Broken Hill Solar Farm, NSW

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

PROJECT NAME: OAKEY SOLAR FARM
CLIENT: CANADIAN SOLAR
PROJECT NUMBER: QEC7

RCR Infrastructure
O'DONNELL GRIFFIN

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1. *INTRODUCTION*

1.1 BACKGROUND

RCR Tomlinson Ltd (ACN 008 898 486) (RCR) was appointed by Canadian Solar (Australia) Pty Ltd (Canadian Solar) to provide engineering, procurement and construction (EPC) services for the Oakey Solar Farm Project (OSFP). The OSFP was approved by the Toowoomba Regional Council (TRC) in October 2016 and construction is planned to commence in April 2017.

1.2 PURPOSE OF THIS CEMP

This Construction Environmental Management Plan (CEMP) was prepared by RCR to provide an environmental management framework and procedures for the OSFP. The scope and application of this CEMP is provided in Table 1.

Table 1 Scope and application of this CEMP

Question	Answer
Who?	This CEMP applies to all personnel (staff, sub-contractors and site visitors) under the control of RCR for the OSF Project.
What?	This CEMP applies to all construction works for Stages 1 and 2 of the OSF Project.
When?	This CEMP applies from site enabling/early works through to practical completion/site handover from RCR to Canadian Solar.
Where?	This CEMP applies to the OSF Project site located at 12871 Warrego Highway, Oakey, Queensland. The site is comprised of four (4) lease areas described as Lease Areas A to D. The Lease Areas are located within Lot 7, 8 and a part of Lot 9 on RP36475 and part of Lot 1 on RP48454. A grid connection alignment is proposed within the existing road reserve immediately north of the site. The alignment will extend from the onsite substation to the existing Ergon Energy Oakey Substation located approximately 7 km east of the site. This CEMP applies to the solar farm and the overhead grid connection transmission line. The OSF Project does not include any other offsite locations or ancillary facilities such as storage/laydown areas or pre-fabrication facilities etc.
Why?	The purpose of this CEMP is to minimise the risk of environmental harm and to satisfy RCR's legal and other obligations for environmental protection during construction of the OSF Project.

1.3 CEMP OBJECTIVES

The objectives of this CEMP are to:

- Describe the site, the project and the proposed construction works;
- Provide site specific control measures to minimise the risk of adverse environmental impact during construction;
- Define roles, responsibilities and timing for the implementation of environmental control measures; and
- Provide mechanisms for incident management and monitoring, review and continual improvement of environmental performance at the site during construction.

2. SITE & PROJECT OVERVIEW

2.1 SITE LOCATION

The site is located approximately 6.5 km west of Oakey township on approximately 202 hectares (ha) of a property at 12871 Warrego Highway, Oakey (Figure 1). The site is comprised of four (4) lease areas described as Lease Areas A to D. The Lease Areas are located within Lot 7, 8 and a part of Lot 9 on RP36475 and a part of Lot 1 on RP48454. The site is located within the Toowoomba Regional Council (TRC) Local Government Area (LGA).

A grid connection (Gen-tie line) alignment is proposed within the existing road reserve immediately north of the site and will extend from the onsite substation to the existing Ergon Energy Oakey Substation located approximately 7km east of the site. [Note that the final location of the Gen-tie line is yet to be finalised and approved by TRC].

The OSFP does not include any other offsite locations or ancillary facilities such as storage/laydown areas or pre-fabrication facilities etc.

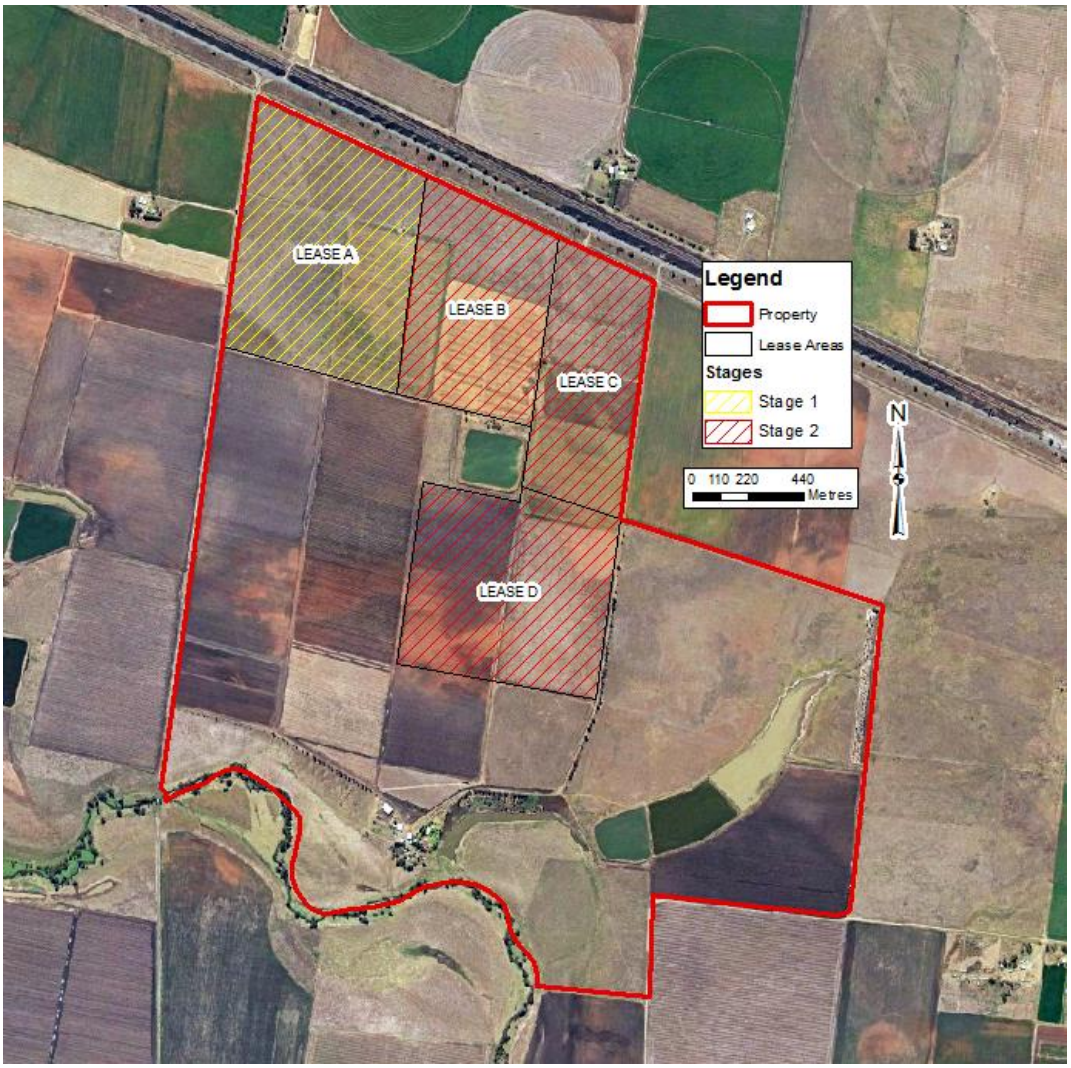


Figure 1 Oakey Solar Farm Project site

2.1.1 SITE DESCRIPTION

The site forms part of an agricultural property that includes cleared, cultivated paddocks.

Table drains and ancillary infrastructure including bores and pumps are established to facilitate the land use at the site. Stormwater at the site is conveyed from the table drains to two (2) discharge points; one being a culvert under Cockburn Road and the other via low lying land in the north-western corner of the site and discharging to a drain alongside the Warrego Highway. A dam also occurs on the property but outside of the project footprint of the site on Lot 8 on RP36475 and Lot 1 on RP48454.

Ergon Energy owns and operates high voltage (11kV) overhead line within the site that extends from the road reserve to the north. This line is by wayleave and not via an easement. Telstra, Nextgen, APA Group Transmission, Ergon Energy and Toowoomba Regional Council own and operate below and above ground infrastructure within the road reserve north of the site.

2.1.2 LOCAL COMMUNITY AWARENESS

Land uses within 1 km of the site include agricultural uses with isolated rural dwellings (farm houses). There are five (5) farmhouses, defined as sensitive land uses at Part G of the State Planning Policy, within 1 km of the site boundaries (Figure 2). The closest farmhouse is located on the property, approximately 220 m south of the site. This farmhouse is accessed from the Warrego Highway via the unsealed dirt road adjoining the eastern boundary of the site. The owner/caretaker of the property may continue the agricultural land use of the remaining portion of the property throughout the duration of the OSFP.

Management measures are included in the Environmental Control Plans (ECP) for the OSFP to minimise the risk of adverse impacts on nearby sensitive receptors.

Figure 2 Sensitive Land Uses within 1 km of the OSF Project site

2.2 ENVIRONMENTALLY SENSITIVE AREAS

Environmentally sensitive areas that exist at and near the site include the following:

- The site and adjoining land is mapped within a High Risk Area for protected plants;
- Native vegetation within the road reserve north of the site that is described as:
  - Essential habitat for protected wildlife; and
  - Regulated Vegetation (Endangered Regional Ecosystem (RE).

Further investigation of these matters is required prior to finalisation of this CEMP (including native vegetation within the alignment of the Gen-tie line). Outcomes of these investigations will inform environmental management measures required to protect these areas from potential harm and any statutory approval requirements.

2.3 PROJECT DESCRIPTION

The OSF will be a solar photovoltaic (PV) generation facility with a potential peak power generation capacity of up to 80 megawatts (MW). The OSF will consist of solar panels operating under a solar tracking system. Panels will be arranged in solar arrays consisting of linear strings of approximately 88,000 mounted PV modules organised into blocks of approximately 2MW. Each power block will include a MV Power Supply Inverter Station (MVPSI) of 5MW capacity that will convert the direct current (DC) energy into grid-compatible alternating current (AC) energy

(33kV) for connection to the site 33kV reticulation system. An onsite substation with a 33kV switchboard will collect the generated electricity for transfer to Ergon Energy's Oakey Substation.

The OSF will connect to Ergon Energy's Oakey Substation located approximately seven kilometres to the east of the site. The precise alignment of the Gen-tie line has not been finalised, however it will be located within existing wayleaves/easements in the road reserve north of the site. The Gen-tie line will be a 7.3 km overhead 33 kilovolt (kV) line originating at the switchgear enclosure and comprising a two phase connection which will run via an overhead line on single poles spaced 250-300 m apart.

Additional project elements include an internal road network, drainage features and nominated discharge points, hardstand area and an operation and maintenance building.

2.3.1 SCOPE OF CONSTRUCTION WORKS

RCR's scope of works for the OSFP includes construction of:

- A PV array incorporating solar panels mounted on single axis tracker frames;
- MVPSI of 5MW capacity;
- Above and below ground electrical conduits and cabling to connect the arrays to the inverters and transformers;
- Switchgear to collect the power from the PV arrays;
- 33kV Substation;
- 33kV reticulation system;
- New overhead grid connection line;
- Internal access roads;
- Hardstand area;
- Drainage features and nominated discharge points;
- Operation and maintenance building; and
- Drainage structures.

2.3.2 MAIN PV PLANT

Construction works will consist of the following 6 packages:

- Civil (including underground cables);
- Structures;
- Modules (including aboveground cables);
- Inverters;
- Cable terminations; and
- Commissioning.

The civil package will be the first to be executed as it associated with site establishment including roads and site drainage. Civil works will be limited due to the flat terrain and limited vegetation cover within the construction footprint. Key element of civil works include:

- Subgrade preparation and placement and compaction of road base for internal roads and laydown areas;
- Excavation and civil works for construction of drains;
- Ground preparation for the inverter stations; and
- Trenching and backfilling for installation of underground cabling.

After the civils in an array/array block is complete, the area will be handed over to the structure team to commence work. Key elements of structural work includes:

- Rammed piling for the posts of solar panel frames (i.e. displacement type piles); and
- Table installation ready for attachment of the solar panel modules.

After structural works are complete, the solar panel modules will be installed. This will be followed electrical cabling, connection and termination works. The final works will include commissioning of the PV plant.

2.3.3 33KV SUBSTATION

The 33kV substation works will progress in parallel with the construction of the main PV plant to ensure the substation is ready to receive power when the new PV plant is completed. Foundations for the 33/0.415kV transformer will be completed prior to the transformer delivery to site so it can be landed into its final position on delivery. All other civil works associated with the substation work package will also be completed prior to the transformer delivery, this will include:

- Conduit installation;
- Conduit installation between the switchroom and the new transformer
- Installation of precast pit; and
- All surface reinstatement.

2.3.4 OVERHEAD TRANSMISSION LINE

A new 33kV line will be built to connect the site to Ergon Energy's Oakey Substation located approximately seven kilometres to the east of the site.

2.3.5 CONSTRUCTION SCHEDULE AND WORKING HOURS

The OSFP will be a staged development. Stage 1 is to be completed and the change of use commenced within six (6) years and Stage 2 is to be completed and the change of use commenced within ten (10) years of the development approval taking effect.

Working hours during the construction period shall be 6.00 am to 6.00 pm Monday to Saturday (TBC). Subject to site workload and specific site activities construction works shall may be undertaken outside of these hours or on Sundays or Public Holidays..

3. *ENVIRONMENTAL MANAGEMENT*

3.1 ENVIRONMENTAL MANAGEMENT DOCUMENTATION

Development of this CEMP has been informed by RCR's environmental obligations outlined in legislation, project specific approvals and permits and RCR's corporate environmental management system (refer to Sections 3.2 to 0).

This CEMP is part of RCR's overall management strategy for the OSFP. It is the overarching project specific management plan for a suite of environmental management documents for the OSFP (Table 2).

Table 2 Environmental and other project management documents

No.	Description	Source	Location
CEMP environmental management documents			
1	Environmental Control Plans (ECPs)	CEMP	Section 3.8 and Appendix A.
2	Safe Work Method Statements (SWMS) and Job Hazard Assessments (JHA)	CEMP	Section 0.
Other related environmental management plans and documents			
3	33kV Grid Connection to Oakey Substation – Preliminary Biodiversity Assessment	ERM (2014)	Intranet & site office.
4	Toowoomba PV Project – Planning Feasibility Study	ERM (2013)	
5	Erosion and Sediment Control Plan (ESCP)	TBC	
6	Traffic Management Plan (TMP)	TBC	
7	Project Emergency Response Plan and Procedures	TBC	
8	Conceptual Stormwater Management Plan	Worley Parsons (2014)	
9	A300 – Civil Engineering and Construction Requirements	Canadian Solar	
10	Oakey Solar Facility Site – Stage 2 Flood Risk Assessment	Worley Parsons (2013)	
11	Overarching End Use and Rehabilitation Plan	Recurrent Energy (2015)	

3.2 LEGAL AND OTHER REQUIREMENTS

The following environmental legislation applies to the construction of the OSFP (Table 3). The relevant provisions of these instruments and their subordinate legislation (regulations and policies) have been considered and addressed in this CEMP and ECPs. The following links can be used to access State and Federal legislation.

Table 3 Applicable environmental legislation

Name	Administering Authority	Project Specific Considerations
Federal		
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)	Department of the Environment and Energy	▪ To be confirmed following detailed studies by Canadian Solar. ▪ If Matters of National Environmental Significance (MNES) are identified during the course of works additional approvals under the EPBC Act may be required.
State		
Aboriginal Cultural Heritage Act 2003 (ACHA)	Dept. of Aboriginal and Torres Strait Islander	▪ There is no Aboriginal cultural heritage recorded at the site on the Cultural Heritage Database and Register. However, the

Name	Administering Authority	Project Specific Considerations
	Partnerships (DATSIP)	absence of recorded Aboriginal cultural heritage places does not necessarily mean that there are no cultural heritage values in the area. ▪ All persons on site must apply a Cultural Heritage Duty of Care when undertaking works and complete cultural heritage awareness training as part of the site induction.
Biosecurity Act 2014 and its subordinate legislation	Department of Agriculture and Fisheries (DAF) – Biosecurity Queensland	▪ All persons onsite must meet their General Biosecurity Obligation (GBO). This means taking all reasonable and practical steps to prevent biosecurity risks or events such as invasive weed introductions for example.
Environmental Protection Act 1994 (EP Act) and its subordinate legislation	Dept. of Environment and Heritage Protection (DEHP)	▪ All persons must implement reasonable and practicable measures to prevent environmental harm (i.e. the General Environmental Duty (GED)). ▪ Material or serious environmental harm must be reported to the DEHP. ▪ Controls must be implemented for prescribed water contaminants (e.g. soil and sediment, concrete washout, fuel/oil etc.). ▪ Contaminated land must be managed in accordance with State and National guidance to protect human health and the environment.
Nature Conservation Act 1992 (NCA) and its subordinate legislation	DEHP	▪ The site and adjoining land is mapped within a High Risk Area for protected plants. A protected plant survey is required to be undertaken by Canadian Solar prior to the commencement of construction to determine statutory approval requirements and environmental management measures to be included in this CEMP. ▪ If site conditions change additional approvals may be required under this Act.
Queensland Heritage Act 1992	DEHP	▪ A search of the Queensland heritage Register did not identify any State Heritage Places or Protected Areas on the site. ▪ All persons on site must apply a Cultural Heritage Duty of Care when undertaking works.
Sustainable Planning Act 2009 (SPA) and its subordinate legislation	Dept. of Infrastructure, Local Government and Planning (DILGP)	▪ A Development Permit was issued by TRC for the Reconfiguration of Lot 1 on RP48454 and Lots 7-9 on RP36475 to include Lease Areas A-D (the site). ▪ A Development Permit for a Material Change of Use (Utility Installation) was issued by TRC for the OSF Project. ▪ A Development Permit is still required for the Gen-tie line. ▪ Works beyond those approved in the Development Permit for the project may require further approval under this Act.
Vegetation Management Act 1999 (VMA) and its subordinate legislation	Dept. of Natural Resources and Mines (DNRM)	▪ No Regulated Vegetation will be cleared for the solar farm, therefore, clearing approval under the VMA is not required. ▪ Approval under the VMA may be required for clearing to build the Gen-tie line. This shall be determined by Canadian Solar as part of further detailed assessments. ▪ If the development footprint changes and clearing of Regulated Vegetation is necessary, approval under this Act may be required.
Water Act 2000 and its subordinate legislation	DNRM	▪ If surface water or groundwater extraction is required for construction a Water Licence under this Act may be required.

Name	Administering Authority	Project Specific Considerations
		▪ If works outside the approved development footprint are proposed and include works in a watercourse, additional approvals may be required under this Act for waterway barrier works.
Waste Reduction and Recycling Act 2011 (WRRA) and its subordinate legislation	DEHP	▪ Construction wastes should be managed in accordance with the waste hierarchy.

3.3 PROJECT SPECIFIC ENVIRONMENTAL APPROVALS AND PERMITS

The following project specific environmental approvals and permits apply to the construction of the OSFP (Table 4). The conditions and requirements of these instruments have been addressed in this CEMP. Copies of these documents are kept on the RCR intranet and in the site office.

Table 4 OSFP approvals and permits

Type	Description	Issuing Authority	Date Issued	Expires	Reference	Approval/Permit Holder
Permit	Development permit for reconfiguration of Lot 1 on RP48454 and Lots 7-9 on RP36475	TRC	18/10/2016	18/10/2051	RAL/2014/3749/A	Canadian Solar (Australia) Pty Ltd
Permit	Development permit for OSF Project	TRC	18/10/2016	18/10/2051	MCUI/2014/3744/A	Canadian Solar (Australia) Pty Ltd

A Development Approval is required for the construction of the Gen-tie line within the road reserve north of the site. Canadian Solar will also need to determine necessary approvals that may apply for protected plants under the EPBC Act and NCA.

3.4 ENVIRONMENTAL MANAGEMENT SYSTEM

RCR's corporate environmental management system (EMS) complies with *ISO 14001:2015 Environmental management systems – Requirements with guidance for use*. RCR's EMS procedures and policies will be applied to the OSF Project and have been addressed in this CEMP. The EMS and all associated documentation is available on RCR's intranet.

3.5 ENVIRONMENTAL POLICY & MANAGEMENT COMMITMENT

The RCR Environmental Policy (shown overleaf) defines the company's commitment to environmental management throughout the activities, products and services undertaken by RCR. This policy demonstrates RCR's commitment to providing a high standard of environmental performance, protection and conservation of the natural environment by practicing good environmental management and to the ongoing measurement, evaluation and review of performance to ensure continual improvement.

RCR management is committed to:

- Complying with all legal and other obligations that apply to RCR for environmental protection during construction of the OSF Project;
- Providing adequate resources to implement this CEMP and the associated environmental protection and monitoring measures;
- Evaluating the commitment of all sub-contractors to high standards of environmental management; and
- Monitoring compliance with this CEMP and seeking to continually improve environmental performance at the site during construction.

All personnel including staff, sub-contractors and visitors are expected to comply with the environmental policy at all times.

RCR Limited Tomlinson

ENVIRONMENTAL POLICY

Our goal is to minimise the impact of our operations on the environment.

Our commitment:

- Maintain an effective and efficient Management System throughout the Company that is compliant with the requirements of **Australian Standard AS/NZS ISO 14001:2004;**
- Comply with all relevant laws, regulations and standards governing environmental management;
- Minimise emissions and pollution to acceptable levels;
- Minimise waste and maximise the recycling of materials;
- Report our environmental performance transparently; and
- Measure key performance indicators to continually improve our environmental performance.

Your commitment:

- Ensure that all waste and hazardous substances are disposed of in accordance with regulatory requirements and RCR procedures;
- Ensure no contaminants are allowed into the environment; and
- Care for the environment by conserving energy and resources, and minimising waste.

This policy applies to all activities undertaken or controlled by RCR.

Dr Paul Dalgleish
Chief Executive Officer

3.6 ENVIRONMENTAL ASPECTS, IMPACTS AND RISKS

The environmental aspects and impacts of the OSFP were identified. A risk management approach (as per *WHS-RCR-PRO-001 Hazard Identification, Risk Assessment and Control*) was used to determine the severity and likelihood of adverse environmental impacts occurring during the construction of the OSF Project. The environmental aspect, impact and risk register for the OSFP is provided at Appendix B.

The aspect, impact and risk register for the OSFP shall be reviewed in accordance with Section 8.

3.7 ENVIRONMENTAL OBJECTIVES, PERFORMANCE TARGETS AND INDICATORS

Objectives, performance targets and key performance indicators were determined to gauge environmental performance during the construction of the OSFP. Continuous improvement of environmental performance is required by RCR policy and the EMS. Progress against the performance targets shall be reported by the OSFP Site HSE Manager at environmental management review meetings (refer to Section 8) and in monthly environmental reports (refer to Section 5.4.1). The environmental objectives, targets and validation methods for the OSFP are listed in Table 5.

Table 5 Objectives, performance targets and key performance indicators

Objective	Performance Target	Key Performance Indicator
To minimise the risk of adverse impacts to soil or water resources and on environmentally sensitive areas.	▪ Runoff water quality meets the criteria at Table 8.2.1 of the Queensland Water Quality Guidelines 2009.	▪ Water quality monitoring in accordance with the ESCP.
	▪ No sediment deposited outside of site.	▪ Post-rainfall site inspections
	▪ No contamination of soil or water by hazardous substances.	▪ No. of spill/leak incidents ▪ Soil and water quality monitoring results
To ensure that construction works are completed in accordance with project approvals to minimise negative impacts on local flora and fauna.	▪ Spotter-catcher present during all clearing works.	▪ Spotter catcher daily records
	▪ No unauthorised harm to flora or fauna.	▪ Incident reports
	▪ No works outside the approved footprint.	▪ Incident reports ▪ Weekly inspections ▪ Monthly audits
To prevent the introduction and spread of invasive weeds to the site.	▪ No introduction of invasive weeds that are classified as Restricted Matter at Schedule 2 of the *Biosecurity Act 2014.*	▪ Weekly inspection records. ▪ Monthly audit reports.
	▪ All vehicles, plant and machinery on site certified as clean.	▪ Weed hygiene certificates ▪ Random checks
	▪ Weed hygiene declarations provided for all organic materials.	▪ Weed hygiene declarations ▪ Receipts for delivered materials
To prevent the release of dust, light, vibration and noise from the site and related activities that causes nuisance at sensitive receptors.	▪ No complaints of noise, dust, vibration or light nuisance at sensitive receptors.	▪ Noise and dust monitoring reports. ▪ Incident reports. ▪ Environmental complaints register.

Objective	Performance Target	Key Performance Indicator
To minimise environmental harm by managing all wastes correctly and minimising waste disposal where practicable.	▪ Bins and waste storage units not exceeding 100% storage capacity.	▪ Weekly inspection records
	▪ All wastes transported by appropriately licensed waste transporters to licensed waste facilities.	▪ Waste tracking and transport records.
	▪ Concrete washout restricted to designated areas.	▪ Weekly inspection records ▪ Monthly audits ▪ Incident reports.
No unauthorised harm to areas or items of cultural heritage value at the site.	▪ All personnel have completed cultural heritage awareness training as part of the site induction.	▪ Site induction ▪ Induction records.
	▪ No works outside the project footprint.	▪ Incident reports ▪ Weekly inspections ▪ Monthly audits
To minimise the risk of environmental contamination or harm by correctly storing, handling, using and disposing of hazardous substances.	▪ Current SDS for all hazardous substances on site.	▪ SDS on file ▪ Hazardous substances register
	▪ Spill kits available and maintained.	▪ Weekly inspection records ▪ Monthly audit reports ▪ Incident reports
	▪ No spills or leaks of hazardous substances.	▪ Incident reports
	▪ Maintenance activities undertaken in nominated areas.	▪ Weekly inspection records
To ensure vehicles, plant and equipment are operated and maintained with minimal environmental impact at the site.	▪ Daily pre-start checks completed for all plant and equipment.	▪ Pre-start checklists ▪ Random checks
	▪ No spills or leaks of fluids, fuels or oils.	▪ Maintenance log books ▪ Incident reports
To minimise the potential for environmental emergencies and be able to respond effectively in the event of an environmental emergency.	▪ Spill kits available and maintained.	▪ Weekly inspection records ▪ Monthly audit reports ▪ Incident reports
	▪ Site tidy and maintained at all times.	▪ Weekly inspection records
	▪ Daily weather forecast monitoring	▪ Daily pre-start minutes
	▪ Fire controls in place for hot works.	▪ SWMS/JHA. ▪ Incident reports.

3.8 ENVIRONMENTAL CONTROL PLANS

Environmental control plans (ECPs) have been developed to document site specific environmental management measures for the OSFP (refer to Appendix A). The ECPs reflect project and site specific conditions, including obligations and requirements specified in legislation, project approvals and permits and EMS policies and procedures.

The ECPs provide project and site specific environmental management guidance which shall be used to assist in developing task specific environmental controls for frontline environmental management documents such as safe work method statements (SWMS) and job hazard assessments (JHA). A list of ECPs and a summary of their key content is provided in Table 6.

Table 6 Summary of ECPs

ECP	Key Content
1. Soil and water management	▪ Management measures for soil management and revegetation, soil and water contamination and use of water resources. ▪ No guidance is provided on erosion and sediment control in the ECP as reference must be made to the Erosion and Sediment Control Plan for the OSF Project on this specific matter.
2. Flora and fauna management	▪ Measures to protect the flora and fauna of the local area during construction works.
3. Weed management	▪ Measures to reduce the risk of weed introduction and spread at the site.
4. Dust, noise, vibration and light management	▪ Measures to reduce the risk of environmental harm from dust, light, vibration and noise emissions during construction at the site.
5. Liquid and solid waste management	▪ Measures to manage regulated, general, green and recyclable wastes from the project. ▪ Specific guidance is included for waste concrete and concrete washout management.
6. Cultural heritage management	▪ Measures to protect the cultural heritage values of the site.
7. Hazardous substances use and management	▪ Guidance on hazardous substance storage, handling, use and disposal to minimise the risks of environmental contamination.
8. Plant and equipment management	▪ Guidance on refuelling and maintenance of plant and equipment during construction.
9. Environmental emergency preparedness and response	▪ Guidance on the three environmental emergencies that could reasonably be expected to occur at the site: major chemical spill (fuel), heavy rainfall/localised flooding and bushfire.

3.9 FRONTLINE ENVIRONMENTAL MANAGEMENT DOCUMENTATION

Frontline environmental management documentation is described in Table 7.

Table 7 Frontline environmental management documentation

Activity	Description	Responsible person	Frequency
Take 5 assessment	Take 5 assessments provide an opportunity to review the adequacy of control measures during the course of works.	Leading hands	Before commencement operation & following breaks in activity
Safe Work Method Statement (SWMS) and/or Job Hazard Assessment (JHA)	Task specific environmental controls shall be integrated in SWMS and JHA. Guidance can be obtained from the relevant ECPs, however the control measures need to be tailored to the task and the site conditions at the time the works are undertaken.	Site Engineers	Before commencement of non-standard work operations at the start of operation or shift.

4. *IMPLEMENTATION*

4.1 ENVIRONMENTAL MANAGEMENT RESPONSIBILITIES

All RCR personnel, including sub-contractors and visitors, are responsible for environmental protection during the course of construction works at the site. Responsibilities and reporting lines for environmental matters are described in Table 8.

Table 8 Roles and responsibilities

Role	Responsibilities	Reports to
Project Manager	▪ Review and approve this CEMP. ▪ Ensure works comply with all relevant regulatory and project requirements. ▪ Ensure this CEMP is fully implemented and environmental protection is not secondary to other construction requirements. ▪ Liaise with Canadian Solar and regulatory authorities. ▪ Exercise a duty of care to the environment, cultural heritage matters and biosecurity matters. ▪ Participate in pre-start meetings and tool-box talks as required. ▪ Ensure that all personnel understand, accept and fully carry out their obligations for environmental protection and that they are adequately trained, instructed and resourced to fulfil their obligations. ▪ Seek relevant approvals for any required works or changes to site conditions outside the limits of the applicable project approvals/permits/plans. ▪ Assist with environmental compliance audits and incident investigations as required. ▪ Direct that works be stopped immediately where there is an actual or potential risk of environmental harm.	RCR Management, Canadian Solar and regulatory authorities
Construction Manager	▪ Plan and organise works to reduce the risk of adverse environmental impacts. ▪ Ensure works comply with all relevant regulatory and project requirements. ▪ Ensure this CEMP is fully implemented and environmental protection is not secondary to other construction requirements. ▪ Exercise a duty of care to the environment, cultural heritage matters and biosecurity matters. ▪ Ensure that tool-box talks are held weekly. ▪ Participate in pre-start meetings and tool-box talks. ▪ Notify the Project Manager of any required works or changes to site conditions outside the limits of the applicable project approvals/permits/plans to seek the necessary approvals. ▪ Assist with environmental compliance audits and incident investigations as required. ▪ Direct that works be stopped immediately where there is an actual or potential risk of environmental harm.	Project Manager
Site HSE Manager	▪ Overall person responsible for managing the environmental aspects of the project. ▪ Coordinate environmental monitoring, CEMP reviews and compliance audits as required by the CEMP. ▪ Ensure works comply with all relevant regulatory and project requirements.	Project Manager

Role	Responsibilities	Reports to
	▪ Ensure this CEMP is fully implemented and environmental protection is not secondary to other construction requirements. ▪ Manage all environmental documentation and records. ▪ Assist with daily pre-start meetings and weekly tool-box talks. ▪ Implement RCR's SHEQ programs. ▪ Prepare and deliver site induction training and maintain induction training records. ▪ Ensure all personnel have completed a site induction prior to starting work. ▪ Exercise a duty of care to the environment, cultural heritage matters and biosecurity matters. ▪ Ensure the CEMP is available to all personnel. ▪ Carry out environmental inspections and initiate actions to ensure compliance with the CEMP. ▪ Participate in environmental compliance audits. ▪ Report on environmental performance at the site. ▪ Undertake incident investigations. ▪ Stop works where there is an actual or potential risk of environmental harm and notify the Project Manager and Construction Manager.	
Senior Project Engineers	▪ Plan and organise works to reduce the risk of adverse environmental impacts. ▪ Ensure works comply with all relevant regulatory and project requirements. ▪ Ensure this CEMP is fully implemented and environmental protection is not secondary to other construction requirements. ▪ Coordinate the implementation of the CEMP with the OSF Site HSE Manager. ▪ Coordinate action in emergency situations and allocate required resources. ▪ Exercise a duty of care to the environment, cultural heritage matters and biosecurity matters. ▪ Deliver weekly tool-box talks. ▪ Ensure all personnel have completed a site induction prior to starting work. ▪ Stop works where there is an actual or potential risk of environmental harm and notify the Construction Manager and Site HSE Manager.	Construction Manager
Site Engineers	▪ Plan and organise works to reduce the risk of adverse environmental impacts. ▪ Ensure works comply with all relevant regulatory and project requirements. ▪ Ensure this CEMP is fully implemented and environmental protection is not secondary to other construction requirements. ▪ Deliver daily pre-start meetings to their team. ▪ Ensure all personnel in their charge have completed a site induction and participate in the development of JSEAs and site meetings, tool-box talks and SHEQ programs. ▪ Instruct all personnel, sub-contractors and visitors within their area of responsibility in accordance with the requirements of the CEMP. ▪ Undertake environmental risk assessments where required. ▪ Exercise a duty of care to the environment, cultural heritage matters and biosecurity matters.	Senior Project Engineers

Role	Responsibilities	Reports to
	▪ Promote the reporting of all environmental incidents and near-misses. ▪ Assist with environmental compliance audits and incident investigations as required. ▪ Ensure that all personnel in their charge understand, accept and fully carry out their obligations for environmental protection and that they are adequately trained, instructed and resourced to fulfil their obligations. ▪ Stop works where there is an actual or potential risk of environmental harm and notify the Construction Manager and the Site HSE Manager.	
Other personnel (includes RCR staff, sub-contractors and visitors)	▪ Regard environmental issues as a central theme in their actions. ▪ Actively participate in the development of JSEAs and site meetings, tool-box talks and SHEQ programs. ▪ Undertake works with a duty of care to the environment, cultural heritage matters and biosecurity matters. ▪ Report to their relevant supervisor any defects in plant or equipment. ▪ Keep work areas in a tidy state. ▪ Undertake works as instructed by their relevant supervisor and in accordance with the CEMP. ▪ Assist with environmental compliance audits and incident investigations as required. ▪ Stop works where there is an actual or potential risk of environmental harm and notify the Construction Manager and Site HSE Manager.	Site Engineer

4.2 PROJECT PROCUREMENT

4.2.1 SUB-CONTRACTORS

All subcontractors will be evaluated by RCR using the sub-contractor pre-assessment process to ensure the contracting companies have appropriate systems in place to undertake the works in an environmentally conscious and sustainable manner. Should any sub-contractor systems be identified to be inadequate, these contractors will be required to work under RCR's management system.

Sub-contractors' environmental requirements and responsibilities will be addressed in the contract documentation. All subcontractors will be required to work in accordance with this CEMP and all legislative requirements and permits and approvals that apply to the OSFP.

4.2.2 MATERIALS, PLANT & EQUIPMENT

Prior to purchase of any materials, plant or equipment consideration of the environmental value will be taken into consideration. The aim is to reduce environmental, social and economic impacts through consideration and purchase of environmentally preferable product, throughout the lifecycle of the goods and services.

The procurement process will take sustainability into consideration, with the variation dependant on the specific impacts of the product in deliberation. The volume/number of materials/product will also be evaluated prior to purchasing in order to avoid unnecessary purchasing and waste.

5. *ENVIRONMENTAL AWARENESS TRAINING & COMMUNICATION*

5.1 SITE INDUCTION

All staff, sub-contractors and visitors shall complete a site induction before commencing work. The site induction for the OSF Project shall be prepared and delivered by the Site HSE Manager (or their nominated delegate).

The site induction will include environmental awareness training which addresses the following:

- Overview of the site, project and CEMP;
- Environmental values of the site and potential impacts;
- Cultural heritage awareness;
- Environmental management activities under the CEMP;
- Roles and responsibilities under the CEMP;
- Environmental complaint, hazard and incident management and reporting; and
- Emergency response.

Induction training records shall be retained and managed in accordance with Section 9.

5.2 INTERNAL COMMUNICATIONS

5.2.1 DAILY PRE-START MEETINGS

Daily pre-start meetings will be used to inform the workforce of the day's/ shift's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the works, coordination issues with other trades, hazards and other information that may be relevant to the day's work.

Pre-start meetings may be project-wide and/or held for specific work areas. Pre-start meetings will be facilitated by Site Supervisors.

All attendees will be required to sign on to the pre-start meeting form and acknowledge their understanding of the issues explained. Pre-start meeting forms shall be retained and managed by in accordance with Section 9.

5.2.2 WEEKLY TOOL-BOX TALKS

Weekly tool-box talks will be used to raise awareness and communicate with personnel on construction related environmental issues. The tool-box talk series will be managed by the Site HSE Manager.

Tool-box talks will be tailored to project specific environmental issues that are relevant at the time of talk. Examples of tool-box talk topics include but are not limited to:

- Erosion and sedimentation control;
- Weed hygiene;
- Emergency and spill response;
- Cultural heritage;
- Plant and equipment maintenance;
- Refuelling;
- Threatened flora and fauna species;
- Clearing controls and vegetation protection;
- Housekeeping and waste; and

- Concrete washout.

Attendance at tool-box talks is mandatory and attendees are required to sign an attendance form and acknowledge their understanding of the issues explained. Attendance forms shall be retained and managed in accordance with Section 9.

5.3 COMPLAINTS MANAGEMENT

All complaints shall be forwarded to the Site HSE Manager who will manage complaints in accordance with *ENV-RCR-PRO-010 Environmental Complaints Management*.

The Site HSE Manager shall be responsible for recording all complaints in the OSF Project Environmental Complaints Register which is located on the intranet. The Site HSE Manager shall be responsible for managing the investigation and resolution of complaints (with the assistance of other RCR personnel and sub-contractors as required).

5.4 EXTERNAL COMMUNICATIONS

5.4.1 REPORTING ENVIRONMENTAL PERFORMANCE TO CANADIAN SOLAR

Monthly environmental performance reports will be prepared by the Site HSE Manager and provided as part of project progress reporting to Canadian Solar.

Environmental incidents and emergencies will be reported to Canadian Solar in accordance with Section 6.

5.4.2 REPORTING ENVIRONMENTAL PERFORMANCE TO REGULATORY AUTHORITIES

There is no requirement for routine environmental performance reporting to regulatory authorities. Environmental incidents and emergencies will be reported to regulatory authorities in accordance with Section 6.

6. *ENVIRONMENTAL HAZARDS, INCIDENTS & EMERGENCIES*

6.1 CATEGORIES OF ENVIRONMENTAL HARM

There are three (3) categories of environmental harm for environmental incidents and emergencies under the *Environmental Protection Act 1994* (Table 9).

Table 9 Categories of environmental harm

Category	Definition	Internal reporting required?	External reporting required?
Nuisance	An unreasonable interference or likely interference with an environmental value caused by: ▪ Aerosols, fumes, light, noise, odour, particles or smoke; or ▪ An unhealthy, offensive or unsightly condition because of contamination; or ▪ Another way prescribed by regulation.	Yes	No
Material	Environmental harm that: ▪ Is not trivial or negligible in nature, extent or context; ▪ Causes actual or potential loss or damage to property of an amount of, or amounts totalling, $5K-$50K; or ▪ Results in costs of $5K-$50K for actions to prevent or minimise the harm and rehabilitate or restore the environment to its condition before the harm.	Yes	Yes
Serious	Environmental harm that: ▪ Is irreversible, or a high impact or widespread; ▪ Causes harm to an area of high conservation value or special significance; ▪ Causes actual or potential loss or damage to property of an amount of, or amounts totalling more than $50K; or ▪ Results in costs of more than $50K for actions to prevent or minimise the harm and rehabilitate or restore the environment to its condition before the harm.	Yes	Yes

6.2 HAZARDS AND INCIDENTS

All environmental hazards and incidents must be reported to the Site HSE Manager as soon as possible but no longer than 24 hours after becoming aware of the matter. If the Site HSE Manager isn't available the matter shall be reported to another member of the management team (either the Construction Manager or Project Manager). Refer to the following procedure for further details on hazard and incident management: *WHS-RCR-PRO-009 Management Communication & Reporting of Safety Incidents*.

All hazards and incidents shall be recorded by the Site HSE Manager in the RCRMS Safety Incident Recording system that is available via RCR's Intranet. Hard copy forms are also kept in the site office. All hazards and incidents shall be thoroughly investigated to identify root causes and the appropriate course of action taken to prevent a recurrence. Corrective actions are to be evaluated on the basis of the hierarchy of controls with the aim of elimination of the impacts identified. This CEMP may require review and amendment following identification of a hazard or incident.

If a hazard or incident causes or threatens material or serious environmental harm refer to Section 6.4 for external reporting requirements.

6.3 EMERGENCIES

Environmental emergencies at the site shall be managed in accordance with the OSF Project Emergency Response Plan and Procedures which are available on the RCR intranet and the site office. These are based on *ENV-RCR-PRO-009 Environmental Emergency Preparedness and Response Procedure* and have been tailored for the site and project.

All environmental emergencies must be reported to the Site HSE Manager as soon as possible but no longer than 24 hours after becoming aware of the matter. If the Site HSE Manager isn't available the matter shall be reported to another member of the management team (i.e. the Construction Manager or the Project Manager).

If an environmental emergency causes or threatens material or serious environmental harm refer to Section 6.4 for external reporting requirements.

6.4 EXTERNAL REPORTING OF MATERIAL OR SERIOUS ENVIRONMENTAL HARM

All persons have a duty to notify the Department of Environment and Heritage Protection (DEHP) of incidents or emergencies that cause or threaten material or serious environmental harm.

The Duty to Notify of Environmental Harm Guideline is provided at Appendix C. The standard written notification form to DEHP for material or serious environmental harm is provided at Appendix D. Further information regarding the Duty to Notify under Chapter 7 of the *Environmental Protection Act 1994* can be found on the DEHP website.

Environmental incidents or emergencies that cause or threaten material or serious environmental harm shall be reported to DEHP and Canadian Solar in accordance with Table 10. These requirements were determined from Chapter 7 part 1, Division 2 of the *Environmental Protection Act 1994* and Section 5.2.2 of *WHS-RCR-PRO-009 Management Communication & Reporting of Safety Incidents*.

Table 10 External party notification requirements for material or serious environmental harm

By	To	Within	Method
RCR employees or sub-contractors	A member of the management team (i.e. Site HSE Manager, Construction Manager or Project Manager).	24 hours of becoming aware of the matter.	Verbal or written.
	If the management team cannot be contacted, written notification must be made directly to DEHP.		Written.
Management Team	Project Manager and RCR Legal Department.	24 hours of becoming aware of the matter. *This 24 hour period starts as soon as the OSF Project Site Management Team are first notified.*	Verbal initially followed by written.
	If the Project Manager or RCR Legal Department cannot be contacted, written notification must be made directly to DEHP.		Written.
Project Manager	DEHP & Canadian Solar.		Written.

6.5 EXTERNAL REPORTING OF SPECIFIC MATTERS

External reporting requirements exist for specific matters and are outlined in the relevant ECPs. A summary is provided below (Table 11).

Table 11 External reporting of specific matters

Matter	Description	Responsible person	Timing
Invasive weeds	If invasive plants listed as Category 1 or 2 restricted matter at Schedule 2 of the *Biosecurity Act 2014* are identified these shall be reported to Biosecurity Queensland by calling 13 25 23.	Site HSE Manager	Within 24 hours of becoming aware of the matter. Follow the procedure provided in Table 10.
Aboriginal cultural heritage	If any items that are suspected of being of cultural heritage value are found, the find shall be reported to the Project Manager who will immediately inform Canadian Solar. A Canadian Solar representative shall inform representatives of the Traditional Owners as soon as practicable.	Site HSE Manager	Immediately in response to a find.
Human remains	If human remains are found (or suspected) the find shall be reported to the Oakey Police (07) 4691 1020.	Site HSE Manager	

6.6 KEY CONTACTS LIST

The following table provides a list of key internal and external contacts for environmental incidents and emergencies (Table 12).

Table 12 Key contacts for environmental incidents and emergencies

Contact Title	Name	Phone Number	Mobile Number
Internal – OSF Project Site Management Team and other RCR contacts			
Project Manager	Chris Eccles		0488 262 129
Construction Manager	TBA		
Site HSE Manager	TBA		
RCR Head Office	Sydney Office	02 8143 3009	
RCR Legal Department	TBA		
External - Contacts for notification of serious or material environmental harm or other matters			
Dept. of Environment and Heritage Protection (refer to Duty to Notify Form at Appendix D for further contact details)	DEHP Pollution Hotline	1300 130 372 (select option 2)	
Canadian Solar	TBA		
DEHP (protected plants)	DEHP wildlife	1300 130 372 (select option 1)	
Biosecurity Queensland (invasive weeds)	Biosecurity Queensland	13 25 23	
Oakey Police (human remains)	Oakey Police	(07) 4691 1020	
Other – General external contacts for assistance with environmental incidents or emergencies			
Emergency Services	-	000	000
Wildlife Welfare Carers (12 Hamlyn Rd, Oakey)	Sonya	(07) 4691 2675	0417 070 337
Oakey Veterinary Hospital	Dr David Pascoe	-	0418 790 792
Waste contractor	TBA		
Subcontractor representatives	TBA		

7. INSPECTIONS, MONITORING AND AUDITING

7.1 SITE INSPECTIONS

The Site HSE Manager shall undertake regular inspections of the site and work practices (Table 13).

Table 13 Site inspection schedule

Trigger	Frequency	Summary	Focus
Site works	Weekly	All of site inspection to review environmental management measures and work practices.	All ECPs.
Rainfall based	Prior to rainfall	Within 24 hours prior to expected rainfall.	Erosion and sediment controls, stormwater discharge points, waste storage areas and hazardous substance storage areas.
	After rainfall	Within 24 hours of a rainfall event that exceeds 10 mm in 24 hours.	

An environmental checklist that is specific to the OSFP is stored on the RCR intranet. This checklist was based on *ENV-RCR-CHK-001 Site Environmental Inspection Checklists*. Completed environmental inspection checklists shall be retained and managed in accordance with Section 9.

If any maintenance or deficiencies in environmental controls or in the standard of environmental performance are observed, they will be recorded on the checklist.

If inspections identify non-compliances with this CEMP, the matter will be reported by the Site HSE Manager as an incident and managed as per Section 6.

7.2 ENVIRONMENTAL MONITORING

Environmental monitoring requirements for the OSF Project are detailed in the ECPs. Environmental monitoring requirements were developed with reference to *ENV-RCR-PRO-011 Environmental Monitoring*, regulatory requirements, project specific approvals and permits and other supporting environmental management documents for the OSF Project.

Environmental monitoring shall be completed by suitably qualified and experienced persons in accordance with legislated standards and guidelines.

All equipment used for environmental monitoring shall be fit for purpose and maintained, operated and calibrated in accordance with the manufacturer's specifications. Where analysis of samples is required, samples shall be submitted to a NATA accredited laboratory.

Environmental monitoring records shall be retained and managed by the Site HSE Manager in accordance with Section 9.

If monitoring results suggest non-compliance with applicable limits or thresholds, the matter will be reported by the Site HSE Manager as an incident and managed as per Section 6.

7.3 COMPLIANCE AUDITING

Monthly audits shall be undertaken by an external auditor to assess RCR's compliance with this CEMP, legal obligations and project specific approvals and permits.

A compliance report shall be prepared by the external auditor and provided to the OSF Site HSE Manager within 10 business days of each audit. Audit reports shall be retained and managed by the Site HSE Manager in accordance with Section 9.

Non-compliances that are observed by the auditor shall be risk assessed to determine their significance and assist with identifying appropriate corrective actions and close-out timeframes. The Site HSE Manager shall record and manage non-compliances as incidents in accordance with Section 6.

7.4 NON-CONFORMANCE & CORRECTIVE ACTIONS

A non-conformance is defined as failure to comply with the requirements of this CEMP and supporting documentation (refer to Section 3), regulatory requirements and conditions of approvals and permits. Non-conformances may be identified through monitoring, inspections, audits and incident investigations.

Non-conforming activities shall be stopped by the Site HSE Manager or Senior Project Engineers following consultation with the Construction Manager or their delegate. The activity will not recommence until an appropriate corrective action has been implemented.

For each identified non-conformance a corrective action must be identified and implemented. Corrective actions will be entered into the Corrective Action Register (CAR) located on the intranet. The CAR will include details of the issue, action required, timing and responsibilities. The record will be updated with date of close out and any necessary notes. The database will be reviewed monthly Site HSE Manager to ensure actions are closed out as required.

8. *REVIEW AND IMPROVEMENT*

Environmental management reviews will be undertaken quarterly as part of the continual improvement process. Reviews may also occur in addition to the quarterly reviews in response to matters that affect environmental management, for example, incidents, emergencies, changes in site conditions, legislation amendments etc.

The reviews will be initiated by the Site HSE Manager and will include the Project Manager, Construction Manager and Senior Project Engineers. The reviews may be run in conjunction with wider project team meetings. The reviews will consider:

- The general progress of work and the level of overall environmental risk;
- Aspects, impacts and risk register for the project;
- Progress against performance targets;
- Monitoring, inspection and audit results for the past quarter;
- Recent and relevant incidents and any lessons learnt;
- Management of complaints;
- Feedback from Canadian Solar or regulatory authorities;
- Tabling of any new legal or other obligations;
- The effectiveness of environmental controls, including erosion and sediment controls; and
- Adequacy of resources for environmental management.

Findings, actions and their responsible parties shall be minuted. Meeting minutes shall be managed in accordance with Section 9.

9. *DOCUMENTATION*

9.1 ENVIRONMENTAL RECORDS

The Site HSE Manager shall be responsible for managing environmental records for the OSFP in accordance with legislative requirements (Section 3.2), project specific environmental approvals and permits (Section 3.3) and RCR's environmental management system and quality system requirements (Section 0). All environmental records shall be stored on the networked intranet.

All environmental records shall be made available upon request by Canadian Solar, regulatory authorities or the external auditor. At the completion of the contract copies of all relevant environmental records shall be provided to Canadian Solar.

All environmental records shall be retained by RCR for no less than 5 years.

9.2 DOCUMENT CONTROL

Only the approved and current version of each document is to be issued in every day applications during the life of the project. Current issues of documents shall be readily available for reference within the networked intranet, with superseded documents removed from the main folder in the system and isolated in a 'superseded' document folder.

10. *APPENDICES*

10.1 APPENDIX A - ENVIRONMENTAL CONTROL PLANS

10.1.1 ECP 1 - SOIL AND WATER MANAGEMENT

ECP 1 –Soil and Water Management		
Aspect		
Construction activities have the potential to impact soil and water quality.		
Objective		
To minimise the risk of adverse impacts to soil or water resources.		
Management Strategies		
The key risks to soil and water in a construction setting include: ▪ Erosion (loss of soil resource) and sedimentation (reduction in water quality and stream/ecological function, smothering of plants); ▪ Incorrect management and revegetation of soils during civil works; ▪ Soil and water (surface water, stormwater and groundwater) contamination from waste management, use of chemicals (namely fuel) and plant and equipment maintenance (oil spills and leaks); and ▪ Over use of water resources for dust management and construction activities. Preventive management strategies are proposed to minimise the impact of the project on soil and water resources.		
Key References		
▪ Oakey Solar Farm Erosion and Sediment Control Plan ▪ Oakey Solar Photovoltaic Project – Conceptual Stormwater Management Plan (Worley Parsons, 2014) ▪ Civil Installation Specification ▪ A300 – Civil Engineering and Construction Requirements (Canadian Solar, 2016) ▪ TRC Development Permit MCUI/2014/3744/A.		
Management Actions	**Responsibility**	**Timing**
Training		
Soil and water management awareness training provided in site induction.	Site HSE Manager	Induction.
Erosion and Sediment Control		
Erosion and sediment control shall be managed in accordance with the Oakey Solar Farm Erosion and Sediment Control Plan (ESCP). It will outline: ▪ Erosion, sediment and drainage control measures; ▪ Soil management; and ▪ Water quality management and monitoring. The ESCP shall be prepared in accordance with Best Practice Erosion and Sediment Control (Aust IECA 2008), TRC Development Permit MCUI/2014/3744/A. and A300 – Civil Engineering and Construction Requirements.	Senior Project Engineers	Prior to the start of works. Temporary controls shall remain in place until permanent controls are in place and functioning correctly.
Soil Management and Revegetation of Disturbed Areas		
Soils and revegetation shall be managed in accordance with Civil Installation Specifications for the substation and PV plant.	Senior Project Engineers	At all times during earthworks.
Soil and Water Contamination Prevention and Management		
Liquid and solid wastes shall be managed in accordance with ECP 5 - Liquid and Solid Waste Management to minimise the risk of soil or water contamination.	Site HSE Manager	At all times.
Hazardous substances (including fuel) shall be used and managed in accordance with ECP 7 – Hazardous Substance Use and Management to minimise the risk of soil or water contamination.	Site HSE Manager	At all times.
Plant and equipment maintenance shall be undertaken in accordance with ECP 8 – Vehicle, Plant and Equipment Management to minimise the risk of soil or water contamination.	Sub-contractors	At all times.
Soil and water contamination from emergency situations shall be minimised by implementing ECP 9 – Environmental Emergency Preparedness and Management.	Site HSE Manager	At all times.

ECP 1 –Soil and Water Management		
If soil or water contamination is encountered at the site or occurs during construction, it shall be investigated and managed by a Suitably Qualified Person in accordance with the *Environmental Protection Act 1994, National Environmental Protection (Assessment of Site Contamination) Measure 1999* and the *Monitoring and Sampling Manual 2009*.	Site HSE Manager	As required.
Use of Water Resources		
Preference will be given to the use of non-potable water supplies for dust suppression and construction activities where economically and practically feasible.	Site HSE Manager	During construction planning.
Road watering shall only be undertaken when necessary to control dust emissions.	Site Supervisors	As required.
Water use for construction purposes, such as concreting and sub-grade compaction, shall be minimised as far as practicable.	Site Supervisors	At all times.
Monitoring	**Responsibility**	**Timing**
Weekly and rainfall based site inspections shall assess site practices in relation to soil and water management.	Site HSE Manager	Weekly and rainfall based (24 hrs prior to forecast rainfall and within 24 hrs following rainfall events of more than 10 mm in 24 hours).
Monthly audits will review soil and water management practices.	External auditor	Monthly.
Water quality monitoring shall be undertaken in accordance with the ESCP.	Site HSE Manager	As per the ESCP.
If soil or water quality testing is required it shall be undertaken by Suitably Qualified Persons in accordance with *National Environmental Protection (Assessment of Site Contamination) Measure 1999* and the *Monitoring and Sampling Manual 2009*.	Site HSE Manager	As required.
Reporting	**Responsibility**	**Timing**
Near misses or non-compliances for soil and water management shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required
Damage to or maintenance required by ESC measures shall be reported to the Site HSE Manager.	All personnel	Within 24 hours.
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.1.2 ECP 2 - FLORA AND FAUNA MANAGEMENT

ECP 2 –Flora and Fauna Management		
Aspect		
Harm to local flora and fauna from construction activities.		
Objective		
To ensure that construction works are completed in accordance with project approvals to minimise negative impacts on local flora and fauna.		
Management Strategies		
The construction of the OSF Project will not have a significant on the ecological values of the area if the works are carefully managed, executed and monitored. The flora and fauna management strategy will be to implement best practice construction site management measures that satisfy legislative obligations and the conditions of project approvals/permits.		
Key References		
▪ A300 – Civil Engineering and Construction Requirements (Canadian Solar, 2016) ▪ TRC Development Permit MCUI/2014/3744/A.		
Important Information		
▪ Clearing of vegetation within the extent of the project footprint has been approved. ▪ There are no wetlands, watercourses or essential habitat at the site. ▪ The site is not mapped within a high risk area for protected plants. ▪ No threatened flora or fauna occur at the site. ▪ Further investigation into the environmentally sensitive area at and near the site including High Risk Area for protected plants and is required prior to finalisation of this ECP.		
Management Actions	**Responsibility**	**Timing**
Pre-Clearing Planning		
The site boundary shall clearly marked in the field prior to the commencement of construction works.	Construction Manager	Prior to start of works.
Works shall not be undertaken outside the limits of the approved plans of development.	Construction Manager	At all times.
No unauthorised entry or works by personnel, vehicles, plant or equipment to any area outside the project footprint.	All personnel	At all times.
No stockpiling or storage of any materials, equipment or chemicals outside the project footprint.	All personnel	At all times
Canadian Solar shall be notified prior to the commencement of site clearing, demolition work, grubbing and stripping.	Site HSE Manager	24 hours prior to start of clearing.
During Clearing		
A licensed fauna spotter-catcher shall be present for the duration of all vegetation clearing works. A licensed wildlife spotter/catcher is a person or company holding a current Rehabilitation Permit issued by the Department of Environment and Heritage Protection under the *Nature Conservation (Administration) Regulation 2006.*	Site HSE Manager	Duration of all clearing works.
The fauna clearance process shall be: ▪ Desktop analysis and pre-clearance survey of work areas prior to clearing. ▪ Significant habitat features, hollow bearing trees or trees with fauna shall be flagged but not cleared. If Koala are present, trees with crowns overlapping a tree in which Koala are present shall also be flagged and cleared. ▪ Vegetation surrounding flagged habitat features/trees shall be cleared. ▪ The flagged features/trees shall be cleared no less than 24 hours later and only after inspection and approval by the spotter-catcher. ▪ Fauna or nests that require relocation shall be undertaken by the spotter-catcher. ▪ If eggs, young or injured wildfire are found these shall be provided to an authorised wildlife carer.	Spotter-catcher and Site Engineers	Duration of all clearing works.

ECP 2 –Flora and Fauna Management		
During vegetation clearing trees shall be felled into cleared areas to minimise disturbance to any retained vegetation.	Clearing sub-contractor	At all times.
General		
Implement a site speed limit of 40 km/hr and additional caution shall be exercised at dawn and dusk and when animals may be more active.	Construction Manager	At all times.
No animals, including snakes, shall be deliberately killed or otherwise harmed.	All personnel	At all times.
Fauna observed on site shall be allowed to move on at their own accord. There shall be no touching, interfering with or feeding fauna.	All personnel	At all times.
Fauna that are injured during non-clearing works (assuming the spotter-catcher is not present) shall be referred to: ▪ Wildlife Welfare Carers – 0417 070 337; or ▪ Oakey Veterinary Hospital – 0418 790 792	Site HSE Manager	As required.
Monitoring	**Responsibility**	**Timing**
Weekly site inspections shall include inspection of flora and fauna management measures.	Site HSE Manager	Weekly.
Monthly audits will review flora and fauna management measures.	External auditor	Monthly.
Reporting	**Responsibility**	**Timing**
Near misses or non-compliances shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.1.3 ECP 3 -WEED MANAGEMENT

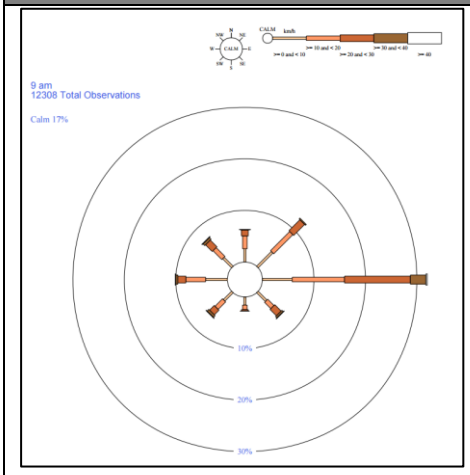
ECP 3 –Weed Management		
Aspect		
Vehicles, plant, equipment and materials required for construction may introduce invasive weeds to the site.		
Objective		
To prevent the introduction and spread of invasive weeds to the site.		
Management Strategies		
All reasonable and practicable measures shall be taken to prevent the introduction and spread of invasive weeds at the site.		
Key References		
▪ DAF's 2014 Vehicle and Machinery Checklist – Clean Down Procedures ▪ 33kV Grid Connection to Oakey Substation – Preliminary Biodiversity Assessment (ERM, 2014). ▪ A300 – Civil Engineering and Construction Requirements (Canadian Solar, 2016) ▪ TRC Development Permit MCUI/2014/3744/A. ▪ *Biosecurity Act 2014*		
Management Actions	**Responsibility**	**Timing**
All personnel shall receive weed hygiene awareness training as part of the site induction.	Site HSE Manager	Induction.
All vehicles, machinery and plant shall be inspected and certified as clean by a competent and trained person (refer to DAF 2014 for competency and training requirements) prior to first entry to the site. If wash down is required this shall be undertaken by a competent and trained person in accordance with DAF (2014) Vehicle and Machinery Checklist – Clean Down Procedures. The certification shall remain valid as long as the vehicle/equipment: ▪ Does not travel off sealed roads and well-maintained unsealed roads. ▪ Does not come into direct contact with invasive plants that are listed as Restricted Matter. ▪ Does not operate after coming into direct contact with invasive plants that are listed as Restricted Matter. ▪ If operating off road stays within the designated work area and does not cross a property boundary or other designated boundary.	Site HSE Manager	Prior to first entry to site. To be repeated of
A Weed Hygiene Declaration shall be provided by the supplier for all organic materials (etc. soil, sand, mulch, gravel, road base, seed etc.) brought to site.	Site Engineers	At the time of delivery.
All green waste from vegetation clearing and excess soil shall be retained on site.	Site Engineers	At all times.
Only registered herbicides shall be used by a licensed weed sprayer in accordance with the *Agricultural Chemicals Distribution Control Act 1966.*	Site HSE Manager	As required.
Monitoring	**Responsibility**	**Timing**
Two (2) random checks of vehicles, plant and equipment per week to confirm they have a current weed hygiene certificate.	Site Engineers	Weekly
Weekly site inspections shall include identifying evidence of significant infestations of invasive plants.	Site HSE Manager	Weekly.
Monthly audits will review flora and fauna management measures.	External auditor.	Monthly.
Reporting	**Responsibility**	**Timing**
Near misses or non-compliances shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required.
Copies of all weed hygiene certifications and declarations shall be kept in the site office, on the intranet and with the vehicle/plant/equipment.	Site HSE Manager and drivers and operators	At all times.
If invasive plants listed as Category 1 or 2 restricted matter at Schedule 2 of the *Biosecurity Act 2014* are identified these shall be reported to	Site HSE Manager	Within 24 hours of

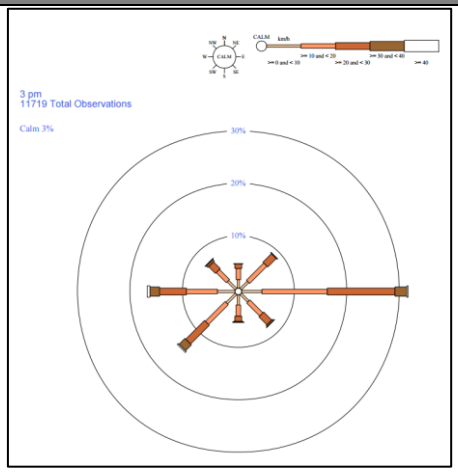
ECP 3 –Weed Management		
Biosecurity Queensland by calling 13 25 23. Refer to the external notification procedure at Section 6 of the CEMP.		becoming aware of the restricted matter.
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.1.4 ECP 4 –DUST, NOISE, VIBRATION & LIGHT MANAGEMENT

ECP 4 –Dust, Noise, Vibration & Light Management
Aspect
Production and release of dust, noise, vibration and light during construction.
Objective
To prevent the release of dust, noise, vibration and light from the site that causes nuisance at sensitive receptors.
Management Strategies
There is a potential risk of amenity impacts from the site due to the distances (<1 km) between the site and sensitive receptors. Standard construction site control measures shall be implemented as required to minimise amenity impacts at sensitive receptors. 
Key References
▪ RCR Environmental Work Procedure ENV-RCR-PRO-019 Noise and Vibration Management ▪ Longreach Solar Farm Erosion and Sediment Control Plan ▪ Longreach Solar Farm Traffic Management Plan ▪ TRC Development Permit MCUI/2014/3744/A. ▪ *Environment Protection (Noise) Policy 2008.*
Important Information
Annual 9 am and 3 pm wind roses for the closest weather station (Oakey Aero) to the site are below to assist with dust emission management.

ECP 4 –Dust, Noise, Vibration & Light Management

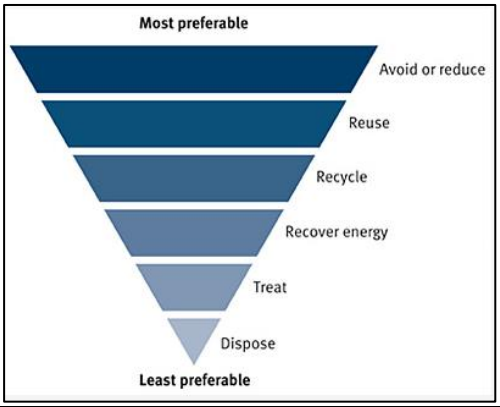




Management Actions	Responsibility	Timing
Dust, noise, vibration and light management awareness training shall be provided as part of the site induction.	Site HSE Manager	Induction.
Working hours are 6.00 am to 6.00 pm Monday to Saturday. There shall be no audible noise from the site at sensitive receptors outside the hours of 6.30 am to 6.30 pm on working days. Subject to workload and specific site activities out of hours works and works on Sundays or Public Holidays may be required and is subject to approveal by Toowoomba Regional Council.	Construction Manager	At all times.
No unnecessary use of horns or other audible signals on mobile plant or equipment.	All personnel	At all times.
No unnecessary revving or idling of engines on mobile and stationary machines and shut down any equipment not in use.		
Use silenced generators.	Site Engineers	At all times.
Maintain all vehicles, plant and equipment to reduce the potential for noise emissions.	Sub-contractors	As per manufacturer specifications.
Ensure trucks, trailers and loads are secured to minimise rattling and other noise emissions when on public roads.	Drivers and operators	At all times.
Vibration grids at all exit points to remove loose dirt from vehicles.	Senior Project Engineer	At all times.
Remove any material spilled or tracked onto public roads immediately.	Site Supervisors	As required.
Implement a site speed limit of 40 km/hr.	Construction Manager	At all times.
Cover loads of organic materials (soil, gravel, sand, mulch) in trucks and trailers travelling on public roads to and from the site.	Sub-contractors and operators	At all times.
Suppress dust emissions from road surfaces using water, chemical stabilisers/suppressants or gravel.	Site Supervisors	As required.
Maintain treated and/or gravel covered laydown and trafficable ground surfaces.	Site Engineers	At all times.
If lighting is required during construction it must be designed, sited and installed to comply with AS4282 – 1997 Control of the obtrusive effects of outdoor lighting (using control level 1).	Site Supervisors	As required.
Monitoring	**Responsibility**	**Timing**
▪ Noise monitoring shall be undertaken by a Suitably Qualified Person in accordance with the *Noise Measurement Manual* (DEHP, 2013) and *AS1055.1-1997 Acoustics - Description and measurement of environmental noise - General procedures*. ▪ Noise at the site must not exceed the Acoustic Quality Objectives listed in the EPP (Noise) 2008 when measured at any sensitive or commercial place.	SQP & Site HSE Manager	Monitoring shall be conducted if a written request is made by TRC to investigate

ECP 4 –Dust, Noise, Vibration & Light Management		
▪ Dust monitoring shall be undertaken by a Suitably Qualified Person in accordance with the *Air Quality Sampling Manual* (QLD EPA, 1997) and *AS/NZS 3580.10.1:2003 Methods for sampling and analysis of ambient air: Method 10.1 Determination of particulate matter - Deposited matter - Gravimetric method.* ▪ Dust deposition shall not exceed levels 133 mg/m^2/day (over 1 month) when measured at any sensitive or commercial place.		a complaint of nuisance.
Weekly site inspections shall include inspection of noise, dust, vibration and light controls.	Site HSE Manager	Weekly
Monthly audits will review dust, noise, vibration and light management measures.	External auditor.	Monthly.
Reporting	**Responsibility**	**Timing**
Records documenting the maintenance inspections and application history details of dust suppressant treatments must be kept and maintained onsite.	Site HSE Manager	As required
Monitoring results shall be provided to Toowoomba Regional Council within 14 business days of the completion of monitoring.	Site HSE Manager	As required
Near misses or non-compliances shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.1.5 ECP 5 - LIQUID AND SOLID WASTE MANAGEMENT

ECP 5 – Liquid and Solid Waste Management
Aspect
Management of solid and liquid wastes generated by construction of the OSF Project.
Objective
To minimise environmental harm by managing all wastes correctly and minimising waste disposal where practicable.
Management Strategies
Wastes from the project and potential management strategies are below. The management strategies will be confirmed once expected waste volumes are better understood and following consultation with the selected waste contractor to determine the most feasible waste management options available to the project: ▪ Wastewater from amenities – offsite disposal at licensed waste facility by a regulated waste contractor. ▪ General wastes from crib rooms and site office – offsite disposal at licensed waste facility by a waste contractor. ▪ Recyclable wastes from crib rooms and site office – removal for recycling at licensed waste facility by a waste contractor. ▪ Copper and aluminium cable offcuts - removal for recycling at licensed waste facility by a waste contractor. ▪ Plastic wrapping material on PV module boxes - offsite disposal at licensed waste facility by a waste contractor. ▪ Timber and cardboard - removal for recycling or disposal at licensed waste facility by a waste contractor. ▪ Green waste from vegetation clearing – mulch and reuse on-site for erosion control. ▪ Concrete wash out wastes – contain in a dedicated wash out area, evaporate water and remove hardened waste to a licensed waste facility for crushing and reuse. ▪ Waste oil– minor quantities (< 250 kg) shall be removed from site by sub-contractors to a licensed waste facility for recycling. ▪ Excess batched concrete - returned to batching plant or hardened on site and removed by a waste contractor to a licensed waste facility for crushing and reuse.
Key References
▪ RCR Environmental Work Procedure ENV-RCR-PRO-015 Waste Management ▪ Transport NSW Concrete Washout Guideline ▪ *Waste Reduction and Recycling Act 2011*
Important Information
The waste management hierarchy from the *Waste Reduction and Recycling Act 2011* is below. 

Management Actions	Responsibility	Timing
The site shall be kept in a clean and tidy state at all times.	Site HSE Manager	At all times.
All personnel shall receive waste management awareness training as part of the site induction.	Site HSE Manager	Induction.
Wastes shall be segregated correctly.	All personnel	At all times.
General waste and recycling bins (with lids) shall be provided at the crib rooms and site office.	Site Engineers	At all times.

ECP 5 – Liquid and Solid Waste Management		
Wastes shall not be stored within 30 m of drainage features or other water bodies.	Site Engineers	At all times.
Wastes shall not be stored within the road reserve.	Site Engineers	At all times.
Waste shall not be used as fill or buried on-site.	Site Engineers	At all times.
Fires shall not be lit/used to dispose of waste, including green waste from vegetation clearing.	Site Engineers	At all times.
Covered bins/skips shall be provided for general wastes (to prevent windblown litter or access by birds/vermin) and cardboard wastes (to prevent windblown litter and rainfall ingress).	Site Engineers	At all times.
Wastes shall only be transported by appropriately licensed waste transporters to licensed waste facilities.	Site Engineers	As required.
Waste oil (in quantities less than 250 kg) shall be removed from site for recycling. Waste oil shall not be stored on site.	Sub-contractors	Daily.
Green waste from vegetation clearing shall be mulched and reused on site.	Site Engineers	As required.
Excess batched concrete shall be returned to the batching plant or hardened on site then removed for recycling. If hardening on site is adopted a waste concrete hardening pit shall be excavated or a lined skip used. The pit/skip shall be clearly signed. A hardening pit shall be bunded to exclude overland flow. The hardening skip/pit shall be located within the project footprint. Concrete wash out wastes or other wastes shall not be disposed of in the waste concrete hardening pit/skip.	Site Engineers	As required.
Concrete wash out wastes shall be contained in an impervious plastic lined pit or skip. The pit/skip shall be clearly signed. The pit shall be bunded to exclude overland flow. The pit/skip shall be located within the project footprint. Water shall be allowed to evaporate. If dewatering is required this shall be undertaken by a regulated waste contractor. Excess batched concrete or other wastes shall not be disposed of in the concrete wash out waste pit/skip.	Site Engineers	As required.
All waste shall be removed from site at the completion of works.	Construction Manager	Prior to demobilisation.
Monitoring	**Responsibility**	**Timing**
Weekly site inspections shall include assessment of waste management practices.	Site HSE Manager	Weekly
Monthly audits will review waste management practices.	External auditor	Monthly.
Reporting	**Responsibility**	**Timing**
Near misses or non-compliances shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required
All waste tracking forms and waste disposal receipts shall be managed in accordance with Section 9 of the CEMP.	Site HSE Manager	Duration of project
Records of all wastes generated shall be retained and the quantities and management strategy reported in the monthly environmental report.	Site HSE Manager	Monthly
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.1.6 ECP 6 - CULTURAL HERITAGE MANAGEMENT

ECP 6 – Cultural Heritage Management		
Aspect		
Construction works near or within areas of cultural heritage value.		
Objective		
No unauthorised harm to areas or items of cultural heritage value at the site.		
Management strategies		
Responsive management measures will be implemented to protect unexpected finds at the site with cultural heritage value in accordance with agreed recommendations provided by Canadian Solar.		
Key References		
▪ RCR Environmental Work Procedure ENV-RCR-PRO-013 Heritage and Cultural Conservation Management ▪ DATSIP's Cultural Heritage Duty of Care Guidelines ▪ DATSIP's Guideline for the Discovery, Handling and Management of Human Remains		
Cultural Heritage Values		
▪ There is no Aboriginal cultural heritage recorded at the site on the Cultural Heritage Database and Register. However, the absence of recorded Aboriginal cultural heritage places does not necessarily mean that there are no cultural heritage values in the area.		
Mitigation Strategy / Action	**Responsibility**	**Timing**
Cultural heritage awareness training provided to all personnel in the site induction.	Site HSE Manager	Duration of project
Undertake all works with a cultural heritage duty of care.	All personnel	At all times
If any items (e.g. hearths/fireplaces or artefacts) that are suspected of being of cultural heritage value are found: ▪ Immediately cease all works within 100 m of the find; ▪ Barricade the find with star pickets and barrier mesh to prevent any further entry or disturbance; ▪ Photograph the find and GPS the location; ▪ Immediately notify Canadian Solar. ▪ Canadian Solar will arrange clearance to be undertaken by suitable qualified personnel and/or representatives from the Western Wakka Wakka People. ▪ Work can only recommence within the barricaded area when the site has been cleared and approval has been given by the appropriate persons/group.	Site HSE Manager	Immediately in response to a find.
If human remains are found: ▪ Immediately cease all works on site; and ▪ Contact the Oakey Police (07) 4691 1020	Site HSE Manager	Immediately in response to a find.
Monitoring	**Responsibility**	**Timing**
Weekly site inspections shall include inspection of cultural heritage management measures.	Site HSE Manager	Weekly.
Monthly audits will review cultural heritage management measures.	External auditor	Monthly.
Reporting	**Responsibility**	**Timing**
Near misses or non-compliances shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required
If any items that are suspected of being of cultural heritage value are found the find shall be reported to Canadian Solar.	Site HSE Manager	Immediately in response to a find.
If human remains are found (or suspected) the find shall be reported to the Oakey Police (07) 4691 1020		
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.1.7 ECP 7 – HAZARDOUS SUBSTANCE USE AND MANAGEMENT

ECP 7 Hazardous Substance Use and Management
Aspect

ECP 7 Hazardous Substance Use and Management		
Storage, handling, use and disposal of hazardous substances during construction.		
Objective		
To minimise the risk of environmental contamination or harm by correctly storing, handling, using and disposing of hazardous substances.		
Management Strategies		
Petroleum hydrocarbons include fuel (diesel and petrol), oils, lubricants and fluids. They are often both dangerous goods and hazardous substances and commonly used on construction sites. Only minor quantities of hazardous substances, other than petroleum hydrocarbons, are likely to be required for use during construction. Hazardous substances shall be stored, handled, used and disposed of in accordance with Safety Data Sheets (SDS), manufacturer recommendations and applicable regulatory requirements.		
Key References		
▪ AS1940-2004 The Storage and Handling of Flammable and Combustible Liquids ▪ Workplace Health and Safety Queensland's Managing Risks of Hazardous Chemicals in the Workplace – Code of Practice 2013 ▪ RCR Environmental Work Procedure ENV-RCR-PRO-018 Spill Response and Clean-up		
Management Actions	**Responsibility**	**Frequency**
Hazardous substances awareness training shall be provided to all personnel as part of the site induction. This shall include a component on spill response and clean-up.	Site HSE Manager	Induction
A SDS shall be kept in the site office and on the intranet for all hazardous substances at the site.	Site HSE Manager	At all times
A register of hazardous substances shall be kept in the site office and on the intranet. This shall also include a hazardous substance risk assessment.	Site HSE Manager	At all times
All hazardous substances shall be stored, handled, used and disposed in accordance with the SDS, manufacturer recommendations and applicable regulatory requirements.	All personnel	At all times
Hazardous substances shall be stored: ▪ In bunds that are adequately ventilated and protected from rainfall and stormwater. ▪ Within the project footprint. ▪ With appropriate segregation from incompatible materials. ▪ With no combustible vegetation or refuse within 3 m of the storage area. ▪ Not within 30 m of any drainage features or other water bodies.	Site Engineers	At all times
Appropriate fire extinguishers shall be provided on site for flammable and combustible chemicals.	Site HSE Manager	At all times
Appropriate spill kits for the type and quantity of chemicals shall be provided and maintained wherever chemicals are stored and used.	Site HSE Manager	At all times
No onsite disposal of chemical wastes.	All personnel	At all times
Spills shall be cleaned up immediately in accordance with Environmental Work Procedure ENV-RCR-PRO-018 Spill Response and Clean-up.	All personnel	As required
Only registered herbicides shall be used by a licensed weed sprayer in accordance with the *Agricultural Chemicals Distribution Control Act 1966.*	Site HSE Manager	As required
Monitoring	**Responsibility**	**Frequency**
Weekly site inspections shall include inspection of hazardous substance management measures.	Site HSE Manager	Weekly.
Monthly audits will review hazardous substance management measures.	External auditor	Monthly.
Reporting	**Responsibility**	**Frequency**
Near misses or non-compliances shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.1.8 ECP 8 – VEHICLE, PLANT AND EQUIPMENT MANAGEMENT

ECP 8 – Vehicle, Plant and Equipment Management		
Aspect		
Operation of vehicles, plant and equipment at the site has the potential to adversely impact the environment.		
Objective		
To ensure vehicles, plant and equipment are operated and maintained with minimal environmental impact at the site.		
Management strategies		
Proactive management strategies to reduce the impacts of vehicles, plant and equipment include daily pre-start checks, routine maintenance, covering loads of organic material on road going trucks, and implementation of weed hygiene measures.		
Management Actions	**Responsibility**	**Timing**
Vehicles, plant or equipment shall not operate or park outside of the project footprint unless they are authorised to do so by the Site HSE Manager.	Site HSE Manager	At all times
Vehicles, plant and equipment shall keep to operating in designated work areas and access tracks.	All personnel	At all times
Daily pre-start checks shall be completed on all plant and equipment.	Operators	Daily
Plant and equipment shall be maintained in accordance with the manufacturer's recommendations.	Sub-contractors	As required
Only minor maintenance and repair works to plant and equipment shall be undertaken at a dedicated location on site (located on a hardstand laydown area). In field repairs shall only occur if the item cannot be moved under its own power. Major servicing or repairs shall be performed at an offsite workshop.	Site Supervisor's	As required
Spill kits and drip trays shall be used during minor works to plant and equipment.	All personnel	As required
Waste oil, filters, oily rags and other wastes shall be stored in the field service vehicle and removed from site for recycling where appropriate or disposal.	Service Technicians	By the end of the day
The following actions apply to refuelling plant and equipment on site: ▪ Equipment with limited mobility will be moved to the end of array areas for refuelling with a mobile fuel tanker (or equivalent). ▪ Equipment that cannot be moved (e.g. generators) will be refuelled in place by a mobile fuel tanker or jerry cans. ▪ Funnels, extended nozzles or quick release nozzles shall be used to minimise fuel spillage when fuelling equipment. ▪ Drip trays be used when refuelling plant and machinery. ▪ A spill kit and fire extinguisher shall be carried by the refuelling vehicle. ▪ No refuelling within 30 m of drainage features or other water bodies.	Site Supervisors and refuelling personnel	At all times
No unnecessary revving or idling of engines on mobile and stationary machines and shut down any equipment not in use.	All personnel	At all times
All vehicles, machinery and plant shall be inspected and certified as clean by a competent and trained person prior to first entry to the site. Refer to ECP 3 – Weed Control for detail of full requirements.	Site HSE Manager	Prior to entry to site
Ensure trucks, trailers and loads are secured to minimise rattling and other noise emissions when on public roads.	Drivers and operators	At all times.
Cover loads of organic materials (soil, gravel, sand, mulch) in trucks and trailers travelling on public roads to and from the site.	Drivers and operators	At all times.
Monitoring	**Responsibility**	**Timing**
Daily pre-start checks will monitor plant and equipment condition.	Operators	Daily
Two (2) random checks of vehicles, plant and equipment per week to confirm they have a current daily pre-start.	Site Engineers	Weekly
Vehicle, plant and equipment management shall be monitored as part of weekly site inspections	Site HSE Manager	Weekly

ECP 8 – Vehicle, Plant and Equipment Management		
Monthly audits will review vehicle, plant and equipment management measures.	External auditor	Monthly.
Reporting	**Responsibility**	**Timing**
Copies of weed hygiene certifications shall be kept with all vehicle/plant/equipment.	Operators/drivers	At all times
Daily pre-start forms shall be kept with the plant/machinery.	Operators	At all times
Service records shall be retained and made available upon request.	Sub-contractors	At all times
Near misses or non-compliances shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.1.9 ECP 9 – ENVIRONMENTAL EMERGENCY PREPAREDNESS & MANAGEMENT

ECP 9 – Environmental Emergency Preparedness and Management		
Aspect		
Environmental emergencies at the site may cause harm to people and the natural and built environment.		
Objective		
To minimise the potential for environmental emergencies and be able to respond effectively in the event of an environmental emergency.		
Management Strategies		
Environmental emergencies that that could reasonably be expected to occur at the site during the course of works are a major chemical spill (most probably diesel), localised flooding from heavy rainfall/storms and bushfire. The key management strategies are risk reduction through site preparation and effective emergency response procedures.		
Key References		
▪ OSF Project Emergency Response Plan and Procedures ▪ RCR Environmental Work Procedure ENV-RCR-PRO-018 Spill Response and Clean-up		
Important Information		
The site is not mapped in a flood hazard area. The area is subject to storms (short intense rainfall and lightning) in summer months, this may lead to localised short term flooding. The site and surrounding land is not mapped as a Bushfire Hazard area.		
Management Actions	**Responsibility**	**Timing**
Spills		
All personnel shall receive emergency response awareness training as part of the site induction. This shall include spill clean-up and fire extinguisher use.	Site HSE Manager	Duration of project
Hazardous substances shall be managed in accordance with ECP 7 – Hazardous Substance Use and Management.	All personnel	At all times
Refuelling and servicing of plant and equipment shall be managed in accordance with ECP 8 – Vehicle, Plant and Equipment Management.	Site Supervisors and refuelling personnel	At all times
Appropriate spill kits for the type and quantity of chemicals shall be provided and maintained wherever chemicals are stored and used.	Site HSE Manager	At all times
Immediately cease any hot works within 50 m of a spill and evacuate all personnel from the area.	Site Supervisor	Immediately after spill
Spills shall be cleaned up immediately in accordance with Environmental Work Procedure ENV-RCR-PRO-018 Spill Response and Clean-up.	All personnel	Immediately after spill if safe
Soil or water that is contaminated by an emergency shall be managed in accordance with ECP 1 – Soil and Water Management.	Site HSE Manager	As required
Heavy Rain, Storms and Flooding		
If heavy rainfall or flooding is forecast, the site shall be prepared by: ▪ Relocating any mobile plant or equipment to higher parts of the site; ▪ Removing potential contaminants such as wastes or chemicals from site or ensuring that potential contaminants are protected from rainfall or stormwater flows; ▪ Securing loose equipment and materials, ensure bin covers are secure; and ▪ Ensuring all erosion and sediment control measures have been maintained and are in place.	Site HSE Manager	Prior to the event
Bushfire		
Fire extinguishers shall be provided at the site office, crib rooms, fuel/chemical storage areas, refuelling trucks, field service trucks and in all vehicles at a minimum.	Site HSE Manager	At all times
No burning of green waste or other wastes on site.	All personnel	At all times
Fire controls will be included in JHAs and SWMS for any hot works. Planning for hot works shall consider forecast weather, fire hazard ratings and site conditions with respect to fire risk.	Site Engineers	Daily when undertaking hot works.

ECP 9 – Environmental Emergency Preparedness and Management		
Smoking shall only be allowed in designated smoking areas. Cigarette bins shall be provided at designated smoking areas.	Site HSE Manager	At all times
Monitoring	**Responsibility**	**Timing**
Monitoring of forecast weather and fire hazard ratings provided by Bureau of Meteorology.	Site HSE Manager	Daily
Routine site inspections shall determine if hazards are present at the site that could cause an environmental emergency.	Site HSE Manager	Weekly
A rain gauge shall be established at the site for daily rainfall monitoring. Rainfall shall be recorded in a site rainfall log.	Site HSE Manager	Daily
Monthly audits will review emergency management measures.	Site HSE Manager	Monthly.
Reporting	**Responsibility**	**Timing**
Near misses or non-compliances shall be reported and managed in accordance with Section 6 of the CEMP.	All personnel	As required
Rainfall shall be recorded in a site rainfall log.	Site HSE Manager	Daily
Corrective Action		
Near misses and incidents shall be investigated in accordance with Section 6 of the CEMP to identify necessary corrective actions for implementation.		

10.2 APPENDIX B – ENVIRONMENTAL ASPECT, IMPACT AND RISK REGISTER

RCR Oakey Solar Farm Project

Environmental Aspects, Impacts & Risk Register

			Pre-control Risk Assessment				Post-control Risk Assessment			A&I Review			
NUMEBR	ACTIVITY/ASPECT	HAZARD/SOURCE OF IMPACT	Likelihood	Consequence	Risk	MEASURES & PREVENTION	Likelihood	Consequence	Residual Risk	Reviewed by	Review date	CONTROLS ADEQUATE?	NEW OR ADDITIONAL CONTROL
1	Civil works - vegetation clearing, topsoil stripping, drainage works and road construction, trenching, horizontal directional drilling and establishment of hardstand building pads and areas.	Soil erosion from ground disturbing works causing downstream water quality impacts due to increased turbidity which negatively affect aquatic organisms.	Possible	Minor	Medium	Erosion and Sediment Control Plan shall be implemented throughout the duration of the project.	Unlikely	Insignificant	Low			Y	
2		Soil erosion from stockpiles of topsoil/subsoil/imported fill causing downstream water quality impacts due to increased turbidity which negatively affect aquatic organisms	Possible	Minor	Medium	Erosion and Sediment Control Plan shall be implemented throughout the duration of the project. It includes control measures for stockpiles.	Unlikely	Insignificant	Low			Y	
3		Soil erosion due to incorrect soil replacement in trenches.	Possible	Minor	Medium	Erosion and Sediment Control Plan shall be implemented throughout the duration of the project. Also refer to soil management measures included in ECP 1 - Soil and Water Management.	Unlikely	Insignificant	Low			Y	
4		Soil erosion due to poor ground cover in disturbed areas where works have been completed.	Possible	Minor	Medium	Erosion and Sediment Control Plan shall be implemented throughout the duration of the project. Also refer to soil management and revegetation measures included in ECP 1 - Soil and Water Management.	Unlikely	Insignificant	Low			Y	
5		Injuries/death of animals during vegetation clearing works.	Possible	Moderate	High	Spotter-catcher present during all vegetation clearing works. Also refer to ECP 2 - Flora and Fauna Management.	Unlikely	Minor	Low			Y	
6		Invasive weeds introduced to site during civil works.	Possible	Moderate	High	Refer to ECP 3 - Weed Management. It shall be implemented during the project and includes hygiene measures for vehicles, plant, equipment and organic materials to minimise the risk of weed introduction to site.	Unlikely	Moderate	Medium			Y	
7		Nuisance to offsite sensitive receptors from dust, noise, vibration and light emissions from site during civil works.	Unlikely	Insignificant	Low	Controls will be implemented on site during works. Refer to ECP 4 - Dust, Noise, Vibration and Light Management.	Unlikely	Insignificant	Low			Y	
10		Injuries/death of animals during structural works.	Unlikely	Minor	Low	Fauna impacts during structural works shall be minimised by implementation of ECP 2 - Flora and Fauna Management.	Unlikely	Minor	Low			Y	
11		Invasive weeds introduced to site during structural works.	Possible	Moderate	High	Refer to ECP 3 - Weed Management. It shall be implemented during the project and includes hygiene measures for vehicles, plant, equipment and organic materials to minimise the risk of weed introduction to site.	Unlikely	Moderate	Medium			Y	
12		Soil erosion due to subsoil exposure from installation of piles and power poles. This could have downstream water quality impacts due to increased turbidity which negatively affect aquatic organisms.	Unlikely	Insignificant	Low	Minimal ground disturbance is expected during the structural phase. The Erosion and Sediment Control Plan shall be implemented throughout the duration of the project.	Unlikely	Insignificant	Low			Y	
13	Operation and maintenance of vehicles, plant and equipment during civil and structural works.	Spills/leaks of hydrocarbons during refuelling/maintenance or from poorly maintained equipment. This may impact soil and water quality.	Possible	Minor	Medium	Refer to ECP 5, ECP 7, ECP 8 and ECP 9 which include measures to prevent contamination by petroleum hydrocarbons.	Unlikely	Minor	Low			Y	
14		Tracking of dirt/mud from site onto public roads. This may affect water quality and road safety.	Possible	Minor	Medium	Vibration grids are specified at site entry/exist points in the Erosion and Sediment Control Plans.	Unlikely	Insignificant	Low			Y	
15		Disruption to local traffic movements caused by light and heavy vehicle movements to and from the site.	Unlikely	Minor	Low	The Traffic Management Plan shall be implemented during the project.	Unlikely	Insignificant	Low			Y	
16		Nuisance to offsite sensitive receptors from dust emissions due to trucks transporting materials to and from site (i.e. soil/gravel/fill).	Unlikely	Minor	Low	Refer to ECP 4 - Dust, Noise, Vibration and Light Management. Vehicles carrying loads of organic materials to and from site shall be covered.	Unlikely	Insignificant	Low			Y	
17		Noise impacts for sensitive receptors along transport routes for project.	Unlikely	Minor	Low	The Traffic Management Plan shall be implemented during the project. Also refer to ECP 4 - Dust and Noise Management which includes measures to minimise road vehicle noise.	Unlikely	Insignificant	Low			Y	
18	Waste management and storage during civil and structural works.	Wastes exposed to stormwater/rainwater which adversely impacts soil, surface water and/or groundwater quality	Possible	Minor	Medium	Refer to ECP 5 - Liquid and Solid Waste Management which provides control measures to minimise the risk of contamination from wastes.	Unlikely	Insignificant	Low			Y	
19		Disposing of wastes onsite causing adverse impacts to soil , surface water or groundwater.	Unlikely	Minor	Low	No wastes shall be disposed of onsite. Refer to ECP 5 - Liquid and Solid Waste Management.	Unlikely	Insignificant	Low			Y	
20		Incorrect disposal of wastes have adverse environmental impact at disposal site.	Unlikely	Minor	Low	Refer to ECP 5 - Liquid and Solid Waste Management which provides guidance on the management of recyclable, regulated, general and green wastes from the project.	Unlikely	Insignificant	Low			Y	
21		Windblown wastes create litter at on- or offsite locations.	Possible	Minor	Medium	Bins/skips that contain wastes which may become windborne shall be covered. Refer to ECP 5 - Liquid and Solid Waste Management.	Unlikely	Insignificant	Low			Y	
22		Incorrect storage of liquid wastes allows leaks/spills to adversely impact soil, surface or groundwater quality.	Possible	Minor	Medium	Refer to ECP 5 - Liquid and Solid Waste Management which provides control measures to minimise the risk of contamination from wastes.	Unlikely	Insignificant	Low			Y	
23		Impacts to soils and downstream water quality (elevated pH and metals) from cleaning of concreting equipment.	Possible	Minor	Medium	Specific guidance on the management of concrete washout wastes and waste concrete is provided in ECP 5 - Liquid and Solid Waste Management.	Unlikely	Minor	Low			Y	
24		Burning of wastes (such as timber packaging/pallets or green waste from vegetation clearing) creating increased risk of bushfire that may affect onsite and offsite receptors.	Unlikely	Catastrophic	High	No burning of wastes onsite is permitted. Refer to ECP 5 - Liquid and Solid Waste Management.	Unlikely	Minor	Low			Y	
25	Storage and use of hazardous substances during civil and structural works.	Spills/leaks of chemicals causing contamination of soil, surface water or groundwater.	Possible	Minor	Medium	Guidance on the storage, handling, use and disposal of hazardous substances is provided in ECP 7 - Hazardous Substances Use and Management.	Unlikely	Insignificant	Low			Y	

26	Environmental emergencies during civil and structural works.	Fuel spill during refuelling of plant/equipment causes environmental contamination.	Possible	Minor	Medium	Refer to ECP 5, ECP 7, ECP 8 and ECP 9 which include measures to prevent contamination by petroleum hydrocarbons.	Unlikely	Insignificant	Low			Y	
27		Heavy rain/localised flooding entrains wastes, chemicals or soil from disturbed areas and impacts soil and water quality.	Possible	Moderate	High	ECP 9 - Environmental Emergency Preparedness and Management provides guidance on preventative measures that will be taken to minimise the environmental impacts of the site under heavy rain/localised flooding.	Unlikely	Minor	Low			Y	
28		Activities on site create a fire which may escalate and impact onsite and offsite receptors, infrastructure, environmentally sensitive areas.	Unlikely	Catastrophic	High	ECP 9 - Environmental Emergency Preparedness and Management provides guidance on preventative measures that will be taken to minimise the risk of fire at the site.	Unlikely	Minor	Low			Y	

10.3 APPENDIX C – DUTY TO NOTIFY GUIDELINE

Guideline

Environmental Protection Act 1994

The duty to notify of environmental harm

This guideline provides information regarding the duty to notify the Department of Environment and Heritage Protection of certain events, including those that may cause serious and material environmental harm, under ss. 320 to 320G of the Environmental Protection Act 1994*.*

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ABN 46 640 294 485

Introduction

Sections 320 to 320G of the *Environmental Protection Act 1994* (the Act) outline the requirements for the duty to notify of **environmental harm**. Pollution incidents and activities that cause or threaten to cause **serious environmental harm** or **material environmental harm** must be reported quickly to the Department of Environment and Heritage Protection (the **department**), as well as to local governments in some situations, so appropriate action can be taken to prevent or limit possible environmental harm. In some cases, the owner or occupier of the land must also be notified.

The duty to notify requires a person or a company to give notice where serious or material environmental harm (that is not authorised under the Act) is caused or threatened. The duty to notify also requires an auditor, the owner or occupier of **contaminated land,** or a local government, to give notice to the department if they become aware of an event or change in the condition of contaminated land that is causing, or is reasonably likely to cause, serious or material environmental harm.

The duty to notify under the Act does not negate any notification requirements in other Queensland legislation or the common law. Similarly, because a person has met the notification requirements under other Queensland legislation does not mean the notification requirements under this Act have been met.

When does the duty to notify arise?

The duty to notify arises in the following circumstances:

Who	When does the duty to notify arise?
Person[1]	While carrying out an activity (the primary activity), becomes aware that an event has happened that causes or threatens serious or material environmental harm, because of an act or omission in carrying out the primary activity, or another activity carried out in association with the primary activity
	While carrying out a **resource activity** other than a mining activity, becomes aware of the happening of one or both of the following events: • The activity has negatively affected, or is reasonably likely to negatively affect, the water quality of an aquifer; or • The activity has caused the connection of two or more aquifers.* *Note: this requirement does not negate the need for a person to notify in relation to a resource activity that is not related to an aquifer event.
Owner or occupier of contaminated land[2]	Becomes aware of: • The happening of an event involving a hazardous contaminant on the contaminated land; or • A change in the condition of the contaminated land; or • A notifiable activity having been carried out, or being carried out, on the contaminated land.
An auditor performing an auditor's function	Becomes aware of: • The happening of an event involving a hazardous contaminant on the

[1] Section 320A(1) of the *Environmental Protection Act 1994*.
[2] Section 320A(1A) of the *Environmental Protection Act 1994*.

under section 568(b) of the Act[3]	contaminated land; or • A change in the condition of the contaminated land; or • A notifiable activity having been carried out, or being carried out, on the contaminated land.

Local government[4]	Becomes aware:
	• That a notifiable activity has been, or is being carried out on land in the local government area; or
	• Of:
	  ○ The happening of an event involving a hazardous contaminant in the local government area; or
	  ○ A change in the condition of contaminated land in the local government area;
	that is causing, or is reasonably likely to cause, serious or material environmental harm.

What is environmental harm?

Whether an act or omission leading to an incident or event is likely to cause or threaten serious or material environmental harm will depend on the scale and nature of the impacts on the receiving environment and a range of variable factors, including:

- chemical characteristics;
- toxicity and reactivity;
- amount or volume of release;
- extent of area impacted;
- pathways for contaminant release and spread;
- weather conditions at the time of the event or incident including exacerbating or mitigating factors like rain or temperature;
- proximity of urban areas; and
- proximity, size, value and sensitivity of adjacent environmental areas.

Short and long term impacts need to be considered, including contamination of land and waters, toxic effects on biota, such as plants and animals, and public health risks from exposure to chemicals.

Where a person is in doubt as to whether their activities or the activities of another person is likely to have caused or threatened serious or material environmental harm, it is better to be cautious and provide notice in accordance with this guideline, and satisfy the duty to notify requirements.

Sometimes the full impact of an event is not known until sometime after the event has occurred. In these circumstances, the duty to notify will trigger as soon as the person becomes aware that the event is now threatening serious or material environmental harm.

[3] Section 320A(1A) of the *Environmental Protection Act 1994*.
[4] Section 320A(1B) of the *Environmental Protection Act 1994*.

Emergency incidents, such as those involving the release of hazardous materials from fires, vehicle accidents, and spillage of explosive, flammable or toxic chemicals, often involve public safety matters and require an immediate response from emergency services. These types of incidents may also threaten or cause serious or material environmental harm.

In some circumstances these events may not represent a widespread threat to life and property, and are therefore categorised at a lower level than more serious incidents that require an immediate response. Incidents that are categorized at a lower level may still cause or threaten serious or material environmental harm and should therefore not be discounted from the duty to notify requirements.

Action not limited to when environmental harm is caused or threatened

Where a person undertakes an activity or becomes aware of the actions of another person that have caused environmental harm which falls short of serious or material environmental harm, they may still be required to take action to prevent the continuance of environmental harm or mitigate the environmental harm.

The requirement to take such further action may arise because of a condition of an environmental authority, development approval, code of environmental compliance or other type of environmental approval, or may arise under the general environmental duty[5]. General environmental duty applies to all persons, and imposes an obligation not to carry out any activity that causes or is likely to cause environmental harm unless we take all reasonable and practicable measures to prevent or minimise the harm.

Actions taken at an early stage in response to an incident may result in the environmental harm falling short of the threshold at which it would be considered to have caused or threatened serious or material environmental harm.

When is notification not required?

The duty to notify does not apply to an event that is authorised under the Act. An event is authorised under the Act if it is authorised to be caused under:

- an environmental protection policy; or
- a transitional environmental program; or
- an environmental protection order; or
- an environmental authority; or
- a development condition of a development approval; or
- a prescribed condition for carrying out a small scale mining activity; or
- an emergency direction; or
- an accredited environmental risk management plan.[6]

Who has a duty to notify?

The Act sets out obligations on the following persons to give notification of an event **within 24 hours** after becoming aware of the event:

- particular employees;
- employers;
- other persons;

[5] Section 319 of the *Environmental Protection Act 1994*.
[6] Section 320A(4) of the *Environmental Protection Act 1994*.

- owners, occupiers or auditors (for the purposes of a contaminated land event); or
- local governments.

In some situations, the duty to notify extends beyond notifying the department, to notifying owners and occupiers of the affected land as well. This is to ensure that any potentially affected persons are aware of the occurrence of an event which exposes them, or their land, to potentially adverse impacts, and gives them an opportunity to take the appropriate action to respond to the situation.

Note: the duty to notify of an environmental harm event still applies to persons who are:

- holders of environmental authorities;
- operating under a registration certificate, development approval or environmental code of compliance;
- carrying out an activity for which an environmental approval is not required.

A condition of an environmental authority, development approval, code of environmental compliance or other type of environmental approval may include a separate requirement to notify the department in certain circumstances. This is separate, and in addition to, the duty to notify. An approval condition that requires the operator to notify the department will generally be more prescriptive and may require different information to be provided to that required under the duty to notify.

Particular employees[7]

Who	When does the duty to notify arise?
Particular employees	If a person is carrying out a primary activity during the person's employment, the person must, no later than 24 hours after becoming aware of the event: • notify their employer of the event, its nature, and the circumstances in which it happened; or • if the employer cannot be contacted, give the department written notice of the event, its nature and the circumstances in which it happened.
Example: A truck carrying a container of regulated waste has arrived at its destination and the truck driver has become aware that a substantial volume of waste has leaked from the transport container along the route from the point of origin. The nature of the material and volume lost is such that it is likely to cause or threaten serious or material environmental harm. At the point at which the driver becomes aware of the event (i.e. the leakage of the material), the driver has a duty to notify their employer no later than 24 hours after becoming aware of the event.	

The notice given to the employer does not have to be in writing but must contain sufficient detail. An employee should always keep a record of when and to whom they gave notice of an environmental harm event.

If the person is carrying out the primary activity as an auditor, performing auditor's functions mentioned in section 568, these requirements do not apply.

Employers[8]

Who	When does the duty to notify arise?
Employer	After an employer has been informed of a notifiable event, the employer must,

[7] Section 320B of the *Environmental Protection Act 1994*.
[8] Section 320D of the *Environmental Protection Act 1994*.

	no later than 24 hours after becoming aware of the event, give the department written notice of the event, its nature and the circumstances in which it happened.
	An employer must, as soon as reasonably practicable after becoming aware of the notifiable event, give written notice of the event, its nature, and the circumstances in which it happened to: • an occupier of the affected land; or • any registered owner of the affect land.
	A person must give public notice of the event, its nature, and the circumstances in which it happened to person son the affected land.
Example: A company transports regulated waste around the state. A person, employed as a truck driver for the company, has reported to the company that 12 hours earlier a substantial volume of waste leaked from the transport container along the route from the point of origin. As the employer is now aware of the event (i.e. the leakage of the material), the employer has a duty to notify the department in writing within 24 hours, and also has a duty to notify owners or occupiers as soon as possible. The employer will need to determine the best way to notify the owners or occupiers who may be affected by the event. The employer would need to consider many factors, including the scope of the spill, the area of the spill and the owners and occupiers who are likely to be affected, and the nature of the material that was lost.	

Other persons[9]

"Other" persons are deemed to be a person not carrying out the primary activity during the course of employment or engagement by, or as the agent of, someone else.

Who	When does the duty to notify arise?
Other persons	The person must, no later than 24 hours after becoming aware of the event, give the department written notice of the event, its nature, and the circumstances in which it happened.
	The person must also, as soon as reasonably practicable after becoming aware of the event, give written notice of the event, its nature, and the circumstances in which it happened to: • any occupier of the affected land; or • any registered owner of the affected land.
	A person must give public notice of the event, its nature, and the circumstances in which it happened to persons on the affected land[10] if written notice is unable to be given.

[9] Section 320C of the *Environmental Protection Act 1994*.
[10] Section 320C(3)(b) of the *Environmental Protection Act 1994*.

Owner, occupier or auditor[11]

Who	When does the duty to notify arise?
Owner, occupier or auditor	An owner, occupier or auditor must, within 24 hours after becoming aware of the happening of an event, or a change in the condition of contaminated land, that is causing, or is reasonably likely to cause, serious or material environmental harm, give the department written notice.
	Within 20 business days after becoming aware that a notifiable activity has been, or is being carried out on the contaminated land, that is causing, or is likely to cause, serious or material environmental harm, give the department written notice of the activity, unless the person has a reasonable excuse.

The written notice must state the nature of the event or change in condition, and the circumstances in which the event or change happened.

Local government[12]

Who	When does the duty to notify arise?
Local government	A local government must, within 20 business days, after becoming aware that a notifiable activity has been, or is being, carried out on land in the local government area, that is causing, or is reasonably likely to cause, serious or material environmental harm, give the department written notice of the activity.
	Within 24 hours after becoming aware of a notifiable event, or the change in condition of contaminated land in the local government area, that is causing, or is likely to cause, serious or material environmental harm, give the department written notice of: • the nature of the event or change in the condition; and • the circumstances in which the event or change happened or is happening.
Example: A local government becomes aware of a property that appears to have an historical unlicensed landfill in an urban suburb. Upon inspection of the site, the local government officers identified buried waste of multiple types approximately 5m from a nearby creek. The officers also noticed the colour of the water at a point in the creek nearest to the buried waste was yellow in colour indicating likely discharge of leachate from the landfill site. As the local government is now aware of this event, the local government has a duty to notify the department in writing within 20 business days.	

Notice to occupiers of affected land[13]

Where the notifiable event occurs on the person's own land and does not spread beyond that land, there will be no owners or occupiers to notify. Where the notifiable event occurs on land which is not owned by the person, or spreads beyond the boundary of that land, there will be owners or occupiers to notify. The intention of notice is

[11] Section 320DA of the *Environmental Protection Act 1994*.
[12] Section 320DB of the *Environmental Protection Act 1994*.
[13] Section 320E of the *Environmental Protection Act 1994*.

to ensure persons likely to be exposed to any adverse impacts of a notifiable event have adequate time to respond to the event. The ways in which a person or employer may give written notice to an occupier of affected land is not limited. However, a person or employer is taken to have given written notice to an occupier of affected land if the notice is:

- left with someone who is apparently an adult living or working on the affected land; or
- if there is no-one on the affected land or the person has been denied access to the affected land, left on the affected land in a position where it is reasonably likely to come to the occupier's attention; or
- posted to the affected land.

Written notice that is posted to, or left at, affected land may be addressed to 'The Occupier'.

In circumstances where it is reasonable to believe that there are large numbers of registered owners or occupiers of the affected land, or there is uncertainty as to whom the registered owners or occupiers of affected land may be, it is appropriate to give public notice.

Public notice has not been defined in the Act; however a common-sense approach should be adopted when deciding to give public notice. A public notice may include the following methods as a guide:

- radio or television broadcast to ensure there is rapid communication of the information;
- publishing of a written notice of the event in a newspaper;
- the erection of appropriately sized signs in the vicinity of the affected area.

Example:

An explosion and subsequent fire occurs at a chemical factory resulting in the output of a large volume of noxious odours, fumes and gases causing or threatening serious or material environmental harm. Consequently, the duty to notify the department and the owners or occupiers is required.

The contaminants would be initially airborne and likely to disperse over a wide area, resulting in a large number of potential owners or occupiers to whom notice would be required to be given. The employer must, as soon as reasonably practicable after becoming aware of the event, give public notice of the event, including details of its nature and the circumstances in which it happened, to owners or occupiers in the area. Under such circumstances it would be appropriate to give public notice by press notices and radio or television broadcasts, to provide notice to the widest possible audience in the shortest possible timeframe.

Notice to the department

The standard form - Duty to Notify of Environmental Harm (EM468[14]) may be used for providing written notice to the department. The form may also be used where a person is required to given written notice to owners or occupiers.

Use of the department's standard form is not required by law, however providing the information specified in the template will assist person's giving notice, to meet the requirements of the Act.

Where a decision is made to give public notice, the notice should, as a minimum, contain the same information as required in a written notice.

[14] The EM number is a unique reference for this particular document. You are able to search the department's website (<www.ehp.qld.gov.au> and enter EM and the associated number to locate the document you require.

Penalties for failing to notify

Penalties exist for failing to notify as follows:

Offence	Max Penalty
An employee failing to notify their employer or the department	100 penalty units
An employer or other person failing to notify the department – primary activity	500 penalty units
An employer or other person failing to notify the department – resource activity	100 penalty units
An employer or other person failing to notify particular owners or occupiers of the affected land – primary activity	500 penalty units
An employer or other person failing to notify particular owners or occupiers of the affected land – resource activity	100 penalty units
An owner, occupier or auditor failing to notify the department of an event or change in the condition of the land	500 penalty units

As an alternative to prosecution, and in accordance with the department's enforcement guidelines the department may issue a penalty infringement notice (PIN) for the offence of contravening a clean-up notice.

The State Penalties Enforcement Regulation 2014 prescribes the number of penalty units for an offence. Section 3 of the Penalties and Sentences Regulation 2015 prescribes the monetary value of a penalty unit.

Reasonable excuse

A person will not be guilty of an offence for failing to comply with the duty to notify, where they have a reasonable excuse. Whether an excuse is a reasonable excuse is a legal point to be decided by a Judge or Magistrate. It will depend on the circumstances and facts of each case and will be considered on a case by case basis. A concern that notification might tend to incriminate the person is not a reasonable excuse for not complying with the duty to notify.

Example:

Where an incident occurred in an isolated area of the state and it was not physically possible to provide written notice to the department within 24 hours, this will amount to a reasonable excuse.

Where harm was threatened, however the person was able to quickly take action to remove the threat of the harm before any harm was actually caused. This too may amount to a reasonable excuse.

Defence for failing to notify owners or occupiers[15]

Where a failure to give notice to owners or occupiers occurs, it is a defence for a person or employer to prove that, despite failing to give notice, the person or employer made reasonable efforts to identify the affected land and give written notice to each registered owner or occupier of the affected land. It is not a defence for a person or employer to fail to comply with a duty to give notice on the ground that the written notice, or the giving of the written notice, might tend to incriminate the person or employer.

[15] Section 320F of the *Environmental Protection Act 1994*.

A written notice cannot be used as evidence in court proceedings

A written notice given by a person or employer is not admissible as evidence against the person or employer in a prosecution for an offence against the Act, in relation to the event about which the notice is given. However, other evidence obtained because of the written notice, or the giving or the written notice, can be admitted as evidence against the person or employer in any legal proceeding.

Providing joint notice

In some circumstances the duty to notify may arise for a number of different people concerning the same event. In such circumstances a number of persons may comply with their individual duty to notify by jointly issuing one notice advising of the event, where this can be achieved within the timeframes. To comply with the duty to notify, the notice should clearly state on whose behalf the notice is given.

If the notice does not clearly state by whom the notice is given, then it may not be sufficient to verify at a later date that a person has complied with their statutory requirement to give notice.

Phoning the pollution hotline

In addition to providing the written notice, if a person becomes aware of an event which has caused, or threatens, serious or material environmental harm, the person should immediately call the pollution hotline on **1300 130 372** and report the event. Reporting the event through the pollution hotline allows the department to take necessary measures to prevent further harm and to mitigate the effects of an incident or event.

In addition to notifying the department, it is good practice to notify the relevant local government for the area where the event has occurred.

Notification by emergency services

For major incidents that require response from emergency services, procedures are in place for Queensland Fire and Rescue Services (QFRS) to notify the department through the pollution hotline. Where notification is given by QFRS, the department will provide advice on appropriate actions and determine whether it is necessary to attend the site.

How to notify

Written notification to the department must be given by one of the following methods:

1. To notify the department of the happening of an event or a change in the condition of the land (including contaminated land), submit written notification to the department by:

    - Email: <pollutionhotline@ehp.qld.gov.au>
    - Fax: (07) 3330 5875

    Include **"Duty to notify of environmental harm"** in the subject line and include details of the event, its nature and the circumstances in which the event happened or attach a completed copy of the *Duty to Notify of Environmental Harm notice* (EM468)

2. By way of registered post, provide written notice including details of the event, its nature and the circumstances in which the event happened or a completed copy of the form - Duty to Notify of Environmental Harm (EM468) to:

    Permit and Licence Management

    Department of Environment and Heritage Protection

    GPO Box 2454

    Brisbane QLD 4001

Definitions

Contaminated land means land contaminated by a hazardous contaminant.

Environmental harm is any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance.

Material environmental harm is environmental harm (other than environmental nuisance):

- that is not trivial or negligible in nature, extent or context;
- that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount ($5000), but less than the maximum amount ($50,000); or
- that results in costs of more than the threshold amount ($5000) but less than the maximum amount ($50,000) being incurred in taking appropriate action to:
    - prevent or minimise the harm; and
    - rehabilitate or restore environment to its condition before the harm.

Serious environmental harm is environmental harm (other than environmental nuisance):

- that is irreversible, of a high impact or widespread;
- caused to an area of high conservation value or special significance, such as the Great Barrier Reef World Heritage Area;
- that causes actual or potential loss or damage to property of an amount of, or amounts totalling, more than the threshold amount ($50,000); or
- that results in costs of more than the threshold amount ($50,000) being incurred in taking appropriate action to:
    - prevent or minimise harm; and
    - rehabilitate or restore the environment to its condition before harm.

Resource activity means an activity that involves a geothermal activity, a greenhouse gas (GHG) storage activity, a mining activity or a petroleum activity as set out at section 107 of the Act.

Disclaimer

While this document has been prepared with care it contains general information and does not profess to offer legal, professional or commercial advice. The Queensland Government accepts no liability for any external decisions or actions taken on the basis of this document. Persons external to the Department of Environment and Heritage Protection should satisfy themselves independently and by consulting their own professional advisors before embarking on any proposed course of action. This document will be reviewed on an ongoing basis and is subject to change without notice.

Approved by:
Kathrin Sherman
Director, Strategic Compliance
Department of Environment and Heritage Protection
Date: 7 October 2015

Enquiries:
Permit and Licence Management
Ph: 13 QGOV (13 74 68)
Fax: (07) 3330 5875
Email: palm@ehp.qld.gov.au

10.4 APPENDIX D – DUTY TO NOTIFY FORM

Notice

Environmental Protection Act 1994

Duty to notify of environmental harm

This form is to be used for notifying the administering authority about events or changes in condition of land causing or threatening serious or material environmental harm, in accordance with the duty to notify provisions contained in sections 320 to 320G, Chapter 7 Part 1 of the Environmental Protection Act 1994 (the EP Act)*.*

This Notice should be completed having regard to the guidance in:

- *Guideline: The duty to notify of environmental harm (EM467)*
- *Guideline: The duty to notify for contaminated land (EM1430)*

The details provided should address the nature of the event or change in condition as relevant. The notice should be completed as fully as practicable in the circumstances. Indicate any sections of the notice that are not applicable or for which information is not currently available.

If a notice is being given with respect to a notifiable activity, the notice template EM384 should be used. Circumstances could arise in which notice of a related event or change in condition of land also needs to be provided.

Office use only

Date entered in Ecotrack:		Relevant regional manager:	
Ecotrack reference number:		Date sent to regional manager:	
Relevant regional area:		Officer actioning this item:	

1. Person giving notice

NAME	TELEPHONE (BUSINESS HOURS)
	TELEPHONE (AFTER HOURS)
COMPANY/ORGANISATION NAME (IF APPLICABLE)	
POSITION IN COMPANY/ORGANISATION (IF APPLICABLE)	
POSTAL ADDRESS	
EMAIL	FACSIMILE

ABN 46 640 294 485

2. Who is giving notice about an event or change of condition

2.1. In what capacity are you giving notice?

Tick relevant box

- I am the owner of the land ☐
- I am an occupier (e.g. lessor or tenant) of the land ☐
- I am a representative of a local government ☐
- I am an auditor performing an auditor's function under EP Act ☐
- I am an employer ☐
- I am an employer of someone carrying out an activity ☐
- I am an employee carrying out an activity and have not been able to contact my employer ☐
- Other (specify)

2.2. Please provide details of your involvement

For example, what is your involvement as an employer or employer or as a representative of a local government?

3. Details of the affected land where the event or change in condition has occurred

3.1. Please provide details of the lot and plan description at which the event or change in condition has taken place (and full street address if available).

NAME BY WHICH THE PROPERTY IS KNOWN	
FULL STREET ADDRESS OF THE SITE	
ANY OTHER INFORMATION THAT WILL ASSIST IN QUICKLY LOCATING THE LOCATION WHERE AN EVENT OR ACTIVITY HAS OCCURED	
LOT(S)	PLAN(S)
GRID REFERENCES NORTHING EASTING	
LOCAL GOVERNMENT AUTHORITY	

3.2. Is a map or locality plan attached to this notification?

☐ No ☐ Yes

A map or locality plan that shows the affected land may greatly assist the processing of this notification.

3.3. Is the affected land the origin of contamination or area harmed or both?

Is the affected land (as described above) the land on which the contamination originated, caused harm (impacts) or both? ☐ Origin ☐ Harmed ☐ Both

4. Activity that has led to the event or change in condition

4.1. Nature of activity

- Is the activity a notifiable activity listed under Schedule 3 of the EP Act (if it is then use the template EM384) or another activity that has caused or may cause serious or material environmental harm? ☐ Notifiable ☐ Other
- Is the activity a resource activity? ☐ Yes ☐ No
- Is the activity currently occurring or did it occur previously? ☐ Current ☐ Previous

4.2. Describe the nature of the activity

If you require additional space attach the information on a separate sheet and make reference to that sheet here.

4.3. State whether the primary activity that led to the event was being carried out under:

- an environmental protection policy ☐ Yes
- a transitional environmental program ☐ Yes
- an environmental protection order ☐ Yes
- an environmental authority (use EM384) ☐ Yes
- a development condition of a development approval ☐ Yes
- a prescribed condition for carrying out a small scale mining activity ☐ Yes
- an emergency direction ☐ Yes
- an accredited environmental risk management plan ☐ Yes

4.4. Please provide the identifying details of the relevant approval or authority for carrying out the activity (if known). If possible attach a copy of the relevant document.

5. Special requirement for resource activities (petroleum and gas, geothermal and greenhouse gas storage activities but not a mining activity)

Does this notice relate to notification of an event that has occurred while carrying out a resource activity that has:

- negatively affected, or is reasonably likely to negatively affect, the water quality of an aquifer; or ☐ No ☐ Yes
- has caused the connection of two or more aquifers ☐ No ☐ Yes

6. Nature and circumstances of how event has occurred

If it is an event involving the release of contaminants that is being notified, the following information should be provided

6.1. Describe the circumstances in which the event has occurred.

Please provide details of the circumstances that led up to the event, any factors that may make the effects of the event worse, any preventive measures or cleanup up action taken and any other matters that may be relevant. If you require additional space attach the information on a separate sheet and make reference to that sheet here.

6.2. Provide any additional information that may be relevant to this notification of an event

If additional space is required attach the information on a separate sheet and make reference to that sheet here.

6.3. Event type:

☐ Spill ☐ Discharge ☐ Leakage ☐ Exposure/uncovering
☐ Fire ☐ Fishkill ☐ Other _____

6.4. Source of release:

☐ Vehicle spill ☐ Vessel spill ☐ Pipeline breach ☐ Dam/pond failure
☐ Drain outlet ☐ Bulk/tank ☐ Vessel sinking ☐ Dumping
☐ Sewage discharge ☐ Industrial activity ☐ Cattle/sheep dip ☐ Horticulture
☐ Excavation ☐ Landfill ☐ Other _____

6.5. Contaminants (if known):

☐ Solid chemicals ☐ Liquid chemicals ☐ Hydrocarbons ☐ Gas/vapour
☐ Pesticide/herbicide ☐ Nutrients ☐ BOD/COD ☐ Dangerous goods
☐ Other _____

6.6. Details of contaminants (if known):

Substance(s): _____

Quantity: _____ Litres/Kilograms/Tonnes/<other>

Area/extent affected:_____ m by _____ m

7. Change in condition of land

If it is a change in the condition of land that is being notified, the following information should be provided

7.1. Nature of change in the condition of the land (that has caused or is reasonably likely to cause or involve serious or material environmental harm)

- Dispersal of contaminants in soil ☐ No ☐ Yes
- Dispersal of contaminants in groundwater ☐ No ☐ Yes
- Dispersal of contaminants in surface waters ☐ No ☐ Yes
- Accumulation of gases or vapour in soil or structures ☐ No ☐ Yes
- Change in surface features (e.g. vegetation) ☐ No ☐ Yes

7.2. Details of change in the condition of the land

Describe what the change in condition involves

If additional space is required attach the information on a separate sheet and make reference to that sheet here.

7.3. Cause of change in condition (if known)?

Describe the known factors that have led to the change in condition

If additional space is required attach the information on a separate sheet and make reference to that sheet here.

7.4. Timeframe of change in condition

Outline what is known of the timeframe in which the change in condition has occurred

7.5. Type of environment affected:

What is the type of environment that has been affected by an event or change in condition?

☐ Waterway/drain ☐ Marine ☐ Estuarine ☐ Freshwater
☐ Land contamination ☐ Urban area ☐ Air/fallout ☐ Vegetation
☐ Protected area ☐ Other _____

8. How and when did you become aware of the event or change of condition

8.1. What was the source of information about the event or change in condition

- own observation ☐ Yes
- information provided by a person with relevant competencies ☐ Yes
- information provided by an employee ☐ Yes

8.2. When did you first became aware of the event or change in condition for which notice is given

TIME	DATE

9. Details of registered owners or occupiers of affected land to which notice has been given

Note: Registered owners or occupiers of affected land do not need to be notified before notifying the administering authority.

9.1. Have any registered owners or occupiers of affected land been notified of this incident?

☐ No

☐ Yes (provide details of the occupiers and registered owners of land affected, or potentially affected, by this incident including details of how notice to those persons was given)

NAME	TELEPHONE
POSTAL ADDRESS	
DESCRIPTION OF HOW NOTICE WAS GIVEN	

If you require additional space you may attach the information on a separate sheet.

10. Declaration

Note: If you have not told the truth in this application you may be liable for prosecution under the relevant Acts or Regulations.

I do solemnly and sincerely declare that the information provided is true and correct to the best of my knowledge. I understand that it is an offence under s. 480 of the *Environmental Protection Act 1994* to give to the administering authority or an authorised person a document containing information that I know is false, misleading or incomplete in a material particular.

I understand that all information supplied on or with this application form may be disclosed publicly in accordance with the *Right to Information Act 2009* and the *Evidence Act 1977*.

NOTIFYING PERSON'S SIGNATURE	TIME / DATE

11. Sending the written notice

Please return the completed notice to Permit and Licence Management at the Department of Environment and Heritage Protection by:

Pollution hotline 1300 130 372 Option 2

AND written notification via email, fax or registered post:

Email: <pollutionhotline@ehp.qld.gov.au>

Fax: (07) 3330 5875

Note: Include **'Duty to notify of environmental harm'** in the subject line of the fax or email and attach a completed copy of the template.

Registered post:

Permit and Licence Management
Department of Environment and Heritage Protection
GPO Box 2454
Brisbane QLD 4001

12. Phoning the pollution hotline

In addition to providing the written notice if you become aware of a matter which has caused or threatens serious or material environmental harm you should immediately call the pollution hotline on **1300 130 372 select Option 2** and report the matter. Reporting the matter through the pollution hotline allows the administering authority to take necessary measures to prevent further harm and to mitigate the effects of an incident or event.

In addition to notifying the administering authority, and where that is not the relevant local government, it is good practice to notify the local government for the area where the event has occurred.

13. Further information

The latest version of this publication can be found at www.ehp.qld.gov.au using the publication number EM468 as a search term or by contacting Permit and Licence Management on 13 QGOV (13 74 68).

Privacy statement

The Department of Environment and Heritage Protection (EHP) will use the personal information collected on this form to investigate an incident that potentially caused or threatened to cause serious or material environmental harm, as provided for under ss. 320–320G of the *Environmental Protection Act 1994*. The information will only be accessed by authorised employees within EHP. The information provided on this form will not be otherwise be used or disclosed unless required or authorised by law. For information about privacy matters email: For queries about privacy matters email: privacy@ehp.qld.gov.au or telephone: (07) 3330 5436.