBLIC ENVIRONMENTAL REPORT DOCUMENT**

- 4.1 The Guidelines set out the major issues associated with the proposal and their degree of significance, as determined by the Development Assessment Commission. It describes each issue and then outlines the way that these issues should be dealt with in the Public Environmental Report.
- 4.2 In these Guidelines the terms “description” and other similar terminology should be taken to include both quantitative and qualitative materials as practicable and meaningful. Similarly, adverse and beneficial effects should be presented in quantitative and/or qualitative terms as appropriate.
- 4.3 The main text of the PER should be clear and precise and presented in terms that are readily understood by the general reader. Technical details should be included in the appendices so that the PER forms a self-contained entity.
- 4.4 The document should give priority to the major issues associated with the proposal. Matters of lesser concern should be dealt with only to the extent required to demonstrate that they have been considered to assist in focussing on the major issues.
- 4.5 The following should be included in the PER:

### **4.5.1 SUMMARY**

The PER should include a concise summary of the matters set out in section 46C of the *Development Act 1993* and include all aspects covered under the headings set out in the Guidelines below, in order for the reader to obtain a quick but thorough understanding of the proposal and the resulting environmental impacts.

### **4.5.2 INTRODUCTION**

The introduction to the PER should briefly cover the following:

- Background to, and objectives of, the proposed development.
- Details of the proponent.
- Staging and timing of the proposal, including expected dates for construction and operation.
- Relevant legislative requirements and approval processes.
- Purpose and description of the PER process.

### **4.5.3 NEED FOR THE PROPOSAL**

- The specific objectives that the proposal is intended to meet, including market requirements and environmental

standards.

- Expected local, regional and state benefits and costs, including those that cannot be adequately described in monetary or physical terms (eg. effects on aesthetic amenity).
- A summary of environmental, economic and social arguments to support the proposal, including the consequences of not proceeding with the proposal.

#### **4.5.4 DESCRIPTION OF THE PROPOSAL**

The description of the proposal should include the following information:

- The nature of the proposal and location (including a description of the principal processing plants and likely emissions).
- Land tenure and ownership details (or leasing arrangements) for all land parcels likely to be affected by the proposal (including off-site infrastructure).
- A project plan to outline objectives, constraints, key activity schedule and quality assurance.
- Site layout plans (including an indicative land division plan if relevant).
- The construction and commissioning timeframes (including staging).
- A description of the existing environment (including the immediate and broader location).
- Details of all buildings and structures associated with the proposed development (including decommissioning and demolition of existing buildings, plant and infrastructure).
- Any other infrastructure requirements and availability.
- Details on the operation of the proposed development.
- The relevant Development Plan zones.
- Management arrangements for the construction and operational phases (including Environmental Management and Monitoring Plans).

4.6 The PER must include the following:

##### **4.6.1 ASSESSMENT OF EXPECTED ENVIRONMENTAL, SOCIAL AND ECONOMIC EFFECTS**

The assessment of effects should include all issues identified in Section 5 of these Guidelines and cross referenced to supporting technical references.

##### **4.6.2 CONSISTENCY WITH GOVERNMENT POLICY**



The *Development Act 1993* requires the PER to state the consistency of the expected effects of the proposed development with the relevant Development Plan and Planning Strategy (i.e. Region Plan).

#### **4.6.3 AVOIDANCE, MITIGATION, MANAGEMENT AND CONTROL OF ADVERSE EFFECTS**

The proponent's commitment to meet conditions proposed to avoid, mitigate, satisfactorily manage and/or control any potentially adverse impacts of the development on the physical, social or economic environment, must be clearly stated as part of the PER.

The design of the proposal should be flexible enough to incorporate changes to minimise any impacts highlighted by this evaluation or by post-operation monitoring programs.

4.7 The PER should also provide the following additional information:

##### **4.7.1 SOURCES OF INFORMATION**

The sources of information (e.g. reference documents, literature services, research projects, authorities consulted) should be fully referenced, and reference should be made to any uncertainties in knowledge. Where judgments are made, or opinions given, these will need to be clearly identified as such, and the basis on which these judgments or opinions are made will need to be justified. The expertise of those making the judgments including the qualifications of consultants and authorities should also be provided.

##### **4.7.2 APPENDICES**

Technical and additional information relevant to the PER that is not included in the text should be included in the appendices (maps, graphs, tables, photographs, reports etc). A glossary may also be appropriate.

##### **4.7.3 OTHER**

Appropriate plans, drawings and elevations are needed for a decision to be made. As much information as possible is required of the design and layout of the proposal.



## 5 THE MAIN ISSUES

### 5.1 PLANNING AND ENVIRONMENTAL LEGISLATION AND POLICIES

- 5.1.1 Describe the proposal's consistency with and/or variance from the relevant Development Plan, Planning Strategy and *South Australia's Strategic Plan*.
- 5.1.2 Describe the relevant requirements of the *Environment Protection Act 1993* and associated policies, guidelines and licensing matters (including the current Environmental Improvement Program), and how these will be addressed.
- 5.1.3 Consider relevant international and national health related policies, guidelines and recommendations (especially for lead and sulphur dioxide).
- 5.1.4 Describe the relevant requirements of the *Marine Parks Act 2007* and the *Upper Spencer Gulf Marine Park Management Plan 2012*, including associated zoning and management priorities/strategies, and how these will be addressed.
- 5.1.5 Consider relevant protocols, agreements and strategies including: *Tackling Climate Change, SA's Greenhouse Strategy 2007 – 2020*, the *Climate Change and Greenhouse Emissions Reduction Act 2007* and the *National Greenhouse and Energy Reporting Act 2007* (Cwlth).
- 5.1.6 Identify legislative requirements and the range of approvals needed to complete the proposed development.
- 5.1.7 In considering the relevant Development Plan, the implications of the proposal for the surrounding community should also be addressed.
- 5.1.8 Detail any other relevant plans or studies that relate to the area.

### 5.2 NEED FOR THE PROPOSAL

- 5.2.1 Justify the rationale for the proposal from an economic, social, environmental and sustainability perspective, including the reasons for its proposed location, scale and staging.
- 5.2.2 Assess the “do nothing” option, especially implications for site operations and EPA licensing if the upgrading and expansion is not undertaken at the existing site (including decommissioning and site rehabilitation).

- 5.2.3 In assessing the “do nothing” option, consideration should be given to the longer term implications should the proposal not proceed and smelter activities cease.
- 5.2.4 Outline current and predicted supply and demand for finished products.
- 5.2.5 Provide justification for the process technology proposed and the strengths and weaknesses relative to alternative technologies.

### 5.3 EFFECTS ON COMMUNITIES

- 5.3.1 Describe the community consultation process to date, its outcomes and any strategies for the future (including identification of key stakeholders likely to have an interest in the proposal).
- 5.3.2 Describe the proximity to dwellings and any sensitive land uses and identify the expected changes and impacts (especially improvements) on residents, particularly from odour, noise, dust and atmospheric contaminants (especially lead and sulphur dioxide levels).
- 5.3.3 Describe the impact on local and regional marine uses, such as commercial and recreational fishing, aquaculture and charter boat operations, including any effects of access loss due to increased shipping traffic and anchorages.
- 5.3.4 Outline the likely size and composition of the construction workforce and other employees, how accommodation requirements would be met and employment opportunities for the local community.
- 5.3.5 Detail opportunities for local Aboriginal vocational training and employment.
- 5.3.6 Outline the impact on existing social infrastructure and services, especially health and education.
- 5.3.7 Describe the impact of the proposal on existing visual amenity, including the effects of the built form of structures, raw materials handling and storage.

#### ***Human Health Issues***

- 5.3.8 Provide a human health impact assessment to identify any known or potential human health effects of emissions (including the cumulative effects from the existing Nyrstar operations). Identify all exposure pathways and any uncertainties in knowledge. Outline the potential physical and psychological health effects of emissions on the residential population and local businesses and describe how these would be managed.

- 5.3.9 Document all likely emissions (both short-term and long-term), and likely air concentrations and their impact from deposition or as airborne pollutants in both occupational and residential settings.
- 5.3.10 Consider human health issues from maximum likely exposures under various short-term conditions, and time weighted average exposure scenarios.
- 5.3.11 Describe likely routes of all emissions, via air, water and soil and likely exposures to populations.
- 5.3.12 Provide the results of appropriate dispersion modelling studies of atmospheric emissions taking into account local conditions (including pollutant loads and climatic conditions) and possible failure or incomplete operation of emission control mechanisms (i.e. for both 'normal' and 'plant upset' conditions). Reference should be made to methodological and data assumptions and confidence intervals of results. The information should be correlated with existing monitoring results.
- 5.3.13 Document risk assessment procedures and proposed management plans to address risks identified.
- 5.3.14 Describe the procedures for monitoring and responding to identified impacts on air quality and human health.

### ***Traffic and Transport***

- 5.3.15 Detail the traffic and transport implications for both construction and operational phases (including road, rail and sea transport) and the potential impacts on the community and other transport network users.
- 5.3.16 Detail any infrastructure improvements that would be required to provide safe and efficient transport and access. Information on predicted volumes/frequencies for all transport types and traffic peaks should be included.
- 5.3.17 Describe access arrangements for the delivery and unloading of construction and operational materials (especially the range of plant feed stocks). In particular, the proponent must seek to maximise the safety and efficiency of any access serving the site and ensure compliance with the relevant standards and guides.
- 5.3.18 Describe how the transport of finished product will be achieved.
- 5.3.19 Describe transport options for plant and equipment to/from the site, including construction components built off-site (especially oversized loads). In particular, the proponent should address safety and transport efficiency along any haul route including, but not limited to, arterial roads and rail lines (paying particular attention

to safety and efficiency at the level crossings within the Port Pirie township).

5.3.20 Describe how safe and efficient access to/from the site would be ensured if mineral export operations using the existing wharf increase (including the capacity of level crossings within Port Pirie to sustain extra movements).

5.3.21 Describe car parking provisions for staff and visitors.

#### 5.4 RISK/HAZARD MANAGEMENT

5.4.1 Detail the design criteria, risk assessment protocols and management measures to be adopted to prevent further site contamination (including groundwater) during construction and operation, including potential acid sulphate soils.

5.4.2 Describe plant operations, start-up and shutdown issues, and the transport, unloading, storage, handling and use of hazardous materials.

5.4.3 Identify and quantify the risks/hazards, especially those associated with the unloading, storage and use of hazardous materials.

5.4.4 Describe procedures and strategies to prevent, manage and mitigate pollution spills or leaks.

5.4.5 Describe the proposed storage arrangements for hazardous materials and dangerous substances (including any associated fire protection facilities).

5.4.6 Evaluate the potential effects of any accidents involving dangerous substances on the environment and public health in the vicinity of the site.

5.4.7 Evaluate the risk of fire or explosion at the site and any potential impacts on human health and to the environment.

5.4.8 Detail the designation of risk zones, their management and implications for on-site planning and land use.

5.4.9 Evaluate the potential and implications of any seismic risks.

5.4.10 Identify the flooding risk to the site and operations from coastal inundation and extreme rainfall events, including climate change effects (especially sea level rise).

5.4.11 Identify and evaluate any risks and hazards associated with the plant, using the *Australian Standard AS/NZS4360 Risk Management* as a basis for the risk assessment. This should

include an initial qualitative risk analysis, followed by a quantitative risk assessment as appropriate.

5.4.12 Document the assumptions, methodologies, data sources and results used in the risk assessment.

5.4.13 Describe strategies for ensuring public safety during construction.

5.4.14 Describe how security of the site would be ensured (especially for hazardous materials).

## 5.5 ENVIRONMENTAL ISSUES

### *Sustainability and Climate Change*

5.5.1 Describe the sustainable objectives of the proposal and the approach and methodology used to achieve these objectives.

5.5.2 Describe design guidelines for all aspects of the proposal (including transport options) that would be adopted to ensure sustainability.

5.5.3 Describe the means by which the sustainability of the proposal will be audited.

5.5.4 Provide a process flow diagram for all production processes to be used, showing inputs and outputs in the form of raw materials, products, waste and emissions.

5.5.5 Provide a heat and mass balance for all production processes to be used, showing major uses of energy and opportunities for efficiency gains.

5.5.6 Outline waste management strategies (for both the construction and operational phases) that will be adopted and the potential for incorporating recycling and resource recovery, particularly the waste hierarchy principles of avoidance, reduction, reuse and recycling or recovery (i.e. as detailed in the *South Australia's Waste Strategy 2011-2015*).

5.5.7 Describe how process wastes generated by the proposal will be treated and disposed.

5.5.8 Outline measures to minimise or reduce materials and resources used.

5.5.9 Describe the provision of an adequate power supply for the proposed development and include information on the amount of power required.

5.5.10 Identify ways in which power use can be minimised or supplemented, especially using alternative energy sources, energy

efficiency measures and energy conservation.

- 5.5.11 Examine the potential cumulative effects of climate change from a risk management perspective, including adaptive management strategies, as an effect in addition to the impacts from the development and its operations.
- 5.5.12 Identify all sources and levels of greenhouse gas emissions that would be generated and climate change implications, including those from transport and the operation of the plant and infrastructure.
- 5.5.13 Detail the quantity of fossil fuels likely to be burnt and estimate the tonnage of CO<sub>2</sub> emitted to the atmosphere by the proposal (both annually and for the life of the complex).
- 5.5.14 Describe measures to minimise, reduce and ameliorate greenhouse gas emissions (particularly the use of alternative or renewable energy sources and off-sets) and identify barriers to implementation.

### ***Emissions***

- 5.5.15 Identify the likely routes and fate of all potential emissions via air, water and soil.
- 5.5.16 Undertake appropriate dispersion modelling of atmospheric noxious, hazardous or environmentally damaging emissions (including fumes, dust and other particulate matter), taking into account local conditions and possible failure or incomplete operation of emission control measures. Reference should be made to methodologies used and assumptions and confidence intervals of results. Describe the results with reference to the current *National Environmental Protection Measure (NEPM) for Ambient Air Quality*, European and United States standards for airborne lead and sulphur dioxide, accounting for process and fugitive emissions.
- 5.5.17 Detail the extent to which emissions can be contained and managed within the appropriate statutory limits, including in the event of controls failure. Describe how the proposed measures relate to world best practice, including proposed control measures and the type of equipment to be used and their efficiency.
- 5.5.18 Describe the objectives and practical measures to be adopted for protecting environmental values for air quality, including how nominated quantitative standards and indicators would be achieved and how the achievement of the objectives would be monitored, audited and managed. The origins, quantities and composition of airborne emissions from construction, operation and decommissioning should be addressed.
- 5.5.19 Provide details of expected hazardous or environmentally



damaging emissions to the atmosphere from stacks and fugitive sources, including a list of chemical species and their concentrations in the emissions. Reference should be made to the *Environment Protection (Air Quality) Policy 1994*, the *Environment Protection (National Pollutant Inventory) Policy 2008*, the *EPA Guideline for Air Quality Impact Assessment Using Design Ground Level Pollutant Concentrations* and the *National Environmental Protection Measure (NEPM) for Ambient Air Quality*. Emission levels should also be discussed in relation to those that trigger reporting thresholds under the National Pollutant Inventory (NPI).

- 5.5.20 Describe what stockpiles will be on-site and how they will be managed to prevent dust generation.
- 5.5.21 Identify significant noise and vibration sources (for both construction and operational phases) and predict levels at sensitive receivers for comparison against relevant regulations, such as the *Environment Protection (Noise) Policy 2007*. If predicted noise levels do not meet relevant criteria, describe noise mitigation measures or operational methodologies which will be used to meet noise criteria.
- 5.5.22 Detail the extent to which noise emissions and vibration can be reduced and contained to minimise effects upon the wider locality (such as via building design and materials or construction and demolition/decommissioning practices).

### ***Coastal and Marine***

- 5.5.23 Describe all ecological assets and current levels of disturbance or contamination in the wider locality surrounding the site.
- 5.5.24 Describe the impacts of the development (for both construction and operational phases) on the coastal and marine environment on and around the site (including all estuarine, coastal and marine flora and fauna communities) and proposed mitigation measures to be adopted. In particular, taking account of the combined effects of any changes to surface water flows, groundwater movements/discharges and cooling water discharges (including any synergistic effects of climate change on the temperature and pH of receiving waters). Impacts from the construction of the new cooling water intake caisson and decommissioning of the existing intake must also be considered.
- 5.5.25 Describe the requirements for the increased intake and discharge of cooling water, including any alternative cooling water treatment and discharge methods (such as to land or for reuse).
- 5.5.26 Detail the water quality characteristics of the receiving environment for the cooling water discharges (including currents, tides, temperature, nutrients, pollutants and turbidity).

- 5.5.27 Describe the water temperature and salinity regime in Spencer Gulf and the impacts of cooling water discharges on the marine environment. Hydrodynamic modelling should be undertaken to determine the mixing and dispersion behaviour of the discharge water. In particular, quantify the exposure and potential for impacts on sensitive or significant species and communities (including reference to the significant Marine Park Zones in the region). Examine options for the location and design of the inlets and outlets for the cooling water circuit, in order to maximise dilution with ambient water and avoid sensitive areas.
- 5.5.28 Describe the effects of the proposed increase in cooling water discharge on the physical environment (especially erosion, scouring and sedimentation) and proposed mitigation measures to be adopted.
- 5.5.29 Quantify the impacts of constituents and concentrations of the cooling water discharge (including chemical additives) on the coastal and marine environment.
- 5.5.30 Describe the impact of increased intake of cooling water, especially entrainment and entrapment of marine organisms and extraction of water from the Port Pirie River estuary.
- 5.5.31 Describe the impact on water quality from the deposition of airborne heavy metals, particulates and sulphur dioxide.
- 5.5.32 Describe the potential for any discharge, runoff or dust from unloading/loading activities or stockpiles to trigger plankton or algal blooms in the coastal or marine environment.
- 5.5.33 Describe the effect of the development (for both construction and operational phases) on the Upper Spencer Gulf Marine Park.
- 5.5.34 Describe the impacts of any increased shipping activity (vessel movements and anchorage) on the Port Pirie River estuary and the Spencer Gulf, including the values of the Upper Spencer Gulf Marine Park. In particular, the impact of vessels with a large draught on the river and sea bed should be considered (especially the potential for sediment mobilisation), along with any changes in invasive species risk (especially for any ballast water discharges).

#### ***Native Vegetation and Native Fauna***

- 5.5.35 Quantify and detail the extent, condition and significance of terrestrial, coastal and marine native vegetation (individual species and communities, including those listed under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999* and the South Australian *National Parks and Wildlife Act 1972*) that will need to be cleared or disturbed during construction (including ancillary clearance for infrastructure) or operation (including from emissions). The ability of communities or individual species to

recover, regenerate or be rehabilitated should also be considered..

- 5.5.36 Identify measures to minimise and mitigate terrestrial, coastal and marine native vegetation clearance (including disturbance) and to compensate for the loss of native vegetation and habitat particularly any significant environmental benefit that is required, by the *Native Vegetation Act 1991*. It should be noted that the death/decline of native vegetation by emissions, hydrological changes or other activities associated with development is considered 'clearance' under the Act.
- 5.5.37 Describe the extent of fauna and/or habitat loss or disturbance during the construction and operation phases (both on and around site) and the ability of communities and individual species to recover, especially for threatened or significant species (including those listed under the Environment Protection and Biodiversity Conservation Act and the National Parks and Wildlife Act) and ecological communities (i.e. recognising that some at risk marine species may not be listed).
- 5.5.38 Outline the effect of noise emissions, vibration and light pollution during construction and operation on terrestrial, coastal and marine native fauna, especially nocturnal species.
- 5.5.39 Identify impact avoidance, minimisation and mitigation measures and their effectiveness.

### ***Physical Environment***

- 5.5.40 Describe the known existing surface water, groundwater and land related environmental conditions (including consideration of existing site contamination and any interaction between ground and surface water and the coastal and marine environment).
- 5.5.41 Describe any potential changes to hydrology (with reference to drainage patterns and groundwater characteristics), including any improvements or stabilisation of current groundwater pollution levels.
- 5.5.42 Detail the measures to be taken to manage and monitor any surface water and groundwater resources, including measures to mitigate surface and groundwater contamination and measures to manage and monitor current areas of contaminated groundwater to prevent its movement beyond the site boundary.
- 5.5.43 Identify impact avoidance, minimisation and mitigation measures and their effectiveness.

### ***Water***

- 5.5.44 Describe the provision of an adequate water supply for the proposed development and include information on the quantity and

quality of water required (including the storage of any type of water both above ground and below).

- 5.5.45 Describe the approach to water sustainability, including ways in which water supply use can be minimised or supplemented (including the use of rainwater) and opportunities for reducing water use and for recycling water, including, but not limited to, stormwater.
- 5.5.46 Outline the measures proposed to manage stormwater runoff and drainage from hard surfaces which are not being used for harvesting water supply (including measures to treat contaminated stormwater).

### ***General***

- 5.5.47 Detail the design criteria and risk assessment protocols to be adopted to ensure buildings, structures and plant are suitably designed, operated and maintained to avoid corrosion, failure or malfunction (ie. meet required performance standards).
- 5.5.48 Describe the existing environmental conditions, including existing levels of all significant pollutants that are emitted by the current Nyrstar operations.

### ***Management and Monitoring***

- 5.5.49 Outline measures to predict, detect, manage and rehabilitate impacts on the terrestrial, coastal and marine environment.
- 5.5.50 Describe how the spread of terrestrial, coastal and marine pest plants and animals within and around the site (including First Creek, the Port Pirie River and Spencer Gulf) would be avoided, minimised and managed.
- 5.5.51 Describe all the monitoring measures, reporting regimes and audits that would be adopted to manage environmental impacts.
- 5.5.52 Detail what will be included in an environmental management and monitoring plan, for both construction and operational activities for all components of the development.

## **5.6 ECONOMIC ISSUES**

- 5.6.1 Provide a full economic analysis of the proposal including the long-term economic viability of the development.
- 5.6.2 Identify employment and investment opportunities, including the “multiplier effect”.
- 5.6.3 Evaluate the potential for the proposal to attract and enhance

business operations of other industries and commercial ventures, including downstream users of end products or by-products.

- 5.6.4 Identify the economic effect the construction and on-going workforce would have locally and regionally, including preparing a South Australian Industry Participation Plan.

## 5.7 EFFECTS ON INFRASTRUCTURE REQUIREMENTS

- 5.7.1 Outline the requirements for an adequate supply and the location of distribution networks for gas, electricity, water, sewerage, stormwater management, communications systems and roads.
- 5.7.2 Detail the extent to which the facility will generate the need for upgraded infrastructure beyond the site boundaries.
- 5.7.3 Describe the impact the development will have on the existing Port Pirie regional city, including the need for infrastructure upgrading, or alternative systems to which the development will connect.
- 5.7.4 Outline opportunities to incorporate best practice infrastructure design.
- 5.7.5 Detail emergency services arrangements.

## 5.8 CONSTRUCTION AND OPERATIONAL EFFECTS

- 5.8.1 Provide a site construction plan and outline strategies to minimise effects on the local environment.
- 5.8.2 Outline the timing of construction and the time of year it is likely to occur.
- 5.8.3 Provide information about the transport and storage of construction materials to minimise effects on the local environment.
- 5.8.4 Outline proposed traffic mitigation and management measures for the construction phase, particularly the impact on local and arterial roads in terms of road safety, traffic routes and hours of activity.
- 5.8.5 Identify the measures for the control of dust, vibration, noise, litter and other emissions during construction and operation.
- 5.8.6 Describe the construction and operation of chemical storage facilities and plant feedstock stockpiles. In particular, materials handling, storage bay design, shed enclosures, bunding, drainage, and the handling and recovery of spills and emergencies. The site plan should clearly identify storage areas, with estimated quantities.
- 5.8.7 Identify all types of solid and liquid waste types (especially

contaminated waste) that would be created or required to be disposed from the site and their management during construction and operation.

- 5.8.8 Describe the design and operational measures to prevent stormwater and other run-off from affecting the coastal and marine environment during both construction and operation.
- 5.8.9 Outline management controls for construction activities to minimise social and environmental impacts.
- 5.8.10 Identify any known adverse impacts that have arisen in respect of similar and like industrial plants and, if applicable to the proposed upgrading and expansion, how they would be avoided or mitigated.
- 5.8.11 Describe how the existing operations will be conducted during the construction phase.
- 5.8.12 Describe the implementation of environmentally acceptable work practices and monitoring programs.
- 5.8.13 Detail the proposed monitoring of impacts during and after construction, including reporting and auditing measures.
- 5.8.14 Describe the construction process (including piling process), risk assessment protocols and management measures to be adopted to prevent migration of existing groundwater contamination.

## 5.9 DECOMMISSIONING AND TRANSITIONAL ARRANGEMENTS

- 5.9.1 Outline the management and scheduling measures that will be undertaken during site preparation and decommissioning/demolition activities, including the removal of contaminated materials and the assessment and management of this material and any remaining contamination.
- 5.9.2 Outline the transitional arrangements from decommissioning the old plant and commissioning the upgraded and expanded plant, including contingency plans.
- 5.9.3 Outline likely decommissioning and rehabilitation plans for the site, including timing.

## 5.10 NATIVE TITLE AND CULTURAL HERITAGE

- 5.10.1 Identify the effect on any Indigenous sites of archaeological, anthropological or other significance under the *Aboriginal Heritage Act 1988*, including any sites listed in the Register of the National Estate and the SA Register of Aboriginal Sites and Objects, or identified after consultation with Aboriginal councils or groups.

- 5.10.2 Detail measures to ensure compliance with the *Aboriginal Heritage Act 1988*.
- 5.10.3 Identify any Native Title issues in respect of the requirements of the *Native Title Act 1993* (Cwlth) and the *Native Title Act 1994* (SA).
- 5.10.4 Identify the impact on the heritage significance of any known heritage place, on or adjacent the site, entered on the South Australian Heritage Register under the *Heritage Places Act 1993*.





## **6 AVAILABILITY OF GUIDELINES**

### **6.1 Copies of the Guidelines will be made available at the following locations:**

Department of Planning, Transport and Infrastructure  
5th Floor Public Counter  
136 North Terrace  
Adelaide SA 5000

Port Pirie Regional Council  
115 Ellen Street  
PORT PIRIE SA 5540

Electronic copies can also be downloaded from the following web sites:

[www.dac.sa.gov.au](http://www.dac.sa.gov.au)

[www.sa.gov.au](http://www.sa.gov.au)



## APPENDIX A

### *Development Act 1993, Section 46C—PER process—Specific provisions*

- (1) This section applies if a PER must be prepared for a proposed development or project.
- (2) The Minister will, after consultation with the proponent—
  - (a) require the proponent to prepare the PER; or
  - (b) determine that the Minister will arrange for the preparation of the PER.
- (3) The PER must be prepared in accordance with guidelines determined by the Development Assessment Commission under this subdivision.
- (4) The PER must include a statement of—
  - (a) the expected environmental, social and economic effects of the development or project;
  - (b) the extent to which the expected effects of the development or project are consistent with the provisions of—
    - (i) any relevant Development Plan; and
    - (ii) the Planning Strategy; and
    - (iii) any matters prescribed by the regulations;
  - (c) if the development or project involves, or is for the purposes of, a prescribed activity of environmental significance as defined by the *Environment Protection Act 1993*, the extent to which the expected effects of the development or project are consistent with—
    - (i) the objects of the *Environment Protection Act 1993*; and
    - (ii) the general environmental duty under that Act; and
    - (iii) relevant environment protection policies under that Act;
  - (ca) if the development or project is to be undertaken within the Murray-Darling Basin, the extent to which the expected effects of the development or project are consistent with—
    - (i) the objects of the *River Murray Act 2003*; and
    - (ii) the *Objectives for a Healthy River Murray* under that Act; and
    - (iii) the general duty of care under that Act;
  - (cb) if the development or project is to be undertaken within, or is likely to have a direct impact on, the Adelaide Dolphin Sanctuary, the extent to which the expected effects of the development or project are consistent with—
    - (i) the objects and objectives of the *Adelaide Dolphin Sanctuary Act 2005*; and
    - (ii) the general duty of care under that Act;

- (cc) if the development or project is to be undertaken within, or is likely to have a direct impact on, a marine park, the extent to which the expected effects of the development or project are consistent with—
    - (i) the prohibitions and restrictions applying within the marine park under the *Marine Parks Act 2007*; and
    - (ii) the general duty of care under that Act;
  - (d) the proponent's commitments to meet conditions (if any) that should be observed in order to avoid, mitigate or satisfactorily manage and control any potentially adverse effects of the development or project on the environment;
  - (e) other particulars in relation to the development or project required—
    - (i) by the regulations; or
    - (ii) by the Minister.
- (5) After the PER has been prepared, the Minister—
- (a) —
    - (i) must, if the PER relates to a development or project that involves, or is for the purposes of, a prescribed activity of environmental significance as defined by the *Environment Protection Act 1993*, refer the PER to the Environment Protection Authority; and
    - (ia) must, if the PER relates to a development or project that is to be undertaken within the Murray-Darling Basin, refer the PER to the Minister for the River Murray; and
    - (ib) must, if the PER relates to a development or project that is to be undertaken within, or is likely to have a direct impact on, the Adelaide Dolphin Sanctuary, refer the PER to the Minister for the Adelaide Dolphin Sanctuary; and
    - (ib) must, if the PER relates to a development or project that is to be undertaken within, or is likely to have a direct impact on, a marine park, refer the PER to the Minister for Marine Parks; and
    - (ii) must refer the PER to the relevant council (or councils), and to any prescribed authority or body; and
    - (iii) may refer the PER to such other authorities or bodies as the Minister thinks fit,

for comment and report within the time prescribed by the regulations; and
  - (b) must ensure that copies of the PER are available for public inspection and purchase (during normal office hours) for at least 30 business days at a place or places determined by the Minister and, by public advertisement, give notice of the availability of copies of the PER and invite interested persons to make written submissions to the Minister on the PER within the time determined by the Minister for the purposes of this paragraph.
- (6) The Minister must appoint a suitable person to conduct a public meeting during the period that applies under subsection (5)(b) in accordance with the requirements of the regulations.

- (7) The Minister must, after the expiration of the time period that applies under subsection (5)(b), give to the proponent copies of all submissions made within time under that subsection.
- (8) The proponent must then prepare a written response to—
  - (a) matters raised by a Minister, the Environment Protection Authority, any council or any prescribed or specified authority or body, for consideration by the proponent; and
  - (b) all submissions referred to the proponent under subsection (7),and provide a copy of that response to the Minister within the time prescribed by the regulations.
- (9) The Minister must then prepare a report (an *Assessment Report*) that sets out or includes—
  - (a) the Minister's assessment of the development or project; and
  - (b) the Minister's comments (if any) on—
    - (i) the PER; and
    - (ii) any submissions made under subsection (5); and
    - (iii) the proponent's response under subsection (8); and
  - (c) comments provided by the Environment Protection Authority, a council or other authority or body for inclusion in the report; and
  - (d) other comments or matter as the Minister thinks fit.
- (10) The Minister must, by public advertisement, give notice of the place or places at which copies of the Assessment Report are available for inspection and purchase.
- (11) Copies of the PER, the proponent's response under subsection (8), and the Assessment Report must be kept available for inspection and purchase at a place determined by the Minister for a period determined by the Minister.
- (12) If a proposed development or project to which a PER relates will, if the development or project proceeds, be situated wholly or partly within the area of a council, the Minister must give a copy of the PER, the proponent's response under subsection (8), and the Assessment Report to the council.

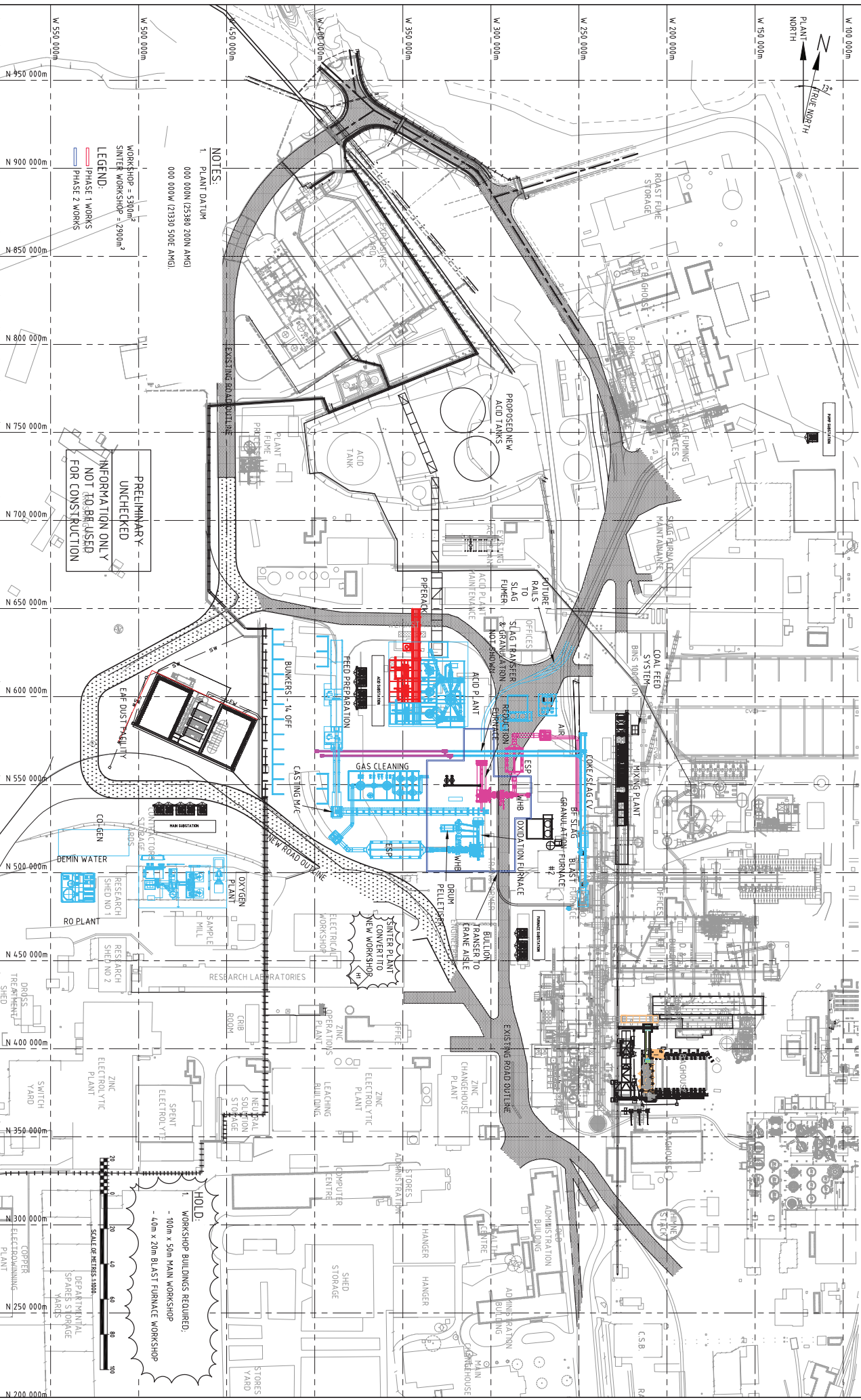
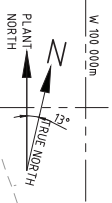


## **APPENDIX B**

### **Relevant Plans of the Proposal**







**NOTES:**  
 1. PLANT DATUM  
 000 000N (25380 200N ANG)  
 000 000W (2330 500E ANG).

WORKSHOP = 5300m<sup>2</sup>  
 SINTER WORKSHOP = 29300m<sup>2</sup>

**LEGEND:**  
 NOT TO BE USED FOR CONSTRUCTION  
 PHASE 1 WORKS  
 PHASE 2 WORKS

PRELIMINARY UNCHECKED INFORMATION ONLY NOT TO BE USED FOR CONSTRUCTION

NEW ROAD OUTLINE  
 BUNKERS - 1% OFF  
 CASTING M/C

RO PLANT  
 DEMIN WATER  
 CO-GEN  
 RESEARCH SHED NO 1  
 RESEARCH SHED NO 2

RESEARCH LABORATORIES  
 ZINC ELECTROLYTIC PLANT  
 ZINC CHANGEOUSE PLANT  
 ZINC ELECTROLYTIC PLANT  
 ZINC ELECTROLYTIC PLANT

SCALE OF METRES 1:1000  
 HOLD:  
 WORKSHOP BUILDINGS REQUIRED, - 100m x 50m MAIN WORKSHOP - 40m x 20m BLAST FURNACE WORKSHOP

DEFINITIVE SPARES STORAGE YARDS  
 COPPER ELECTRIFYING PLANT  
 SWITCH YARD  
 ZINC ELECTROLYTIC PLANT  
 ZINC ELECTROLYTIC PLANT

