BESIX Watpac

Project Environmental Management Plan

T066

CEP Townsville Hospital Expansion

31 May 2024

Revision History

Version	Date	Revision Description	Project/Site Manager Sign off
01	02/06/23	Initial Issue For Review	James Nelson
02	07/07/23	Revisited for Ecological Assessment Report	James Nelson
03	01/11/23	Revised for Biosecurity Qld comments	James Nelson
04	02/11/23	SOP 7.24 updated to suit Biosecurity Act 2014	Katie Garay
05	02/04/24	Revisited for contamination, water quality	James Nelson
06	31/05/2024	Revised for Main Works	James Nelson
07	24/07/24	Revisited for GCS Submission	James Nelson

Contents

Project Environmental Management Plan

1 System Application

1.1 Planning Environmental Management

The purpose of this Environmental Management Plan (PEMP) is to set the framework for the procedures to be implemented to manage design and construct environmental activities on the project, in full compliance with the environmental, quality, performance and sustainability criteria of the contract, clearly articulating our liabilities, obligations, responsibilities and risks. Specifically, the PEMP will:

- Ensure compliance with the Environmental Requirements and Statutory Requirements
- Maximise the achievement of the Environmental Objectives.
- Outline the roles and responsibilities of BESIX Watpac and subcontractor personnel (including BESIX Watpac's key people) regarding the Environment.
- Outlining the regulatory and compliance framework and compliance strategies applicable to the project
- Any environmental control and monitoring strategies to be implemented.

1.2 Preparation and Application

This Project Environmental Management Plan has been prepared to document the company's environmental commitments, objectives and procedures for the project.

This document is structured in the following principles:

- A description of the site and project scope
- Establishing the environmental legal framework and objectives that the project will be operating under, including any permits or authority engagements that will be required
- The discussion of the project specific Environmental Risk Assessment that analyses the risks under each aspect, presenting the logic/research behind the findings or recommendations and accompanying management strategies, recommendations and controls
- An outline of roles and responsibilities for the project, including site staff and BESIX Watpac's management support teams
- A description of the standard approach of BESIX Watpac's environmental management system, including reporting and monitoring; incidents and complaints; emergency management; communication; site training and induction requirements
- An outline of BESIX Watpac's Standard Operating Protocols (SOPs) represented in the tables at the back of the PEMP, that address the standard controls against each of those environmental risks

This document is prepared by BESIX Watpac's Environmental Manager for review and implementation by BESIX Watpac's project team.

The PEMP is a live document that may require review and update. A review of the PEMP may be triggered by the following:

- Once the planning phase is complete
- Additional scope of works for which the impact to environment was not anticipated
- In response to environmental incidents, near-misses and/or other situations or accidents on Commonwealth property or the Site
- In response to complaints that have been investigated and may have some validity.

In the event the PEMP required updating, this must be reviewed and approved by the Environmental Manager and the Project Manager.

As this PEMP in referenced in all Subcontract's, it forms part of the Subcontractor's contract to comply with the requirements and obligations provided under this plan. As such it should be maintained as a controlled

and accessible document, that is formally transmitted during package tenders and transmitted to them once the tenderer is successful.

1.3 Plan Review (During Project Delivery)

The Environmental Management Plan, its operation and implementation, and any elements of the overarching Environmental Management System must be periodically reviewed during project delivery.

Formal review of the PEMP must be implemented for currency and applicability at least once every 6 months. Other triggers for review may include:

- Corrective or Preventative Actions are raised through the reporting process requiring amendments to the PEMP
- Changes to relative legislative, regulatory or compliance obligations
- Significant changes to any constituent of project construction
- Request by the Client or any regulatory authority
- Significant changes to the environment
- Changes to Best Practice Environmental Management or
- Identification of new environmental risks.

The Environmental Representative (or Project Manager nominee) will be responsible for review and amendment of the PEMP. If updated at any stage of the project, a revised copy will be submitted to all relevant stakeholders.

1.4 BESIX Watpac's Environmental Management System (EMS)

The environmental management system is predominantly composed of the following documents:

Table 1 - EMS Document Hierarchy

Tier	Type	Description
01	Environmental Policy	BESIX Watpac's policy on environmental management informs our approach when documenting procedures.
02	Construction Management System (CMS) Manual	Offers a full description around how the Construction Management System (CMS) operates administratively and complies the full extent of ISO 14001.
03	Environmental Management Procedure	This procedure is a high-level outline of how environmental management is planned and implemented on site prior to commencing
04	Construction Environmental Management Plan	The Environmental Management Plan outlines how the project will comply with environmental legislation and contractual requirements, documenting the risks and relative controls.
05	Environmental Risk Assessment	A supporting document on which the risk assessment for the environmental aspects is conducted, that informs the environmental management planning, controls and monitoring

BESIX Watpac's EMS is centrally managed by our Environmental Manager, who communicates the EMS requirements through Environmental Management Plans, corporate inductions, project start-up meetings, and regular audits. The Environmental Manager hosts annual Management Review Meetings that reflect on the company's performance against environmental objectives, targets, and legislation. From this, adjustments are made to the system to ensure continual improvement on targeted outcomes.

1.5 Authorisation

The issue and use of this PEMP is approved by the Environment Manager.

Approved by  Date 24/07/2024

2 Project Description

2.1 Scope of Works

Townsville University Hospital Stage 1 consists of a new 143-bed Rehabilitation Building containing Outpatients, Rehabilitation, Operating Theatres, Medical Imaging, Acute and GEM Ward accommodation and an overhead link to the existing Emergency Department. Site works include the provision of a new road layout to the western side of the site, diversion of existing services adjacent to the proposed building (including the existing overland flowpath), the provision of new engineering services to support the building, and expansion of the existing central energy facility.

Total floor area of the new building is approximately 24,000m^2.

The contract is a Managing Contractor, Design and Construct Contract, delivered in two phases.

2.2 Site Location and Description

The Townsville University Hospital is located approximately 9 km southwest of Townsville town centre, Queensland, south of the A1 Douglas Arterial Road and northeast of James Cook University Douglas Campus. It is bordered to the east by Discovery Drive. The site is accessible from the east and west via Discovery Drive and Angus Smith Drive respectively. The topography is generally flat laying with a gradual slope to the east, toward a creek and tributary of the Ross River.

The elevation of the project site is around 20 m sea level (asl). The site is relatively level. The project is primarily underlain by Ravenswood Batholith. Soil types are predominantly clay, silt, sand and gravel; floodplain alluvium on high terraces.

Figure 1 - Site Locations within Townsville Hospital Precinct

3 Project Environmental Risk Assessment

An Environmental Risk Assessment has been developed for the project. The Environmental Risk Assessment, refer Appendix A, identifies the environmental aspects that are likely to be present on the project.

The 'Associated Impact' column identifies the risk associated with the aspect if the relevant controls and precautions are not fully considered or implemented.

The risk associated with each aspect is assessed using the BESIX Watpac Risk Matrix Calculator, included within the Environmental Risk Assessment.

The 'Control' column reflects the controls to be implemented throughout the scope of the project to eliminate or minimise the risks associated with the aspects, with measures to verify compliance identified in the 'Verification of Compliance' column.

Environmental aspects with a residual risk level of 'High' or 'Extreme' are considered as significant environmental aspects and are to be communicated to all personnel as part of the site induction process (refer S04-01 Induction).

The ensure that the Environmental Risk Assessment remains current for the works being conducted, it is to be reviewed and evaluated for effectiveness at intervals of no more than 4 months.

3.1 Contamination

Contaminated Land Search (from the Environmental Management and Contaminated Land Registers) indicate the site is potentially contaminated.

Reference is made to the "Report on Site Investigation for Contamination" produced by Douglas Partners, dated 9th May 2024, reference 224539.01.

Reports confirm the site area is non-contaminative and suitable for project reuse or disposal off-site.

3.2 Hazardous Substances

The demolition scope within the main works encompasses the Bloodbank and the Engineering and Maintenance Workshop, both of which require a preceding hazardous substance survey or asbestos register to assess the risk of ACM (Asbestos Containing Materials).

3.3 Groundwater

Groundwater was only encountered in one borehole at 2.9m below ground level during geotechnical investigations, and between 3-10m in historical investigations, meaning groundwater levels may fluctuate and some perched groundwater may be encountered during earthworks and substructure. Localised submersible pumping into erosion and sediment controls should be sufficient to dewater any encountered groundwater.

3.4 Ecological Assessment and Protections

Faunalink Ecological were engaged by BESIX Watpac to conduct an ecological assessment of the site, reference is made to report dated 16th February 2024.

There were two distinct fauna habitat types throughout the project area.

Habitat Type 1 – remnant woodland associated with a drainage feature opposite the Townsville University Hospital

Helipad.

Vegetation associated with the drainage feature (a first order creek that has been heavily modified into a stormwater drain, with several existing culverts draining stormwater from surrounding developed areas), was found to generally be consistent with RE 11.3.35, consisting of species such as Corymbia tessellaris and occasional Eucalyptus platyphylla, with tall Melaleuca leucadendra in the canopy, and a sub-canopy dominated by Pandanus sp. Some elements of RE 11.3.25b were also present as described above, providing some limited riparian habitat. This habitat type, which was restricted within the study area to a patch of only 0.053 ha, was assessed as suitable to support a range of least concern fauna, including frogs, fish (both native and introduced may occur), reptiles, such as skinks and birds that are commonly associated with riparian vegetation. During the survey, one Carlia jarnoldae (Lined rainbow skink) was observed, and Litoria caerulea (green tree frog) was heard calling. Pheasant coucal, Magpie-lark, Leaden flycatcher and Brown honeyeater were recorded, and an Australian magpie could be heard.

Habitat Type 2 – non-remnant vegetation, including grassy open space, landscaping and existing stormwater drains.

Habitat type 2 comprised open, non-remnant areas with landscaped gardens, individual trees, open grassy areas and open stormwater drains adjacent to existing roads, footpaths and buildings. These areas were assessed as potential habitat for least concern and generalist fauna species that are commonly associated with urban landscapes, such as Australian magpie, Magpie-lark and Great bowerbirds, all of which were recorded during the survey.

Essential habitat for fauna is not mapped within the study area. However, there is Essential Habitat for the endangered southern Black-throated finch (Poephila cincta cincta) immediately north of the existing study area.

The project area is not located within the 'high risk area' on the Protected Plants Flora Survey Trigger Map. A number of vulnerable, endangered and critically endangered species or their habitats may be occurring within 1 km of the project area, the following actions may be required pending the need to clear any vegetation:

- Trees to be removed should be confirmed and inspected for hollows and nests by a suitably qualified person
- If hollows, nests or other potential breeding places are present, they must be assessed by a suitably qualified person to determine if they are breeding places in accordance with the Nature Conservation Act 1992
- If any breeding places are located within the development footprint a Species Management Plan (SMP) must be approved by DES prior to impacting on the breeding place
- Mitigation measures such as the establishment of nest boxes (or other relevant measures) prior to tree clearing may also be required under the SMP
- Vegetation clearing to be towards the vegetated areas to provide refuge for fauna
- Trees to be retained should be clearly identified to prevent any damage or accidental clearing
- Extra care such as erosion and sediment control measures should be in place to ensure there are no sediments leaving the sites

3.5 Protection of Trees

The Technical Ecology Report produced by Faunalink Ecological (dated 16th February 2024) confirmed the trees to be cleared were not covered by any protection overlay.

For any trees to be protected, a Tree Protection Zone (TPZ) is to be established at a minimum 2m from the existing buildings targeted for demolition and no plant activity is to be allowed in this area. These works are to be strictly monitored by the project arborist. Where possible, plant to set up on the opposite sides of the building, away from the subject trees. Plant/machinery exhausts are to be directed away from tree

canopies. Excavator booms are to avoid any contact with limbs at all times. Sediment fencing is to be installed as part of the TPZ fencing, in order to minimise run off/contamination into TPZ areas.

The tree protection zone is to be established before all works and inspected by the Arborist. Any workers around the tree, including trenching and in-ground works, shall be subject to an induction designed by the Arborist. No works undertaken to any trees without consultation with the Arborist.

Any tree trimming is to be done with direct supervision of a qualified arborist.

3.6 Tree Clearing – Fauna Protection

During the removal of any trees, or clearing of vegetated areas, a qualified specialist is to inspect for wildlife or animal habitats as required by the SMP. They must hold a Rehabilitation Permit licensed under the Nature Conservation Act 1992. Spotter/Catchers, Arborists, or Ecologists may hold this licence. This Fauna Spotter/Catcher Wildlife Report must be collected by BESIX Watpac and furnished to the Client's Representative and Superintendent.

During the clearing works, the Spotter/Catcher must conduct a daily pre-clearance inspection, and supervise progressive clearing. This should include a particular focus on terrestrial microhabitats, transient birds, or hollows. Sustainable zones near the site should be determined for suitability for relocation and mitigation strategies. Appropriate green zones within a radius of the site must be established. The fauna management programme aimed at maximising relocation effort with an intent to minimise any fauna stress.

Trees identified as having potential fauna values (such as hollows, fissures and exfoliating bark) will be clearly identified and subsequently marked for supervision during felling and inspected once felled. Efforts will be made to determine potentially occupant species by way of investigations for indicative signs (scats, scratchings and tracks) on the day(s) of clearing. Where no signs are found or potentially occupant species are undeterminable, machinery operators will be instructed to fell trees in a manner directed at minimising the potential risk of injury to fauna.

All identified micro habitats will be inspected via ground based observation and the direction of felling will be determined considering the safety of personnel, machinery and potentially occupant fauna. Felling procedures may include the following techniques:

- Machinery blades to shake the tree in an attempt to disturb fauna out of hollows or fissures to determine species present;
- If fauna are present, the tree will either be left standing overnight to allow the occupant animal(s) time to leave via their own volition, or if species are detected these will be encouraged from the tree by shaking or direct capture by a wildlife spotter(s). All identified trees to be felled with considerations to potentially undetected fauna;
- Where possible potentially occupied trees can be felled with the identified microhabitat receiving minimal contact on impact. This can often be achieved through strategic excavation of select root structure and the weight of the machine incorporated to assist in the laying down of the tree on the ground;
- Adjacent felled trees utilised to absorb the impact of potential fauna bearing trees.

In the event wildlife is found in the course of works, stop work, and wait for the animal(s) to move on. If they don't move, contact the Environmental Manager to organise a Spotter/Catcher to relocate. If injured animals are found on site, contact the animal rescue contacts provided in the PEMP for safe collection and containment strategies, to drop off for the animal's treatment and recovery.

3.7 Noise and Vibration

Piling and mass footings on the site would generate some noise associated with the use of earthmoving and similar equipment that is regularly and routinely used on construction and maintenance projects.

Complaints and subjective assessment will be applied that may be graduated to instrument monitoring at the discretion of the Project Manager.

If noise levels are determined to be excessive, mitigation of the noise sources will be undertaken by BESIX Watpac. These measures could include:

- The use of temporary fencing or barriers to attenuate noise from construction operations to nearby receptors
- The use of mufflers or sound attenuation devices where used in close proximity to residential receptors
- Consultation with residents to ensure that excessively noisy operations are performed during periods with the least impact on the existing environment.
- Fit mufflers/silencers to pneumatic tools (e.g. breakers)
- Use residential-grade mufflers on major items of plant

3.8 Air Quality

The potential exists for some localised dust generation associated with vehicle movements and soil excavation but dust suppression measures, such as watering of exposed soil surfaces and application of spray seal will be implemented to prevent dust generation. Emissions from diesel powered construction equipment and exhausts from vehicle travelling to and from the sites are considered to be insignificant in both the local and regional traffic contexts.

All machinery and equipment used at the site will be maintained to relevant standards to reduce emissions to as low as possible. Disturbed areas will be re-vegetated as soon as practicable after the construction of the works. Earth wetting using water cart and water sprays will be undertaken as required during construction to minimise dust generation at the site. Long term stockpiles will be covered or vegetated to prevent wind erosion. A site shakedown/grid will be installed to remove bulk particulate from truck tyres prior to exit from the site. Trucks travelling to or from the site will be covered to prevent wind-blown dust. Roads will be cleaned regularly to prevent the spread of dirt on roads surrounding the site.

3.9 Acid Sulfate Soils

Australian Soil Resource Information System (ASRIS) mapping indicates low possibility of acid sulfate soils for the site. Soil sampling in the geotechnical report indicated low acidity. This was supported by advice from the geotechnical engineer that suggested ASS will not be a concern for the project scope.

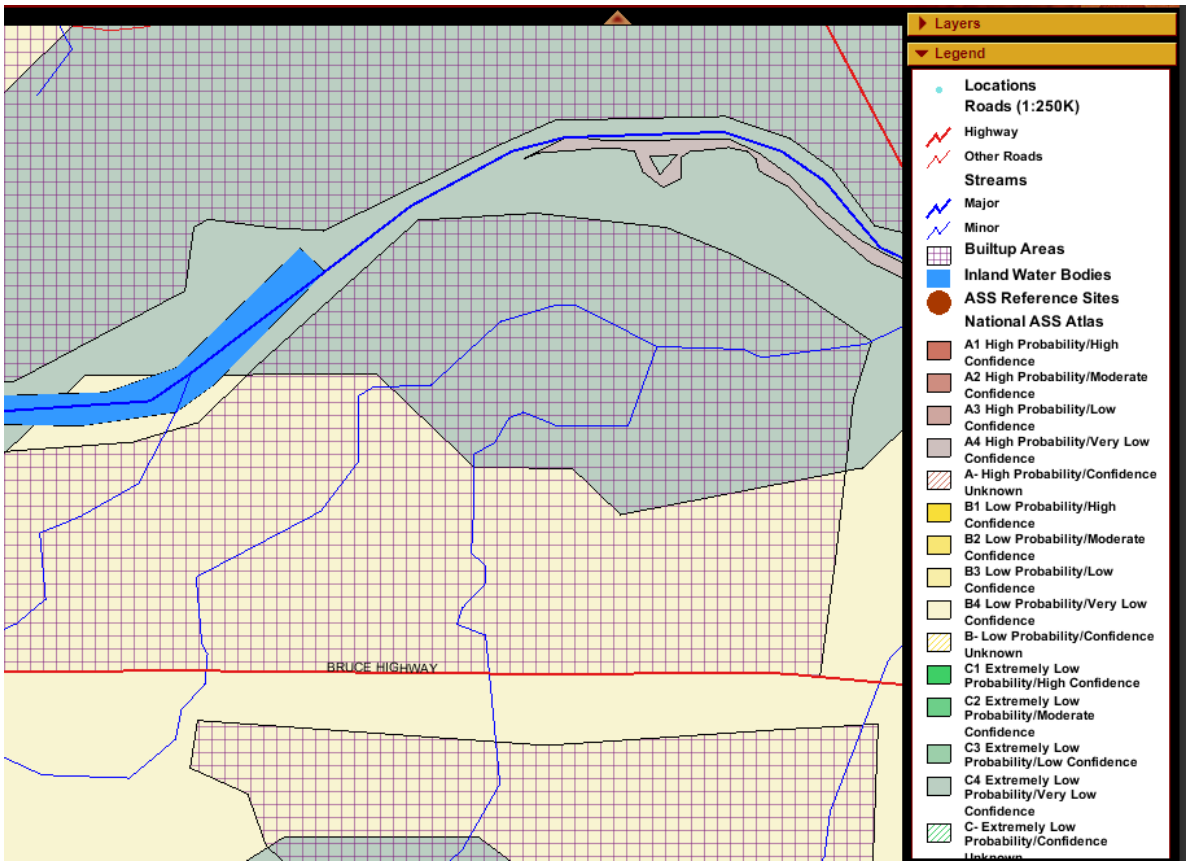

Figure 2 ASRIS Mapping

3.10 Water Quality / Erosion and Sediment Control

Activities associated with land clearing and soil excavation presents a potential for erosion and sedimentation. Contaminants mobilised during earthworks could be washed into the stormwater drainage system. Material can spill from haulage trucks into roadways and be washed into the stormwater drainage system.

To control sedimentation and erosion, the following actions will be undertaken:

- Minimise exposed areas by staging the groundworks
- Establish temporary drainage in the construction area, maintained to minimise erosion
- Confine stripping of topsoil or earthworks to designated areas
- Establish and maintain silt fences
- Inspect runoff control devices for effectiveness
- Stockpiles of potential pollutants to be located such that potential contaminants cannot enter drainage channels or stormwater drains
- Machinery and equipment will not be washed at the site but excess sediment will be removed from wheels to prevent entrainment of sediment onto roads.

Mitigation measures to minimise the impact to hydrology and water quality will include as a minimum:

- Any chemicals, fuels or paints at the site will be stored in a designated bunded area to prevent spills from entering storm water channels
- Refuelling of vehicles at the site will be conducted away from drainage lines and a spill kit will be kept on site to appropriately mitigate any spills

- In the event that groundwater is encountered during the works, it will be retained for testing prior to discharge from the site, and if necessary, will be treated to prevent discharge of acidic waters from the site.

There is also potential for leakage of stored fuel and chemicals into the drainage system. To minimise this impact, the following actions will be undertaken:

- Provide bunded areas for fuel storage areas
- Use self-bunded generators
- Conduct refuelling in designated areas
- Contain and collect all spills for treatment and disposal at designated sites
- Monitor regularly to ensure compliance.

A site-specific Erosion and Sedimentation and Control Plan has been developed, and must be implemented and maintained during site setup.

A plan for water quality monitoring should be implemented to the adjacent creeks at upstream and downstream locations from site, before and during construction works to monitor the water quality and if it is affected by our construction activities. Monitoring samples should be instituted on a regular basis (e.g. fortnightly or monthly) as well as sampled after each significant rainfall event.

3.11 Cultural Heritage

A search of the DATSIP Cultural Heritage Database suggests no risk of cultural artefacts on the site.

3.12 Yellow Crazy Ants

The site is located in a Yellow Crazy Ant Zone (Douglas), meaning earth materials in-situ, being exported from site and being imported from suppliers should be monitored for Yellow Crazy Ants. This includes:

- Soil (includes fill, clay, topsoil, deco granite, potting and any other ground material)
- Soft landscaping (mulch, plants, bark, turf)
- Gravel

Yellow Crazy Ants are a yellow to brownish ant with long and slender body (approximately 5mm long), abdomen is dark brown, sometimes striped; legs and antennae are very long; and their walking style is erratic.

Yellow Crazy Ants can spread through movement. If you come across a colony, do not disturb the vegetation.

Site clearing and grubbing should be pre-empted by a site inspection for Yellow Crazy Ants.

Imported fill and soft landscaping should be certified clean, and inspected for ants prior to placement on the site.

Site should include inspections for ants as part of the Weekly Environmental Inspection.

Note that a movement permit is not required for Yellow Crazy Ants zones.

Ants are yellow to brownish ant with long and slender body (approximately 5mm long); abdomen is dark brown, sometimes striped; legs and antennae are very long; walking style is erratic.

Yellow crazy ant

Yellow crazy ants smothering pipe

If Yellow Crazy Ants are suspected on site, cease works, barrier off the area, and report sightings to enquiries@townsville.qld.gov.au or call 13 48 10.

3.13 Matter of National Environmental Significance

It was determined that no significant impacts to Koala, Rufous Fantail, and Bare-rumped Shealth-tailed Bat are likely to result from the Project within the meaning of the Significant Impact Guidelines.

Other MNES assessed as having a moderate or higher likelihood of occurring around the project area, but not at risk of Project related impacts, include:

- Fork-tailed Swift (Migratory under the EPBC Act)
- Squatter Pigeon (Southern Subspecies) (Vulnerable under the EPBC Act)
- White-throated Needletail (Vulnerable/Migratory under the EPBC Act)
- Southern Black-throated Finch (Endangered under the EPBC Act)

The same wildlife vigilance protocols will adequately apply as outlined in Section3.5 and SOP 7.10.

3.14 Matter of State Environmental Significance

Species management programs (SMPs) have been submitted to and approved by DESI. The approved SMPs include:

- A generic Species Management Program for tampering with animal breeding places - low risk of impacts, relating to the tampering of breeding places for least concern fauna species
- A Species Management Program for tampering with animal breeding places – high risk of impacts for species listed as threatened, least concern (colonial breeders) or special least concern under the NC Act, including:
  - Short-beaked Echidna (Special Least Concern).
  - Rufous Fantail (Special Least Concern).
  - Six Microbat species (One Endangered and five Least Concern Colonial Breeders)

3.15 Weeds

The Project has the potential to create favourable conditions for invasive plant species to invade and/ or spread within areas immediately adjacent to ground disturbance.

Weeds of National Significance within the project area include Lantana, American Rat Tail Grass, Yellow Bells, and Chinee Apple.

A weed treatment strategy should be developed with the Landscape Architect for weeds encountered within the project site. Weeds should be monitored in the Weekly Environmental Inspection.

Refer to PM-PLA-015 Weed Management Plan for guidance on treatment and identification.

3.16 Interface with Townsville Hospital and Health Service (THHS)

A site-based Environmental Management Plan has been produced by WSP (Doc Ref 2271380A-ENV-PEMP-001) to support the environmental performance of the Townsville Hospital and Health Service (THHS) Douglas Campus (Lot 41 on SP116222). The purpose of this PEMP is to provide a structured approach to the management of environmental issues relating to the undertaking of work on the EMR listed site.

Activities undertaken on the Douglas Campus are under the control of the Building Engineering and Maintenance Services, the BEMS Chief Engineer has responsibility for the overall coordination of this PEMP and reporting on its performance.

Any environmental incidents or complaints occurring on or affecting this property must be promptly reported to the BEMS Chief Engineer, in addition to the normal reporting duties covered in Section 6.6.

3.16.1 Soil Movement

Reference is made to the THHS Facilities, Infrastructure & Support Services Building, Engineering & Maintenance Services “Instruction”: THHS Soil Management Requirements (Doc Ref: BEMSI17014v6). A number of THHS facilities are listed on the Environmental Management Register (EMR). Special precautions must be undertaken for the management of soil movements at each of these campuses under the Environmental Protection Act 1994

All contractors engaged in civil or other excavation activities must not remove soil from Townsville University Hospital (TUH) Douglas Campus without prior consultation and/or work permit approved by the Chief Engineer, Infrastructure/Facility Operations Engineer, Trade Manager or Facility Maintenance Coordinator.

Areas of Contaminated Land Risk - no soil is to be removed from site (irrespective of quantity or excavation method) unless it has been appropriately assessed by a suitably qualified person (SQP) as per the Environmental Protection Act (1994). If it is determined by the SQP that the soil is contaminated, the soil will then require disposal under a Department of Environment and Science (DES) Soil Disposal permit. If soil is confirmed clean by SQP, no disposal permit is required for further movement of clean soil.

Preparation for stockpile and testing of Hydrovac soils must be completed prior to commencing Hydrovac excavation in areas of contaminated land risk, Hydrovac equipment must be confirmed as clean/empty and capable of unloading into a suitably lined skip bin prior to commencing excavation work on site.

Soil must not be transferred between Douglas and East campus sites except where removal from site is authorised in accordance with this instruction document as they are considered separately listed sites for the purposes of the Environmental Protection Legislation.

Fill removed during works may be stockpiled on the site it was excavated from. The stockpile must be clearly sign posted and marked on the site register as to original removal location, destination and approximate quantity.

3.17 Interface with Defence

The Townsville Hospital also interfaces with the Defence Base, who have provided their opinion on our requirements.

The base Environmental and Sustainability Manager has commented that there is no anticipated major environmental concerns from a Commonwealth perspective that would be triggered with the works. The following issues will be managed as part of the project:

- Erosion and sedimentation controls to be in place in order to ensure there will be no runoff into the ‘Fish Habitat’ creek system which flows onto Lavarack Barracks
- Bushfire mitigation controls to be in place, noting the area of the works was deemed to be a high risk area as per the site assessment conducted by QFES earlier in 2023.
    - Defence will liaise with QLD Health and subsequently BESIX Watpac if there are to be any burns conducted on Lavarack Barracks adjacent to your works
    - A fire buffer will exist around the work site to ensure all hot works will be mitigated and all efforts will be made to avoid any potential for an unplanned burn
- BESIX Watpac will provide a copy of the environmental assessment for reference

4 Project Framework and Objectives

4.1 BESIX Watpac Environment Objectives

The objective of BESIX Watpac's Environmental Management is to undertake these activities in full consideration of Environmental requirements of Contracts, applicable legislation and as an environmentally responsible organisation of the broader community.

To this end BESIX Watpac has established and maintains an Environmental Management System planned and developed with all management functions in accordance with AS/NZS ISO 14001: 2015 - Environmental Management Systems to control and minimise environmental impacts and preserve the environment through the following:

- The control and minimisation of contaminate discharges or disturbances to air, land and water
- The control and minimisation of waste
- To review and re-source component materials, as opportunity presents
- Undertake regular review of the documented Environmental Management System against performance targets with the view toward continual improvement and the prevention of pollution.

Proper adherence to the Environmental Management System and active participation in environmental issues pertinent to BESIX Watpac's activities is a requirement of all BESIX Watpac personnel and those entities engaged by BESIX Watpac in the delivery of projects.

4.2 Project Environment Commitment

The BESIX Watpac Project Team is committed to the implementation of a comprehensive and effective EMS for the design and construction of this project.

Our Project Environmental Management Plan will comply with all elements of the BESIX Watpac Environmental System, certified to ISO 14001. It will embrace all elements of managing the design and construction of the Project to ensure full compliance with the requirements of the current legislation and expectations of the Principal and neighbouring community.

The Project Environmental Management Plan and its application will be continuously assessed and improved through processes of review and audit.

All participants in the project are responsible for implementing the PEMP and contributing to its improvement in order to ensure we meet our objective of providing a project which meets agreed requirements in terms of its construction and operational performance.

4.3 Key Performance Indicators

Table 2 Key Performance Indicators

Policy	Objective	Measurement Basis	Target	Responsibility
Minimise Impacts	Minimise the impact of the site works to the receiving environment	Internal audits conducted by Management	No more than 5 environmental Corrective Action items issues to a single project from an internal audit. Zero Non-Conformances issues as a result Project is audited within 6 months of being established on site..	Project Manager
Compliance	Comply with all Statutory Requirements	Commonwealth, State and Local Council regulation	Zero Penalty Infringement Notices issued by Local Council or State EPA	Project Manager

Policy	Objective	Measurement Basis	Target	Responsibility
			Zero Prosecutions issued by Local Council or State EPA	

4.4 Regulatory Framework

Development on the site is to be carried out in a manner that avoids significant adverse impacts to the onsite and surrounding environment and which gives appropriate regard to the provisions of the following (but not limited to) Commonwealth and State legislation:

Table 3 Relevant legislation

Legislation	Description
Commonwealth	
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	The *EPBC Act* protects and manages matters of national environmental significance (MNES) and facilitates Australia's commitment to signed international agreements via Federal assessment and approval of proposals that may 'significantly impact' upon MNES. The *EPBC Act* will require a 'self-assessment' to be completed to determine if the Project requires referral to the Australian Department of the Agriculture, Water, and the Environment (DAWE). A referral will not be required.
Native Title Act 1993 (NT Act)	The *NT Act* recognises the rights and interests of Indigenous people in respect of land on which they historically resided. The Works are within the Turrbal People claimant area however the decision by the Full Federal Court confirms that native title no longer exists over Brisbane. .
Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (ATSIHP Act)	The *ATSIHP Act* preserves and protects areas and objects in Australia of particular significance to living Aboriginal people in accordance with their traditions. The *ATSIHP Act* operates concurrently with the Queensland *Aboriginal Cultural Heritage Act 2003* and associated *Aboriginal Cultural Heritage Act 2003 Duty of Care Guidelines.*
National Greenhouse Energy Reporting Act 2007 (NGER Act)	The *NGER Act* provides a national framework for corporations to report greenhouse gas (GHG) emissions, reductions, removals and offsets and energy consumption and production. BESIX Watpac will make reports as required by the NGER Act to the Clean Energy Regulator under the Emissions and Energy Reporting System.
National Environment Protection Council Act 1994	The purpose of this act is to provide for the establishment and operation of the National Environment Protection Council and to ensure that: • People enjoy the benefit of equivalent protection from air, water or soil pollution and from noise, wherever they live in Australia. • Decisions of the business community are not distorted, and markets are not fragmented, by variations between participating jurisdictions in relation to the adoption or implementation of major environment protection measures.
National Environment Protection Measures (Implementation) Act 1998	The purpose of this Act is: • To make provision for the implementation of national environment protection measures in respect of certain activities carried on by or on behalf of the Commonwealth and Commonwealth authorities. • To protect, restore and enhance the quality of the environment in Australia, having regard to the need to maintain ecologically sustainable development. • To ensure that the community has access to relevant and meaningful information about pollution.
National Environment Protection (Assessment of Site	The purpose of the measure is to establish a nationally consistent approach to the assessment of site contamination to ensure sound environmental management practices by the community which includes regulators, site assessors, environmental auditors, land owners, developers and industry. The desired environmental outcome for this measure is to provide adequate protection of human health and the environment, where site contamination has occurred, through the development of an efficient and effective national approach to the assessment of site contamination.

Legislation	Description
Contamination) Measure 1999	Defence is expected to operate in accordance with the National Environmental Protection Measure (NEPM) policy framework and guidelines whenever it assesses site contamination on its estate.
National Environment Protection Ambient Air Quality Measures (NEPM)	The desired environmental outcome of this Measure is ambient air quality that minimises the risk of adverse health impacts from exposure to air pollution. The national environment protection goals of this Measure are: • for carbon monoxide, nitrogen dioxide, photochemical oxidants (as ozone), lead and particles (as PM10 and PM2.5)—to achieve the national environment protection standards specified in table 1 of Schedule 2 of the measure; • for sulfur dioxide—to achieve the national environment protection standards specified in table 1 of Schedule 2, and to achieve the national environment protection standard specified in table 1A of Schedule 2 of the measure; • for particles as PM2.5—to seek to achieve the further reductions in maximum concentrations specified in table 2 of Schedule 2 of the measure
National Environment Protection (Movement of by Controlled Waste between States and Territories) Measures (NEPM) 1998	This measure provides a national framework for developing and integrating state and territory systems for the management of the movement of controlled wastes between states and territories. These management systems include: • Tracking systems which would provide information to assist agencies and emergency services and would ensure that controlled wastes are directed to and reach appropriate facilities. • Prior notification systems which would provide participating states and territories with access to information, to assess the appropriateness of proposed movements of controlled wastes in terms of transportation and facility selection. • The licensing of transporters and regulation of producers and facilities so that tracking and notification functions are compatible with participating state and territory requirements.
Ozone Protection and Synthetic Greenhouse Gas Legislation Management Act 2003	The objectives of this Act are to institute, for the purpose of giving effect to Australia's obligations under the Vienna Convention and the Montreal Protocol, a system of controls on the manufacture, import and export of substances that deplete ozone in the atmosphere; and to use the best endeavours to encourage Australian industry to replace ozone depleting substances; and achieve a faster and greater reduction in the levels of production and use of ozone depleting substances. It is not expected that ozone depleting substances will be generated or used during this project.
Queensland	
Planning Act 2016 (Planning Act)	The *Planning Act* provides the system of land use planning, development assessment and related matters that facilitate the achievement of ecological sustainability. Development identified as 'assessable development', is subject to a development application.
Environmental Protection Act 1994 (EP Act)	The purpose of the *EP Act* is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends. The *EP Act* uses numerous mechanisms to achieve the above objectives, the most significant being the creation of a 'general environmental duty' (GED) and providing for the licensing of environmentally relevant activities (ERA). The *EP Act* is supported by the subordinate legislation including: • *Environmental Protection Regulation 2019* • *Environmental Protection (Air) Policy 2019* • *Environmental Protection (Noise) Policy 2019* • *Environmental Protection (Water and Wetland Biodiversity Policy) 2019.* The *EP Act* also regulates the management of contaminated land.
Coastal Protection and Management Act 1995 (CPM Act)	The purpose of the *CPM Act* is to provide for the protection, conservation, rehabilitation, and management of the coastal zone, including its resources and biological diversity. The *CPM Act* ensures decisions about land use and development safeguard life and property from the threat of coastal hazards and encourages the enhancement of knowledge of coastal resources and the effect of human activities on the coastal zone. The *CPM Act* designates coastal management districts (CMD) over certain coastal areas that require protection or management. In addition, quarry material in State coastal land (CMD) under tidal waters is owned by the State and regulated under the *CPM Act*. Should material removed and placed on land (where it is not behind a coffer dam, it may require a Quarry Material Allocation Notice.

Legislation	Description
Environmental Offsets Act 2014 (EO Act)	The *EO Act* aims to counterbalance the significant residual impacts of particular activities on prescribed environmental matters through the delivery of environmental offsets. Projects that require clearing of and have impacts to marine plants (i.e., mangrove vegetation) or other offsetable matters, State offsets may be triggered by the Works.
Fisheries Act 1994 (Fisheries Act)	The *Queensland Fisheries Act* and subordinate regulations govern commercial and recreational fishing activities and provide for the management, use, development and protection of fisheries resources and fish habitats, and the management of aquaculture activities. The *Fisheries Act* contains provisions for: • Removal, destruction or damage of marine plants, including mangroves • Works in a declared fish habitat area • Waterway barrier works. Should the design or methodology require a water barrier this will trigger assessable development.
Queensland Heritage Act 1992 (QH Act)	The *QH Act* conserves and protects places and items of historical and/or non-Indigenous cultural heritage. All places and items entered into the Queensland Heritage Register or a Local Heritage Register (by a local Government) are protected. Substantial penalties may apply for damage to a place or items that have been entered on the Queensland Heritage Register as a State Heritage Place. To be entered in the Queensland Heritage Register, a place or item must satisfy one or more of the criteria listed under section 35 of the *QH Act*. The *QH Act* also allows a place of local heritage significance to be listed by a local government in a local heritage register under the QH Act. The local heritage register may also be reflected in the local government planning scheme. Generally, all aspects of development on a Queensland Heritage Place are assessable development under the *Planning Act* and require approval. As such, projects should demonstrate consideration of impacts to a Queensland Heritage Place. Additionally, the project must demonstrate consideration of indirect impacts to listed Heritage Places including but not limited to impacts to significant views. The *QH Act* also provides for the protection of unknown archaeological artefacts such as tram tracks and other historical items and the requirements for managing archaeological artefacts if uncovered during the works and notifying DES as specified in s89 of the *QH Act*. exemption certificates may also be required prior to works on a Heritage Place, if not already obtained.
Vegetation Management Act 1999 (VM Act)	The purpose of the *VM Act* is to regulate the clearing of native vegetation. Vegetation protected under the Natural Assets Local Law (NALL) should be explored and will require a NALL permit through the Local Council if required.
Native Title (Queensland) Act 1993 (NT Act)	The *NT (Qld) Act* was enacted to ensure Queensland's laws regarding native title are consistent with the Commonwealth's *NT Act*. They both seek to formally recognise that native title rights did, and in some cases still do, exist for the descendants of Aboriginal and Torres Strait Islander people, and that descent groups can lodge native title claims.
Aboriginal Cultural Heritage Act 2003 (ACH Act)	The *ACH Act* is intended to provide effective recognition, protection, and conservation of Aboriginal cultural heritage within Queensland. It defines Aboriginal Cultural Heritage as, 'anything that is: • Significant Aboriginal area in Queensland; or • A significant Aboriginal object; or • Evidence, of archaeological or historic significance, of Aboriginal occupation of an area of Queensland.' The *ACH Act* requires all persons undertaking activities that could harm Aboriginal cultural heritage to assess the likelihood of their activities causing harm and to take appropriate steps to ensure that they avoid or minimise such harm. Accordingly, all reasonable and practicable measures to ensure project activities do not harm Aboriginal cultural heritage is required (refer to the ACH Act Duty of Care Guidelines).
Land Act 1994 (Land Act)	The *Land Act* requires land administered under the Act to be managed for the benefit of the people of Queensland based on the seven principles of: sustainability, evaluation, development, community purpose, protection, consultation, and administration. The following activities require approval under the *Land Act*: • Subdivision of land or rearranging existing lot boundaries otherwise known as reconfiguring a lot • Changes of tenure • Leasing of tenure • TPEMPorary or permanent road closure not involving a state-controlled road.

Legislation	Description
	Relevant provisions of the *Land Act* will be applicable in any dealings related to obtaining new tenure over or reconfiguring parcels of land required for establishment of the alignment of the Works. If t temporary or permanent closure of local roads are required as part of the Works, an application under the *Land Act* will be required.
Nature Conservation Act 1992 (NC Act)	The *NC Act* and subordinate regulations seeks to conserve nature in Queensland via: • Gathering of information and community education • Dedication and declaration of protected areas • Management of protected areas • Protection of native wildlife and its habitat • Use of protected wildlife and areas to be ecologically sustainable • Recognition of interest of indigenous and Torres Strait Islanders in nature and their cooperative involvement in its conservation • Cooperative involvement of landholders. The *NC Act* endeavours to ensure that protected plants and animals are not illegally removed from the wild or illegally traded. Colonies or habitats of native animals that are within or impacted by the works may require a specific management plan implemented by a licenced ecologist.
Biosecurity Act 2014 (Biosecurity Act)	The *Biosecurity Act* seeks to protect Queensland from animal and plant pests, diseases and other contaminants using a risk-based approach. A biosecurity risk exists where there are dealings with any pest, disease, or contaminant, or with something that could carry one of these things. This includes moving or keeping a pest, disease, contaminant or animals, plants, soil, and equipment that could carry a pest, disease, or contaminant. The *Biosecurity Act* imposes a general biosecurity obligation (GBO - requiring that all reasonable and practical measures be taken to prevent or minimise biosecurity risk) on persons dealing with biosecurity matters to prevent and/or minimise the impact of biosecurity risks on human health, social amenity, the economy, and the environment. It also imposes movement control for Red Imported Fire Ants as outlined at https://www.daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/ants/fire-ants.
Waste Reduction and Recycling Act 2011 (WRR Act)	The *WRR Act* establishes a framework for waste management and resource recovery practices in Queensland. The purpose of this Act is to promote waste avoidance and reduction and to encourage resource recovery and efficiency. The key provisions of the *WARR Act* relevant to the Works include: • A requirement to prepare waste management plans • Product stewardship arrangements for any waste products that are identified as a growing problem for landfill in the future • Strengthened litter and illegal dumping offences, including public reporting of vehicle related littering offences • Potential application for approval of resource for beneficial use where a resource is considered to have a beneficial use other than disposal by the chief executive.

5 Project Organisation

5.1 Roles and Responsibilities

5.1.1 Operations Manager

The Operations Manager has responsibility to:

- Ensure construction activities are undertaken in accordance with BESIX Watpac's Environmental Policy and the objectives and provisions of the PEMP
- Ensure all staff carrying out functions which may create a significant impact on the environment are appropriately trained to a level commensurate with their role and responsibilities in the project.

5.1.2 Quality and Environment Manager

The Quality and Environment Manager is responsible for establishing and maintaining the Company's Environment Management System and represents BESIX Watpac on all environmental matters pertinent to the EMS.

The Environment Manager is responsible for:

- Ensuring environmental risks are assessed, considered, and minimised through the construction process
- Ensuring relevant approvals are in place prior to works commencing
- Ensuring all management plans have been prepared and approved prior to works commencing
- Assisting the Construction Manager with the implementation of the PEMP
- Providing support and technical assistance to the site-based Project Environmental Coordinator
- Monitoring the effectiveness of the Environmental Management System.
- Implementing and maintaining the PEMP
- Preparation/compilation of registers, records, plans, and forms necessary for the implementation of environmental controls
- Reviewing the environmental aspects at project start-up and ensuring the PEMP addresses all requirements
- Providing guidance, motivation, and resources to achieve the provisions of the PEMP
- Monitor the construction processes to ensure that appropriate environmental protection/procedures are in place
- Identify and record any environmental issues
- Control and maintain project environmental records, including indexing records, prior to archiving
- Ensuring that subcontractors and suppliers are aware of BESIX Watpac's environmental policy and objectives, through conditions of contract, tender interviews, scopes of work and site environmental inductions as applicable
- Establishing monitoring records and ensuring the scope and frequency of monitoring activities satisfy the requirements of the PEMP
- Identify and record any environmental problems
- Initiate solutions to the environmental problem
- Stop the works, if such a decision becomes necessary, in order to prevent or mitigate adverse environmental conditions, or if corrective measures recommended are not being carried out
- Provide recommendations for EMS and operational improvements to the Quality and Environment Manager

5.1.3 Project Manager

The Project Manager is responsible to the General Manager through the Operations Manager to ensure effective environmental controls are implemented for the duration of the project.

Specifically, the Project Manager shall be responsible for the:

- Supporting the Implementation of the PEMP
- Ensuring stakeholders are sufficiently communicated with regarding the provisions of the PEMP
- Providing guidance, motivation and resources to achieve the provisions of the PEMP
- Ensuring that subcontractors and suppliers are aware of Watpac's environmental policy and objectives, through conditions of contract, tender interviews, scopes of work and site environmental inductions as applicable

The Project Manager shall have sufficient authority and independence to stop the works, if such a decision becomes necessary, in order to prevent or mitigate adverse environmental conditions, or if corrective measures recommended are not being carried out.

5.1.4 Project Environmental Coordinator

The Project Environmental Coordinator is responsible to the Project Manager for the maintenance of the Project Environmental Management system.

The Project Environmental Coordinator is the document controller for the PEMP and shall prepare/compile registers, records, plans and forms necessary for the implementation of environmental controls. The Project Environmental Coordinator shall review these as necessary and ensure timely distribution to all relevant parties in the Project.

Responsibilities of the Project Environmental Coordinator shall include:

- Monitor the construction processes to ensure that appropriate environmental protection/procedures are in place
- Identify and record any environmental issues
- Recommend and initiate solutions to environmental problems and verify the implementation of solutions
- Investigate and record all environmental complaints
- Control and maintain project environmental records, including indexing records, prior to archiving
- Implement any environmental checklists, field records and procedures as applicable to the works
- Maintenance the PEMP and control of distribution
- Provide recommendations to the Quality and Environment Manager for EMS and operational improvements.

5.1.5 Independent Verification Staff

Individual employees or consultants may be appointed to assist the Project Manager to carry out environmental testing and inspection duties. This testing and inspection may be in addition to and separate from any testing and inspection required for Environmental Management purposes.

Independent Verification staff will not be drawn from personnel who are performing or directly supervising the activities being inspected.

5.1.6 Site Manager

The Site Manager is responsible to the Project Manager to:

- Ensure all work under the Site Manager's control is undertaken in accordance with statutory environmental requirements and the PEMP.

- Identify, recommend and initiate solutions to any project environmental issues
- Ensure all workers and subcontractors under the Site Manager's control are properly inducted in the requirements of the BESIX Watpac Environmental Policy and objectives and PEMP, and instructed in the following:
  - The role and environmental responsibilities of the project/works for which they are engaged
  - The use and understanding of any environmental documentation for the work
  - Specific environmental procedures for the project/works.

5.1.7 Foreman

The Foreman is responsible to the Site Manager to:

- Ensure all work under the Foreman's control is undertaken in accordance with statutory environmental requirements and the PEMP
- Identify, recommend and initiate solutions to any project environmental problem.

5.1.8 Contract Administrator

The Contract Administrator shall be responsible to the Project Manager for:

- Ensuring proper procedures are followed for the procurement of goods and services to ensure that BESIX Watpac's environmental policy and objectives and the requirements of the PEMP are achieved.

5.1.9 Direct Labour

Each tradesperson, trades assistant, operator and PEMPloyee shall be responsible for carrying out their work in accordance with BESIX Watpac's stated Environmental Policy and objectives, the PEMP and as instructed by their supervisor.

5.1.10 Subcontractors and Suppliers

BESIX Watpac will ensure all subcontractors and suppliers are responsible for conducting their activities in an environmentally sensitive manner and in compliance with the requirements of this PEMP; ISO 14001 and any works environment management plans.

Site inductions will include detailed and site specific environmental information. Any trade likely to have a high impact on the environment is required to submit an PEMP, which is assessed using the "Subcontractor PEMP assessment checklist" to ensure it is comprehensive.

All personnel shall notify the BESIX Watpac Site Manager of any activity or incident, or any deviations from work place practices and procedures set out in this PEMP.

Subcontractor audits can be conducted. The standard audit checklist on the intranet contains environmental criteria which can be adapted to the nature of the trade work.

Contractors shall ensure their personnel working at the site:

- Have the appropriate environmental awareness training and / or qualification for the task undertaken
- Are aware of the potential environmental impacts of their activities on the site and the procedures by which such impacts are to be minimised or prevented.

6 Implementation

6.1 Monitoring

The Project Environmental Coordinator shall:

- Monitor each element of the construction process to ensure that appropriate environmental protection/procedures are in place
- Undertake daily monitoring of the implementation and effectiveness of environmental controls
- Conduct and record weekly site inspections of environmental controls and direct such action as may be considered necessary to protect, minimise or rectify any environmental concerns.

The project team will use the Environmental Inspection Checklist to undertake site inspections to monitor environmental controls and direct such action as may be considered necessary to protect, minimise or rectify any environmental concerns.

6.2 Consultation

BESIX Watpac undertakes to advise adjacent property owners/managers of the timing and duration of activities likely to give rise to environmental concerns e.g. ground works or proposed out of normal hours activities.

Where applicable a list of adjoining building managers with their business and out-of-hours contact numbers will be maintained on the project contact list. Correspondence with external sources and pertinent advice/reports will be saved in “16.04 Correspondence with External Sources” in the project folders on the network drive.

6.3 Environmental Complaints

The Project Manager and/or the Project Environment Coordinator will immediately investigate all environmental complaints. Details of complaints and the remedial action taken will be recorded in the Incident and Complaint Register (E-REG-004).

BESIX Watpac will notify the Principal’s Representative of all applicable complaints received. Any complaints received by the Principal’s representatives will be investigated and recorded by BESIX Watpac as appropriate. The Principal’s Representative must be notified verbally immediately after received a significant complaint, and furnished with a written report within 24 hours of the complaint.

The report should be drafted on BESIX Watpac’s Environmental Complaint and Incident Report Form (E-FRM-003).

All complaints shall be responded to within 48 hours.

6.4 Environmental Incidents

Should significant environmental harm occur during the course of the works, BESIX Watpac shall take prompt action to minimise any impact and immediately inform the Principal’s Representative. Procedures to respond to an emergency incident have been documented in Section 6.7.

Subcontractors who become aware of an environmental incident shall report the matter immediately to the Site Manager.

All incidents will be:

- Addressed as expeditiously as possible to minimise the potential environmental impacts

- Investigated; where necessary BESIX Watpac will seek the advice of relevant Authorities and comply with their instructions
- Recorded in Complaint and Incident Report Form (E-FRM-003).

If environmental harm is observed, there is a legal obligation to notify the State based environmental protection authority. As with any environmental incident, the following process should be followed:

- Immediately inform the State Environmental Manager for advice about informing the State based environmental protection authority.
- Complete the Environmental Complaint and Incident Report Form (E-FRM-003).
- Send report to your State Environmental Manager as soon as possible following occurrence.
- Environmental Manager will review and approval for issue to Principal's Representative.

6.5 Reporting

The Client will be notified of applicable environmental incidents and complaints, as soon as possible thereafter, including notification of the proposed corrective action.

Project Reports submitted to the Client will report on all applicable environmental matters including environmental incidents, non-conformances, complaints, performance and the implementation and effectiveness of the PEMP.

All communication of information concerning the project environmental performance, internally and externally, shall be in compliance with BESIX Watpac 'Environmental Communication' procedure.

6.6 Duty To Notify

The duty to notify is set out in sections 320 to 320G of the Environmental Protection Act (Qld).

The 'Duty To Notify' the appropriate environmental authority of an incident leading to 'Environmental Harm' is a legal requirement that ensures that the administering authority and other relevant persons are made aware of such incidents and to ensure that appropriate action is/has been undertaken to minimise the extent of further environmental harm.

Incidents that will require notification under the duty to notify will be referred to as 'notifiable events'.

BESIX Watpac must give the administering authority (the State Environmental Authority) written notice with details of the event no later than 24 hours after first becoming aware of the event.

The notice must contain sufficient details to provide notice of the event, its nature, and the circumstances in which it happened (for simplicity referred to as the details of the event). BESIX Watpac must always keep a record of when and to whom they gave notice of a notifiable event.

In addition to the written notice, if a person becomes aware of a notifiable event, the person should immediately call the State Environmental Protection Authority (DES), and the pollution hotline on 1300 130 372 and report the matter.

Under the Act, BESIX Watpac is classified an PEMPloyee, contractor, or agent, who causes or becomes aware of a notifiable event, must notify the person who PEMPloys them or engaged them as a contractor or agent (i.e. the Principal's Representative) within 24 hours of becoming aware of the event.

As soon as possible BESIX Watpac must also either:

- Give written notice with details of the event to any combination of the occupiers or registered owners of affected land (if applicable); or
- Give public notice of the details of the event (if sufficiently large scale).

The notice Duty to Notify of Environmental Harm (EM468) can be used to notify the department (as administering authority) about notifiable events.

6.7 Emergency Response Plan

The response procedures, emergency contact numbers, responsibilities and required actions for responding to environmental emergencies have been integrated into the Project Emergency Plan.

Table 4 Emergency Management Protocols

Emergency Management Protocols	
Objective	The project manager shall ensure that: • A spill kit is always available on site • All reasonable measures are taken to prevent environmental emergencies • The project emergency plan is readily accessible to all site personnel • Emergency plans are part of site inductions
Reporting	• All emergency situations to be reported, investigated and recorded
In the event of an environmental incident	• Stop work and secure the area if safe to do so • Initiate the Project Crisis Checklist • Prevent the incident from escalating • Notify applicable management, emergency services and authorities • Clean up the affected area. Engage specialist help if required • Investigate the circumstances • Record the incident • Implement actions to prevent a recurrence • Follow-up to ensure the actions were correctly implemented and effective
Extreme Wet Weather	• Alert site personnel and stop all external work on if applicable • Check site for plant, equipment and materials on site and secure anything not in immediate use • Check water outlets, water catchments, stormwater and sedimentation controls
Unplanned Interruptions to Existing Services	• Shut down and isolate plant if safe to do so • Immediately notify relevant emergency services and service providers • Secure the area and erect hazard markers as required • Protect stormwater outlets, implement controls if required. • Do not recommence work until approved by the relevant authority
High Wind Warning	• Alert outdoor workers of potential dangers and stop all external work • Secure any loose object that could become missiles
Dangerous goods spill or leak	Event of spill: • Assess: evaluate the spill to determine if it can be dealt with by an individual, the spill response team or if outside assistance is required. • Secure: make the site safe for all personnel and the general public. • Contain: spill response equipment such as spill booms, drain covers or bunding can be used to contain the spill. for solids, tarps may be used to cover and prevent dampness to granules or possible dispersion by wind. • PPE: identify the liquid and check the MSDS to ascertain the required PPE. • Absorb: once the liquid is contained, it will need to be converted to a solid by absorption. use the appropriate absorbing pads or absorbent to soak up the spill by placing them over the Liquid. remove the saturated pads and replace as necessary. on porous surfaces, sprinkle loose absorbent over the spill and broom through until surface appears dry. • Dispose: place the spent absorbent in the disposal bags. correctly dispose of contaminants off site using a licensed contaminated waste disposal contractor.

Emergency Management Protocols	
	• Report: document the incident and include what happened, when it happened, where it happened; and what was done to eliminate or minimise the impact. • Restock: order and replace used up PPE and absorption materials.

6.8 Environmental Training

As part of their site environmental induction/training all personnel engaged in the works shall be made aware of the provisions of this Project Environmental Management Plan in order to promote a general awareness of the environment and to minimise any potential impact upon it.

Environmental induction and training will be appropriately commensurate with their roles and environmental responsibilities in the project.

Evidence of environmental induction and training of personnel for this project shall be maintained on the project records in accordance with S04-01 Induction.

Training requirements for BESIX Watpac personnel are identified using S04-02-01 Operational HSEQ Training Matrix, and planned on appointment to their role, and for each project. The Project Manager will monitor the skills required by BESIX Watpac personnel and contractors to effectively implement the PEMP and its procedures on site. Any further training needs will be identified, implemented and recorded in the project records.

Project-specific environmental training requirements for BESIX Watpac and Contractors will be identified at the commencement of the project using PM-FRM-002 Project HSEQ Training Needs Analysis. These training requirements will be communicated to Contractors as part of the Subcontractor Start-up Meeting process.

Contractors shall be responsible for providing evidence to BESIX Watpac, as applicable, prior to commencing work that:

- Environmental training needs of their personnel working at the site been assessed and satisfied
- Contractor personnel have received the appropriate environmental awareness training and / or qualification for the task to be undertaken.

Various key management personnel within BESIX Watpac's project team responsible for managing the Environmental Management System will have undertaken an online internal course in Site Environmental which comprises an understanding of:

- Environmental Legislation and Responsibilities
- Understanding Risk Management
- Site Environmental Management Plans
- Selecting, implementing and maintaining environmental protection measures
- Inspections, Monitoring and Reporting of Erosion control measures.

6.9 Auditing

The Site Manager and the BESIX Watpac Quality and Environment Manager will conduct regular evaluations of the implementation and effectiveness of the PEMP.

In addition to the regular reviews, the Quality and Environmental Manager will conduct periodic environment audits including an audit of the implementation and effectiveness of this PEMP.

The audit will identify any deficiencies in the implementation and effectiveness of environmental management practices at the site. The Quality and Environment Manager will issue Non-conformance Reports (NCRs) or Corrective Action Requests (CARs) as applicable.

6.10 Environmental Non-Conformances, Corrective and Preventive Actions

BESIX Watpac will identify and evaluate all non-conformances with legal requirements; applicable permits; specifications and the requirements with this PEMP.

Non-conformance Reports shall be raised as appropriate to clearly identify the nature of the non-conformance and document the proposed remedial action and the person responsible for the remedial action.

The Site Manager will verify follow-up action is implemented and effective. Reports will be filed in the incidents and complaints section of the project folders in the network drives.

Corrective and Preventive Action Requests will be raised, where appropriate, as a result of complaints, incidents, non-conformances and deficiencies identified in the implementation of environmental practices and procedures. Corrective and Preventive Action Requests shall be raised, where appropriate, to correct and/or prevent non-conformances in construction activities and in the operation of the Environmental Management System.

Actions as a result of Corrective and Preventive Action requests will be implemented, followed-up and recorded in the incident and complaint logs.

6.11 Project Environmental Records

The following documents are to be retained in the project folders in the network drives:

- Weekly Environmental Inspection Reports
- Environmental Incident and Complaint Reports
- Environmental Non-conformance Reports
- Environmental Corrective and Preventive Action Requests
- Environmental Reports
- Copies of all applicable Environmental Permits
- Environmental Monitoring Records
- Environmental Induction and Training Records
- Environmental Audit Reports
- Project Environmental Aspects and Risk Assessment
- Any correspondence regarding environmental issues relating to the site.

6.12 Issue and Control of the Environmental Management Plan

The Controlled copy of this PEMP is located in the project's environmental folder on the common drive. All hard copies of this document are uncontrolled.

Copies of the PEMP shall be distributed electronically via Aconex to all Subcontractors. The distribution list shall be maintained within Aconex and is available from the Project Document Controller.

The PEMP is to be revised with any applicable changes to the environmental requirements for this project.

7 Standard Operating Procedures (SOPs) for Identified Environmental Risks

The Project Team in conjunction with the Quality and Environment Manager have identified and addressed the environmental aspects associated with this project. This involves:

- Reviewing the environmental requirements of the Contract and Contract Specifications
- Reviewing all environmental consent conditions including permit and development consent conditions and pollution control approvals applicable to the project
- Reviewing the site conditions and proposed construction activities
- Reviewing the BESIX Watpac Environmental Aspects Register
- Reviewing the BESIX Watpac Register of Statutory and Environmental Reference Documents to identify applicable legal and other statutory requirements
- Identifying for each activity, the environmental aspects and associated actual and potential environmental impacts and opportunities for normal and uncommon circumstances
- Assessing the inherent and residual significance of each identified environmental risk and opportunity using the probability of occurrence of the impact and the severity of the impact.
- Documenting within this PEMP project specific action plans and control measures to manage each identified environmental aspect, risk and opportunity.

Standard Operating Procedures (SOPs) have been developed to manage each environmental aspect pertinent to this project, as identified in the Environmental Risk Assessment.

These SOPs document the objective, strategy, action plan, control measures and performance targets for each identified aspect. Each SOP is outlined separately under sub-headings in the pages hereafter.

Site Accommodation	
Standard Operating Procedure 7.1	
Objective	Control, minimise or avoid contamination or spoiling of areas in the establishment, operation and disestablishment of temporary site accommodation facilities.
Management Strategy	Establish temporary site offices, amenities and ablution facilities, including provision for sanitary waste, in accordance with the requirements of the relevant local authority, all relevant Acts and Regulations and industry best practice. Remove all temporary buildings and facilities from site when no longer needed and make good all disturbed areas, including landscaping where required.
Action	Project Manager shall ensure: • Site offices, amenities and ablution facilities are located and operated in such a manner as not to cause environmental concern • Site offices, hoarding, crossovers and fencing complies with the approved Site Plan or approved revision • Consider materials laydown area(s). Prioritise areas that will not have a deleterious effect on vegetation or stabilisation; this includes frequency of vehicle access • Spill kits should be nearby to materials laydown areas and plant access areas • Adequate firefighting equipment is provided and maintained for the works • Required permits and approvals are received prior to commencing works • Install automatic shut-off taps to water points and utilise low voltage luminaries to site facilities • No trees or vegetation is damaged or removed for site accommodation facilities. Adequate tree protection will be provided • Construction routes are cleaned regularly at weekly intervals or as required • Efficient use of energy needed for lighting, space and water heating, and equipment in the site facilities, including offices, cafeteria and washroom facilities, toilets and any other temporary accommodation and storage areas on site.
Performance Indicators	Appropriate location and operation of all facilities. Site reinstated upon completion of project
Reference	Site Plan

Site Amenities	
Standard Operating Procedure 7.2	
Objective	Maintain hygiene and reduce nuisance created by site accommodation.
Management Strategy	Keep site clean and tidy Monitor area
Action	Project Manager shall ensure that: <u>Ablution</u> • Septic waste issues from overflowing portable toilets and unaccounted sewerage pipe burst is avoided. • Adequate lavatory systems are provided within reasonable proximity of working areas • Septic waste removal service is scheduled • Toilet facilities are well maintained • Clean up procedures are included in induction • There is bunding around temporary septic systems • There is a suitable and adequate amount of signage • Site induction demonstrate proper site behaviour <u>Waste</u> • Cardboard waste bin is provided on site. • All putrescible waste is stored in secure containers until removal and disposal off site. • A daily 'sweep' of the entire area is done to remove any stray/windblown litter. • Designate specific areas on site for the temporary management of waste, i.e. general domestic waste, works waste and contaminated waste • Waste streams will be segregated to enhance recycling opportunities where practicable i.e. general domestic waste, works waste and contaminated waste • All domestic and industrial waste to be disposed of in dedicated industrial bins • Waste bin lids to be closed at all times to avoid, littering, access by birds and scavenging by vermin, birds or native wildlife • Waste oils to be recycled where practicable • No waste will be burnt on site.
Performance Indicators	No odour or vermin present

Air Quality (Including Dust)	
Standard Operating Procedure 7.3	
Objective	Avoid, control or minimise contaminant emissions to the atmosphere caused by rising dust, vehicle/plant emissions, noxious fumes/odours, or paint spraying activities.
Management Strategy	Site environmental induction to address the issue of air quality and protective measures to prevent avoidable discharge of contaminant to the atmosphere Implement measures for control and suppression of dust
Action	Project Manager shall ensure: • Deposition over an averaging period not to exceed 4g/m2 /month. Visual observance of dust is low, 20km visibility is maintained • Work areas kept free of dust • Equipment to cut and grind concrete should be fitted with effective dust extractors • Cutting areas will be provided that are isolated dust extraction areas; all concrete cutting including blockwork and wall sheeting should be done in these areas • Concrete grinding should be supported an H-Class vacuum • Captured dust should be bagged and tied prior to dumping into general waste • All trades vacuum/sweep up as they go • Decks should be cleaned progressively including magnet extraction of reinforcement tailings and off-cuts to avoid a big deck blow-off prior to pouring and future-proof against strong winds • Materials deliveries such as fill, soil, sand, gravel, landscaping supplies etc, are transported to the site under covered loads • Stockpiles are stabilised with suitable materials, e.g., soil binder, hydromulch, tarp, geofabric • Site conditions are regularly inspected, and hand-held sprinklers and/or water cart are used as required to minimise dust • External paint spraying activities are undertaken in accordance with local authority requirements and not carried out during adverse weather conditions • All machinery and equipment used at the site will be maintained to relevant standards to reduce emissions to as low as possible • Disturbed areas will be re-vegetated as soon as practicable after construction of the works • Earth wetting using water cart and water sprays will be undertaken regularly to compact and stabilise soil during construction to minimise dust generation at the site • Roads will be cleaned regularly to prevent the spread of dirt on roads surrounding the site • On-site speed restrictions and the need to control dust are formally discussed during site inductions • Construction plant, machinery and vehicle access is to occur along designated access tracks only • Staff training and inductions, including: • Procedures for the application of dust suppression measures • General site management • Periodic toolbox training to be provided to relevant construction personnel to present new information or reiterate information relating to minimising potential impacts to air quality.
Performance Indicators	Visual observance of dusts levels; vehicle and plant emissions No dust complaints
Reporting	Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Reference	Environmental Protection (Air) Policy 2019

Noise	
Standard Operating Procedure 7.4	
Objective	Control, minimise or avoid environmental nuisance caused by 'unreasonable' levels of noise.
Management Strategy	Site environmental induction to address the issue of noise and protective measures to prevent 'unreasonable' noise caused by construction activities.
Action	Project Manager shall ensure: • All construction activities will be undertaken mindful of the provisions of AS 2436:1981 - Guide to Noise Control on Construction & Demolition Sites • Under the Environmental Protection Act 1994, section 440R(I), a person must not carry out building work in a way that makes an audible noise outside of the approved works hours of 6:30am to 6:30pm Monday to Saturday. • Out of Hours Work – BESIX Watpac will provide at least five days' notice to the Principal prior to requiring access to the Site out of the access hours. A minimum of two personnel must be present on Site when work is being conducted outside the access hours. • Each item of plant is fitted with exhaust mufflers as applicable • Use of mufflers/silencers to pneumatic tools (e.g. breakers) will be explored if necessary • Substitute impact piling for bored piling or hydraulic piling where possible. If impact piling is adopted, place a resilient pad (dolly) between the hammer head and the pile. Enclose the hammer head and the top of the pile in an acoustic screen. • All plant, equipment and machinery are operated and maintained in accordance with acceptable industry standards and turned off when not in use. • Two-way radios are used for site signalling and communication. • When construction work is permitted outside designated hours, notice is given to occupiers of properties within the immediate precinct of the works providing details of the work to be done, together with the hours to be worked. • Power generators used for after-hours lighting are positioned and acoustically treated, as far as practical, to minimise noise emissions. • BESIX Watpac will notify the Principal's Representative a minimum of 48 hours in advance if any of the following activities are to be undertaken on Site and are likely to disturb occupants within the adjacent facilities: – Impact drilling concrete, floors or masonry – Chasing into walls – Use of explosive powered tools – Electric sawing of any material – Any noisy activity that may need to take place outside normal business hours.
Performance Indicators	No complaints concerning noise nuisance. No fines received.
Reporting	Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Reference	Environmental Protection (Noise) Policy 2019

Vibration	
Standard Operating Procedure 7.5	
Objective	Control, minimise or avoid disturbance caused by vibration in ground works or other structural activities.
Management Strategy	Site environmental induction to address the issue of vibration and protective measures to prevent disturbance/incidents caused by vibration. Identify works likely to cause high vibration—communicate this to the Principal and to neighbours.
Action	Project Manager shall ensure: • Vibration is controlled in accordance with AS 2670.2. • A survey of properties in the immediate precinct of the site is undertaken and notes made, together with a photographic record of existing conditions • All equipment and machinery is operated and maintained in accordance with industry standards • Any blasting, rock breaking, drilling or piling activities are carried out under strictly controlled conditions • The use of heavy machinery in the proximity of retained buildings or other structures will be limited to absolutory essential activities and only upon approval by the site manager • Extra vigilance is to be exercised while using rock breaking equipment near structures, hoarding walls and underground services. Activity is to cease at the first sign of risk and a risk assessment is to be carried out and ratified by the Site management team prior to proceeding. • BESIX Watpac will notify the Principal's Representative a minimum of 48 hours in advance if any of the following activities are to be undertaken on Site and are likely to disturb occupants within the adjacent facilities: – Piling – Compacting – Use of explosive powered tools – Electric sawing of any material – In-ground, consider pre-drilling options to mitigate vibration.
Performance Indicators	No disturbances/incidents or complaints.
Reporting	Monitoring records to be maintained during construction activities with potential to generate vibration Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Reference	Environmental Protection Act 1994 Transport & Main Roads: Transport Noise Management Code of Practice Volume 2 – Construction Noise and Vibration

Water Quality	
Standard Operating Procedure 7.6	
Objective	Maintain the health of any impacted nearby waterbodies.
Management Strategy	Site environmental induction to address: The issues concerned with the conservation of water usage in construction activities. The issue of water quality and protective measures to prevent avoidable discharge into, or contamination of, waterways or established drainage systems.
Action	Project Manager shall ensure: • Any water leaving the site must be compliant with the following discharge limits: – No more than 50mg/L Turbidity, or 50 NTU, after establishing correlation – pH must be between 6.5 and 8.5 – Dissolved Oxygen must be greater than 6 mg/L or 80% saturation level for a normal 24 hr period – Temperature of the receiving waters must not rise more than 2°C above seasonal mean temperature – No visible oils, films, litter, coarse material, cement or other chemicals can be present in discharge • Wet discharge must be managed. This includes designated areas for washing out of concrete trucks, concrete pumps, paint, masonry cutting, and plaster. Refer to PM-PLA-014 for more information • Use of water for wet trades' clean-up is minimal, self-contained and recycled where possible, or optionally not using any washdown at all. • Paint, solvents, oils etc. are correctly stored in bunded and contained area. • Stockpiles of bulk materials are located well clear of any waterway or drainage systems, protected by sediment fences, and covered by tarp, seed, mulch or chemical binder • Where available, a recycled water source will be used for dust suppression • Where water discharge compliance can't be achieved, contaminated wastewater is to be used as dust suppressant or collected by a licenced contractor to a licenced facility • Roadways can be swept, not washed down • Work in or around watercourses should be managed to minimise impact in accordance with BESIX Watpac plan PM-PLA-014.
Performance Indicators	No incidents of inadvertent waste of water No pollution or contamination of waterways
Reporting	Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Applicable Permits	Trade Waste Approval – "Special Approval"
Reference	Environmental Protection Act 1994 Environmental Protection (Water and Wetland Biodiversity) Policy 2019

Erosion and Sediment Control	
Standard Operating Procedure 7.7	
Objective	Avoid, or minimise and control, contamination caused by sedimentation run-off or the discharge of pollutants into waterways or established drainage systems. Conserve the use of water to minimal requirements.
Management Strategy	Site environmental induction to address: The issue of water quality and protective measures to prevent avoidable discharge into, or contamination of, waterways or established drainage systems The site-specific Erosion and Sedimentation and Control Plans are to be implemented and maintained.
Action	Project Manager shall ensure: • Any water leaving the site must be compliant with discharge limits described in SOP 7.6 (above). • Erosion and Sediment Control to be established in accordance with the site Erosion and Sediment Control plans, and BESIX Watpac document PM-PLA-014 Erosion and Sediment Control Guide • Sediment fences are to be dug into the ground 200mm, using a bidim A34 product • Vehicle entry/exits will be established with shake-down grids, rumble rock and/or bunds. Rumble pad will be bottom lined with geotextile fabric material • Any batters that are to remain are promptly and appropriately treated/revegetated • Earth bunds, swales/ channels or sediment fencing should be set up around the perimeter of the site so as to minimally disturb the natural overland flow of the surrounding watercourse and provide minimal run-off into nearby waterways that are diverted through the site • Sediment basins: Refer to E-MAN-001 Water Quality Management Manual for establishing, managing and servicing Sediment Basins • Areas for plant and construction material storage are designated • Upstream stormwater runoff is diverted around disturbed areas of the site • Disturbed areas are stabilised as soon as practicable • Stormwater quality discharging from the site is monitored, and the implement additional measures or modify existing measures if required • Transport routes are designated and marked of across the site to minimise dust disturbance • Drainage structure protection devices are installed to existing stormwater inlet structures within the site, and within the road ways adjacent to the site. • Site personnel are educated to the sediment and erosion control measures implemented on site • Where available, a recycled water source will be used for dust suppression • Refer to PM-PLA-014, Erosion and Sediment Control Guide, for a detailed manual on following ESC Plans and establishing on site.
Performance Indicators	No sedimentation run-off No pollution or contamination of waterways.
Reporting	Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Reference	Environmental Protection Act 1994 Environmental Protection (Water and Wetland Biodiversity) Policy 2019

Spill Response and Management	
Standard Operating Procedure 7.8	
Objective	Control, minimise or avoid spillage of hazardous or prohibited substances, and react quickly to contain spills in the event they occur.
Management Strategy	Induct all personnel to handle chemicals with care. Ensure spill kits are positioned near potential escape points.
Action	In event of spill: • Assess: Evaluate the spill to determine if it can be dealt with by an individual, the spill response team or if outside assistance is required i.e.; hazchem, police, fire brigade, specialist spill response company. • Secure: Make the site safe for all personnel and the general public. • Contain: Spill response equipment such as spill booms, drain covers or bunding can be used to contain the spill. For solids, tarps may be used to cover and prevent dampness to granules or possible dispersion by wind. • PPE: Identify the liquid and check the MSDS to ascertain the required PPE • Absorb: Once the liquid is contained, it will need to be converted to a solid by absorption. Use the appropriate absorbing pads or absorbent (according to the type of material spilled) to soak up the spill by placing them over the liquid. Remove the saturated pads and replace as necessary. On porous surfaces, sprinkle loose absorbent over the spill and broom through until surface appears dry. • Dispose: Place the spent absorbent in the disposal bags. Correctly dispose of contaminants off site using a licensed contaminated waste disposal contractor. • Report: Document the incident and include what happened, when it happened, where it happened; and what was done to eliminate or minimise the impact. • Restock: Order and replace used up PPE and absorption materials. Project Manager shall ensure: • Spill containment and treatment equipment and materials will be available near storage areas of hazardous materials and escape points of the site. Spill kits and other suitable incident response equipment will also be located at other key points around the site and maintained ready for use. • Transport of chemicals is planned and controlled to minimise change of spillage. Transport is only to occur in a bunded and secure vehicle, with checks in place to ensure container lids are secure. • Subcontractors will be required to provide and maintain their own spill kits where required. • Spills of hazardous materials will be collected by licensed contractor and collected for treatment at a licensed waste disposal facility. • All regulated waste will be tracked as per the Environmental Protection (Waste) Policy 2000 • Contaminated ground is made good and contaminated material that is to be removed from site is disposed of in an approved manner. • SWMS must be submitted and approved for the handling and use of hazardous chemicals. • Any waste oils, lubricants and contaminated cloths, resulting from maintenance of plant on-site, are placed in suitable containers prior to removal and disposal at an approved waste receiving facility.
Performance Indicators	No spillages. Spill kits readily accessible.
Reporting	Immediate contact and incident reporting through Environmental Manager in event of spill. Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Reference	Work Health and Safety Regulation 2011 Environmental Protection Act 1994 Environmental Protection (Water and Wetland Biodiversity) Policy 2019 Environmental Protection (Regulated Waste) Amendment Waste Reduction and Recycling Act 2011

Protection of Flora	
Standard Operating Procedure 7.9	
Objective	To preserve and protect native vegetation and forestry areas from injury or harm as a consequence of construction activities and as far as practical, minimise disturbance to animal habitats.
Management Strategy	Site environmental induction to address issues of potential harm to native flora. Confine site clearance to minimum requirements. Apply appropriate controls for noise abatement and dust control to minimise disturbance. Register contact telephone numbers for Parks and Wildlife Service on project records.
Action	Project Manager shall ensure: • Any tree protection or removal is to be carried out under the management plan produced by an Arborist / Arboriculturalist • If trees to be removed are in a wildlife corridor, a qualified specialist should inspect for wildlife or animal habitats. Arborists, Spotter/Catchers, or Ecologists (holding a current Rehabilitation Permit licensed under the Nature Conservation Act 1992) are qualified to undertake this inspection • All vegetation to be removed shall be marked and inspected on-site by the Superintendent prior to clearing. Removal shall be undertaken in consultation with a qualified Arborist or in accordance with the tree removal plan. • All vegetation to remain will be protected with hoarding or barriers • Trees approved for removal are grubbed out, segregated for salvaging of timber or mulched for use as green waste • All rectification to retained trees is carried out by an approved Arborist • Protective fencing and Tree Protection Zones are established as required for all retained trees • Appropriate controls and monitoring are maintained for Tree Protection Zones • No deleterious materials are stored within the drip line of trees, including stockpiling of organic material that chokes the trunk • All incidents of injury or displacement of native fauna is reported to the Superintendent • No damage is incurred to protected vegetation without first obtaining a permit.
Performance Indicators	No harm or damage to vegetation.
Reporting	Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Applicable Permits	All native vegetation, Significant Native Vegetation (SNV) and Waterway and Wetland Vegetation (WWV) requires a permit to clear, under the Natural Asset Local Law 2003 Clearing Permits for removal of Protected Plants may be required if triggered under the Nature Conservation (Protected Plants) Conservation Plan Approval is required under the Vegetation Management Act when clearing is to be undertaken within a declared area or within a remnant ecosystem, unless listed under the exemptions in the Sustainable Planning Regulation 2009
Reference	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) Environmental Protection Act 1994 Nature Conservation Act 1992 Vegetation Management Act Plant Protection Act 1989; Natural Asset Local Law 2003

Protection of Fauna	
Standard Operating Procedure 7.10	
Objective	To preserve and protect native wildlife from injury or harm as a consequence of construction activities and as far as practical, minimise disturbance to animal habitats.
Management Strategy	Site environmental induction to address issues of potential harm to any wildlife. Confine site clearance to minimum requirements. Apply appropriate controls for noise abatement and dust control to minimise disturbance. Register contact telephone numbers for Parks and Wildlife Service on project records.
Action	Project Manager shall ensure: • During removal of any trees, or clearing of vegetated areas, a qualified specialist should inspect for wildlife or animal habitats. Arborists, Spotter/Catchers, or Ecologists (holding a current Rehabilitation Permit licensed under the Nature Conservation Act 1992) may be qualified to undertake this inspection. During the clearing works, the Spotter/Catcher must conduct a daily pre-clearance inspection and supervise progressive clearing. Sustainable zones near the site should be determined for suitability for relocation and mitigation strategies. Appropriate green zones within a radius of the site must be established. The fauna management programme must be aimed at maximising relocation effort with intent to minimise any fauna stress. • If a Koala is observed in trees close to the works, works should cease. Koalas cannot be relocated but must be allowed to move of their own accord - with clearing being managed in an appropriate manner to facilitate this. • In the event wildlife is found, either by fauna inspection or in the course of normal works, cease work immediately and wait for the animal to move on. Wildlife includes reptiles but does not include insects. • Subcontractors should notify BESIX Watpac if wildlife is at risk from the works and seek advice before continuing. Wildlife will either move away of its own volition, or it may need to be relocated by a licenced Spotter/Catcher. • A qualified fauna spotter must be present to observe all native tree trimming or clearing to ensure that wildlife is not injured. • If trenches are left exposed around habitats, ladders or steps are required to enable escape. If you find a sick or injured wild animal, contact your nearest veterinarian or wildlife carer organisation as soon as possible so that it may receive appropriate treatment. Wild animals become stressed by handling, so you should seek expert advice before handling an injured animal. Try to minimise the amount of exposure the injured animal has to people and loud noises. Keep them warm and calm, only if practical to do so. Incorrect handling of an injured animal can result in increased stress to the species and pose risks to the personnel. Do not aattempt to feed or treat it unless you have specialist knowledge or training. Contact details for injured wildlife are: RSPCA Animal Ambulance: 1300 ANIMAL (1300 264 625) WILVOS (Wildlife Volunteers Association Inc): 07 5441 6200
Performance Indicators	No harm or damage to native fauna.
Reporting	Immediate contact and incident reporting through Environmental Manager in event of contact with fauna in path of works Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Applicable Permits	Spotter/Catcher permit required to move wildlife in from the path of works Essential Habitats for the Koala require a permit to demolish, and usually also offsets.
Reference	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth) Environmental Protection Act 1994 Nature Conservation Act 1992

Weed Control	
Standard Operating Procedure 7.11	
Objective	To detect and manage identified weeds and pests.
Management Strategy	Monitor site for weeds and pests
Action	Project Manager shall ensure: • An herbicide treatment strategy should be approved with the Landscape Architect if weed treatment is required. This is to ensure the planting is not affected by the weed treatment • A company with demonstrated weed management credentials would need to be engaged to provide advice on control methods and the application of herbicide if appropriate • Sweeps should be done on a week basis before, during and after works, particularly during hydromulching of ground for "on-maintenance" handover • Ensure all imported fill is certified clean • All excavated spoil leaving site should be inspected for deleterious organic material • Methods for disposal include deep burying, mulching or putting the weeds in a plastic bag and leaving in bright sunlight until they are dead • Establish a vehicle washdown bay that includes: • Swale from washdown platform • Sump pit lined with visqueen • Line banks of sump pit with gabion rock • Refer to PM-PLA-15, “Weed Management Guide.” Info on establishing washdown bays can be found in PM-PLA-14.
Performance Indicators	No spread or release of weeds
Reporting	REO immediately notified of any discovery Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Applicable Permits	It is illegal to possess, sell or release weed or pest species without a permit
Reference	Environment Protection and Biodiversity Conservation Act 1999 Biosecurity Act 2014 Plant Protection Act 1989

Land Contamination and Unexpected Contamination Discovery	
Standard Operating Procedure 7.12	
Objective	To detect and manage contaminated land, prevent leaching of contaminated materials or groundwater infiltration during earthworks, and detect services prior to commencement. Avoid or minimise contamination of land caused by the use of imported materials, or by spillage of fuels, paint, form oil, chemicals etc.
Management Strategy	• Expert Consultants are engaged to provide a detailed assessment of the quality of the earth before earthworks begin • Services will be identified before earthworks commences • Controls are in place to capture and treat tainted water and earth.
Action	Project Manager shall ensure: • Soil contamination risk for the site will be discussed in Section 3 of this Environmental Plan • Unexpected contamination may present itself during earthworks. Signs include pockets of discoloured or poorly textured soil (noticeably different from the surrounding soil); malodours that present (e.g. oil, sulphur, chlorine, sewerage), or white fragments or powder in soils (may asbestos). - Cease work in the potentially impacted area as soon as it is safe to do so and move away from the area. - Assess the potential immediate risk to worker health and surrounding environment posed by the unexpected find and assess if evacuation or assistance of emergency services is required. - Delineate an exclusion zone around the impacted area using fencing and/or appropriate barriers and signage. - Additional control measures may be required for: - Odours and/or volatile compounds: odours suppression and no flames/sparks signage. - Potential asbestos containing materials: if area is small cover with weighted plastic sheeting or geofabric. For larger areas, use regular dust suppression as conditions required – refer to the Work Health and Safety Plan for required controls. Include signage where possible. - Install environmental controls around the site to contain the contaminated material including diversion of water to minimise potential spread via surface water runoff. • BESIX Watpac Environmental Manager to be contacted to assist in engaging a Environmental Ecologist/Scientist (a Suitably Qualified Person per the Environmental Protection Act 1994) to determine management strategies and impacts.
Performance Indicators	No release of contaminated materials or compromised water from the site.
Reporting	Immediate liaison with the Environmental Manager in event of unexpected contamination finds Incident reporting in event of release or discovery of contamination
Applicable Permits	Permits for removal and disposal of contaminated soil
Reference	Environmental Protection Act 1994

Protection of Cultural, Heritage and Aboriginal Artefacts	
Standard Operating Procedure 7.13	
Objective	Avoid damage or disturbance to archaeological/cultural artefacts including skeletal remains, shell middens or other cultural artefacts.
Management Strategy	Site environmental induction to address likelihood of discovery of archaeological/cultural artefacts. Excavation personnel to remain vigilant over ground penetration points.
Action	Project Manager shall ensure: • Where archaeological/cultural artefacts are discovered, personnel cease work in the subject area and effect practical protection measures • The Principal and DES is promptly advised of significant discoveries • Directions from DES are followed • If suspected human remains are discovered that work is ceased and the Superintendent, Police and State Coroner's Office are contacted, and if applicable, the Department of Aboriginal Affairs.
Performance Indicators	No damage, or minimal disturbance, to any archaeological/cultural artefacts discovered.
Reporting	Superintendent is immediately notified of any discovery Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Reference	Environment Protection and Biodiversity Conservation Act 1999 Aboriginal Cultural Heritage Act 2003 Torres Strait Islander Cultural Heritage Act 2003 Queensland Heritage Act 1992 Environment Protection Act 1994

Fire Protection	
Standard Operating Procedure 7.14	
Objective	Prevent the ignition and spread of fire.
Management Strategy	Areas prone to fire will be assessed. Site inductions will address fire risk minimisation controls.
Action	Project Manager shall ensure: • Fire extinguishers will be located as per AS-2444 • Site rules and Inductions include prohibition of smoking and lighters • Combustible materials shall be stored in cool, dry locations, protected from weather • Weekly inspections to monitor build-up of flammable organic materials which may present a fire path, e.g. understorey fuels such as loose bark, fallen leaves and branches, and spear grass • Grass may need to be mowed and organic materials collected and disposed of or burned in a controlled manner • In extreme situations, fire breaks may need to be rutted out around the perimeter of the site • Fire control advantages should be identified, such as fire trails, water supply points, dams, and helipads
Performance Indicators	No fires, minimisation of fire-spreading paths.
Reporting	Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form.
Applicable Permits	A bushfire management plan is required in areas of high bushfire risk as per the risk overlay mapping.
Reference	Fire and Rescue Service Act 1990

Unexploded Ordnance (UXOs)	
Standard Operating Procedure 7.15	
Objective	To avoid environmental impact caused by discharge of Unexploded Ordnance (UXOs). An establishment or training area used for handling ammunition may have caused remnant unexploded ordnance.
Management Strategy	Conduct a historical investigation of the site to establish, as far as practical, the likelihood of existence of UXOs. Site environmental induction to address likelihood of discovery of UXOs.
Action	Project Manager shall ensure: • An UXO Survey will be undertaken by a member of the UXO Management Defence Panel • Where an UXO is discovered, the area is immediately isolated • Emergency evacuation procedures are implemented where appropriate • The Contract Administrator is immediately notified • The UXO Consultant must produce a Safe Work Method Statement for review and approval prior to starting work • UXO Awareness Training will be delivered to all site inductees. This slideshow has been prepared by OPEC systems • Reporting to Defence is done using Defence's "Explosive Ordnance Incident Report Form" • Ensure emergency telephone contact numbers are displayed and readily accessible • Defence UXO Specialists will identify the control measures required and treat the area • A register of all clearance certificates prepared for the Site (if any) are to be maintained by the Project Manager. These will take the form of reports that are to be filed into a register • All groundwork operations are closely monitored • Emergency evacuation procedures are implemented where appropriate • The Police/Emergency Services are immediately notified of any discoveries
Performance Indicators	No environmental impact caused by discharge of UXOs.
Reporting	Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Reference	Work Health and Safety Act 2011 Convention on Certain Conventional Weapons (International Law)

Identification and Protection of Existing Utility Services	
Standard Operating Procedure 7.16	
Objective	Avoid damage to, or unplanned interruption of, utility services.
Management Strategy	Site environmental induction to address location of and protective measures for utility services. Identify, mark and protect utility services (electricity, water, gas etc.). Ensure all necessary interruptions to utility services are planned and communicated to all relevant persons and Authorities.
Action	Project Manager shall ensure: • Existing services plans will be studied and services will be located and marked prior to commencing any works • Services locations must be known prior to commencing earthworks • Vacuum excavation/Services Detection will be undertaken wherever services are likely to be encountered • Contact telephone numbers for emergency services for utilities are established and readily available in the Site Emergency Plan • Storage areas are located remote from utility services • Access ways, haul roads and turning points are arranged to avoid possible clashes with utility services • Overhead protection/warning is provided for high loads, vehicles, cranes etc • Spotters are provided when work is undertaken beneath overhead power lines • Where it is found necessary to temporarily interrupt, remove, divert or make connection to an existing service or other existing work beyond the control of the BESIX Watpac, written approval from the Principal's Representative will be sought prior to undertaking Works
Performance Indicators	No unplanned interruptions to any utility service.
Reporting	Notification to relevant authorities Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Applicable Permits	Dial Before You Dig Permit to Dig (BESIX Watpac NSMS Form)
Reference	Work Health and Safety Act 2011 Electrical Safety Act 2002 Electrical Safety Code of Practice 2010

Waste Management	
Standard Operating Procedure 7.17	
Objective	To control the disposal of waste generated from construction activities.
Management Strategy	Site environmental induction to address the issue of waste management and protective measures to prevent environmental incidents caused by inappropriate methods of disposal of waste. Designated bin storage locations (for both Wheelie bins & skips), and an appropriate regime for clearance.
Action	Project Manager shall ensure: • All construction waste shall be taken off site and appropriately disposed of in accordance with all relevant State/Territory regulations during or at the completion of construction. • A Waste Management Plan is developed and implemented maximise the volume of waste demolition and construction waste that is reused or recycled during the project. This shall include an assessment of alternative construction waste minimisation strategies shall be undertaken and implemented as appropriate. These alternatives could include but not be limited to initiatives such as supplier take-back of packaging and off-cuts, pre-manufacturing or on-site waste grinding to produce construction materials (e.g. grinding of bricks/concrete/wood to make aggregate and woodchips), or “Ship to point of use” techniques to minimise protective wrappings or enclosures. • All topsoil affected by the construction works shall be separated and protected from degradation, erosion or mixing with fill, contamination or waste. • The MSDS of Chemicals and Hazardous Substances should be consulted before disposal instructions, which will usually involve dropping of containers to Chemical Waste/Hazardous Collection stations. Containers must not be washed out and disposed of as normal. • All PVC products shall be recycled and/or reused when being disposed, when not available, disposed of at a licensed landfill facility. • Waste is minimised using careful measurement and conservative ordering to prevent oversupply of materials. • All waste will be sorted (including that from clearing, demolition, off cuts, etc.) into appropriate categories for recycling or disposal. • BESIX Watpac will ensure that appropriate recycling receptacles are provided for scrap steel. • A recycling bin will be provided separately to the bin for Construction waste material and general waste (food scraps, cans, etc). Recyclable materials will include cardboard, glass, and plastics. • Any mulch accrued as a result of tree clearing can be used as erosion stabilisation. • Waste skips/bins are easily accessible and protected from weather dispersal. • Paper recycling bins are to be maintained in the office. Used toner cartridges should be collected and deposited at head office. • The construction site is kept free from build-up of waste materials by directing regular clean-ups by subcontractors. • No burning of waste takes place on-site. • Paint washouts will be provided and when full will be taken off-site to be filtered before discharging. • Any liquid waste, including backwash of wet trades, should be treated for adequate water quality before discharge, or collected by a liquid waste contractor.
Performance Indicators	No incidents arising from the disposal of end waste.
Reporting	Weekly Inspections undertaken and recorded on the Weekly Environment Inspection.
Reference	Environmental Protection Regulation 2019 Waste Reduction and Recycling Act 2011 National Environment Protection (Movement of Controlled Waste between States and Territories) Measure Environmental Protection (Waste Management) Policy 2000 Environmental Protection (Regulated Waste) Amendment

Artificial Lighting	
Standard Operating Procedure 7.18	
Objective	Control or minimise disturbance caused by after-hours lighting.
Management Strategy	Site environmental induction to address the issue of after-hours lighting. Ensure all necessary after-hours work is planned and communicated to all relevant persons and authorities. As far as possible, plan all construction activities for normal daytime work.
Action	Project Manager shall ensure: • Minimising lighting pollution impact from external lighting provided during construction on neighbouring properties and their occupants and neighbouring ecological areas (external to the construction site), in accordance with Australian Standard "4282 Control of the obtrusive effects of outdoor lighting". • Directional lighting and type of lights used will be planned and designed with the above in mind; • Shining downwards and only where required. • Reduced by screening • Effective programming of work • Any lighting must be positioned to ensure light pollution does not disturb wildlife corridors. • All lighting equipment is installed in such a manner as not to cause a safety hazard to pedestrian or vehicular traffic within the immediate surrounds of the site. • Where required or deemed necessary, advisory/warning signs are posted in appropriate locations. • Relevant authorities are notified; approvals obtained and put into effect; adjoining property owners/occupiers are advised of when planned after hours lighting will occur.
Performance Indicators	No incidents or complaints.
Reporting	Monitoring records to be maintained for the duration of after-hours lighting. Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form.
Reference	Environmental Protection Act 1994

Vehicular and Pedestrian Traffic Management	
Standard Operating Procedure 7.19	
Objective	Avoid interference of, or obstruction to, roadways, footways or access points by the use of appropriate traffic control measures.
Management Strategy	Site environmental induction to address the issues of access and delivery arrangements for materials including timing and unloading of materials. Coordinate construction programme and delivery times to avoid hold-ups and traffic congestion. Provide appropriate fencing/hoardings and protection for the public.
Access	Access to the site will be determined to minimise impact.
Action	Project Manager shall ensure: • Controls documented in the approved Traffic Management Plan are implemented • Vehicle entry/exits with shakedown grids will be established to remove the potential for vehicles departing the site to deposit debris on the roads. BESIX Watpac will deploy street sweepers as required • Site fencing/hoarding is properly secured and lockable; access points are clearly designated and appropriate signage erected • Materials set-down areas are established. • All required Approvals are obtained and Traffic Controllers are engaged where necessary when temporary road closures are required. • Traffic management controls are monitored • Construction programme and delivery times are coordinated to avoid delays and possible traffic congestion • Access points for each stage of construction are unobstructed to facilitate prompt service to set–down areas within the site • Materials handling is managed to cause least disruption to traffic and local amenity.
Performance Indicators	Reports or complaints of interruption or interference with pedestrian or vehicular traffic movement around the site.
Reporting	Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Applicable Permits	Road Corridor Permit Traffic Control Permit
Reference	Public Health Act 2005 Work Health and Safety Act 2011

Acid Sulfate Soil	
Standard Operating Procedure 7.20	
Objective	To avoid significant impact caused by the disturbance of Acid Sulfate Soils (ASS).
Management Strategy	A soil investigation and analysis will be conducted to determine the extent of ASS on-site. Site environmental induction to address management of ASS. Excavations will be confined to minimum requirements. Bunds around all disturbed areas of ASS will be provided.
Action	Initial approach and planning A soil investigation and analysis will be conducted to determine the extent of ASS on site, including the possible and potential acid sulfate soils, and at what depths. <u>Field Indicators</u> Field indicators for Actual Acid Sulfate include: • Typically waterlogged, soft muds (soft, buttery texture) or estuarine silty sands • Mid to dark grey to dark greenish-grey coloured soils or sediments • Offensive odour, predominantly due to 'rotten egg gas' (H2S) • Water of pH <5.5 in groundwater or adjacent streams, drains, groundwater or ponding on the surface • Unusually clear or milky blue-green drain water within or flowing from the area (aluminium released by the acid sulfate soils acts as a flocculating agent) • Extensive iron stains on any drain or pond surfaces, iron-stained water or ochre deposits • Any jarositic (jarosite is a pale-yellow mineral deposit which can precipitate as pore fillings and coatings on fissures) horizons or iron oxide mottling in auger holes or recently dug surfaces. • With a fluctuating water table, jarosite may be found along cracks and root channels in the soil — however, jarosite is not always found in actual acid sulfate soils • Jarosite present in surface encrustations or in any material dredged or excavated and left exposed • Corrosion of concrete and/or steel structures • Dominance of mangroves, reeds, rushes and other swamp-tolerant vegetation – including estuarine occurrences of swamp trees <u>Screening process</u> • Soils are usually "screened" to isolate areas of interest to test for. pHF and pHFOX indicate possible actual acid sulfate soils (AASS) or potential acid sulfate soils (PASS). • pHF — measure of soil pH of a soil:water paste. pHF <4 indicates oxidation has occurred in the past and that AASS is present. • pHFOX — measure of soil pH after rapid oxidation with hydrogen peroxide (H2O2). pHFOX <3, plus a pHFOX reading at least one pH unit below pHF, plus a strong reaction with peroxide, strongly indicates the presence of PASS. • Effervescence (or reaction rate) — a visual measure of the vigorousness of the oxidation reaction where: 1 = slight; 2 = moderate; 3 = high; and 4 = extreme. <u>Assessment Process</u> • Lab tests are the only truly definitive way of measuring for actual or potential acid sulfate. This is done by the SPOCAS or Chromium Suite method. • The SPOCAS suite is effective for coarser textured sediments. • The Chromium Suite (aka SCR suite) is effective for assessing soils with lower percentages of sulfide and for soils containing organic material. • Chromium reducible sulphur values (SCR) greater than 0.01% S indicate a significant level of sulphides, and where greater than 0.03% S then the soil has a high potential acidity level and an Acid Sulfate Soils Management Plan will be required. • Net Acidity (TAA + SCR + SNAS – ANC/1.5) of greater than or equal to 0.03% S for soils, for greater than 1000 tonnes of disturbance.

Acid Sulfate Soil

Preparing a neutralisation zone/liming pad

- Prepare a liming pad/stockpile site of appropriate area for the volume of soil to be treated. The pad should be prepared on relatively level or gently sloping ground to minimise the risk of any potential instability issues, with a natural (or shaped) fall to the local drainage sump.
- Where the subgrade soils are other than low permeability clays, the surface of the pad should be lined with selected approved compacted clay (at least two layers to a combined compacted thickness of 0.5m) or a geosynthetic liner. Where the subgrade soils comprise low permeability clay, no clay or geosynthetic lining will be required.
- A guard layer of 'ag lime' should be applied over the clay subgrade or compacted clay liner, to neutralise downward seepage.. The guard layer of lime should be applied at a rate of approximately 5kg lime per square metre of surface area for every 1 m height of stockpiled soil.
- Liming pads should be bunded off, and a circumference drain excavated to collect and localise leachate. The drain and inner bund slopes should be covered with a layer of fine lime applied to neutralise any possible leachate migrating from the stockpiled material.

Neutralisation Process

- Supervision by a Scientist is not considered mandatory.
- Soil neutralisation can only be validated by lab tests (SPOCAS or Chromium suite).
- Aglime is the mandatory treatment material. Using aglime, overliming isn't an issue—it's not ecologically harmful as it only has neutralising properties on exposure to acid. In water it has low solubility (because water is neutral).
- Indicative liming rates can be applied before arranging lab tests, so lab tests are only done on the verification stage—rather than both the initial and verification stages.
- The excavated soil should then be spread onto the guard layer in layers of no greater than 200mm thickness, leaving a 1m flat area between the toe of the spread soil and the containment bund or drain. When spreading the first soil layer, care should be taken not to churn up the lime guard layer.
- It should be noted that saturated soil cannot be neutralised effectively with lime, particularly where it is cohesive (ie. comprises a majority of silt/clay sized particles). This is because the lime must be well mixed into the soil and this cannot be performed when the soil is overly wet and 'sticky'. Hence, the excavated soil must be dried back on a limed pad, before effective mixing can take place with earthmoving machinery. This is to enable the collection and separate treatment of any acid leachate formed during the soil drying and liming process. Wet weather will thus have a potential to delay the lime treatment process.
- Apply 'ag lime' to the stockpiled soil at the indicative liming rate given above over each spread layer and mix through with a harrow prior to spreading the next layer.
- ASS testing should be carried out on each layer to verify the lime dosing rates to be applied. This would confirm ASS soils have been neutralised and allow identification of problem material.
- Continue the spreading/liming/mixing cycle till excavation is finished.
- When testing indicates that lime neutralisation is complete, then the stockpiled soil may be removed from the liming/neutralisation pad.
- Verification testing of the soil is required to be conducted after the addition of lime to test whether or not mixing has been adequate, and to reduce the risk of acidic water being returned to other watercourses. The soil and water contained within the treatment bunds should not be removed until the target values have been achieved.
- Validation samples of soil should be collected and tested at a frequency of approximately one per 500m3 of treated soil. Similarly, additional layers of soil should not be added to the bunded stockpile for treatment until the underlying layers have been validated.

Water Run-off

- All water draining from the soil, once it is removed from the excavation, should be considered as potentially acidic and should be separated in a controlled area, such as the above referred bunded and lined pad, and not be allowed to flow back into waterways or stormwater until it has been tested for pH and for any other environmental tests required by the appropriate regulatory authority.
- Liming pads should be bunded off, and a circumference drain excavated to collect and localise leachate. The drain and inner bund slopes should be covered with a layer of fine lime applied to neutralise any possible leachate migrating from the stockpiled material.

Acid Sulfate Soil	
	• The pH of all ponded drainage water around the confines of the treatment bunds should be measured daily. Soil Testing and Verification • Soil sampling for verification (and assessment) will be as soon as practically possible within 66 hours (i.e.3 nights). Large shells (>2 mm), fragments of wood, charcoal and stones will be noted before being removed from the samples in the field. Biological remnants such as small roots will not be removed from the soil sample as they may contain sulfides: • Divide the treatment pad area into areas containing a volume of soil equivalent to the nominated verification testing rate (e.g. for a treatment pad holding 2000m3 and a test rate of 1 per 1000m3, divide the pad into two sections). A treatment pad holding 500m3 at a test rate of 1 per 1000m3 is considered as 'one' treatment area/section. • Within each area, use a randomised procedure to nominate at least six random sampling locations. • Within each area, use a consistent-volume sampler to gather subsamples of treated soil from each of the pre-defined locations on the treatment pad (at least 4 x 250g subsamples). Subsamples should extend through the total depth of the treated material but avoid sampling the underlying guard layer. • Composite the subsamples thoroughly together in a container with a secure lid (e.g. clean plastic 5L plastic pail). • Subsample approximately 400g of the composited material and submit it for analysis. • Leave the soil on the treatment pad until the results are available. • Samples will be collected in laboratory supplied acid sulfate soil bags, stored on ice in a cool box and submitted to a laboratory (with chain of custody documentation) that is accredited by the National Association of Testing Authorities (NATA) for acid sulfate soil analysis. Visual and olfactory monitoring of the surrounding receiving environment to identify and report any potential concerns or impacts as a result of the activities conducted within the Acid Sulfate Soil Treatment Area. Off-Site Treatment • The following excavation procedures will be adopted during works onsite: • All excavations below the upper ASS horizon shall be programmed to ensure that the period of open excavation is kept to a minimum; • Any exposed walls of excavations shall be treated by "dusting" with fine agricultural lime prior to backfilling; • Where provisions have been made, all ASS material is to be immediately placed onto trucks and transported to a licenced treatment facility; • Where the immediate transfer to trucks is not feasible, on-site storage of untreated ASS is not permitted for more than 18 hours for sandy material, and 70 hours for peat or clays. • In the event temporary stockpiling of soils is required, the soils should be placed on bunded limestone pad approximately 300mm thick, in a location up gradient of the development area to prevent potential leaching or run off into undisturbed areas.
Performance Indicators	No acid discharge from site. Satisfactory laboratory results of tests on stockpiled ASS.
Reporting	Daily monitoring reflected in daily site diary entries Weekly Inspections undertaken and recorded on the Weekly Environment Inspection Form
Reference	NEPM for Assessment of Site Contamination Queensland Acid Sulfate Soil Technical Manual 2004 and associated guidelines State Planning Policy, Planning and Managing Development Involving AASS

Asbestos	
Standard Operating Procedure 7.22	
Objective	To avoid threat to human health or contamination of the environment in the removal of asbestos materials.
Management Strategy	Investigation of the site to determine the extent and type of asbestos contaminated materials. Site environmental induction to make personnel aware of the presence of asbestos contaminated materials and procedures for their identification and removal. Engagement of a certified, licensed asbestos removal contractor in terms of Environmental Protection regulations.
Action	Generally speaking, asbestos management requires: • Asbestos Management Plan by an Environmental Scientist-- • Asbestos Removal Control Plan by a Licenced Asbestos Removalist—the plan for how to safely undertake the works by the people actually doing it. • BESIX Watpac's Project Safety Management Plan. When asbestos is being managed or cleared under our scope, the team shall ensure: • The project hygienist is engaged to assess materials suspected of containing asbestos • The project hygienist is engaged to develop a fully documented Asbestos Management Plan to detail the requirements and controls for removal of all asbestos containing materials • Asbestos contaminated areas are identified and restricted to authorised personnel until the contaminated materials have been removed and the area declared safe. • A licensed asbestos removal contractor is engaged to manage the removal and disposal of all asbestos contaminated materials • The licensed Asbestos Removalist to comply with the BESIX Watpac Asbestos Management Procedure; the Asbestos Management Plan and the Australian Government Code of Practice for the Safe Removal of Asbestos. • The project hygienist is to provide Clearance Certificates
Performance Indicators	Satisfactory post-removal monitoring results.
Reporting	Project hygienist to provide site safety clearance certificate and documented evidence of proper disposal.
Applicable Permits	Licence under WHS Regulations
Reference	Work Health and Safety Act

Storage of Hazardous Substances and Dangerous Goods	
Standard Operating Procedure 7.23	
Objective	To avoid contamination of the environment or risk to human health To appropriately manage the discovery of Hazardous Materials on site
Management Strategy	• Site environmental induction to make personnel aware of the project handling and storage procedures to manage Hazardous Substances and Dangerous Goods • All hazardous materials introduced onto site must be accompanied by a MSDS and the material entered onto the project register. • All hazardous materials must be stored in compliance with the manufacturer's recommendations and in accordance with Australian Standards • No bulk fuels are to be retained on site. Refuelling of plant is to be undertaken on a just-in-time basis and only within a prepared designated area. • Any discovery of a hazardous material is immediately reported to the Principal's Representative
Action	Project Manager shall ensure that: • Hazardous chemicals are stored in an impervious storage area, which is cool and dry, vented, lockable, and bunded to 110% the volume of the chemical container. • Conflicting chemicals are kept segregated in accordance with AS 3833 and AS 1940. • The quantities of Hazardous Substances and Dangerous Goods on site are minimised. • Fuelling and maintenance of vehicles and equipment on site is avoided. Where refuelling is unavoidable, the location and procedures will be strictly controlled. Refer to NSMS procedures on refuelling. • Subcontractors are trained in the use and precautions of their hazardous substances in accordance with the MSDS. • Subcontractors advise the Site Manager of the type of material, location, volume and any special handling / storing precautions in relation to any dangerous gases or flammable materials that are proposed to be brought on site. • Subcontractors do not use any materials which are classified as Hazardous in or adjacent to occupied areas without the prior approval of the Site Manager. • Subcontractors provide a current MSDS for all Hazardous Substances and Dangerous Goods proposed to be brought onto site. A Site MSDS Register is to be developed and maintained. • A Spill Kit and Site Emergency Plan are readily accessible. Clean up materials are disposed of in compliance with regulatory requirements • All oxygen and acetylene cylinders are properly stored in an upright position and adequately restrained away from heat sources. • Persons handling dangerous chemicals and materials will wear appropriate PPE and receive appropriate training in its use • Fuels and hazardous chemicals will not be decanted or handled in the vicinity of the central drainage line and major stormwater inlet points. Decanting of liquids is to be done in temporary bunded area. • Paint storage does not need to incorporate 110% volumetric bund but should be sufficient to envelope an incidental spill. • Material Safety Data Sheets (MSDS) will be located at the site office for all hazardous and dangerous goods used during construction operations. The contractor will ensure that all materials are handled, used and disposed of in accordance with their MSDS
Performance Indicators	No spillages, incidents or complaints
Reporting	Licenced removal contractor to provide site safety clearance certificate and documented evidence of proper disposal.
Reference	Work Health and Safety Regulation 2011 National Code of Practice "Managing Risks of Hazardous Chemicals in the Workplace" National Code of Practice "Labelling of Workplace Hazardous Chemicals"

Pest Animals, Vermin, and Infestation Control	
Standard Operating Procedure 7.24	
Objective	Minimise the possibility of infestation from rats, mice, insects, or other scavenging wildlife.
Management Strategy	Keep site clean and tidy Monitor area for infestation Consult Pest Management Contractor if required
Action	Project Manager shall ensure that: • Keep site clean and tidy with daily clean-ups. • Ensure all putrescible waste is disposed of in an appropriately sealed receptacle. • Six weeks prior to the commencement of any demolition, individual blocks, properties and the surrounding area should be inspected in order to identify the presence and extent of any infestations. Where infestations are identified, appropriate treatments must be implemented by licenced Pest Control Contractors to eliminate infestation before demolition. • Pest animals include: – European rabbits and hares – Mice – Feral or wild pigs – Wild dogs and dingoes – Red foxes • It is not incumbent on BESIX Watpac to destroy these animals, particularly it if it is unsafe to do so. A licenced Spotter/Catcher can be called if these animals take residence on the site. • Minimise ponding and exposed water sources to prevent mosquitos and midgeys; backfill if required. • Ideally, licenced Pest Control Contractors should be consulted for management strategies after the substructure is completed. Frequently the dark cold environment can be a pest habitat which presents an unacceptable working environment. • To prevent rat egress from live drains and sewers to new systems, the live systems should be temporarily sealed off with expanding drainage stoppers until connection to new drainage is completed. • Where vermin presents itself as a problem on site, consult a pest control company for advice. Do not attempt to address the problem internally. • Ideally, licenced pest control contractors should be consulted for management strategies after the substructure is completed. Frequently the dark cold environment can be a pest habitat which presents an unacceptable working environment. • If necessary, implement mock prey birds or similar deterrents if birds are attracted to the site. • Tint lights to reduce insects (bird/bat attractants) if night works are required. • Maintain grass heights to an appropriate level to minimise insects. • Ensure perimeter fencing is not compromised during construction works.
Performance Indicators	No infestations.
Reporting	None
Reference	Work Health and Safety Regulation 2011 Biosecurity Act 2014 Plant Protection Act 1989

Site Demobilisation	
Standard Operating Procedure 7.25	
Objective	Control and minimise damage to the receiving environment as a result of site demobilisation.
Management Strategy	Ensure ground is stabilised and operational stormwater controls are commissioned prior to demobilisation. Clean up during after demobilisation.
Action	Project Manager shall ensure: • Ensure any landscaping is sufficiently stabilised, either of their own accord or supported by an erosion blanket such as jute mesh. Any permanent stormwater that can't be relied on must be continue to supported by erosion and sediment controls that are maintained during the planting establishment period • Tenting of erosion blankets can prevent vegetation growth, and trap wildlife. Ensure good ground contact is made and pinned • Hydroseeding and hydro-mulching can be used for accelerated grass growth for cover and stabilisation • Basins should be removed or integrated into permanent stormwater system. Temporary sediment controls must be installed downslope of this process, and captured water must be properly disposed of. The footprint of the basin will require revegetation • Plan routes of plant access, such as removal of sheds, so that it can be accessed without disturbing earth or vegetation • Conduct a site clean-up before and after shed removal. Invariably a fair amount of rubbish will have accumulated under the sheds
Performance Indicators	Minimal disturbance because of site demobilisation.
Reporting	None
Reference	None

Appendix A
Environmental Risk Assessment

Environmental Risk Assessment

E-FRM-002

PROJECT: T066 CEP Townsville Hospital Expansion

Date: 24/07/2024

No.	ASPECT	Associated IMPACT	LEGAL REQUIREMENTS	LEGAL REFERENCE	INHERENT RISK			CONTROLS	VERIFICATION OF COMPLIANCE	RESIDUAL RISK			COMMENTS
					Likelihood	Consequence	Risk			Likelihood	Consequence	Risk	
1.0 LAND													
1.1	Contaminated Land	Health risk posed to labourers, Client perosnnel, and the local public due to excavation and transport of any potential contaminated materials.	Take all reasonable and practicable precautions to prevent or minimize: • Environmental harm; • The risk of death or injury to humans and animals; • Loss or damage to property.	**Environmental Protection Act 1994** **Work Health and Safety Act 2011**	Possible	Major	**High**	Develop SWMS for approval by qualified Safety Advisors. No contractor will be allowed on site unless their SWMS are approved. Contamination reports will be produced to examine the contamination involved in the proposed earthworks. If the land is contaminated, a Remediation Plan will be produced that includes controls to monitor hazardous materials. If the land is contaminated with heavy metals or acid, it can be controled on site with sediment control and treated. A Hygienist will need to be engaged if asbestos is encountered.	Environmental Scientists are satisfied that the soil is effectively contained and treated or contained and removed off-site for treatment. Hygienist will confirm the presence of asbestos.	Rare	Moderate	**Low**	
1.2	Acid Sulfate Soils	Leakage of acid sulfate soils into nearby runoff zones or into buildings	Detect and mitigate release of ASS; treat ASS before reusing soil.	**Environmental Protection Act 1994** **Work Health and Safety Act 2011** **Water Act 2000**	Rare	Moderate	**Low**	ASS report will be produced to verify the existence and likelihood of Acid Sulphate. If groundwater is penetrated, be wary of acid sulphate. The earth will muddy and product a sulphuric smell. Soils with ASS are to be stockpiled in strong bunds. Treat with lime. Ensure an environmental consultant inspects and signs off on the treatment before re-use.	Sign-off that any encountered ASS was treated.	Rare	Moderate	**Low**	Unlikely given the site is not near coastal areas or at 5m Australian Height Datum (AHD) or below. However, reports should confirm level of contamination.
1.3	Asbestos	Release of carginogenic asbestos	Ensure that waste asbestos is only removed by a person holding an asbestos removal licence; contained to prevent the release of airborne asbestos fibres; transported in an EPA permitted vehicle; and disposed of as soon as practicable at a site licensed by the EPA	**Qld Work Health and Safety Regulation 2011 Ch 8**	Rare	Moderate	**Low**	Review the Asbestos Register. If asbestos is located on site, engage the project Hygienist and licensed asbestos contractor to conduct Risk Assessment, develop an Asbestos Management Plan and to remove and dispose of all asbestos. Site induction to make personnel aware of the potential presence of asbestos contaminated materials and the procedures of its identification and removal.	Hygienist will confirm all asbestos is safely removed.	Rare	Moderate	**Low**	Asbestos condition must be known prior to demoliton, likely via the asbestos register.
1.4	Tramp Ants	Tramps ants released	Notify a Department of Agriculture and Fisheries (DAF) inspector within 24 hours if you see a yellow crazy ant (a notifiable pest). If you are in a designated tramp ant pest quarantine area (designated as all of Queensland), comply with the requirements that restrict moving: • live tramp ants • soil or anything with soil attached • quarrying material or by-product • any material that is a product or by-product of manufacturing an animal (e.g. solid waste from an abbatoir), plant (e.g. mulch) or thing that comes from an animal or plant (e.g. manure) • baled hay or straw. Allow an inspector to carry out surveillance and monitor tramp ants on your property, and to treat the land to prevent the spread of tramp ants.	**Biosecurity Act 2014**	Possible	Catastrophic	**Extreme**	Allow an inspector to carry out surveillance and monitor tramp ants on the property, and to treat the land to prevent the spread of tramp ants. Implement and keep a risk management plan if required to do so by an inspector, and display the sign given by the inspector on approval of the plan.	No tramp ants spotted; any tramp ants spotted are treated.	Unlikely	Moderate	**Medium**	Colonies may be disturbed if the sites have not been inspected and cleared of any infestation prior to clearing or earthworks. Ensure sweeps are done on a monthly basis for nests, and logbooks are kept and updated. Ensure all imported soil is certified clean. Also ensure all outgoing soil is inspected and the subcontractors Approved Risk Management Plan number is cited on the receipt. Soil being moved outside of high-risk areas must be inspected by DAFF.
1.5	Weed control	Accidental destruction of flora or fauna due to foreign incompatible organisms.	Do not remove machinery or other equipment from land onto a road without first taking reasonable precautions to ensure that the equipment is free from noxious weeds and the seeds of noxious weeds.	**Biosecurity Act 2014**	Likely	Moderate	**High**	Strictly maintain vehicle hygiene to prevent weed transfer. Imported materials, particularly landscape supplies to be certified to be weed free, of local provenance and drawn from known sources. If the weed situation is unusual, an arborist will be engaged to develop a weed management plan that includes controls and herbicide treatment.	Gate controller will inspect passing vehicles to ensure there is no plant material leaving site. Herbicide is applied and controlled so as not to affect local flora and fauna.	Likely	Minor	**Medium**	A herbicide treatment strategy should be approved before work commences, and sweeps should be done on a week basis before, during and after works, particularly before "on-maintenance" handover.

2.0 WATER													
2.1	Groundwater discharge management	Potential Spills - General spills - Leaks from plant and equipment - Refuelling spills - Leaching of contaminated materials during earthworks - Infiltration of washwater form construction activities (i.e. concrete wash and	Do not release prescribed water contaminants or prohibited substances into groundwater tables. Prescribed water contaminants as per Environment Protection Regulation 2008 Schedule 9.	**Environmental Protection Act 1994** **Water Act 2000**	Possible	Minor	**Medium**	• Ensure all liquids are stored in appropriate containers. • Ensure availability of appropriate spill kits and conduct induction / training in their use. • Maintain an MSDS register for all products on site • Locate chemicals away from water courses and protect waterways in the event of a spill • Store minimal amounts on site • Clean up spills immediately • Contain any spills on site as per the Spill controls in the EMP. • Washouts for concrete and paints etc will be tightly controlled.	Induct staff and subcontractors in Emergency Preparedness and Response. Spill kits kept on site. Contamination reports low likelihood over contaminant leaching. Water encountered during earthworks is pumped out quickly, trapped, tested and treated before discharge.	Rare	Minor	**Low**	
2.2	Erosion and Sediment Control	Pollutants entering the Stormwater System • General spills • Leaks from plant and equipment • Refuelling spills • litter • sediment from contaminated runoff • water from wash-down • wash out of concrete trucks and pumps • brick and paver cutting	All stormwater discharges to be in accordance with regulatory requirements and in accord with the controls agreed with the Superintendent. Ensure that discharges to stormwater drains, surface waters and groundwater do not put at risk any beneficial use of these waters. Manage construction work to minimise land disturbance, soil erosion and discharge of sediments and other pollutants to surface waters. Implement effective management practices consistent with the most recent version of EPA publication 480. Where construction activities cross surface waters, monitor affected surface waters to assess if beneficial uses are being protected.	**Environmental Protection Act 1994** **Water Act 2000**	Possible	Moderate	**High**	Implement a Sediment and Erosion Management Plan • Minimise and control all stormwater run-off from site • Identify and protect stormwater outlets using geo-fabric, gravel sausages and silt fences • Plan and protect stockpiles and locate away from stormwater drains and low points • Establish hard stand haul roads and site entrance/exit • Contaminated waste water to be disposed of to sewer in compliance with a Trade Waste Agreement or by licensed contractor to a licensed facility • Establish designated areas for washdown of concrete chutes etc. and for wet trades • Plan and protect stockpiles. Locate away from stormwater drains and low points • Washouts for concrete and paints etc will be tightly controlled. • Establish stormwater connections as soon as practicable • Control water from wheel wash, rumble strip and road cleaning • No washing of roadways into unprotected drains	Induct staff and subcontractors in Stormwater and Erosion Management Daily monitoring of site conditions Weekly inspection to be undertaken and recorded Controls inspected before, during and after storm events. All incidents and non-compliance with controls to be reported, investigated and recorded	Possible	Moderate	**High**	Clearing and grubbing will disturb topsoils, and increase erosion potential and subsequent downstream sedimentation in directly affected areas. Civil Engineers must be engaged to develop appropriate Erosion and Sediment Control Plans for Construction requirements, which must be followed, monitored and updated during the works. Erosion and subsequent downstream sedimentation may reduce water quality in the receiving environment, potentially harming aquatic flora and fauna.
2.3	Storage and Handling of Hazardous Chemicals	Leakage of hazardous chemicals Spill of chemicals	Ensure that so far as is reasonably practicable any system for the use, handling or storage of hazardous chemicals is used only for a purpose for which it was designed, manufactured, modified, supplied or installed Manage construction work to minimise land disturbance, soil erosion and discharge of sediments and other pollutants to surface waters. Implement effective management practices consistent with the most recent version of EPA publication 480.	**Work Health and Safety Regulation 2011** **AS 1940-2004: The storage and handling of flammable and combustible liquids** **AS 3780-2008: The storage and handling of corrosive substances**	Unlikely	Moderate	**Medium**	Subcontractors will be required to maintain their own storage in accordance with the Australian Standards where required. Ensure spill kits are readily available.	The site enviornmental officer will audit subcontractors to ensure storage is maintained. Spill kits are readily available.	Unlikely	Minor	**Low**	Storage of all chemicals must be in an impervious shelter that is bunded. Segregation must be maintained as per AS 3833. As the site is a high risk zone for bushires, all flammable material must be kept in a cool, dry zone. Flammable materials must not be bundled too tightly or exposed to the sun (i.e. must be covered). Spills or leaks of fuels or other chemicals from storage containers, tanks, vehicles, machinery and other equipmen may contaminate soils in the areas of the proposed works. Spill kits must be maintained in all major sections of the works, and storage of all chemicals must be in an impervious shelter that is bunded. Segregation must be maintained as per AS 3833.
2.4	Watercourse Impact	Disruption to overland or rainfall flow	Do not take or interfere with the flow of water in a watercourse, lake or spring; do not construct a referable dam. Unless: • a water entitlement is held under the Water Act; and • a development permit is obtained under the Sustainable Planning Act 2009.	**Water Act 2000**	Rare	Minor	**Low**	All earthworks must be only as drawn or specified. Any alterations to earth must be as documented by a RPEQ engineer and a development permit must be provided.	Evidence of development permit and works are documented.	Rare	Minor	**Low**	No disturbance to watercourse.

3.0 WASTE MANAGEMENT													
3.1	Waste Management	Waste Spillage	Comply with local government requirements for: • provision of suitable general waste containers for general waste; • maintenance and cleaning of the containers; • keeping containers covered; • preventing damage to containers, or placing liquids, burning objects, or living things in the containers; • keeping containers where directed, and maintaining access to them.	**Waste Reduction and Recycling Act 2011,** **Environmental Protection (Waste Management) Regulation 2000**	Likely	Moderate	**High**	Establish a Waste Management Plan (or outline in the Project Management Plan); establish appropriate waste area on site; induct staff to waste protocols.	Environmental inspections.	Likely	Moderate	**High**	Putrescible waste such as food stuffs may attract pests, including birds, vermin, and wild dogs. Birds present a direct hazard to base operations. Ensure all waste is captured in the correct receptacles, that the skips are on impervious surfaces and covered/protected from weather. Ensure the skips are serviced regularly.
3.2	Transport and Dumping of waste	Improper disposal of waste Loss of waste from a vehicle during transport.	Do not deposit litter or conduct dangerous littering at a place; Do not dump 200L or more of waste at a place or from a vehicle. Prevent the loss of waste from a vehicle during transport.	**Waste Reduction and Recycling Act 2011** **Environmental Protection (Waste Management) Regulation 2000** **Transport Operations (Road Use Management) Act 1995**	Unlikely	Moderate	**Medium**	Establish a Waste Management Plan (or outline in the Project Management Plan); establish appropriate waste area on site; induct staff to waste protocols. Gate personnel will ensure all vehicles loads are secured.	Environmental inspections. No complaints or waste spotted.	Unlikely	Minor	**Low**	Follow waste management strategies in PEMP. As with above, transport and servicing of the waste will be high risk. Ensure all waste trucks are checked for secure loads.
4.0 ECOSYSTEM													
4.1	Fauna Endangerment	Works place wildlife at risk	Do not take an action that may: •result in the death, injury, taking, trading, keeping or moving of a member of a listed threatened species or ecological community • result in the death, injury, taking, trading, keeping or moving of a member of a listed migratory species • knowingly cause significant damage to critical habitat of a listed threatened species or ecological community • result in the death, injury, taking, trading, keeping, moving of, or interfering with, a cetacean (eg whales, dolphins, porpoises, narwhals) • result in the death, injury, taking, trading, keeping or moving of a member of a listed marine species • result in a significant ecological impact on a relevant wetland.	**Environmental Protection Act 1994** **Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)** **Nature Conservation Act 1992** **Planning Act 2016** **Local Council Regulations**	Possible	Major	**High**	An environmental specialist will be engaged to review the wildlife and habitats in the area to create a wildlife management plan. Environment Management Plan will specifically address work methods in the area to avoid may risk to flora and/or fauna. Subcontractor method statements will be provided to outline how to minimise potential risks.	No wildlife is harmed.	Possible	Moderate	**High**	
4.2	Flora Endangerment	Works will impact vegetation in some way	Do not take an action that may result in the destruction of local and native vegetation, or vegetation protected by the Nature Conversation Act, Sustainable Planning Act, or Council Local Asset Regulations.	**Environmental Protection Act 1994** **Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)** **Nature Conservation Act 1992** **Planning Act 2016** **Local Council Regulations**	Possible	Major	**High**	An Aborist inspection will take place and a rpeort will provided to assess the state of current trees, note which require protection and/or offsetting. Tree Protection zones will be established.	No trees are harmed.	Possible	Moderate	**High**	
4.3	Coastal Area or Marine Life	Damage to sensitive coastal area, or fish	Do not release oil, a noxious liquid substance or a harmful substance from a boat into non-coastal waters. Do not release sewage from a boat into non-coastal waters if the boat has a holding tank or is required by law to have a holding tank. Do not deposit rubbish from a boat into non-coastal waters. Obtain development approval before undertaking development on land wholly or partly in a coastal management control district	**Environmental Protection Act 1994** **Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)** **Nature Conservation Act 1992** **Coastal Protection and Management Act 1995** **Fisheries Act 1994**	N/A	N/A	**#N/A**	Subcontractors will be inducted to emphasise the important of controlling their actions in the sensitive area. Subcontractors will be required to maintain their own spill kits where required. Obtain development approval before undertaking development on land wholly or partly in a coastal management control district	The site enviornmental officer will audit subcontractors to ensure spill kits are maintained.	N/A	N/A	**#N/A**	Not near the ocean.
5.0 HAZARD MANAGEMENT													
5.1	Flooding	Disruption of overland flow causing flooding to vegetation	Ensure emergency plan factors in flood plains if a flood event occurs during works.	**Planning Act 2016**	Rare	Minor	**Low**	Emergency Plans cover evacuation and safety of local community via securing plant and equipment from flood activity.	Emergency Plan is in place.	Rare	Minor	**Low**	
5.2	Fire	Spreading of bushfire	Don't spread bushfires or create environments that are conducive to the spread of bushfires. Interfere with protected vegetation without a permit only if the interference is in accordance with written direction to clear a firebreak by a Fire Warden, the Queensland Fire and Rescue Authority or an authorised person	**Fire and Rescue Service Act 1990**	Rare	Minor	**Low**	Store combustible chemicals in cool enclosures. Do not stockpile flammable materials. Do not allow smoking or lighters on site.	Environmental inspections.	Rare	Minor	**Low**	Hot vehicle exhaust and improperly disposed litter such as cigarette butts may ignite a wildfire in dry areas. Ensure all flammable materials including chemicals and materials are stored in cool, dry areas. Follow the fire preparation procedures outlined in the PEMP.
5.3	Unexploded Ordinances (UXOs)	Discharge of Unexploded Ordinances (UXOs).	Ensure Unexploded Ordinances (UXOs) to not present a hazard to human health or the receiving environment.	**Work Health and Safety Regulation 2011**	Rare	Minor	**Low**	Conduct a historical investigation of the site to establish, as far as practical, the likelihood of existence of UXOs. Site environmental induction to address likelihood of discovery of UXOs. Notify Defence if encountered (uxo@defence.gov.au)	No environmental impact caused by discharge of UXOs. Daily monitoring Weekly Inspections undertaken and recorded	Rare	Minor	**Low**	

6.0 LOCAL AREA													
6.1	Discovery and protection of Cultural and Historical Artefacts	Loss of cultural history	Do not disturb or damage an Aboriginal place, object or relic without the consent or authorisation. Notify within reasonable time of becoming aware of the location or discovery of certain Aboriginal objects and relics Ensure that objects and areas with significance to Aboriginals are treated in accordance with Aboriginal tradition and are preserved and protected from injury and desecration. Do not fail to report to the Minister the discovery of remains which are believed to be Aboriginal remains. Report the discovery to the DEHP as soon as practicable. Comply with all requirements of a Cultural Heritage Management Plan.	**Queensland Heritage Act 1992** **Aboriginal Cultural Heritage Act 2003**	Rare	Minor	**Low**	A heritage report will be conducted. All personnel will be inducted to be vigilant for any cultural artefacts. If any are discovered, work will immediately be stopped the the Department of Environment and Heritage will be contacted.	Environmental inspections. Sign off from the Heritage Consultant that the area has been thoroughly searched and managed.	Rare	Minor	**Low**	
3.1	Excavation Dust Demolition Dust Construction Dust	Air Pollution Annoyance Nuisance	Do not pollute the atmosphere so that it becomes potentially harmful to the health, welfare, safety or property of people; detrimental to any beneficial use.	**Environmental Protection (Air) Policy 2019**	Possible	Minor	**Medium**	Implement dust suppression methods: • barriers to prevent the spread of dust • cover loads, restrict vehicle speeds • minimise areas being worked • use water cart and water sprays Notify parties potentially impacted by activities Cease activities if dust is not controlled	Monitor site conditions Conduct site inspections	Possible	Minor	**Medium**	Dust generated during clearing and earthworks may cause a nuisance to nearby receptors. Ensure dust is monitored and suppressed as required. Ensure Civil contract is let with an allowance for constant water truck sweeps. Dust generation from stockpiling must also be monitored. Stockpiles must be protected by sediment fencing on all sides and either covered with tarp or seed-binded to minimise dust blow-off.
6.3	Noise	Disturbance to nearby residents	Do not emit unreasonable noise (having regard to its volume, intensity, duration). Construction equipment cannot be operated outside of 7am - 10pm M-F and 9 to 10 weekends and public holidays	**Environmental Protection (Noise) Policy 2019**	Possible	Minor	**Medium**	All personnel will be inducted to only conduct noisy activities within the prescribed hours.	No complaints received.	Unlikely	Minor	**Low**	
6.4	Vibration	Disturbance to nearby residents. Damage to physical assets	Avoid disturbance caused by vibration.	**Environmental Protection Act 1994**	Possible	Moderate	**High**	Minimise inconvenience to adjoining property owners. Conduct a dilapidation survey prior to commencing works. Monitor and control vibration levels.	Carry out surveys and monitoring as required	Possible	Minor	**Medium**	
6.6	Protection of Existing Infrastructure and Services	Damage to adjcacent property or disruption of services to neighbours	Do not Damage to adjcacent property or disrupt services to neighbours.	**Work Health and Safety Regulation 2011** **Property Law Act 1974**	Possible	Moderate	**High**	Set up protection to adjacent structures as required. Identify and protect overhead and inground services. Contact Dial-before-you-dig and client records. Ensure service authority requirements are met. Notify Client prior to planned interruptions to services. Project Emergency Plan in place with correct emergency contact numbers on display. Excavation Permits approved before commencing excavations.	Monitor activities, implementation of site identification and protection, compliance with Excavation Permits.	Possible	Moderate	**High**	Ensure underground services are marked out.