BESIX Watpac

Project Environmental Management Plan NSW

N230

Shellharbour Hospital

19 December 2024

Revision History

Version	Date	Revision Description	Project/Site Manager Sign off
	07/06/24	Draft/Incorporation of SSD Conditions	John Mattock
ApDraft	26/07/24	Update to resources & risk assessment	Catriona Monaghan
Rev 0	14/8/24	Initial Client Submission	Ilse Luypaert
Rev 1	19/9/24	Updates from client	Ilse Luypaert
Rev 2	19/12/24	Update org chart	Ilse Luypaert

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Project Environmental Management Plan NSW

1 System Application

1.1 Planning Environmental Management

BESIX Watpac is committed to safely construct the project, on time and on budget, without harm to the environment.

This plan, prepared by BESIX Watpac, sets out the procedures BESIX Watpac will implement to manage our site activities from an environmental perspective to:

- Ensure compliance with the Environmental Requirements and Statutory Requirements
- Maximise the achievement of the Environmental Objectives.
- The Environmental Management Plan addresses:
- All Environmental requirements including the requirements within the development approval SSD - 57064458
- All Environmental Requirements
- All Statutory Requirements
- All Environmental Objectives
- The roles and responsibilities of BESIX Watpac and subcontractor personnel (including BESIX Watpac's key people) regarding the Environment
- The training and awareness programmes provided to personnel regarding the Environment
- The procedure for preparing and finalising the Environmental Management Plan
- The procedure for regularly identifying, controlling and monitoring possible and actual impacts on the Environment associated with the works, including the procedures for recording, reporting, responding to and finalising:
- matters arising out of or in connection with such identification, control and monitoring
- complaints, incidents (including Environmental Incidents), near misses and other situations or accidents regarding the Environment during the works
- The procedure for regularly reviewing, updating and amending the Environmental Management Plan (including as a result of any complaint, incident (including Environmental Incidents)
- The procedure for ensuring subcontractor compliance with the Environmental Management Plan
- The procedure for regularly auditing or other monitoring of the Environmental Management Plan, including the procedures for recording, reporting, responding to and finalising:
  - » matters arising out of or in connection with such audits or other monitoring
  - » complaints, incidents (including Environmental Incidents), near misses and other situations or accidents regarding the Environment

The additional matters specified in the Contract Particulars.

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
- A description of the standard approach of BESIX Watpac's environmental management system, including reporting and monitoring

- An outline of roles and responsibilities for the project, including site staff and BESIX Watpac's management support teams
- A project specific risk assessment that analyses the risks under each aspect, presenting the logic/research behind the findings or recommendations and accompanying management strategies, recommendations or controls
- An outline of BESIX Watpac's Standard Environmental Protocols (SEPs) represented in the tables at the back of the EMP, 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 EMP is a live document that may require review and update. A review of the EMP 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 EMP required updating, this must be reviewed and approved by the Environmental Manager and the Project Manager.

As this EMP 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 EMP 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 EMP
- As required by conditions stated within the SSDA
- 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 Project Manager (or WHSE nominee) will be responsible for review and amendment of the EMP. If updated at any stage of the project, a revised copy will be submitted to all relevant stakeholders.

2 Project Description

2.1 Scope of Works

The New Shellharbour Hospital (NSH) will deliver contemporary and expanded hospital services and integrated health facilities for the Illawarra Shoalhaven Local Health District. The NSW Government has committed to develop Shellharbour Hospital, a new health hub for the entire Illawarra region. The new hospital will provide the majority of emergency, critical care, acute, subacute, and non-admitted services locally, reducing the need to transfer patients to Wollongong and Sydney.

In addition to the construction of external areas as well as multideck carpark. the new building scope includes a new 6-level building of approximately 40,000m2 GFA, accommodating the following:

- Level 00 Perioperative Service, Mental Health Unit, SSD, Back of House (BOH), Loading Dock, Plant and Food Services.
- Level 01 Acute Mental Health IPU, Emergency Department, Medical Imaging and Pathology.
- Level 02 Whole of Hospital Workspace Hub, Ambulatory Care, Retail and Pharmacy.
- Level 03 Surgical IPU, ICU/Cardiology IPU, Ambulatory Care and Renal.
- Level 04 In-Patient Unit (IPU), Rehabilitation/GEM Unit and Plant
- Level 05 Medical/Surgical IPU and Acute/GAP IPU
- Level 06 Plant and Equipment

The works include augmentation to Dunmore Road, including a new roundabout to facilitate access to the facility for Ambulance, Patient Transport, service vehicles, staff and patient vehicles.

Figure 1 High Level 3D Graphic of NSH

Figure 2 Graphic of NSH

2.2 Site Location and Description

The site for the new Shellharbour Hospital is located at Dunmore, next to the Princes Highway and close to Shellharbour Junction train station. A site compound will be established in the North-Eastern portion of the construction site, with the ability to accommodate for a peak workforce of 500 workers.
The site is located at 86 Dunmore Rd, Dunmore NSW 2529 (Lot 10 DP 1281639Cl).
Site Hours are: Monday – Friday 7am – 6pm, Saturday 8am – 1pm

Figure 3 – Site plan & Boundary

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 with 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.

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 1 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.	Senior 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	Senior 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:

- Aboriginal Cultural Heritage Act 2003
- Building Act 1975
- Environmental Protection Act 1994
- Environmental Protection and Biodiversity Conservation Act 1999
- Nature Conservation Act 1992
- SSDA-57064458
- Sustainable Planning Act 200
- Transport Infrastructure Act 1994
- Vegetation Management Act 1999
- Water Act 2000.

4.5 SSD – 57064458 Conditions

4.5.1 Principals Expectations

The Principal`s environmental expectations are set out in the GC21 Section 6.1. Please find below table to demonstrate compliance with each of the requirements:

Table 2 Principals Expectations as per GC21 Section 6.1

Policy Objective	Section
Submit an Environmental Management Plan that complies with the NSW Government Environmental Management Guidelines for construction (Edition 4) (EM Guidelines). The EMS Guidelines are available on the Buy.NSW website at <https://buy.nsw.gov.au/categories/construction >.	Noted.
Erosion and sediment control, including management and testing of any run off into the adjacent Rail Corridor / Minnamurra River Catchment	Protocol 7.7 Refer to Soil and Water Management Plan
Dust management and mitigation	Protocol 7.3
Noise and vibration impacts to surrounding land users	Refer to Noise and Vibration Management Protocol 7.4 Protocol 7.5
Accidental discovery of artefacts	Refer to Aboriginal Cultural Heritage Management Plan Protocol 7.13
Development consent conditions	Noted.
Waste Management	Refer to Waste management Plan
Pedestrian / Cyclist Management	Protocol 7.19 Refer to Traffic Management Plan

Policy Objective	Section
Traffic and transport impact on the surrounding community	Protocol 7.19 Refer to Traffic Management Plan
Protection of flora and fauna	Protocol 7.9 Protocol 7.10

4.5.2 SSD and EIS Expectations

Please find below table to demonstrate compliance with each of the SSDA 57064458 requirements and EIS dated 8th of September 2023 prepared by Geolink:

Table 3 SSD and EIS Expectations

Construction Environmental Management Plan Requirements – B14		Reference
A i)	Hours of work	Refer to Section 2.2
A ii)	24-hour contact details of site manager	Refer to Section 6.8
A iii)	Management of dust and odour to protect the amenity of the neighbourhood;	See Protocol 7.3
A iv)	External lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting;	Refer to protocol 7.18
B.	An unexpected finds protocol for contamination and associated communications procedure to ensure that potentially contaminated material is appropriately managed;	Protocol 7.12 – Land Contamination Refer to Soil and Water Management Plan Protocol 7.22 – Asbestos Asbestos procedure and checklist
C.	An unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure;	Refer to Aboriginal Cultural Heritage Management Plan Protocol 7.13
D.	Construction Traffic and Pedestrian Management Sub-Plan (see condition B15);	Refer to traffic mgmt. plan Protocol 7.19
E.	Construction Noise and Vibration Management Sub-Plan (see condition B16);	Refer to Noise and Vibration Management Protocol 7.4 Protocol 7.5
F.	Construction Waste Management Sub-Plan (see condition B17);	Waste Management Sub-plan
G.	Construction Soil and Water Management Sub-Plan (see condition B18);	Refer to soil and waste management plan Protocol 7.6 Protocol 7.7 Protocol 7.20
H.	Aboriginal Cultural Heritage Management Sub-Plan (see condition B19);	Refer to Aboriginal Cultural Heritage Management Plan Protocol 7.13
I.	Biodiversity Management Sub-Plan (see condition B20);	Sub-plan prepared by EMM

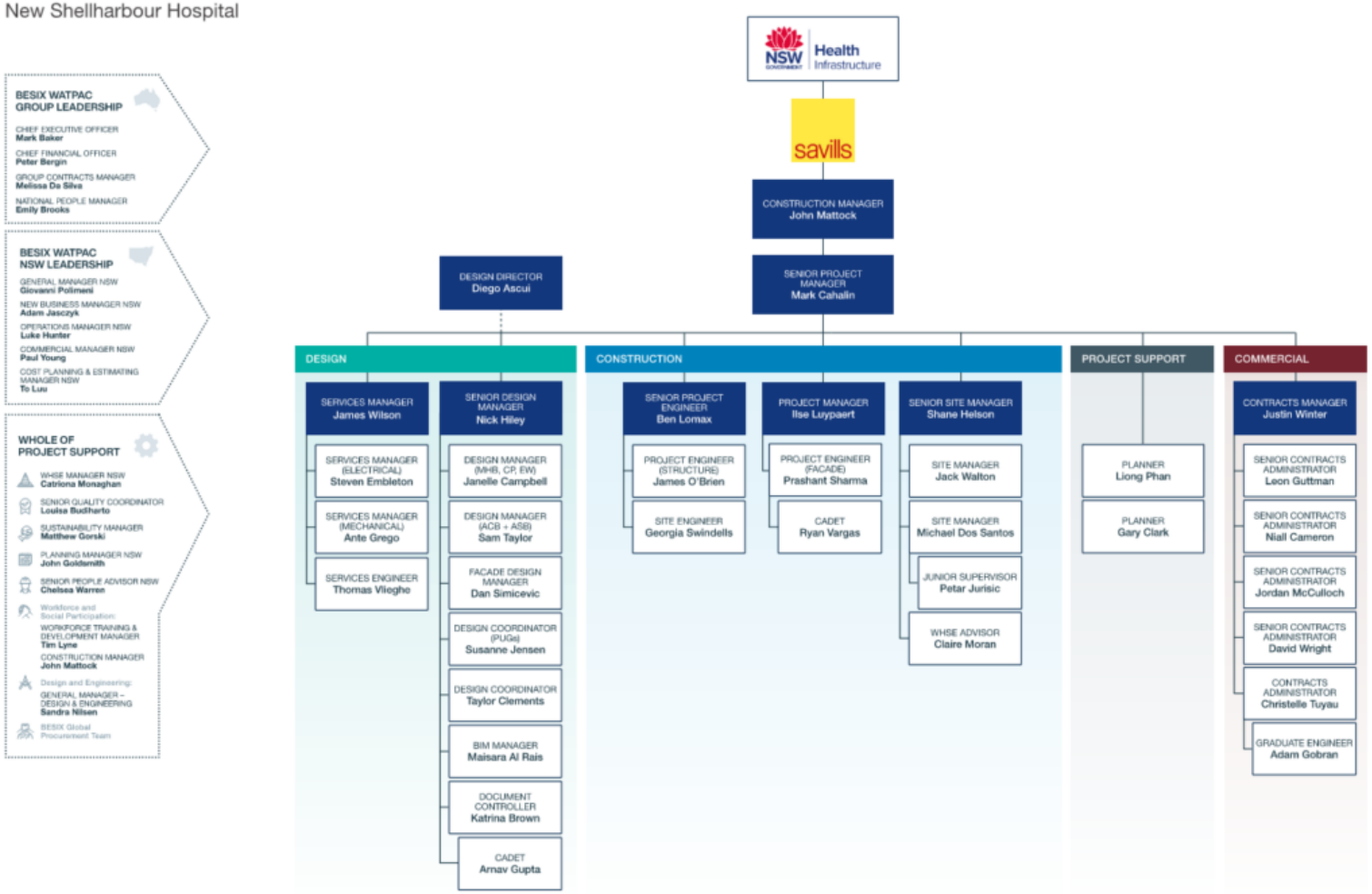
Construction Environmental Management Plan Requirements – B14		Reference
J.	Construction Flood Emergency Management Plan (see condition B21);	Refer to Flood Emergency Management Plan

5 Project Organisation

5.1 Project Organisation Chart

Project Organisational Chart

New Shellharbour Hospital



5.2 Roles and Responsibilities

5.2.1 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 CEMP
- 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.

5.2.2 WHSE 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 Quality and Environment Manager is responsible for:

- Assisting the Project Manager with the implementation of the CEMP
- Providing support and technical assistance to the Project Environmental Coordinator
- Monitoring the effectiveness of the Environmental Management System.

The Quality and Environment Manager is authorised to require all employees to comply with the provisions of the documented Environmental Management System and may issue directions to that effect.

5.2.3 Senior Project Manager

The Senior Project Manager is responsible to the State 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:

- Implementing and maintaining the CEMP
- Reviewing the environmental aspects at project start-up and ensuring the CEMP addresses all requirements
- Providing guidance, motivation and resources to achieve the provisions of the CEMP
- 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 satisfies the requirements of the CEMP

The Senior Project Manager shall have sufficient authority and independence to:

- 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

5.2.4 WHSE Advisor

The Project Environmental Advisor 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 CEMP 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 all environmental complaints (which shall be recorded on the project records)
- 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 CEMP and control of distribution
- Provide recommendations to the Quality and Environment Manager for EMS and operational improvements.

5.2.5 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.

5.2.6 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 CEMP.
- 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 CEMP, 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.

5.2.7 Supervisor

The Supervisor 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 CEMP
- Identify, recommend and initiate solutions to any project environmental problem.

5.2.8 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 CEMP are achieved.

5.2.9 Direct Labour

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

5.2.10 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 CEMP; 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 EMP, which is assessed using the "Subcontractor EMP 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 workplace practices and procedures set out in this CEMP.

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 Legal and Other Requirements

The construction activities do not require any State Government licensing arrangements, control approvals or permits for environmental protection at this stage.

The Quality and Environment Manager is responsible for identifying and assessing amendments to statutory and regulatory requirements potentially applicable to the project and initiating a review of the CEMP as warranted.

6.2 Monitoring

The WHSE Advisor 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.

6.3 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 records together with notations of pertinent advice.

6.4 Environmental Complaints

The Project Manager and/or the WHSE Advisor will immediately investigate all environmental complaints. Details of complaints and the remedial action taken will be recorded in the project records.

BESIX Watpac will notify the Client's Project Manager of all applicable complaints received. Any complaints received by the Client will be investigated and recorded by BESIX Watpac as appropriate. The Environment Coordinator must be notified verbally, immediately after the complaint and furnished with a written report within 24 hours of the complaint. The report is to be drafted on BESIX Watpac's **Environmental Complaint and Incident Report form (C-FRM-060)**

All complaints (from Client or otherwise) shall be responded to within 48 hours. The Principal's Representative will be notified.

A Complaints Register will be maintained on Health Infrastructure's project website.

6.5 Environmental Incidents

Should significant environmental harm occur during the works, BESIX Watpac shall take prompt action to minimise any impact and immediately inform the Client`s Environment Coordinator. Procedures to respond to an emergency incident have been documented in the Project Emergency Plan.

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 the project records.

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.
- Complete the Environmental Complaint and Incident Report Form **(C-FRM-060)**
- Send report to your State Environmental Manager and Environment Coordinator within 24 hours of occurrence.
- Environmental Manager will advise if the incident is significant, at which point the report form should be issued to Client's Project Manager with the recommendation that the incident be reported to the Department of Environment and Heritage Protection.

For significant environmental incidents that may cause material harm to the environment, the Client is to be notified immediately with written confirmation of the incident within 24 hours of the incident occurrence so include within the CEMP accordingly.

6.6 Duty To Notify

The duty to notify is set out in section 148 of the *Protection of the Environment Operations Act 1997* (POEO Act). Pollution incidents causing or threatening material harm to the environment must be notified. A 'pollution incident' includes a leak, spill or escape of a substance, or circumstances in which this is likely to occur. 'Material harm to the environment' is defined in section 147. Material harm includes on-site harm, as well as harm to the environment beyond the premises where the pollution incident occurred.

The duty to report pollution incidents is a legal requirement that ensures that the appropriate regulatory authority (ARA) and other relevant persons are made aware of incidents that may have caused or threaten serious environmental harm or material environmental harm, and that appropriate action can be taken to minimise the extent of environmental harm caused.

Under the POEO Act, he following people have a duty to notify a pollution incident occurring during an activity that causes or threatens material harm to the environment:

- the person carrying on the activity
- an employee or agent carrying on the activity
- an employer carrying on the activity
- the occupier of the premises where the incident occurs.

Notification must be given immediately, i.e. promptly and without delay, after the person becomes aware of the incident.

Only persons engaged in the activity resulting in the pollution incident, and occupiers of the land where the incident occurs, have a duty to report the incident.

Pollution incidents posing material harm to the environment should be notified to each 'relevant authority' as defined in section 148(8) of the POEO Act. 'Relevant authority' means:

- the appropriate regulatory authority (ARA)
- the Environment Protection Authority (EPA) if they are not the ARA
- the Ministry of Health
- SafeWork NSW (formerly WorkCover)
- the local authority, e.g. the local council, if this is not the ARA
- Fire and Rescue NSW

In general terms, sufficient detail of the incident must be reported to enable appropriate follow-up action. The information required is listed in section 150. Any required information that is not known when the incident is notified must be notified immediately once it becomes known.

If you fail to report a pollution incident posing material harm to the environment as required under Part 5.7 of the Act, you commit an offence. The maximum penalty is $2,000,000 for corporations or $500,000 for individuals.

Under the Act, BESIX Watpac is classified an employee, contractor, or agent, who causes or becomes aware of a notifiable event, must notify the person who employs them or engaged them as a contractor or agent (i.e. the client representative) within 24 hours of 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.

If the client representative cannot be contacted, then BESIX Watpac must give the ARA (usually the NSW EPA) written notice with details of the event no later than 24 hours after first becoming aware of the event.

The client representative has a duty to give written notice with details of the event to the ARA no later than 24 hours after 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; or
- Give public notice of the details of the event.

In addition to the written notice, if a person becomes aware of a notifiable event, the person should immediately call the NSW EPA Environment Line on 131 555 and report the matter.

Relevant legislative provisions under the POEO Act include:

- section 147: Meaning of material harm to the environment
- section 148: Pollution incidents causing or threatening material harm to the environment
- section 149: Manner and form of notification
- section 150: Relevant information to be given
- section 151: Incidents not required to be reported
- section 152: Offence for breaching duty to notify pollution incidents
- section 153: Incriminating information

6.7 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 CEMP.

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

6.8 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. Emergency contact details for the Senior Site Manager are: Shane Helson - 0427 225 785.

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

Emergency Management Protocols	
	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.

6.9 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 Construction Environmental Management Plan 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.

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.

Training requirements for BESIX Watpac personnel are identified 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 CEMP and its procedures on site. Any further training needs will be identified, implemented and recorded in the project records.

6.10 Auditing

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

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 CEMP.

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.

6.11 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 CEMP.

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.

The Site Manager will verify follow-up action is implemented and effective. Reports will be filed in the project records.

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 Project records.

6.12 Project Environmental Records

The following documents are to be retained in the project records:

- 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.

6.13 Issue and Control of the Construction Environmental Management Plan

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

Copies of the CEMP 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 CEMP is to be revised with any applicable changes to the environmental requirements for this project.

7 Standard Environmental Protocol (SEP) 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 CEMP project specific action plans and control measures to manage each identified environmental aspect, risk and opportunity.

Environmental 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 page's hereafter.

Site Accommodation	
Standard Environmental Protocol 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	• Approved Site Plan • Australian Standard 2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites • Development Approval Conditions (extract as required) • Environmental Planning and Assessment Act 1979 (NSW) • Local Land Services Act 2013 (NSW) • Protection of the Environment Operations (Noise Control) Regulation 2008 (NSW)

Site Amenities	
Standard Environmental Protocol 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> • Paper waste from site office is collected in paper recycling bins and regularly collected. • Cardboard waste bin is provided on site. • All putrescible waste is stored in secure containers until removal and disposal off site. weekly • 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) – Refer to Dust	
Standard Environmental Protocol 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 • 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 as required 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 • During the construction phase screening will be used by BESIX Watpac where necessary to prevent the spread of dust. This screening will also serve to screen the construction site from surrounding land uses and mitigate potential landscape impacts • 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	• Protection of the Environment Operations Act 1997 (NSW) • Protection of the Environment Operations (Clean Air) Regulation 2010 (NSW) • National Greenhouse and Energy Reporting Act 2007 (NGER Act) • National Environmental Protection Measure (NEPM) for Ambient Air Quality • Contaminated Land Management Act 1997 (NSW)

Noise – Refer to Noise & Vibration Management Plan	
Standard Environmental Protocol 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(l), and as stated in the SSDA Conditions, a person must not carry out building work in a way that makes an audible noise outside of the approved works hours of 7am to 6pm Monday to Friday and 8am to 1pm on Saturdays • 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 effective noise suppression devices (generally exhaust mufflers) as applicable. • Fit mufflers/silencers to pneumatic tools (e.g. breakers) • 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 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	• Protection of the Environment Operations Act 1997 (NSW) • Protection of the Environment Operations (Noise Control) Regulation 2008 (NSW) • Contract Specifications • Australian Standard 2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites • AS2436 – 1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites

Vibration – Refer to Noise and Vibration Management Plan	
Standard Environmental Protocol 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 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	• Protection of the Environment Operations Act 1997 • Assessing vibration: a technical guideline 2006 • AS 2670.2-1990 Evaluation of human exposure to whole-body vibration Continuous and shock-induced vibration in buildings (1 to 80 Hz) • BS6472 Guide to Evaluate Exposure to Vibration in Building (1Hz to 80Hz) • DIN4150 Part 3 Structural Vibration – Effects of vibration on structures

Water Quality – Refer to Soil and Water Management Plan	
Standard Environmental Protocol 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 C-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 C-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	• Protection of the Environment Operations Act 1997 • Managing Urban Stormwater: Soils and Construction. Volume 1, 4th Edition. Blue Book. • NSW EPA Approved Methods for the Sampling and Analysis of Water Pollutants in NSW • Protection of the Environment Operations Act 1997 (NSW), Section 120 • Standard Methods for the Examination of Water and Wastewater, 20th Edition. American Public Health Association. • Water Act 1912 (NSW) • Water Management Act 2000 (NSW) and Amendment Act 2010 • Water NSW Act 2014 • Water Management (General) Regulation 2011 (NSW) • Australian and New Zealand Guidelines For Fresh and Marine Water Quality 2000 • Australian Guidelines for Water Quality Monitoring and Reporting 2000

Erosion and Sediment Control – Refer to Soil and Water Management Plan	
Standard Environmental Protocol 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 the following discharge limits: • No more than 50mg/L Turbidity, or 50 NTU, after establishing correlation • Erosion and Sediment Control to be established in accordance with the site Erosion and Sediment Control plans, and BESIX Watpac document C-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 Soil and Water Management Plan and the Erosion and Sediment Control Drawings 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	• Protection of the Environment Operations Act 1997 • Soil and Construction, Volume 1, 4th Edition, March 2004 (Managing Urban Stormwater, Landcom) • EPA, A Resource guide for local councils: Erosion and sediment control, 2006 • AS/NZS 5667.1:1998 Water quality – Sampling – Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples

Spill Response and Management	
Standard Environmental Protocol 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 2017 s357 • Protection of the Environment Operations Act 1997 • Protection of the Environment Operations (Waste) Regulation 2014 • EPA Waste Classification Guidelines 2014 • Environmental Protection Act 1994, s 443, s 11, s 15-17

Protection of Flora	
Standard Environmental Protocol 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 • 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 supervised by a qualified Arborist • 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 Local Council property 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	• Biodiversity Conservation Act 2016 No 63 • Local Land Services Act 2013 • Biodiversity Development Assessment Report by EMM September 2023

Protection of Fauna	
Standard Environmental Protocol 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 attempt 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	• National Parks and Wildlife Act 1974 • Biodiversity Conservation Act 2016 No 63 • Biodiversity Development Assessment Report by EMM September 2023

Weed Control	
Standard Environmental Protocol 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/RESO 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 hydro mulching 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 C-PLA-15, “Weed Management Guide.” Info on establishing washdown bays can be found in C-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	• Biosecurity Act 2015 • Biosecurity Regulation 2017 • Biodiversity Development Assessment Report by EMM September 2023

Land Contamination – Refer to Soil and Water Management Plan	
Standard Environmental Protocol 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 (noticeable different from the surrounding soil); and malodours that present (e.g. oil, sulphur, chlorine, sewerage).
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	• Protection of the Environment Operations Act 1997 • Protection of the Environment Operations (Waste) Regulation 2014 • EPA Waste Classification Guidelines 2014 • Contaminated Land Management Act 1997 • Contaminated Land Management Regulation 2013 • EPA Contaminated Sites: Guidelines on Significant Risk of Harm from Contamination & the Duty to Report 1999 • Assessment of Site Contamination NEPM 1999 • EPA Contaminated Sites: Guidelines for Assessing Service Station Sites 1994 • EPA Contaminated Sites Guidelines for the NSW Site Auditor Scheme (2nd edition) 2006 • EPA Guidelines for the Assessment and Management of Groundwater Contamination 2007 • EPA Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites 1997 • EPA Contaminated Sites: Sampling Design Guidelines 1995 • AS/NZS 5667.11:1998 Water quality – Sampling – Guidance on sampling of groundwaters

Protection of Cultural, Heritage and Aboriginal Artefacts – Refer to Aboriginal Cultural Heritage Management Plan	
Standard Environmental Protocol 7.13	
Objective	Avoid damage or disturbance to archaeological/cultural artefacts including skeletal remains, shell middens or other cultural artefacts.
Management Strategy	Conduct a historical investigation of the site to establish, as far as practical, the likelihood of existence of archaeological/cultural artefacts. 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 • Directions from the NSW Heritage Office are followed • 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. • In the event that archaeological 'relics' are unexpectedly discovered during excavation, work must immediately cease in the affected area and the client and historical specialist contracted to inspect and record the remains. Depending on the nature of the discovery, additional assessment and approval may be required prior to the recommencement of excavation in the affected area. The general BESIX Watpac Unexpected finds protocol is to be followed.
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	• Heritage Act 1977 • Aboriginal and Torres Strait Islander Heritage Protection Act 1984 • Aboriginal and Torres Strait Islander Heritage Protection Regulations 1984 • Australian Heritage Council Act 2003

Fire Protection	
Standard Environmental Protocol 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, s 62, 65, 72, 67 • AS-2444-2001 Portable fire extinguishers and fire blankets - Selection and location

Unexploded Ordnance (UXOs)	
Standard Environmental Protocol 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 Regulation 2017 • Convention on Certain Conventional Weapons (International Law)

Identification and Protection of Existing Utility Services	
Standard Environmental Protocol 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 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 • Energy and Utilities Administration Act 1987 (NSW)

Waste Management – Refer to Construction Waste Management Plan	
Standard Environmental Protocol 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 through the use of 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. Submit a progress report every 2 months to the client and a summary report upon completion of the project.
Reference	• NEPM (Movement of Controlled Waste between States and Territories) • Protection of the Environment Operations (Waste) Regulation 2014 • Waste Avoidance and Resource Recovery Act 2001 • EPA Waste Classification Guidelines 2014 • Construction and Demolition Waste Guide - Recycling and Reuse across the Supply Chain • National Waste Policy: less waste, more resources 2009 • National Packaging Covenant Work • AS 1940 – 2004: The Storage and Handling of Flammable and Combustible Liquids and the chemical’s Safety Data Sheet (SDS)

Artificial Lighting	
Standard Environmental Protocol 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 enter the 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	• Protection of the Environment Operations Act 1997

Vehicular and Pedestrian Traffic Management – Refer to Traffic Management Plan	
Standard Environmental Protocol 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 2010 (NSW) • Road Transport Act 2013 (NSW) • Road Transport (General) Regulation 2013 (NSW) • Roads Act 1993 (NSW)

Acid Sulfate Soil – Refer to Soil and Water Management Plan	
Standard Environmental Protocol 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. An Acid Sulfate Soils Management Plan will be produced to outline the risks and liming rates to inform the earthworks contractors. <u>Field Indicators</u> • Field indicators for Actual Acid Sulfate include: • 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 • Field indicators for Potential 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). <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.

Acid Sulfate Soil – Refer to Soil and Water Management Plan

- 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.

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.

Acid Sulfate Soil – Refer to Soil and Water Management Plan	
	• 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. • The pH of all ponded drainage water around the confines of the treatment bunds should be measured daily. <u>Soil Testing and Verification</u> • 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. <u>Off-Site Treatment</u> • 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	• ANZECC/NHMRC Guidelines • NEPM for Assessment of Site Contamination.

Asbestos – See Asbestos procedure and checklist	
Standard Environmental Protocol 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. Project Manager shall ensure: • Asbestos contaminated areas are identified and restricted to authorised personnel until the contaminated materials have been removed and the area declared safe. • 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 • 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 Regulation 2017 Ch 8 • BESIX Watpac NSMS Asbestos Management Procedure • Asbestos Management Plan • Code of Practice for the Safe Removal of Asbestos

Hazardous Substances and Dangerous Goods	
Standard Environmental Protocol 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
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. • No bulk diesel is to be stored on site. • 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 2017, s 357 • National Code of Practice "Managing Risks of Hazardous Chemicals in the Workplace" • National Code of Practice "Labelling of Workplace Hazardous Chemicals" • Note : Refer to Preliminary Hazard Analysis of Dangerous Goods in Shellharbour Hospital by Arriscar regarding hazardous materials during hospital operations.

Pest Animals, Vermin, and Infestation Control	
Standard Environmental Protocol 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. • Minimise ponding and exposed water sources to prevent mosquitos and midgeys. • 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.
Performance Indicators	No infestations.
Reporting	None
Reference	• Work Health and Safety Regulation 2017 • Plant Protection Act 1989

Site Demobilisation	
Standard Environmental Protocol 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

Refer to attached excel file.

Environmental Risk Assessment

E-FRM-002

PROJECT: New Shellharbour Hospital

Date: 14/08/2024

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.	**Contaminated Land Management Act 1997**	Possible	Minor	**Medium**	Site induction to make personnel aware of the potential presence of asbestos contaminated materials and the procedures of its identification and removal.	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.	Unlikely	Minor	**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.	**Protection of the Environment Operations Act 1997**	Unlikely	Moderate	**Medium**	ASS report has been produced to verify the existence and likelihood of Acid Sulphate. Potential Acid Sulphate limited to area around rentention basin and unlikely as no major site activities in this area. Disturbance of the area to be minimized. Site induction to make personnel aware of the potential presence of ASS and the procedures of its identification and removal. If groundwater is penetrated, be wary of acid sulphates. The earth will muddy and product a sulphuric smell. Soils with ASS are to be stockpiled in stone bunds	ASS report prepared	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	**Work Health and Safety Act 2011**	Likely	Major	**Extreme**	Review the BESIX Watpac Asbestos Register and Procedure. 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.	Unlikely	Minor	**Low**	Asbestos condition must be known prior to demoliton, likely via the asbestos register.
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.	**Pesticides Act 1999**	Likely	Moderate	**High**	When working in green areas (off haulroads or hardstands): 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.	Unlikely	Moderate	**Medium**	A herbicide treatment strategy should be approved before work commences, and sweeps should be done on a weekly 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 equipment wash)	Do not release prescribed water contaminants or prohibited substances into groundwater tables. Prescribed water contaminants as per Environment Protection Regulation 2008 Schedule 9.	**Contaminated Land Management Act 1997** **Protection of the Environment Operations Act 1997**	Possible	Moderate	**High**	• 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. • Refueling only in appropriate areas	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.	Unlikely	Moderate	**Medium**	Ensure all groundwater encountered is pumped out into a temporary storage (e.g. sump pit or tank) and treated as contaminated waste.
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.	**Protection of the Environment Operations Act 1997**	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	Rare	Minor	**Low**	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.	**Protection of the Environment Operations Act 1997** **Work Health and Safety Act 2011**	Unlikely	Major	**High**	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	Moderate	**Medium**	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 Management Act 2000**	Rare	Minor	**Low**	All earthworks must be only as drawn or specified. Any alterations to earth must be as documented by a Civil Engineer and a development permit must be provided.	Evidence of development permit and works are documented.	Rare	Minor	**Low**	No disturbance to watercourse.

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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 acces to them.	**Protection of the Environment Operations (Waste) Regulation 2014** **Waste Avoidance and Resource Recovery Act 2001**	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.	Unlikely	Moderate	**Medium**	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. Ensur 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 plac 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.	**Protection of the Environment Operations (Waste) Regulation 2014** **Waste Avoidance and Resource Recovery Act 2001**	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.	**Biodiversity Conservation Act 2016**	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	Major	**High**	A Fauna Spotter/Catcher must be attendant on site during all clearing, and conduct an inspection prior to clearing works starting.
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.	**Local Land Services Act 2013** **Biodiversity Conservation Act 2016**	Possible	Minor	**Medium**	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	Major	**High**	Trees must not be demolished without a tree removal permit. A qualified arborist must be attendant on site during all clearing.
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 distric	**Coastal Management Act 2016**	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 distric	The site enviornmental officer will audit subcontractors to ensure spill kits are maintained.	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.	**Environmental Planning and Assessment Regulation 2000**	Unlikely	Major	**High**	Emergency Plans cover evacuation and safety of local community via securing plant and equipment from flood activity.	Emergency Plan is in place.	Unlikely	Minor	**Low**	Construction wokrs won`t add to the impact. The retention basin will have positive influence on the natural flooding
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 th 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	**Regulatory Reform (Fire Safety) Order 2005**	Possible	Major	**High**	Store combustible chemicals in cool enclosures. Do not stockpile flammable materials. Do not allow smoking or lighters on site. Grass will be kept short to reduce risk on fire. Implement en follow Hot Work Permits procedures. Observing fire bans and planning work in accordance. Familiarise with local RFS & FRNSW teams.	Environmental inspections.	Unlikely	Negligible	**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.

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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.	**National Parks and Wildlife Act**	Unlikely	Moderate	**Medium**	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.	Unlikely	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.	**Protection of the Environment Operations (Clean Air) Regulation 2010** **National Environment Protection (Ambient Air Quality) Measure (Air NEPM)**	Likely	Moderate	**High**	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	Unlikely	Negligible	**Low**	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	**Protection of the Environment Operations (Noise Control) Regulation 2017**	Possible	Minor	**Medium**	All personnel will be inducted to only conduct noisy activities within the prescribed hours.	No complaints received.	Unlikely	Minor	**Low**	Area is fairly isolated.
6.4	Vibration	Disturbance to nearby residents. Damage to physical assets	Avoid disturbance caused by vibration.	**Protection of the Environment Operations (Noise Control) Regulation 2017** **Crimes Act 1900**	Possible	Minor	**Medium**	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	Unlikely	Minor	**Low**	Area is fairly isolated. No heavy vibration works are to be undertaken.
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.	**Government Telecommunications Act 2018** **Energy Legislation Amendment (Infrastructure Protection) Act 2009 No 31** **Crimes Act 1900**	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 Create Master Services Plan Mark exclusion zones as required	Monitor activities, implementation of site identification and protection, compliance with Excavation Permits.	Unlikely	Moderate	**Medium**	Ensure underground services are marked out.