GREEN GOLD
ENERGY

Construction Environmental Management Plan

Green Gold Energy Solar Farm

Doc ID: GG-CEMP

Contents

1 INTRODUCTION

1.1 Purpose

The purpose of this Construction Environmental Management Plan (CEMP) is:

- To reduce the impact on the immediate and surrounding environment by minimising environmental harm and preventing environmental incidents
- Systematically manage environmental risk
- Where practicable, eliminate environmental risk, or if not practicable adequately control via application of a hierarchy of risk control

1.2 Construction Environmental Management Plan (CEMP)

This CEMP details environmental management measures, controls, resources and responsibilities required during the construction of the Project to comply with all the requirements of relevant legislation, conditions of applicable licences, approvals and permits.

Foreseeable aspects of the Project with potential to impact on the environment are addressed in detailed sub-plans to mitigate potential environmental impacts associated with the Project's construction works.

1.3 Document Responsibilities

This Construction Environmental Management Plan (CEMP) must be in place and operational prior to commencement of construction work.

The project dedicated Project/Site Engineer in conjunction with the Project manager, will ensure that the plan is monitored, reviewed, maintained and updated as necessary during the course of the project.

One hardcopy of the CEMP and associated plans will be maintained by the Project/Site Engineer (document controlled revision) for the duration of the project.

Where any change is made to this plan that has potential to impact on the health and safety of the workforce, the environment or the work's quality; the project dedicated Project/Site Engineer, must ensure details of this systemic change are effectively communicated to the site workforce and relevant stakeholders.

1.4 Document Amendment and Distribution

New and amended documentation issued after the initial approval and distribution of this plan to controlled copy holders shall be identified.

All changes to documents shall be reviewed and approved by the same function that performed the original review and approval and as per the cover of this plan, unless specifically designated otherwise.

2 PROJECT DESCRIPTION

2.1 Project Overview

The scope of works includes site preparation and early works, piling, system installation, grid connection, and testing and commissioning of the solar farm. They are broken down to 4 key stages as follows:

Stage 1 – Early works consisting of piling tests, road construction and upgrades for site access, including road widening and paving. During this stage, the number of workers on site should be up to 10.

Stage 2 – Civil works consisting of land clearing, levelling and earthworks, internal road construction, drainage installation, laydown area preparation, fencing installation, site establishment, preparation of delivery station and inverter station, and vegetation screening/landscaping. There should be 3-5 workers on site to carry out civil works.

Stage 3 – Mechanical works consisting of foundation piling (ramming and auguring), tracker installation, module installation and delivery. There should be 10-15 workers on site to carry out mechanical works. Delivery of tracker piles and modules will be scheduled before piling and mechanical installation commences.

Stage 4 – Electrical works consisting of solar cabling of aerials and conduits, DC main cabling via direct burial, MV cabling from inverter station to delivery station through direct buried, module connection, connection of junction boxes-inverters-delivery station, connection to grid and finally testing and commissioning. There should be 10-20 workers on site to carry out electrical works. Delivery of all electrical equipment including cables and accessories will be scheduled across this stage.

The Project construction duration is forecast to be 9 months. It is anticipated that all components will be delivered in containers by semi-trailer trucks and deliveries will be scheduled across the project construction period.

2.1.1 Working hours

The standard hours of operation are:

- ***7:00am*** to ***6:00pm*** Monday to Friday
- ***8:00am*** to ***1:00pm*** Saturday; and
- No works on Sundays and Public Holidays

The following works are permitted outside these standard hours:

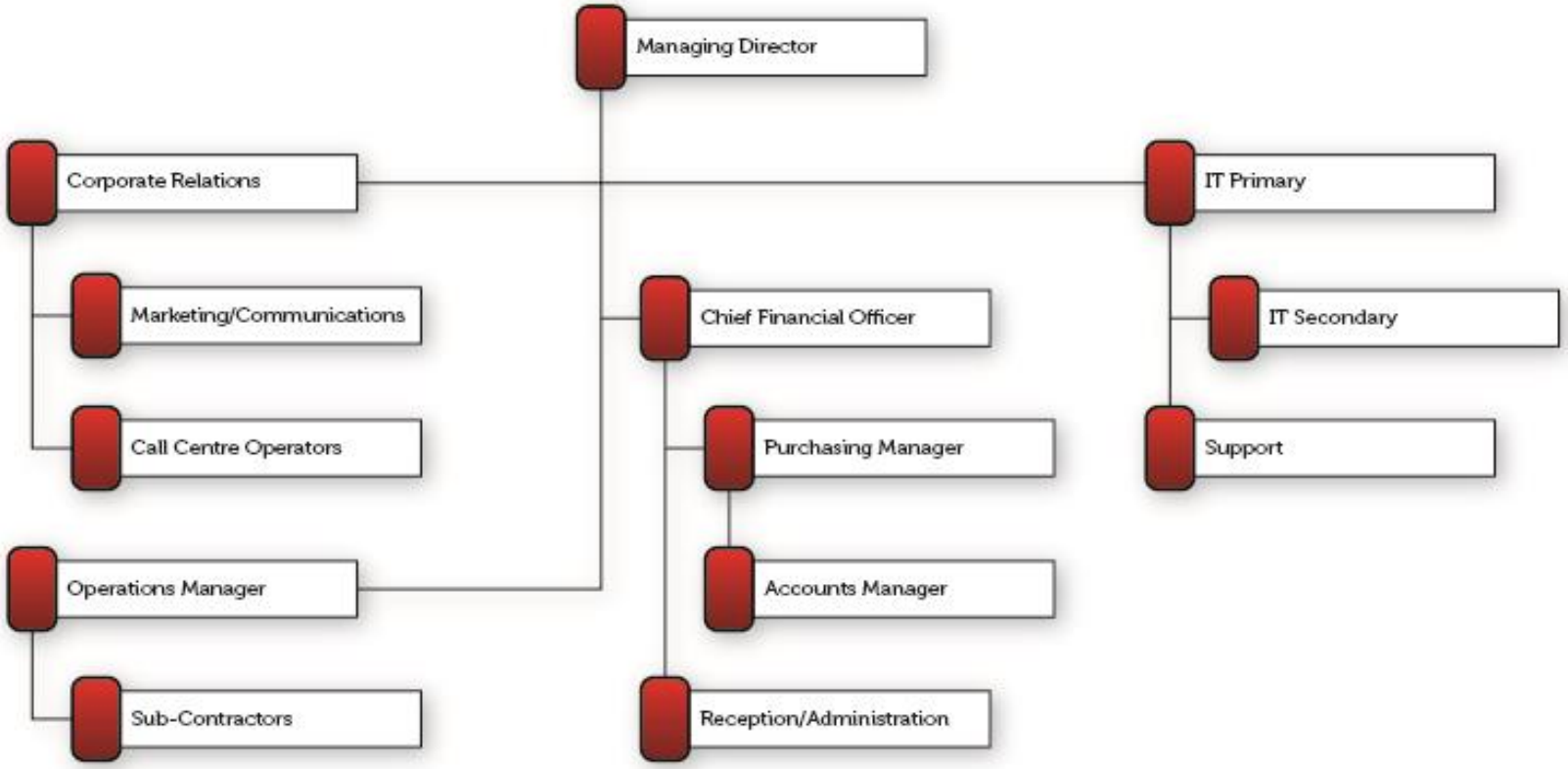
- The delivery of plant, equipment and materials which is required outside these hours as requested by police or other authorities for safety reasons; or
- Emergency work to avoid the loss of lives, property and/or to prevent environmental harm

3 DEFINITIONS

	GG initiative that aligns GG commitments to the environment and sustainable works, the community, our customers and the health and safety of our employees
ALARP	As Low as Reasonably Practicable (risk management objective)
GG	Green Gold Energy
Class 1 Environmental incident	Causes or has the potential to cause pollution or degradation which has or may have long term detrimental effects on the environment and/or community and will require extensive remediation.
Class 2 Environmental incident	Causes or has the potential to cause pollution or degradation which has persistent (greater than three months) but reversible detrimental effects on the environment and/or community
Class 3 Environmental incident	Causes or has the potential to cause pollution or degradation which has short-term (less than one month) and reversible detrimental effects on the environment and/or community
Dangerous Occurrence (DO)	An unplanned incident event that had potential to cause injury or illness to any person, damage to property or the environment
CEMP	Construction Environmental Management Plan
Hazard	Any source of potential damage, harm or adverse health, safety or environmental effects on someone or something
Hazardous	Any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a real hazard to human health or the environment. Hazardous materials may be characterised by the following properties: Flammable and Combustible Material · Toxic Material Corrosive Material Oxidizers Aerosols Compressed Gases
HS	Health and Safety
Incident	Work-related event or occurrence that exposes persons health and safety, the environment or other objective to risk
OHS	Occupational Health and Safety
QSE	Quality Safety and Environmental
Notifiable Incident	A Notifiable Incident is defined as a pollution incident causing or threatening material harm to the environment. If an incident is a Notifiable Event then a report must be provided to the relevant regulatory authority within the timeframe(s) specified by the relevant legislation
NV	Native Vegetation
Risk	Combination of the likelihood and the potential severity of an occurrence
Spill	The inadvertent or accidental release of a Hazardous liquid with the potential to harm the environment, outside of a bounded storage area, or area designed to capture spills
Worker	A person is a worker if the person carries out work in any capacity for a person conducting a business or undertaking, including work as: (a) an employee; or (b) a contractor or subcontractor; or (c) an employee of a contractor or subcontractor; or (d) an employee of a labour hire company who has been assigned to work in the person's business or undertaking; or (e) an outworker; or (f) an apprentice or trainee or a student gaining experience
Workplace	An activity where personnel, equipment and tools are combined to complete a specific task or duty

4 ORGANISATION

4.1 Project Organisational Chart



4.2 Responsibilities and Authorities

For Subcontracted work, subcontractor's responsibilities shall be specified as part of their contract (when required).

5 OBJECTIVES, KPIs AND TARGETS

Commitment to continuous improvement forms the foundation of the Management System. This will be established through the collation, review and analysis of environmental data.

Table 1 - GG Project Objectives, KPIs and Targets

	PROJECT OBJECTIVES, KPIs AND TARGETS					
	Objective	**Key Indicator**	**Unit**	**Target**	**By**	**Frequency**
	Report project CO_2 emissions	Report CO_2 emissions (energy purchased, diesel fuel use etc.)	Tonnes of CO_2 equivalent	–	HSE Coordinator	Monthly
ENVIRONMENT AND SUSTAINABLE CONSTRUCTION	Ensure that project activities conform with legal requirements	Notices issued by Environmental Protection Authority to GG / Subcontractors	No. of notices	Nil	Project Team	–
	Ensure that project activities conform with legal and system requirements Ensure effective communication of matters that have potential to impact the environment and the community	Documented Environmental Inspection	%	100%	HSE Coordinator	Weekly
	Ensure that project activities conform with legal requirements	No. of Environmental Non Conformances issued by Client, via Internal or External Audits	NCs issued annually	<10 per CY	Project Manager, HSE Coordinator	–

	Ensure effective communication of matters that have potential to impact the environment and the community Ensure risk management is aligned to planning of high risk activities	Number of documented Tool Box Meetings (TBM)	%	80%	Project Manager, HSE Coordinator	Monthly
	Ensure Non Conformances and Complaints are closed within the specified timeframe	Time to Close Non Conformances	%	80% NCs closed within specified time frame	Project Team	N/A
	Ensure Non Conformances and Complaints are closed within the specified timeframe Ensure critical QSE requirements are effectively communicated to Service Providers	Close out of Public Complaints	No. of Complains	100% of complaints closed ≤ 2 Weeks	Project Team	–
	Ensure no Native Vegetation is damaged during construction outside of the project site or approved clearance area	Damage to Native Vegetation	Area	Zero Damage	Project Manager, HSE Coordinator	Weekly

CUSTOMERSAND PARTNERS FOR ASUSTAINABLE PROJECT	Ensure Non Conformances and Complaints are closed within the specified timeframe Ensure critical QSE requirements are effectively communicated to Service Providers Ensure critical QSE requirements are effectively communicated to Service Providers	Percentage of "Significant" or high risks Subcontracts/ Supply Agreements procured including an HSE Specification	%	90%	Project manager, Procurement Manager, HSE Coordinator.	N/A
		Percentage of "Significant" Subcontracts/ Supply Agreements conducted with a Pre Contract Meeting	%	90%	Project manager, Procurement Manager, HSE Coordinator.	N/A
	Ensure critical QSE requirements are effectively communicated to Service Providers	Percentage of "Significant" or high risks Subcontracts/ Supply Agreements procured including a HSE Specification	%	90%	Project manager, Procurement Manager, HSE Coordinator.	N/A
		Percentage of "Significant" Subcontracts/ Supply Agreements conducted with a Pre Contract Meeting	%	90%	Project manager, Procurement Manager, HSE Coordinator.	N/A

PROJECT SPECIFIC OBJECTIVES AND KPIs						
	Objective	Key indicator	Unit	Target	By	Frequency
PROJECT SPECIFIC	Ensure that project activities conform with legal and GI system requirements	Number of Notifiable and Class 1 incidents	No.	0	Project Manager, Project/site Engineer, Superintendent	Duration of project

5.1 Project Management Review

The Project manager shall convene a review at least once ***annually*** of the project Environmental Management System. This review aims to assess the adequacy of the Environmental Management System, project environmental performance, and develop a strategy for continuous improvement.

6 APPLICABLE REQUIREMENTS

6.1 Contractual Requirements

GG have identified the most critical Environmental contractual requirements for the project, which are:

- Submission and management of approvals through Council
- Comply with the relevant Council and Development Approval
- Comply with the Native Vegetation Act

7 COMMUNICATION & CONSULTATION

7.1 Internal Communications

GG will implement the following methods for communicating and consulting environmental information to the workforce:

- Site Induction
- Toolbox Meetings
- Project Rules
- Occurrence reporting and investigations
- Training
- Pre-Start Meetings
- Project Notice Boards
- Electronic media including email and internet postings
- Environmental Alerts
- Scheduled meetings with environmental inclusive in agenda

The Project/Site Engineer is responsible for the allocation of tasks associated with the distribution and display of environmental information on the project e.g. maintenance of Site Environmental Notice Boards.

7.1.1 Project Site Induction

Prior to commencement on site, ***all project personnel*** will undergo a site induction covering awareness of quality, safety, environment issues and controls. The site inductions will specifically include details of:

- The importance of all employees and subcontractors to conform with the environmental policy and procedures and their roles in implementing the policy and procedures
- The significance of their work in relation to potential or actual impacts to the environment
- The importance of complying with procedures and policies for benefit to the environment
- Incident reporting requirements
- Environmental reporting requirements
- Emergency procedures
- Fire Management
- Sediment and Erosion Control
- Waste Management
- Native Vegetation Protection

All persons on site shall be inducted. It is a mandatory requirement that all persons who are not accompanied on site by a GG staff member receive the full site induction.

7.1.2 Pre-Start Meetings

The Pre-Start Meeting is conducted by the Site Supervisor prior to the commencement of work tasks/activities (either on a daily/pre-shift basis). It serves as a forum to communicate significant environmental aspects/impacts and requirements of the Project/Site Engineer.

7.1.3 Environmental Toolbox Meetings

GG will discuss relevant environmental aspects during the Toolbox Meetings to ensure all staff is aware of their responsibilities and any ***Extreme*** and ***High*** risks. Meeting minutes are maintained as records of these meetings.

Environmental Toolbox meetings shall be conducted on a ***monthly*** basis.

7.1.4 Project Notice Board

The Project/Site Engineer will ensure that a project notice board will be set up at each GG project. The project notice board will display critical Environmental information.

The project notice board is used to communicate GG Environmental Policies and Procedures, Emergency Procedures as well as the main environmental impacts and controls.

7.1.5 Environmental Alerts

In response to a significant incident which has the potential to reoccur, GG is committed to ensuring the incident learnings and any corrective action, is effectively communicated to all GG staff as soon as practicable. GG will communicate this information via Safety Alerts where practicable.

Environmental alerts will communicate to the workforce the prevention measures and controls to be implemented to ensure that the environmental incident won't reoccur.

The Environmental Alert will be allocated an ID number and filed.

7.1.6 Minimum Project Rules

The *Site Rules* shall be prominently displayed on site at all times. As part of the induction process, all persons on site shall be informed and be provided with a copy of the project Site Rules.

Delivery personnel shall receive an induction and are requested to have this induction information within the cabin of their truck while on site or request a copy prior to entering site.

No go areas containing native vegetation will be flagged off from entry to control vehicles.

The minimum site environmental rules to be communicated to workers include, but are not limited to the following:

- Waste
- Noise and vibration
- Erosion and sediment control
- No go zones
- Native Vegetation Protection
- Community and media

7.1.7 Works Coordination Meetings

Work Coordination Meetings shall convene ***weekly*** and include QSE matters as part of their agenda.

7.1.8 Unplanned Engagement

The Managing Director, QSE Director, Project Manager, OHS Manager, Project/Site Engineer, Quality Manager and Site Supervisors will verbally engage with the workforce while they are on site. The purpose of the engagement will be to provide the workers with an opportunity to raise any safety, environmental or quality issues they may have or to report hazards.

7.2 External Communication

7.2.1 Public Complaints

GG will respond to public complaints and emergencies including environmental issues and incidents. All records of valid complaints causing environmental harm including actions taken to mitigate complaints and response time to the complainant will be kept and routinely updated. The complaint will then be investigated, and adequate corrective/abatement actions implemented to mitigate the cause of the complaint and prevent further environmental nuisance. Corrective actions will be recorded. Complaints will be treated as an Incident where assessed applicable and the Incident process prescribed above adopted. Reviews and audits of the project complaints register will be conducted to monitor the effectiveness of mitigation measures and identify any trends in complaints.

The following details will be recorded for all valid complaints:

- Name, address and contact number for valid complainant
- Time and date of valid complaint
- Reasons for the complaint as stated by the valid complaint
- Investigations undertaken in response to the valid complaint
- Conclusions formed
- Actions taken to resolve the valid complaint
- Any abatement or management measures implemented to mitigate the cause of the valid complaint
- Name and contact details of the person responsible for resolving the valid complaint

7.2.2 Liaison with Authorities and Emergency Services

At the construction work site, an emergency contact list must be established by the OHS Manager and the Project/site Engineer as part of Emergency Management requirements.

The list will contain the contact names and 24-hour telephone contact numbers of all the applicable authorities and emergency services.

8 COMPETENCE, TRAINING AND AWARENESS

Project personnel and visitors will receive suitable environmental training to ensure they are aware of their responsibilities and are competent to carry out their work in an environmentally acceptable manner. Environmental requirements will be explained to staff during the project Site Induction, Environmental Notice Board and during Toolbox Talks as necessary.

Project staff (including subcontractors) will be provided with the following environmental information during the induction and specific environmental training:

- Environmental policies
- Promoting awareness of site-specific environmental topics (e.g. Native Vegetation)

- Reporting responsibilities for environmental incidents
- Contingency and emergency planning
- Information within the CEMP including significant project aspects, impacts and controls
- Environmental objectives and targets for the job
- Regulatory requirements and consequent staff responsibilities

GG will manage the training of project personnel, site inductions (project inductions, visitor's induction and delivery driver's inductions) and activity.

A copy of the Native Vegetation Act and Regulations will be made available to all during induction.

9 CONTRACTOR MANAGEMENT

GG will ensure that environmental requirements are incorporated into systems used to procure goods and services. Subcontractors must satisfy all the conditions detailed in this plan and its associated sub plans and procedures.

Environmental responsibilities will form part of the Site Induction for all personnel working on-site. Regular Toolbox Talks will be used to communicate detailed task specific responsibilities to applicable personnel, including all subcontractors.

The performance of subcontractors in relation to their contractual requirements will be monitored to ensure effective implementation and compliance of all requirements.

9.1 Environment in Procurement

All items purchased for the permanent works shall be subject to verification to ensure conformance to contractual requirements. The Project/Site Engineer shall liaise with procurement personnel to ensure that purchasing documents such as purchase orders, subcontracts, requests for quotes/ tenders and other market request documentation contain specifications that are consistent with achieving environmental objectives.

All subcontractors working on site will be evaluated for Environmental Management System requirements and past performance.

All subcontractors shall include environmental considerations within their work methods and work under the GG Environmental Management System. In addition, each subcontractor is required, as part of their statutory and contractual obligations, to provide adequate information, instruction, training and supervision to workers. The Project/Site Engineer shall evaluate the required methods of control for:

- Documentation (e.g. specifications, drawings),
- Inspection and testing (e.g. ITP's/Checklists),
- Compliance with specifications
- Non-conforming items
- Inspection, measuring and test equipment

If the subcontractor/supplier has no existing environmental management system to satisfy the above, the Project/Site Engineer shall ensure that GG documentation will be made available for their use.

9.2 Subcontractor Environmental Management Plan

When required, subcontractors working in environmental sensitive areas will be required to submit to GG a Site CEMP, in the form approved by the Project/Site Engineer for the project.

Each subcontractor's CEMP will be assessed by the responsible GG Project/Site Engineer to ensure

that the subcontractor has in place the adequate systems to identify and control all the hazards arising from their operations.

The performance and compliance of each subcontractor with their Site CEMP will be monitored by GG.

10 EMERGENCY READINESS AND RESPONSES

GG will ensure that systems are in place to effectively control an environmental emergency whenever it arises on site.

10.1 Hazard Reporting

All workers will be instructed that they must immediately report to their immediate Supervisor any hazard likely to impact the environment or the community.

10.2 Emergency Preparedness

The key to effective prevention of environmental incidents/non-compliances is monitoring, surveillance and training. During construction activities, inspections and preventative actions will include:

- Regular inspections of construction areas and the surrounding environment
- Identification of potential and actual environmental issues/non-compliances
- Ongoing environmental training

Environmental and safety information on hazardous materials e.g. Safety Data Sheets (SDS), will be available at the site compound/designated chemical storage areas. Spill kits and other emergency supplies (i.e. sandbags and silt fence equipment) will also be made available.

Emergency Drills will be conducted to test the effectiveness of the emergency response systems. Results of all emergency evacuation drills shall be recorded inclusive of any ongoing corrective actions.

Following an emergency, a report will be completed by the Project/Site Engineer documenting the event and lessons learnt. Emergency plans will then be modified to incorporate lessons learnt and staff will be trained on any changes to the planned arrangements.

10.3 Accidents and Incidents

GG has an objective to eliminate environmental Class 1 and 2 incidents, and systematically reduce the occurrence of any other incident that has potential to impact the environment or the community.

All environmental incidents must be investigated by the Project/Site Engineer or nominated delegate as soon as possible after the event. When an environmental incident is part of an HS incident, the investigation will include an OHS representative as part of the investigation team. The investigation shall address the cause and/or impact of the incident.

Native Vegetation incidents must be reported immediately.

10.4 Incident Reporting and Records

All actual or potential environmental incidents must be reported to a GG representative immediately.

All personnel (including sub-contractors) are informed at Site Induction that they must report all incidents, including any dangerous occurrence or Native vegetation damage breach, as soon as practicable to the responsible GG representative.

GG will ensure that any incident that causes or threatens material harm to the environment will be immediately notified to the Secretary and any other relevant agency. A 'pollution incident' includes a leak, spill or escape of a substance, or circumstances in which this is likely to occur. Harm to the environment is material if:

- it involves actual or potential harm to the health or safety of human beings or to ecosystems that is not trivial, or;
- it results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000 (or such other amount as is prescribed by the regulations), and;
- loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment.

  it does not matter that harm to the environment is caused only in the premises where the pollution incident occurs.

10.5 Incident Investigation

Investigations are undertaken of all incidents and injuries.

GG will investigate any environmental incident that has Class 1 or Class 2 incident potential, including analysis of incident root cause and recommendations regarding corrective actions. All investigations will be undertaken by a competent person who is conversant with the GG investigations procedures.

Damage to Native Vegetation investigations may occur via the Native Vegetation Compliance Unit of DEW.

11 PROJECT SPECIFIC ENVIRONMENTAL OBJECTIVES

11.1 Project Specific Objectives, Factors and Impacts

This CEMP outlines the management strategies to control and mitigate environmental risks.

Each environmental factor is broken down into four components:

- **Objectives:** outlines the objectives of environmental management that GG will achieve during construction
- **Potential Environmental Impact:** outlines the potential environmental impact of the proposed construction activities
- **Management and contingency mitigation measures:** GG will achieve its environmental objectives through the identified management and mitigation measures. These measures are to provide clear direction to staff and contractors on how construction activities will be undertaken to limit environmental disturbance and to manage and mitigate where avoidance is not practicable
- **Monitoring:** construction activities will have impacts on the environmental and GG will monitor these impacts to ensure they are minimised and managed in accordance with both the environmental commitments and relevant legislation.

11.1.1 Surface Water

11.1.1.1 Environmental Management Objectives

Surface water management objectives are as follows:

- Protection of the ecosystem surrounding the project area
- Emissions are to not adversely affect environmental values or the health, welfare and amenity of people and land uses
- Statutory requirements will be implemented and acceptable agreed standards will be monitored and maintained
- Minimisation and management of potential impacts to the quality of surface water resources caused by the construction work
- Maximisation of the efficient use of water for the project
- To ensure the continued use of water resources
- To control and minimise the volume of sediment, nutrients and pollutants being released off site

11.1.1.2 Potential Environmental Impacts

Potential environmental impacts to surface water:

- Alteration in hydrology and hydrogeology of the environment of underlying aquifer(s), estuaries, lakes and rivers; as a result of disturbance to groundwater-surface water connectivity
- Impacts to water quality due to landfill contaminants and leachate seeping into the groundwater and surface water bodies
- Indirect surface water contamination risks associated with construction activities adjacent to a lake and river environment due to chemical and fuel spills, unmanaged stormwater flows and run-off

11.1.2 Soil

11.1.2.1 Environmental Management Objectives

The soil and erosion management objectives are:

- To reduce the potential for erosion and subsequent sedimentation
- To minimise sediment release to land and water
- To avoid unacceptable damage to native vegetation or wildlife habitats

11.1.2.2 Potential Environmental Impacts

Potential environmental impacts to soil are:

- Sediment runoff from newly exposed surfaces
- Sedimentation of waterways, wetlands, swamps and low-lying areas
- Increased turbidity in creeks and associated waterways
- Disturbance to notable flora which is listed as Endangered
- Disturbance to notable flora regional ecosystems
- Disturbance to notable fauna species
- Sediment runoff/water pooling during heavy rainfall events

11.1.3 Air Quality

11.1.3.1 Environmental Management Objectives

The air quality management objectives are:

- Protection of air quality
- Management of the ambient air in the vicinity of the construction works

- To use all reasonable and practicable measures to minimise airborne dust and greenhouse gas emissions to minimise impacts on land, flora/fauna, water and air quality
- To track and report
- To minimise impacts on adjacent residents, landowners and community

11.1.3.2 Potential Environmental Impacts

The potential impacts during construction to air quality include:

- An increase in particulate matter, carbon monoxide and nitrogen oxide emissions to the environment due to the combustion of fuel and resulting exhaust emissions
- An increase in airborne dust to the environment due to:
    - construction operations
    - building material handling activities
    - onsite vehicle movements on unsealed road sand
    - clearing of flora and vegetation exposing dust
- Dust emissions may be generated as a result of earthwork activities, particularly during dry and windy conditions. Excessive dust generation may be detrimental to human health, reduce visual amenity as well as smother vegetation and impact fauna

11.1.4 Noise and Vibration

11.1.4.1 Environmental Management Objectives

The environmental objectives with regards to noise and vibration management during the construction phase are:

- Minimisation and management of noise generation from the project area
- Minimisation of the impact of noise emissions on environmental values and the health, welfare and amenity of the population
- Compliance of noise emissions, both individually and cumulatively, with relevant statutory requirements
- Incorporation of measures for minimising noise emissions during construction and operation in design and procurement activities
- To undertake all reasonable and practicable measures during construction and operations to minimise noise emissions

11.1.4.2 Potential Environmental Impacts

The potential noise and vibration impact of the Project during the construction phase is:

- Vehicle and machinery operation, including excavators, drilling equipment, pile drivers and other equipment which may cause an increase in localised noise and vibration concerns to neighbouring properties (residential, commercial and recreational), terrestrial and aquatic fauna and heritage buildings/structures

11.1.5 Native Vegetation

11.1.5.1 Environmental Management Objectives

The environmental objectives with regards to Native Vegetation management during the construction phase are:

- Protect all native vegetation outside of the project site from any form of damage
- Control vehicle movements outside of the project area
- Control human interference of surrounding native vegetation
- Compliance with the Native Vegetation Act 1991
- To undertake all reasonable and practicable measures during construction and operations to minimise impacts on native vegetation

11.1.5.2 Potential Environmental Impacts

The potential native vegetation impacts of the Project during the construction phase is:

- Vehicle and machinery operation, including excavators, drilling equipment, pile drivers and other equipment which may cause any form of damage (squashing, breaking or digging) of native vegetation outside of the construction area.
- Unintended placement of building equipment or supplies onto native vegetation outside of the construction site.

12 INSPECTION AND TESTING

Inspection and testing shall be carried out using a number of methodologies and practices to ensure that material, plant, equipment and work processes conform to required Environmental standards and requirements. GG shall ensure that only competent/qualified persons carry out inspection and testing.

12.1 Site Inspections

The Project/Site Engineer shall ensure that the required inspections and monitoring tasks are carried out in accordance with this CEMP and associated sub plans.

12.1.1 Environmental Inspections

GG will ensure that a procedure for planning and conducting site inspections and monitoring the overall environmental performance of the site is in place so that hazards can be identified, and corrective actions implemented relative to risk level. This process also aims to ensure that workers, inclusive of subcontractors where practicable, are engaged as part of the Environmental Inspection Program.

The Project Project/Site Engineer is responsible for the development of an Environmental Inspection Program. The Project manager is responsible to periodically review the status of the inspection program, and to provide assurance regarding both the quantity and quality of inspections being undertaken.

12.1.1.1 Inspection Records

Results of the Inspections shall be briefed to the Project manager, and where required, the project team. Inspection Records shall be retained at a project level by the Project/Site Engineer and be reported via environmental reporting system.

The Project/Site Engineer is responsible for:

- Recording any identified hazards not immediately remedied
- Monitoring and reporting to the Project manager corrective action status
- Recording damage done to Native Vegetation (date, where and by whom)
- Recording and reporting Positive Performance Indicators

12.2 Inspection of Plant/Equipment

The responsible GG Project and Site Engineers shall implement systems to ensure that procured plant and equipment arrives on site in a safe and adequate condition.

12.3 Environmental Monitoring

Regular site inspections and monitoring shall be undertaken throughout the project to cover a number of aspects, including the following key areas outlined below:

- Noise and vibration
- Water quality
- Air quality
- Native Vegetation impacts

12.3.1 Noise and vibration monitoring

All project activities which cause or have potential to cause noise and vibration impacts will be monitored to ensure they are carried out in accordance with requirements in specific construction noise and vibration impact assessments.

Appropriate mitigation measures (where reasonable and feasible) will be implemented where activities exceed or have the potential to exceed noise or vibration management levels.

12.3.2 Water quality monitoring

Surface water monitoring will determine water quality and any potential impacts, due to construction activities, to any water body on the project or project vicinity. Any adverse environmental impacts to surface water quality identified as a result of monitoring will be managed according to the management and mitigation measures outlined in this CEMP.

12.3.3 Air Quality Monitoring

The monitoring of dust levels shall be undertaken through regular visual inspections of the work sites and activities by the Project/Site Engineer or delegate.

Dust generating activities will be assessed during periods of windy conditions and ceased and rescheduled where adequate control of dust generation cannot be achieved.

Visual observation of machinery conditions shall also be undertaken during site inspections in addition to Daily Pre-Start Checks. Daily Pre-Start Checks are required to be undertaken by all plant operators on construction plant, equipment, vehicles and machinery to ensure all equipment have appropriate emission control devices, are in good working order and are being maintained correctly.

12.3.4 Native Vegetation monitoring

Maintaining controls and respect for Native Vegetation with regular reminders to staff, contractors and visitors outlining where vehicles, equipment and people are allowed outside of the project area. Any adverse environmental impacts to native vegetation identified as a result of monitoring will be managed according to the management and mitigation measures outlined in this CEMP.

12.4 Inspection, Measuring and Test Equipment

Inspection, measuring and testing equipment used to monitor environmental factors will be calibrated as per manufacturer's recommendations and regulatory requirements.

Calibration and inspection reports/certificates will be recorded and filed as part of the project environmental records.

A NATA registered laboratory will be used to conduct the compliance testing to the relevant Australian/International Standards, when required.

Critical equipment subject to periodic inspection includes but is not limited to Atmospheric Monitors, Noise Monitors, etc.

13 AUDITS INSPECTIONS

GG will conduct audits to ensure compliance with the GG Management System, legislative requirements and Australian Standards.

Such audits will be conducted:

- Within the ***first 4 weeks*** of work, once the site has been established
- At intervals though out the life of the project consistent with the nature of the project, and the level of risk
- At intervals no greater than ***4 months***

Project Audit Schedule will be developed and reviewed to ensure coverage over the project scope and high risks activities.

14 CONTROL OF RECORDS

A Record Filing Matrix will be established in accordance with the GG procedure, taking into account local and state legislative requirements. Records to be managed include:

- Training records
- Emergency evacuation records
- Incident reports and investigations
- Plant and equipment records
- Safety data sheets
- Hazardous substances register
- Monitoring records of hazardous substances use and storage
- Inspection, monitoring and testing records
- Details of personnel qualifications
- Internal review reports
- Minutes of Environmental meetings
- Design risk register
- Corrective action and preventive action reports
- Audit reports
- Non-Conformance, Observation and Opportunity for Improvement Records
- Environmental Management System Review
- Induction records
- Monthly Environmental reports

Unless otherwise specified, Environmental records must be maintained for a minimum period of ***7***

years after completion of the project.

15 OPERATIONAL CONTROLS

15.1 Establishment/Commencement

Prior to commencement of the project the Project/Site Engineer shall establish a program or schedule to address the systematic implementation of the following environmental management activities/tasks:

- Finalise the CEMP
- Acquire licences, permits and approvals
- Develop Work Instructions
- Establish a filing system for environmental records
- Define the environmental requirements for the contract
- Identify and detail environmental studies on potentially sensitive/threatened flora and fauna known to exist in the area
- Define the environmental requirements for subcontractors and suppliers
- Establish a training program for environmental awareness and induction
- Establish communication with interested parties and site visits
- Establish the audit program
- Establish monitoring and testing regimes, and
- Establish environmental compliance and reporting mechanisms
- Install temporary bunting to control vehicle movement near native vegetation

The Project/Site Engineer shall review the program/schedule each month to ensure that the environmental management activities and tasks nominated in the program have been progressively implemented.

15.2 Materials Control and Storage

GG will follow the below guidelines for materials control and storage:

- Incoming materials or items will be handled and stored in designated storage facilities or lay down areas following receipt and inspection
- Lay down areas are not outside the designated lay down site and are within the construction area
- Designated storage and holding areas will be provided to prevent loss, damage or deterioration of the items pending use or delivery. The method of storage and handling is dependent on the types of materials and the protection required to prevent harm to the environment
- For all chemicals that are stored on site, consideration will be given to the location and method of storage, as well as the bunding capacity to ensure they comply with AS1940.
- Chemicals will not be stored in locations that present unnecessary risk such as close to waterways or sensitive areas
- Building will be constructed of large enough capacity to hold 110% of the largest container held in the storage area
- Location of containers and/or lay-down areas shall be defined on a site map prior to works commencing
- A project staff member will be nominated by the Project Manager to handle stores

receipt and issue, and to document the transactions. Safety Data Sheets shall be maintained for every chemical on site as per the safety management system requirements

15.3 Plant and Equipment Control

On arrival at site, all mobile plant and equipment will be checked at the moment of boarding to site. Ongoing inspections of plant will be documented in the manufacturer's Daily Inspection Logs or Plant Maintenance Logbooks and typically will include:

Table 2 - Plant and Equipment Control

Type	Environmental Attribute to be checked	Documents Required
Plant (trucks, cranes, etc.)	- within specified noise level, - engine covers secured, - no excessive vibration, - within specified air pollutant level, - no fuel, oil, hydraulic fluid and coolant leaks. - clean or brushed down.	- "Pre-start Checklist", - Maintenance Log, - Checklist
Fuel, oil, chemical and lubricant	- Lids/covers secured, - no leakage/spillage, - marking/identification	- Safety Data Sheet
Equipment (generators, pumps)	- Within noise level (refer to ECP), - no excessive vibration - clean or brushed down	- Checklist

The status of plant and equipment will be verified during site inspections and safety and environmental audits.

All plant and equipment will be cleaned or brushed down prior to departure.

15.4 Hazardous Substances Management

- All hazardous substances or dangerous goods procured for use on the project shall be accompanied with:
  - a Safety Data Sheet (SDS)
  - adequate labelling
  - spill kits shall be available in all areas where hydrocarbons and chemicals are stored or used, where necessary, spill kits for water shall be provided
- All dangerous goods (DG) and hazardous substances shall be stored in a dedicated DG storage container which is adequately ventilated, and has adequate bunting for the quantity of DG and hazardous substances being stored
- DG shall be stored in accordance with the separation distances defined in AS/NZS 3833:2007 The Storage and Handling of Mixed Classes of Dangerous Goods
- Smoking is not permitted within 5 meters of dangerous goods storage containers
- DG storage containers shall be fitted with an external fire extinguisher which is suitably mounted, and sign marked. The fire extinguisher shall comply with *AS2444 Portable Fire Extinguishers and Fire Blankets*, be 3.5 Kg minimum capacity and be Powder Type Class ABE

16 REVIEW CRITERIA

This document shall be reviewed as follows:

- As requested by Management Review
- When there is a change of method and/or technology that may affect the accuracy of this document; or
- When there has been a significant event to which this document was relevant; or
- As a result of a non-conformance resulting from an audit