PORT DEVELOPMENT GUIDELINES

Appendix E
Environment and Heritage Technical Standards

PILBARA PORTS

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1. APPLICATION OF THIS DOCUMENT

This document outlines Pilbara Ports' technical standards for environment and cultural heritage and applies to all port development works undertaken on Port tenure by proponents and is to be read in conjunction with the Port Development Guidelines (PDG) Application Guide.

2. DEFINITIONS

Refer to the PDG Application Guide for definitions and acronyms.

3. REGULATORY APPROVALS

A range of State and Commonwealth environment and cultural heritage legislation is relevant to the development of port lands and waters by proponents. The following legislation requires proponents to hold specific statutory approvals, for example:

- ***Environmental Protection Act 1986*** **(Western Australia)** (EP Act) – An Act to provide for an Environmental Protection Authority (EPA) for "the prevention, control and abatement of pollution and environmental harm, for the conservation, preservation, protection, enhancement and management of the environment and for matters incidental to or connected with the foregoing". Two key types of statutory approval issued under this legislation include:
  - **Part IV** – The EPA is responsible for environmental impact assessment of proposals under Part IV of this legislation. Certain developments led by proponents on port lands can trigger the requirement for referral of the proposal to the authority for an environmental impact assessment and approval.
  - **Part V** – The Department of Water and Environmental Regulation (DWER) is responsible for environmental regulation in WA. Clearing of native vegetation is regulated under Part V Division 2 of the EP Act. DWER also regulates certain premises through a works approval and licensing process to prevent, control, abate and mitigate pollution or environmental harm, under Part V of the EP Act. These premises with potential to cause pollution or environmental harm to the environment, water resources, public health and/ or amenity are known as Prescribed Premises. Prescribed Premises categories are outlined in Schedule 1 of the *Environmental Protection Regulations 1987*. The EP Act requires a works approval to be obtained before constructing a prescribed premises and makes it an offence to cause an emission or discharge unless a licence or registration is held for the prescribed premises.
- ***Aboriginal Heritage Act 1972*** **(WA)** – Legislation for the preservation of Aboriginal cultural heritage sites in WA. Development on port lands and waters that will impact upon Aboriginal cultural heritage sites will require an application to be considered by the Aboriginal Cultural Heritage Committee in order to obtain consent under this Act.
- ***Environment Protection (Sea Dumping) Act*** **1981 (Cth)** – The loading and placement of dredged material at sea (to established or new spoil grounds) is regulated under this legislation. Proponents are required to apply for a sea dumping permit for dredging activities at our ports, where dredged material is to be placed at sea.
- ***Environment Protection Biodiversity Conservation Act 1999*** **(Cth)** – An Act that provides for the protection and management of the environment, especially those aspects that are matters of national environmental significance, and places of outstanding heritage value recognised by their inclusion on the National Heritage List. Development in our ports may trigger a formal referral, environmental and/or national heritage assessment and approval issued under this legislation.

The above examples are not exhaustive. The proponent is responsible for obtaining all required environmental and/ or cultural heritage approvals from applicable regulatory bodies. Copies of the approval referral/application, application supporting documents (i.e., surveys, reports etc.) and final statutory approval documentation must be provided to Pilbara Ports.

Approvals granted by other authorities do not constitute approval from Pilbara Ports. Proponents require approval from Pilbara Ports for developments within the port and/or Pilbara Ports' managed areas.

The granting of development approval and/or construction approval from Pilbara Ports under the *Port Authorities Act 1999* (WA) does not necessarily give consent to undertake the works, as approvals from other regulatory and statutory authorities may be required. A proponent will need to have both development approval and/or construction approval from Pilbara Ports and approvals from relevant regulatory or statutory authorities before it can commence any works in the port.

4. TECHNICAL STANDARDS

These technical standards provide proponents with information that will assist in their efforts to address the performance criteria and acceptable solutions in relation to environment and cultural heritage management.

They are designed to complement, rather than override, accepted Australian Standards or legislation. If there is any inconsistency between the technical standards and State/Commonwealth legislation, the following order of precedence applies: (1) Commonwealth legislation; (2) State legislation; and (3) these technical standards.

Please note that some components of commentary in these technical standards may not be applicable to your development or operations. If you are unsure about the applicability of specific advice in the technical standards, please contact Pilbara Ports' Port Development team.

4.1 Construction Environmental Management Plan (EMP)

The construction EMP contains:

- Address and real property description of the site.
- Description of the construction works, including the types and schedule of works.
- Details of the developer/contractor, and other key groups or individuals who may be associated with the project.
- List of site contacts, including mobile phone numbers.
- Environmental risk assessment.
- Summary of key environmental issues based on risk assessment.
- Key management measures to control environmental issues.
- Performance criteria to assess management controls.
- Monitoring, recording, and reporting procedures.
- Revision of management controls procedures, if required.
- Incident response including reporting protocols.
- Site plan of work area.

4.2 Operational Environmental Management Plan (EMP)

To be prepared by a suitably qualified professional and addresses the standards of this document. The operational EMP must be site and issue specific.

The operational EMP contains:

- Address and real property description of the site.
- Description of the facility and operations.
- Details of the operator, and other key groups or individuals who may be associated with the operations.
- List of key site contacts.
- Environmental risk assessment.
- Summary of key environmental issues based on risk assessment.
- Key management plans to control (actual/potential) environmental issues.
- Performance criteria to assess management controls.
- Monitoring, recording and reporting procedures.
- Revision of management controls procedures if required.
- Procedures for environment complaints.
- Procedures for environmental incidents.
- Requirements for training/inductions.
- Defines responsibilities of aspects of the EMP.
- Audits and reviews of the EMP.
- Site plan of works area.

4.3 Construction Cultural Heritage Management Plan (CHMP)

To be prepared by a suitably qualified professional and addresses the standards of this document. The construction CHMP for your development must be site and issue specific and compatible with Pilbara Ports' overarching CHMP.

The construction CHMP to address (but not be limited to) the following aspects:

- Address and real property description of the site.
- Site plan of works area.
- Description of the construction works, including the types and schedule of works.
- Details of the developer/contractor, and other key groups or individuals who may be associated with the project.
- List of site contacts, including mobile phone numbers.
- Details of the key stakeholders for cultural heritage values (such as Traditional Owners, regulatory authorities etc.), the consultation that has taken place, the outcomes of the consultation and how and when future consultation is to take place.
- Demonstrates appropriate heritage investigations to identify potential heritage values have been undertaken of the works area (including copies of survey reports).
- Identifies the cultural heritage values that exist within the development footprint and/or have potential to be impacted by the construction activities.
- Identifies appropriate strategies and procedures to effectively manage cultural heritage values and/or any potential cultural heritage incidents (e.g. unexpected finds).
- Identifies and provides details of any statutory approvals and conditions that may be attached to those approvals.
- Monitoring, recording and reporting procedures.
- Allows for revision of management controls procedures if required.
- Procedures for cultural heritage incidents.
- Requirements for training/inductions.
- Define responsibilities of aspects of the CHMP.
- Audits and reviews of the CHMP.

4.4 Erosion and sediment control

Site design and subsequent construction and operational activities should be managed to minimise erosion and sediment transport from site.

Erosion and sediment issues may arise where soils, sands and other earthen materials are left exposed (e.g. following excavations, site clearing, during stockpiling or preloading).

Measures must be implemented to ensure that erosion is controlled, and that sediment is contained within the site and not released into the surrounding environment.

To prevent erosion and sediment issues, the proponent is required to consider the following aspects:

- Potential sources of sediment/risks of erosion.
- Impacts from stockpiles.
- Stormwater discharge points.
- Existing field and kerb inlets and other stormwater infrastructures (swales, etc.).
- Overland flow areas.
- Site access and egress locations.
- Nearby sensitive areas.

The following management measures should be adopted to minimise erosion and sediment loss:

- Maintaining natural ground cover as far as practicable.
- Maintaining landscaping to an appropriate level.
- Sediment fencing and/or site-bunding.
- Silt socks at stormwater inlets (within the construction site only).
- Diversion drains.
- Sediment basins.
- Rock check dams prior to discharge points.
- Vehicle rubble grids at site exits.
- Regular street sweeping where sediment tracking occurs onto roadways.
- Sheet-flow control for stockpiles and embankments.
- Slope stabilisation.
- Rock-lined discharge points.
- Weather/storm monitoring and appropriate action.
- Control the migration of sand or other materials during strong windy conditions.

4.5 Stormwater quality

Stormwater quality is managed to minimise the discharge of contaminants to receiving waters.

Stormwater has the potential to convey sediments and contaminants to sensitive environmental areas, such as mangrove habitats, tidal areas, waterways and groundwater, as well as neighbouring properties.

Overland flows across site must be managed. It is important to identify potential overland flow locations on site (e.g. high to low areas), and implement controls to slow, contain and control the release of stormwater to prevent potential impacts.

Slowing stormwater flows can reduce the volume of sediment and other contaminants being suspended and transported, while containing stormwater for a period of time can allow settling out. The release of water from the site must be controlled to prevent scouring and erosion. Such controls include:

- rock check dams;
- designated draining areas;
- settlement ponds; and/or
- rock-lined discharge points.

Operational stormwater management design will need to comply with the requirements set out in the PDG Appendix A - Construction and Engineering Technical Standards.

4.6 Groundwater quality

Groundwater quality is managed to minimise risks associated with acid sulfate soils, the discharge of contaminants to the surrounds and optimise general health and safety.

Groundwater may be encountered where excavations or other works are undertaken below ground level. The groundwater table in port lands is relatively high and can be variable across sites. Where groundwater is exposed and requires dewatering, it is possible to release Potential Acid Sulfate Soils (PASS) or Actual Acid Sulfate Soils (AASS), minerals and other contaminants to either land or waterways. It is also possible to extract too much groundwater, effectively 'pulling' sea water from adjacent waterways.

Where it is likely that groundwater will be encountered, management approaches may include:

- Scheduling excavation below the water table level to minimise the volume of groundwater exposed.
- Undertaking sampling of groundwater prior to excavation works.
- Ongoing field monitoring (e.g. pH, metals, etc.).
- Location of discharge areas to recharge groundwater and avoid release to stormwater and/or waterways.
- Treatment of exposed groundwater (e.g. liming, filtering, etc.).

4.7 Air quality

Air quality is managed to minimise environmental harm and nuisance and optimise general health and safety.

Construction works and operational activities may impact neighbouring sites, environmentally sensitive areas and waterways through the release of dust, odour, or vehicle/machinery emissions etc. Such releases must be controlled on site, and not leave the site boundaries.

EMPs should identify potential sources of air emissions, and how these will be managed, for example through:

- Use of water for dust suppression.
- Staging of works to minimise exposure of bare earth.
- Minimisation/avoidance of dust generating activities during dry, windy conditions.
- Maintenance of machinery, vehicles and equipment according to the manufacturers standards to minimise exhaust.
- Installation and maintenance of high-quality pavement for regularly trafficked areas.
- The use of mechanical or manual sweeping for high dust generating activities (e.g. bulk products).
- Enclosing dusty activities where practicable.
- Covering stockpiles to prevent dust generation.

4.8 Noise management

Noise is managed to minimise environmental harm and nuisance. Noise from or associated with works must be controlled to prevent nuisance to surrounding sensitive areas. EMPs should identify potential noise generating activities/equipment (e.g. pile driving, excavators, etc.) and how these will be managed. Noisy activities should be controlled through dampeners or enclosures where practicable.

Where port lands are in close proximity to sensitive receptors (e.g. residential development), the proponent must act in accordance with local laws and the EP Act.

4.9 Preventing contamination

Potential contamination/contaminants should be managed to minimise environmental harm and nuisance.

No works shall result in the contamination of land or waterways, for example through spills of fuels or other chemicals or exposure of PASS or AASS.

Environment Management Plans should identify where any existing contamination may be present on the site, and any proposed activities that may result in contamination (e.g. storage of fuels, refuelling, importation of fill, etc.).

Details of all hazardous substances and materials to be stored and used on site are to be included in the EMP. Spill kits appropriate to these items and the site (e.g. provision of marine booms) should be provided.

The proponent or its contractor should contact the Pilbara Ports' Environment team to ascertain whether the proposed development site is listed on the Contaminated Sites Register under the *Contaminated Sites Act 2003*. Where this is the case, management approaches may be required to prevent exposing contamination through excavations or other works or spreading contamination through the movement of materials off site. Pilbara Ports may set additional sampling, analysis and reporting requirements for transporting soil onto and off site.

All practical precautions must be taken to prevent spills of fuel, oil, chemicals and other hazardous substances and to ensure that contamination of the land does not occur.

Areas dedicated to fuelling and maintenance of vehicles and equipment, or the storage of fuel or other chemicals, must be constructed according to guidance given in the PDG Appendix D - Health and Safety Technical Standards. Any run-off must be channelled, collected and treated before disposal or removal.

Land-based spills of hydrocarbons or other hazardous/noxious substances must be reported to Pilbara Ports as soon as practicable. Any spill which enters port waters must be reported immediately to the relevant Pilbara Ports' Vessel Traffic Services (VTS).

All contamination of land during the construction or operational phases must be managed in accordance with the requirements of the DWER, Pilbara Ports and any other regulatory authority.

4.10 Acid sulfate soils management

PASS/AASS should be managed to minimise environmental harm and nuisance.

PASS/AASS may be encountered during excavation works undertaken on port land. Acid sulfate soils occur naturally in low-lying coastal areas and can cause environmental harm when disturbed and exposed to air. Oxidisation can cause the soil to become acidic (pH<6.5) and release metals such as iron, aluminium, manganese and other heavy metals, which can enter the environment.

Therefore, all excavation, dewatering and other works that interact with sub-surface soils must be managed to prevent the disturbance and/or release of PASS/AASS. Where PASS/AASS are encountered, a number of management approaches must be adopted during the excavation, storage and disposal, including:

- Ensuring PASS are not exposed to air (e.g. disposal of PASS under high water mark).
- Minimising the disturbance area where PASS is unavoidable.
- Treatment of PASS/AASS material (e.g. liming).

The proponent or its contractor should discuss any works that may encounter PASS/AASS with Pilbara Ports' Environment team and refer to the National Acid Sulphate Soils Guidance (June 2018) and current guidelines set by the DWER.

4.11 Waste management

Construction and operational wastes/litter should be managed to minimise environmental harm and nuisance.

All waste generated (both construction and general waste from onsite facilities) must be stored and disposed of to prevent release to the environment. The proponent and/or its contractor should provide waste receptacles of a scale and type appropriate to the works, for example covered skip bins, 240L general waste bins, 240L recyclable waste bins, and ensure these are serviced regularly.

The waste hierarchy (reduce, reuse, recycle) should be employed for both construction and operational wastes. All regulated waste (e.g. waste oils, batteries, etc.) must be stored appropriately on site (e.g. bunded) and disposed of by a licensed contractor. All wastes should be segregated as appropriate, and emphasis should be placed on recycling wastes where practicable.

4.12 Native flora/vegetation and weeds

Environment Management Plans should be developed and implemented to avoid/minimise/mitigate adverse impacts on native flora and vegetation.

The relevant EMP must identify and consider any native flora/vegetation present within or likely to be present on the site or nearby and identify how these will be managed to minimise impacts.

4.12.1 Native vegetation clearing

Where native vegetation is present on site, including marine plants (e.g. mangroves, salt marsh and seagrass), an approval (or valid exemption) to clear this vegetation will be required under the EP Act and regulations. The proponent may be required to obtain a Native Vegetation Clearing Permit (NVCP) from the DWER pursuant to the EP Act.

The NVCP may set clearing conditions such as to offset or replant vegetation elsewhere. In some cases, Pilbara Ports may already hold a NVCP, however early consultation with Pilbara Ports will be required to determine the appropriateness of the existing NVCP. The proponent must highlight this matter in its development application and address it in the construction EMP.

The proponent must submit a preliminary map/site plan clearly showing the location of any proposed clearing of native flora or vegetation, with the development application.

The finalised map/site plan is to be submitted with the construction application.

Following the completion of construction works, any further/ongoing clearing of native vegetation must be addressed in the operational EMP.

4.12.2 Weed management

EMP must identify the proposed management of weed species during both construction and operational phases of the development.

This should incorporate an integrated risk-based approach to weed management of weed control, hygiene, and prevention.

4.13 Native fauna and habitats

EMP should be developed and implemented to avoid/minimise/mitigate adverse impacts on native fauna.

Native fauna or fauna habitat may also be present on or in areas surrounding the proposed development site, including species protected under State and Commonwealth environmental legislation.

Approval to impact or otherwise disturb fauna or fauna habitat may therefore be required from the relevant State or Commonwealth agency. EMPs must identify the proposed management of native fauna during construction and operational phases of the development.

4.14 Artificial light management

Artificial lighting can disrupt the behaviour of and cause physiological changes to wildlife. Potential impacts of lighting must be considered when modifying or installing lighting. Light associated with operational and construction activities may also impact upon wildlife. Light impacts include:

- Direct impacts where lighting is visible from an area of habitat.
- Cumulative increases in skyglow, which is the brightness in the night sky caused by the reflected light scattered from particles in the atmosphere. Skyglow can affect nearby sensitive habitats as well as passing migratory bird species.

The relevant EMP must identify any activities that may cause light impacts to wildlife or significant habitat areas. The plan must also identify the relevant controls that will be implemented to ensure that these risks are appropriately managed.

All new and modified lighting designs must be in accordance with the Commonwealth National Light Pollution Guidelines for Wildlife. General principles of these guidelines are:

- Start with natural darkness and only add light for specific purposes.
- Use adaptive light controls to manage light timing, intensity and colour.
- Light only the object or area intended – keep lights close to the ground, directed, and shielded to avoid light spill.
- Use the lowest intensity lighting appropriate for the task.
- Use non-reflective, dark-coloured surfaces.
- Use lights with reduced or filtered blue, violet and ultraviolet wavelengths.

4.15 Biosecurity management

EMPs should be developed and implemented to address all relevant biosecurity matters and risks at the port.

Introduced pest plant and animal species have the potential to significantly impact WA's environmental diversity and the commercial viability of many of our primary industries.

The relevant EMP must identify any activities that may pose a biosecurity risk (e.g. introducing, transporting or harbouring weed species, birds or introduced insects like mosquitoes, brown marmorated stink bugs). The plan must also identify the relevant controls that will be implemented to ensure that these risks are appropriately managed, in accordance with the State and Commonwealth government biosecurity laws/requirements (e.g. *Biosecurity Act 2015* (Cth) and First Point of Entry Determinations).

4.16 Abrasive blasting

Abrasive blasting activities can have minimal environmental impact if it is located in an appropriate area and sited, designed and operated properly. Environmental issues such as noise, air and water pollution and waste management will need to be controlled. Where the proposed development includes abrasive blasting during construction or operational phases, EMPs must demonstrate how the activity will be conducted in accordance with the State's *Environmental Protection (Abrasive Blasting) Regulations 1998,* including (but not limited to):

- Wherever possible, the abrasive blasting activity should be conducted in a purpose-built abrasive blasting chamber (e.g. offsite).
- For dry abrasive blasting, the blasting material must contain less than two (2) per cent free silica (crystalline silicon dioxide).
- For wet abrasive blasting, the blasting material must not contain corrosion inhibitors containing chromate, nitrate, or nitrite.
- Where the material being removed by the abrasive blasting activity contain heavy metal, organotin (e.g. TBT) or other antifouling compounds, this activity may not occur in or near the aquatic environment unless it is impractical (size/shape/position/location) to move the object out of or away from that environment.
- For dry abrasive blasting the abrasive blasting must be carried out in a fully sealed blasting chamber that allows for the complete containment of dust.
- For wet abrasive blasting, appropriate drainage and containment infrastructure must be in place to ensure no loss of wastewater from the site.
- Abrasive blasting operations must cease immediate if visible dust is observed outside the chamber.
- Spent abrasive blasting media/wastewater/waste must be recovered from all surfaces:
  - at the end of each shift; and
  - if it is likely that wind, rain or tide will mobilise the waste material.

All generated waste (including spent blasting media, material removed, used personal protective equipment (PPE) and encapsulation materials) should be securely stored and disposed of as controlled waste at an appropriately approved facility.

4.17 Fuel and other chemical storage

The storage of chemicals (including fuel products) can potentially cause harm to the environment through, accidental spillage, incorrect storage, and contaminant run-off and air pollution. The proponent should identify how these potential impacts will be managed. Control measures may include:

- Storage containers should have overfill protection and alarms.
- All personnel should be trained to ensure spillage incidents are minimised during loading and unloading operations.
- Roofed, bunded areas appropriate to the volume of the chemical/fuel storage should be implemented to reduce the risk of water contamination (ground and surface water).
- The necessity to store fuel in double-skinned, self-bunding tanks that meet with all relevant Australian Standards.
- The necessity to design, develop, operate and maintain all fuel storage and dispensing facilities in accordance with the relevant Australian Standards and relevant local/State government requirements.

Note: with the exception of appropriately licensed commercial service stations, no underground fuel storage will be permitted on port land for the direct refuelling of vehicles and equipment.

4.18 Motor vehicle/plant workshop

The environmental impacts associated with motor vehicle or plant workshops include, water contamination and run off, air pollution (including odours) from the release exhaust, solvents etc. and waste generation. Suggested control measures to minimise these impacts include:

- Roofed, bunded compounds should be implemented for the catchment of liquids.
- All waste should be stored appropriately and collected by a licensed operator.

Washing and cleaning of vehicles and equipment must occur within an area that is connected to the sewer or fitted with a water treatment system.

Document amendment table

VERSION	PREPARED BY	DATE	AMENDMENT DETAILS
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Document owner

The Developments Manager is responsible for the Port Development Guidelines.

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