



Discovery Drive Residential Development

Concept Erosion and Sediment Control Plan

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Name	Position	Date
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1. Introduction

1.1 Background

Jamworth Pty Ltd and Sunshine State Developments Pty Ltd (the Proponents) proposes to develop a new residential development and health precinct in Agnes Water, Queensland (the Proposed Action).

The Proposed Action is located at Lot 2 Captain Cook Drive, Agnes Water (Lot 2 on SP117407), Agnes Water, Queensland 4677 (the Site). The Site is located in Gladstone Local Government Area.

1.2 Purpose of this plan

This Concept Erosion and Sediment Control Plan (CESCP) provides overarching strategies for erosion and sediment control principles for guidance to Project contractors. This document provides guidance with regards to the erosion and sediment control methodology required to satisfy the contractor's responsibilities for the proposed works. The control principles and management techniques outlined in this document are to be used as a guide by contractors during the project to minimise/eliminate soil disturbance and the potential for sediment laden runoff to be discharged into the receiving environment.

The CESCP should be used by contractors to develop a site-specific Erosion and Sediment Control Plan (ESCP) once detailed design, construction and site establishment information becomes available.

The management and mitigation strategies outlined in this CESCP have been developed with reference to the International Erosion Control Association's Best Practice Erosion and Sediment Control Guidelines (IECA, 2008), (the IECA Guidelines).

1.3 Contractor responsibilities

As stated, this document does not prescribe or locate any permanent or temporary drainage, sediment or erosion control measures in detail, but provides guidance with regards to the control methodology which may be required for the Project. This CESCP should not be used solely when making decisions related to site-specific erosion and sediment control.

The Contractor(s) will be responsible for developing site-specific ESCPs, taking into consideration detailed staging of works. As such, the Project's Contractor(s) will need to consider the following when developing site-specific ESCPs:

- Local climate and meteorological conditions
- Local topography
- Soils characteristics likely informed by geotechnical investigations for project design
- Local watercourses
- Local ecological constraints
- Cultural heritage management
- Management of the discovery of fossils.

2. Legal requirements

Under the *Environmental Protection Act 1994* (Qld) (EP Act), stormwater run-off from land development and infrastructure development sites has a high potential to cause water contamination and/or environmental harm.

Key sections of the EP Act referencing water contamination include:

- Under s.440ZG it is an offence to unlawfully deposit a prescribed water contaminant to waters. Prescribed contaminants are listed in Schedule 9 of the Environmental Protection Regulation 2009 (Qld) (EP Regulation).
- Under s.319 persons in Queensland carrying out activities which may cause environmental harm must comply with the general environmental duty (GED). This requires that all reasonable and practicable measures must be adopted to prevent and minimise environmental harm. Although not being able to demonstrate compliance against GED is not an offence, demonstrating that all reasonable and practicable measures have been adopted is a defence for offences such as water contamination. For instance, under s.493A being able to demonstrate compliance with GED would provide a defence against unlawful environmental harm caused by a prescribed water contaminant being released. Demonstrating that all reasonable and practicable measures have been conceived and implemented should encompass:
 - Thorough and ongoing site assessments.
 - Consideration of, and adaptation for, site-specific erosion risk factors including topography, soil type, climate, and season.
 - Incorporation in the design, installation, operation, management, maintenance and monitoring of control measures which are consistent with the measures set out below.
- Reference must be made to s.493A when a decision is made about the unlawfulness of water contamination, for instance where the release is authorised under a development approval.
- The Environmental Protection (Water and Wetland Biodiversity) Policy 2019 (Qld) (EPP Water) provides a process for protecting Queensland waters by establishing environmental values (EV) and water quality objectives (WQO) for Queensland waters (see Schedule 1 of the EPP Water). For waters not included in Schedule 1, the EPP Water provides a process for determining the EVs and WQOs.

3. Site conditions

3.1 Climate

The Burdekin Dry Tropics region has a pronounced wet and dry season, with most rain falling between December and May. Rainfall data in Table 1 shows long-term averages using data collected by the Bureau of Meteorology (BoM) since 1986 at the Bureau's monitoring station in the Town of 1770 (BoM, 2024).

Table 1. Mean rainfall statistics, Town of 1770 (1986-2024)

Month	Mean rainfall (mm)	Mean number of days of rain ≥ 1 mm
January	150.9	10.3
February	177.7	10.8
March	143.9	10.6
April	107.3	8.5
May	102.0	7.2
June	60.1	5.6

Month	Mean rainfall (mm)	Mean number of days of rain ≥ 1 mm
July	46.2	4.5
August	40.8	3.6
September	34.5	3.7
October	64.9	5.5
November	73.2	6.3
December	127.4	8.7
Annual	1,124.7	85.3

3.2 Topography and Geology

The Site features three primary topographical features, being a high point of 35 m Australian Height Datum (AHD) in the south-east corner of the Site, a north-easterly facing slope in the south-west corner (high of 25 m AHD to <5 m AHD) and a small knoll (17 m AHD) on the eastern boundary of the Site.

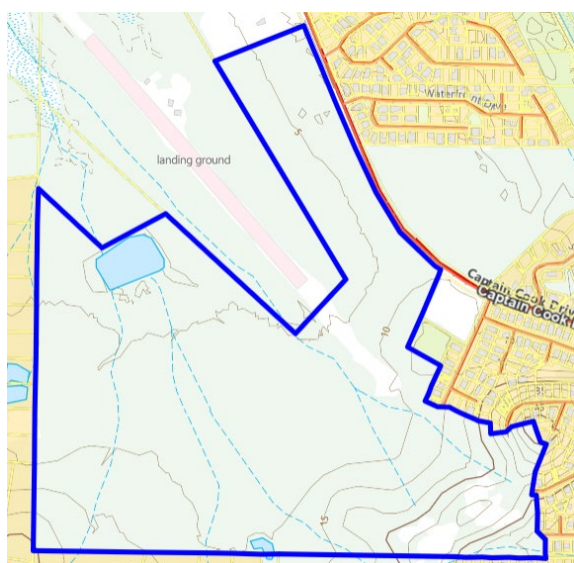


Figure 1. Site contours

Source: Queensland Globe



Figure 2. Site hillshade

Source: Queensland Globe

Detailed (1:100K) surface geology mapping shows these topographical features as being part of the Agnes Water Volcanics unit (Rvw/ir), a stratified unit including volcanic and metamorphic components. The lithology of this rock type is crystal- and lithic-rich strongly welded rhyolitic ignimbrite.

The flatter, coastal plains areas of the Site are associated with a Holocene sand unit (Qhb). This unit consists of moderately well-sorted, fine to coarse-grained quartzose to shelly sand and minor gravel, silt, mud: mainly beach ridges and cheniers.

3.3 Soils

Comprehensive soil mapping of the Site has previously been conducted as part of the Land Resources of the Miriam Vale and Kolan Shires project (Donnollan, Wetherall, & Griffiths, 2004). From this project, three soil types have been mapped across the Site, as summarised in Table 2 and shown in Figure 1:

Table 2 Soil units mapped within the Site

Land resource	Soil profile	Concept	Description (Donnollan, Wetherall, & Griffiths, 2004)
Agnes Water 3 (Aw3)	Sodosol	Rolling hills to steep mountains and associated pediments on acid intermediate volcanic rocks.	Sodosols usually have a number of adverse physical and chemical properties. The sodic horizons are usually readily dispersible and prone to erosion. However some sodic soils in this study area have strongly acid pH (pH less than 5.5).
Wreckrock (Wr)	Tenosol	Level to rolling beach ridge plains	Deep coarse textured soils usually with thick bleached subsurface horizons
Bustard (Bt)	Hydrosol	Tidal flats and plains of the coastal wetlands	Soils usually contain sulfidic materials (usually pyrite FeS ₂) or sulfuric materials (such as sulfuric acid) at various depths and quantities. These potential or actual acid sulfate soils should not be disturbed and always be correctly managed to prevent the release of sulfuric acid and other contaminants into the environment.

These previous soil surveys have combined to culminate in soil mapping at 1:100,00 scale (Inset 1). Soil units that occur across the Site are summarised in Table 2.

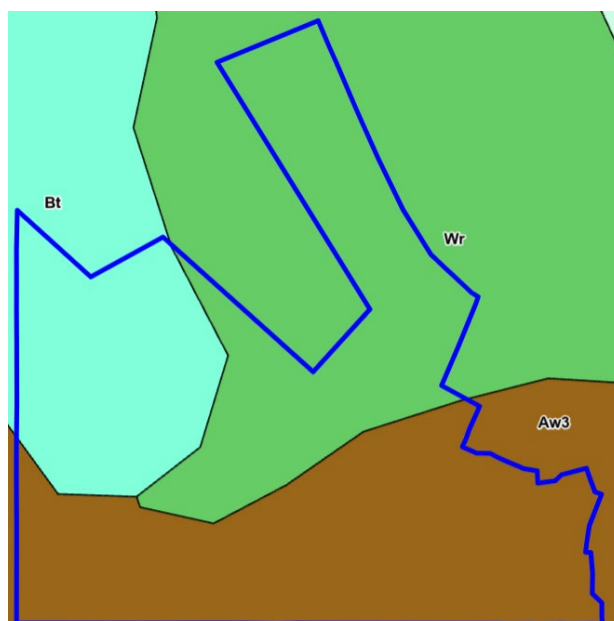


Figure 3. Soil and land resource mapping of the Site

Source: Queensland Globe

3.4 Hydrology

The Site is situated within the Baffle Creek Basin water plan area. Water within the Burdekin Basin water plan area is regulated by the Water Plan (Baffle Creek Basin) 2010.

The Site is situated within the Great Barrier Reef catchment for the purpose of section 75 of the *Environmental Protection Act 1994*.

Drainage across the Site is generally in a south-east to north-west direction, directed towards a constructed dam in the north-west corner of the Site. Water discharged from this dam enters an unnamed creek system that eventually discharges into the Town of 1770 inlet. There is an 8.5 km flow distance from the on-Site dam to the boundary of the Great Barrier Reef Marine Park, at the mouth of the Town of 1770 inlet.

4. General ESC management strategies

An ESCP is a dynamic management plan that must be regularly updated to ensure it remains effective for the changes to the Site conditions and catchments.

In line with the IECA Guidelines, the principles for development of erosion and sediment controls required for the proposed Project include:

- Appropriately integrate the development into the Site.
- Integrate erosion and sediment control risks into site planning and construction planning.
- Develop an effective and flexible ESCP based on anticipated soil loss, weather, and construction activities.
- Minimise the extent and duration of soil disturbance.
- Control water movement through the Site.
- Minimise soil erosion.
- Promptly stabilise disturbed areas.
- Once mobilised, maximise sediment retention within the Site.
- Maintain all ESC measures in proper working order at all times.
- Monitor the Site and adjust ESC practices to maintain the required performance standard.

This concept ESCP will be provided to the construction contractor as the framework for developing a site-specific, detailed ESCP. The detailed ESCP will need to be prepared in accordance with the principles of the IECA's Best Practice Erosion and Sediment Control guideline, and endorsed by a Certified Practitioner in Erosion and Sediment Control.

A general introduction to suitable erosion control techniques is available at <https://www.austieca.com.au/publications/book-4-design-fact-sheets> .

Standard drawings for erosion and sediment controls are available at <https://www.austieca.com.au/publications/book-6-standard-drawings>.

4.1 Construction program

When preparing the short-term construction program, the Project will consider forecasted weather events when planning the type and location of construction activities. Where heavy or sustained rain events are predicted, the Project will determine if works within or adjacent to a sensitive or high-risk area, including works within or directly adjacent to a watercourse or wetland, can be undertaken with minimal risk to the environment. If it is determined the risk cannot be suitably managed, then the work will not commence until after the event.

If works have already commenced and heavy or sustained rain is forecasted posing environmental risk, then the works will cease, and the area suitably stabilised until the rain event passes and it is safe to work in the area again.

4.2 Disturbance minimisation

Mitigation measures to limit the impacts of land disturbance include the following:

- Establishing clearly defined boundaries of areas to be cleared with 'No Go Zones' clearly signposted and fenced to prevent unauthorised clearing and vehicle and/or pedestrian traffic;
- Designation of areas for temporary disturbance (i.e. construction laydown areas, stockpiles) to be positioned away from frog habitat occurring adjacent to the Project area;
- Vehicle movements will be restricted to nominated construction roads and access tracks to minimise ground and vegetation disturbance;
- Works will be scheduled to minimise the area of active disturbance at any one time, in accordance with construction timeframes; and
- Nominated ESCs will be installed in predetermined locations around the Site in particular downslope of any disturbed lands. The installation of effective ESC measures will assist in minimising impact on the surrounding environment and prevent environmental harm.

4.3 Vegetation clearing

All works involving the clearing or interference with on-site vegetation should conform to the following requirements:

- No clearing or any other form of disturbance is to be conducted beyond the maximum specified clearing limits;
- The extent of clearing shall be marked on the ground by the Contractor prior to any earthworks. Marking material will be high visibility that will last for the duration of the Project. Only the Administrator can approve Contractor requests to change clearing limits.
- Cleared native vegetation (mulched) should be stockpiled for re-use, and microhabitat features (e.g. logs, rocks) are to be salvaged from areas where vegetation clearing is completed. Habitat suitability should be determined by an appropriately qualified fauna spotter/catcher in conjunction with the clearing and grubbing contractor;
- Vegetation should be progressively cleared, where possible, to minimise the area of soil exposed;
- Identify, isolate, and protect all mature native vegetation where appropriate. Protected vegetation areas should be identified and clearly marked out on site before commencing clearing works; and
- Vegetation that is cleared should be either mulched and used to stabilise exposed soils on site or strategically placed to provide habitat for local fauna.
- The Project should not undertake any clearing or construction work outside of the approved clearing boundary.

4.4 Acid sulfate soils

4.4.1 Pre-construction planning and investigation

1. Acid Sulfate Soil (ASS) Risk Assessment:

- a. Conduct a detailed site-specific ASS investigation to map the extent, depth, and severity of ASS or potential ASS (PASS) on the site.
- b. Utilise geotechnical drilling, soil sampling, and laboratory testing to identify areas at risk.

2. Environmental Management Plan (EMP):

- a. Develop an Acid Sulfate Soil Management Plan (ASSMP) as part of the broader EMP, tailored to address site-specific risks and ensure regulatory compliance.

3. Site Design Considerations:

- a. Avoid or minimize disturbance of ASS where possible by optimizing site layout and foundation design.
- b. Design water management systems to limit excavation in areas with high ASS risk.

4.4.2 Mitigation during construction

1. Excavation Management:

- a. Limit excavation to non-ASS areas where possible.
- b. Implement staged excavation to minimize exposed areas of ASS at any one time.
- c. Stockpile excavated ASS on impervious liners and under covers to prevent oxidation and runoff.

2. Neutralization of Excavated Materials:

- a. Test excavated materials for pH and potential acidity.
- b. Treat ASS materials with appropriate quantities of neutralizing agents, such as finely ground agricultural lime (calcium carbonate), to neutralise acidity before reburial or reuse.
- c. Monitor the treated areas to ensure that neutralization measures are effective and that no acid generation occurs over time.

3. Water Management:

- a. Prevent water ingress into exposed ASS by using dewatering systems with containment and treatment.
- b. Treat dewatering effluent to meet water quality criteria before discharge, using neutralizing agents or retention ponds.

4. Compliance

- a. Ensure all ASS management practices comply with relevant legislation and guidelines, such as the Queensland Acid Sulfate Soils Technical Manual and the *Environmental Protection Act 1994* (Qld).
- b. Maintain detailed records of all ASS investigations, treatment processes, and monitoring results.
- c. Submit regular reports to regulatory authorities as required.

4.5 Earthworks

All earthworks and ground disturbance works should conform to the following minimum standards:

- An Acid Sulfate Soil Management Plan is required to support earthworks proposed that have potential to disturb or otherwise interface with actual or potential acid sulfate soil, e.g work in area mapped as Hydrosol (Figure 1);
- Testing to be undertaken to determine the sodicity of sodosols through the soil profile, enabling a Site-specific management plan to be developed. Treatment of sodic soils may include the application of lime or gypsum to counteract the dispersive nature of this soil unit;

- Diverting uncontaminated stormwater run-off around areas disturbed by construction activities and/or other potentially contaminating activities.

4.6 Access

- Existing tracks or final access road alignments are to be used whenever possible. The duplication of parallel /multiple tracks or turnouts shall be avoided;
- Access track drains should discharge runoff water in a manner which does not lead to erosion or movement of sediment to surface waters;
- Suitable sheeting material/rock rumble will be placed at the entry/exit points on any internal access and construction road that joins onto any public road;
- Ensure site vehicles adhere to the nominated speed limits;
- Stabilisation of access tracks that are to be exposed for prolonged periods should be considered. This may include use of chemical surface stabilisers or physical alternatives such as crushed rock;
- All construction vehicles are only permitted within designated construction areas, and are not allowed within any "No-Go Zones" or "Protected Areas" (i.e. Environmental Reserve). Vehicle movement within the Site must remain on designated site access routes; and
- Suitable ESCs must be installed and maintained for all entrance and exits points nominated for the Site that enter onto public roads.

Construction of new access tracks may be required throughout the construction phase of the Project. New access tracks will be constructed to:

- Minimise the disturbance of existing ground; and
- Limit construction taking place across existing drainage lines or, where construction across drainage lines is unavoidable; provide a means for the transport of water preventing concentrated runoff.

4.7 Topsoil management

Any stripped topsoil that is to remain on site should be handled in a manner that maintains the integrity of the soils and then stockpiled for re-used in final rehabilitation. Compaction, because of handling wet soils or stockpiling soils for extended periods of time, may greatly reduce soil quality. The following mitigation measures related to soil handling should be implemented:

- Topsoil stripping will be carefully timed in accordance with site conditions to minimise handling during the wetter months between December through to May to minimise compaction issues;
- Where topsoil is being stripped within an economic distance of a prepared rehabilitation area, topsoil will be directly placed on the rehabilitation area without stockpiling. Where this will not be feasible, topsoil stockpiles will be constructed;
- Where practicable, soils should be replaced in the order of excavation;
- Topsoil stockpiles will be maintained at a height no greater than 3m in height and less than 10m wide at the base;
- Topsoil stockpiles should be placed with suitable batter slopes and covered with suitable protective cover to maximise stability;
- Drainage controls should be placed around the toe of the stockpiles to reduce potential for erosion;
- The life of a stockpile should be limited to the minimum practical time;

- Herbicide spraying or other treatment of the stockpile should be completed at intervals required to prevent weed growth and ensure the stockpile faces are weed-free prior to use; and
- Topsoil stockpiles will be stored on the high side of slopes and will be stored separately from subsoils.

4.8 Stockpile management

- Where possible, stockpiles should be located at least 2 m from any hazardous area, retained vegetation, or concentrated drainage line;
- Stockpiles are to be suitably stabilised within: 10 days during the months from December to May; 20 days for the months June and October; and 30 days for July to September;
- Excavated soil must be stockpiled separately from other materials (e.g. vegetation), where it can be readily recovered for reuse; and
- Stockpiles should not impede natural or constructed surface drainage channels or access tracks.

Wherever practical, topsoil shall be transferred directly to placement as planting media. Where stockpiling of topsoil is required, it shall be carried out in a manner which ensures that the properties of the topsoil are not permitted to degrade such that it becomes unsuitable as planting media. To assist preservation of planting media, the Contractor shall include the following provisions in the management of topsoil stockpiles:

- Limiting the height of stockpiles to 3 m;
- Limiting the width of the base of stockpiles to 10 m;
- Adopting batter slopes, protective covers and drainage which reduce potential for erosion and/or segregation;
- Limiting the period of stockpiling to a minimum practical time; and
- Carrying out herbicide spraying or other treatment of the stockpile at intervals required to prevent weed growth and ensure the stockpile faces are weed-free prior to use.

4.9 Soil treatment

In areas where there is little topsoil or there is evidence of existing salinity, topsoil may be ameliorated with mulch, or another approved ameliorant (i.e. gypsum) to facilitate revegetation.

For areas of exposed soil that require immediate cover or cannot be suitably accessed to install alternate erosion control, a polymer-based soil binder will be used to provide adequate cover. These areas will be monitored on an ongoing basis with reapplication of the soil binder to be applied on an as-needs basis but no longer than a 3-month period from the initial application.

4.10 Surface water management

The following measures are provided to specifically manage impacts to local waterways:

- Maintain average slope gradients as close as possible to pre-existing slope gradients, whilst allowing for natural drainage;
- The erosion potential of longer slopes will be minimised through the use of contour diversion berms;
- The use of suitably lined catch drains will be nominated for the Site to direct surface water to suitably sized sediment controls, either sediment traps and or sediment basins;
- Minimise slopes gradients adjacent to waterways;

Earthworks that are being carried out adjacent to a water course will:

- Be revegetated and stabilised immediately on completion of the work wherever possible;
- Minimise slope gradients while maintaining appropriate drainage requirements in areas adjacent to creeks; and
- Have temporary earth banks (or other appropriate controls) installed along cleared slopes, diverting dirty water away from the watercourse and into vegetated areas; and
- Where it is not possible to maintain riparian vegetation, any vegetation that has been cleared near waterways should be removed from the area and stockpiled away from the watercourse with appropriate erosion controls.

4.11 Refuelling

Any storage or handling of minor volumes of flammable and combustible liquids on site must be managed in accordance with Australian Standard 1940 Storage and Handling of Flammable and Combustible Liquids. Refer to Section 2 of this standard for the definition of minor storage.

Refuelling of machinery shall conform to the following requirements:

- No fuelling within 30 m of a watercourse or drainage line;
- Fuelling activity to be supervised at all times; and
- Hoses to be fitted with a stop valve at the nozzle end.

Machinery shall be maintained to minimise the leakage of oil, fuel, hydraulic and other fluids. During the servicing of machinery, the Project shall use measures to capture and contain oils, fuels, hydraulic and other fluids so as to minimise contamination of the servicing area. Servicing areas shall be remediated to the satisfaction of the Client.

4.12 Stabilisation and reinstatement

Disturbed areas are to be revegetated as soon as practicable after the completion of any earth disturbance works. All revegetation efforts and construction work therefore should conform to the Project agreed Rehabilitation Management Plan.

Inspect the disturbance areas and maintain ESC measures as necessary during and after construction, until stabilisation is achieved. Stabilisation is achieved when there is at least 70% cover within 10 days following completion of works as per IECA Table 4.4.7.

5. Monitoring and maintenance

5.1 Site inspections and monitoring

In accordance with the IECA Guidelines, the Contractor shall make allowance for the preparation of a formal monitoring and maintenance program prior to site establishment. The monitoring and maintenance program shall make allowance for required site inspections, monitoring of erosion and sediment control devices (including water quality monitoring) and reporting of results, inspections and non-compliance.

The Contractor shall identify appropriate CPESC persons to ensure compliance with erosion and sediment control requirements and objectives for the project duration. In addition to the erosion and sediment control elements detailed in this report, the Contractor shall also ensure the following general management practices are incorporated:

- Establish an erosion and sediment control training program for site staff
- Appropriately control subcontractors and material suppliers
- Suitably control site traffic to minimise dust generation and undesirable soil compaction outside designated accesses
- Maintain adequate supplies of emergency erosion and sediment control materials and ensure that these items are available at all times, particularly prior to imminent rainfall
- Establish an appropriate site inspection routine as well as the staff responsible for these inspections.
- Incorporate permanent design solutions

ESCPs are living documents that can and should be modified as site conditions change, or if the adopted measures fail to achieve the required treatment standard. When a site inspection detects a notable failure in the adopted ESC measures, the source of the failure must be investigated and appropriate amendments made to the Site and the plans. The IECA Guidelines requires that all erosion and sediment control measures be inspected as detailed in Table 4.

Table 3. Site inspection requirements

Frequency	Requirements
Daily (during rainfall)	<ul style="list-style-type: none"> ▪ All drainage, erosion and sediment control measures (when work is occurring on site) ▪ All instream erosion and sediment control measures (when work is occurring on site) ▪ Occurrences of excessive sediment deposition (whether on or off site) ▪ Water quality monitoring where a visible change in water quality is observed downstream of a waterway crossing.
Weekly	<ul style="list-style-type: none"> ▪ All drainage, erosion and sediment control measures (when work is not occurring on site) ▪ All instream erosion and sediment control measures (when work is not occurring on site) ▪ Occurrences of excessive sediment deposition (whether on or off site) ▪ Occurrences of construction materials, litter or sediment placed, deposited, washed or blown from the Site, including deposition by vehicular movements ▪ Litter and waste receptors ▪ Oil, fuel and chemical storage facilities.
Prior to anticipated runoff-producing rainfall (within 24 hours of rainfall occurring)	<ul style="list-style-type: none"> ▪ All drainage, erosion and sediment control measures ▪ All temporary flow diversion and drainage works.
Prior to rainfall event of sufficient intensity and duration to cause runoff (within 18 hours of rainfall occurring)	<ul style="list-style-type: none"> ▪ All drainage, erosion and sediment controls ▪ All temporary flow diversion and drainage works ▪ All instream erosion and sediment control measures.
Following runoff-producing rainfall (within 18 hours of rainfall event)	<ul style="list-style-type: none"> ▪ All drainage, erosion and sediment control measures ▪ All instream erosion and sediment control measures ▪ Occurrences of excessive sediment deposition (whether on or off site) ▪ Occurrences of construction materials, litter or sediment placed, deposited, washed or blown from the Site, including deposition by vehicular movements ▪ Water quality monitoring where a visible change in water quality is observed downstream of a waterway crossing.

Any erosion and sediment control failures or excess sediment build up identified during the Site inspections is to be rectified as soon as practicable following identification.

Any sediment removed from devices will be disposed of in a lawful manner that does not cause ongoing soil erosion or environmental harm.

A register of all ESC inspections and audits, if undertaken, will be maintained for the duration of the project site works, and will be available for review during site inspections undertaken by a regulatory authority. Any environmentally relevant incidents which occur on the Site should be recorded, and also be available for review during site inspections undertaken by regulatory authorities.

If erosion and sediment controls are found to be deficient or failed in service, due to unforeseen circumstances, corrective action is to be undertaken immediately which may include modifications to the approved ESCP.

5.2 Wet weather preparedness

The project site shall be appropriately prepared for both likely and unlikely wet weather conditions. The Contractor will prepare a wet weather preparedness plan to establish appropriate erosion and sediment control measures and actions that may be implemented prior to a predicted wet weather event. The following erosion and sediment control measures will be considered where appropriate for inclusion within the wet weather preparedness plan:

- Inspect the condition of all erosion and sediment control devices on site to ensure that these measures are operationally effective prior to the rainfall event
- Establish temporary flow diversion up-slope of open, newly formed batters
- Stabilise all drainage pathways and exposed surfaces still subject to construction with temporary erosion and sediment control techniques (i.e. erosion control blankets or hydraulic blankets)
- Secure erosion control blankets with additional anchorage such as rocks or timber stakes.

5.3 Non-conformances and corrective actions

Where an environmental non-conformance occurs regarding erosion and sediment control (such as loss of sediment from the Site or accidental discharge of sediment into adjacent waterways), the Contractor shall immediately inform the Department of Environment, Tourism, Science and Innovation (DETSI) of the incident.

The Contractor has a responsibility to report to DETSI all major environmental incidents that risk causing environmental harm under the *Environment Protection Act 1994*.

Where an environmental incident occurs, the following mitigation strategies shall be adopted as a minimum:

- All non-conformances and incidents are to be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident re-occurring
- Containment of the sediment laden runoff, where possible
- The environmental representative is to review the erosion and sediment control measures in place for effectiveness and check maintenance records
- The appropriate person is to review the erosion and sediment control measures in place for effectiveness and check maintenance records
- An incident / accident report is to be completed for all incidents and non-conformances.

Where incidents have occurred, the Contractor shall ensure that all reasonable and practical control measures are implemented for future operations. This may include reviewing water quality monitoring data, where exceedances

have been found, and implementing additional and/or alternative controls to achieve the required environmental outcomes.

6. Reporting

At a minimum, all sediment, erosion, and surface water quality incidents should be reported to the relevant Environmental Manager as soon as practical. Examples of incidents to report include:

- Degradation of surface water quality on and offsite
- Build-up of sediment in sediment control devices
- Uncontrolled discharge from the Site
- Damaged or failed erosion control devices.

Where exceedances of the criteria occur, the Project shall notify the nominated Regulatory Agency immediately.

The Project shall complete an interim investigation report outlining the breach of water quality performance requirements and the corrective actions being implemented because of the breach. Within 14 days the Project shall complete an investigation, in accordance with the Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC & ARMCANZ, 2000) methodology, into the potential for environmental harm and provide a written report to the relevant Regulatory Agency outlining:

- Details of the investigation carried out; and
- Actions taken to prevent environmental harm.

All water quality data shall be kept onsite and be available on request.

Should site personnel become aware that environmental harm has or is occurring or likely to occur, action must be taken to report such an occurrence. Incidents or potential incidents will be reported to the Environmental Manager who will, in turn, review and notify the administering authority as necessary to satisfy reporting requirements obligation (the 'Duty to Notify').

7. References

- ANZECC & ARMCANZ. (2000). *Australian Guidelines for Water Quality Monitoring and Reporting*. Australian and New Zealand Environment and Conservation Council (ANZECC) & Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ).
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- Donnollan, T., Wetherall, T., & Griffiths, S. (2004). *Land Resources of the Miriam Vale and Kolan Shires*. Coorparoo, Qld: Department of Natural Resources, Mines and Energy; State of Queensland.
- IECA. (2008). *Best Practice Erosion and Sediment Control Guidelines*. International Erosion Control Association.