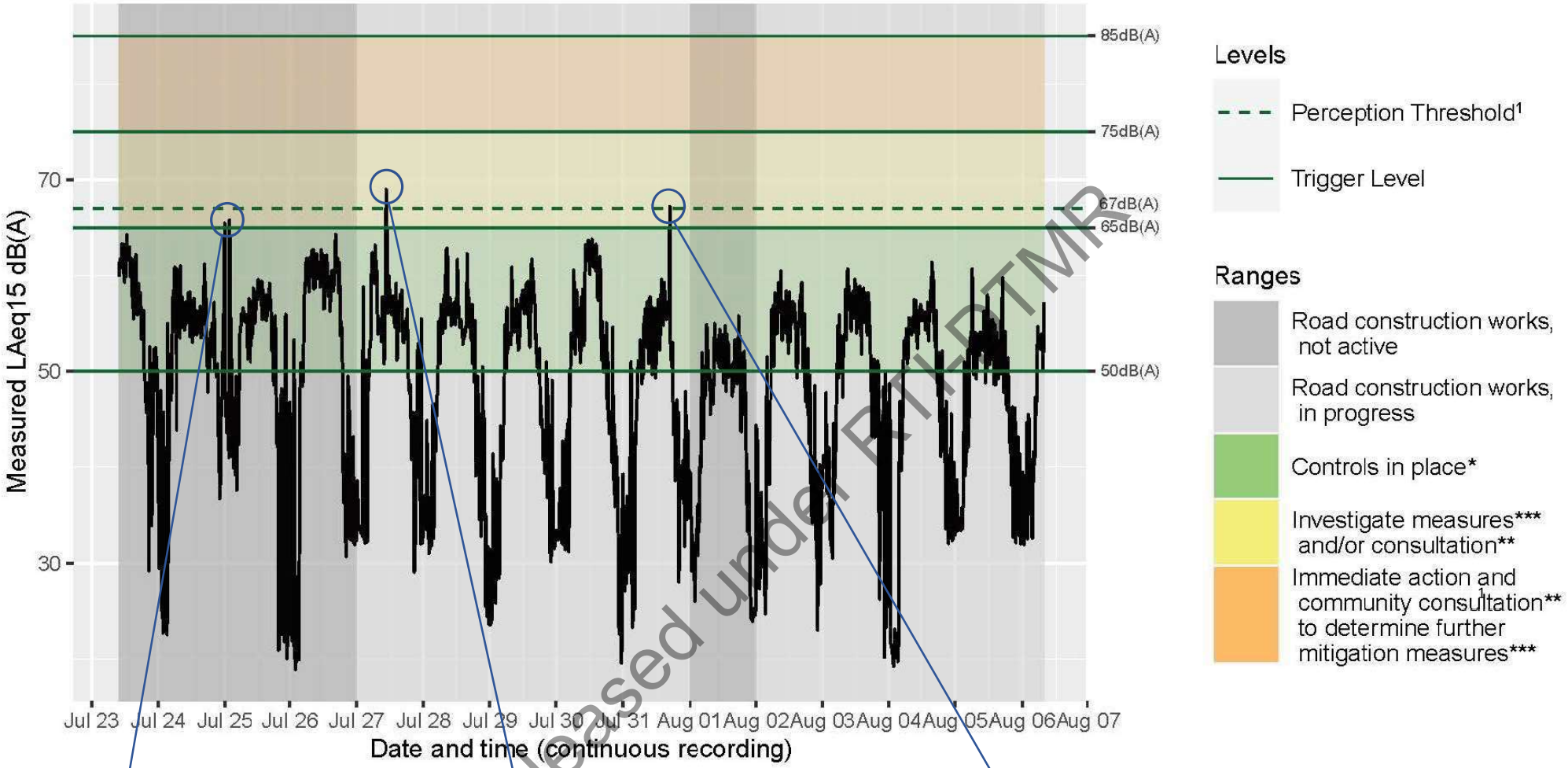
777 Dalby Kogan Rd, Ranges Bridge QLD | Noise Data



Reading (dB(A))	Time	Activity	Compliant to NVMP
65.5	0015hrs	Unknown Source / Activity	Yes
65.8	0200hrs	Unknown Source / Activity	Yes
Weather: Fine.		Outside Work Hours: No works on-site at this time	

Reading (dB(A))	Time	Activity	Compliant to NVMP
69	1045hrs	Vacuum truck operating 36m from microphone	Yes

Reading (dB(A))	Time	Activity	Compliant to NVMP
67.2	1654hrs	No works onsite. Review of Dalby BoM Observations (94542) indicates some wind <5m/s but otherwise clear day (no rain). Possible passing heavy vehicle horn usage.	Yes
Weather: Fine.		No works on-site at this time	

Reference (Trigger Levels): *Transport Noise Management Code of Practice, Volume 2*, Transport and Main Roads, March 2016

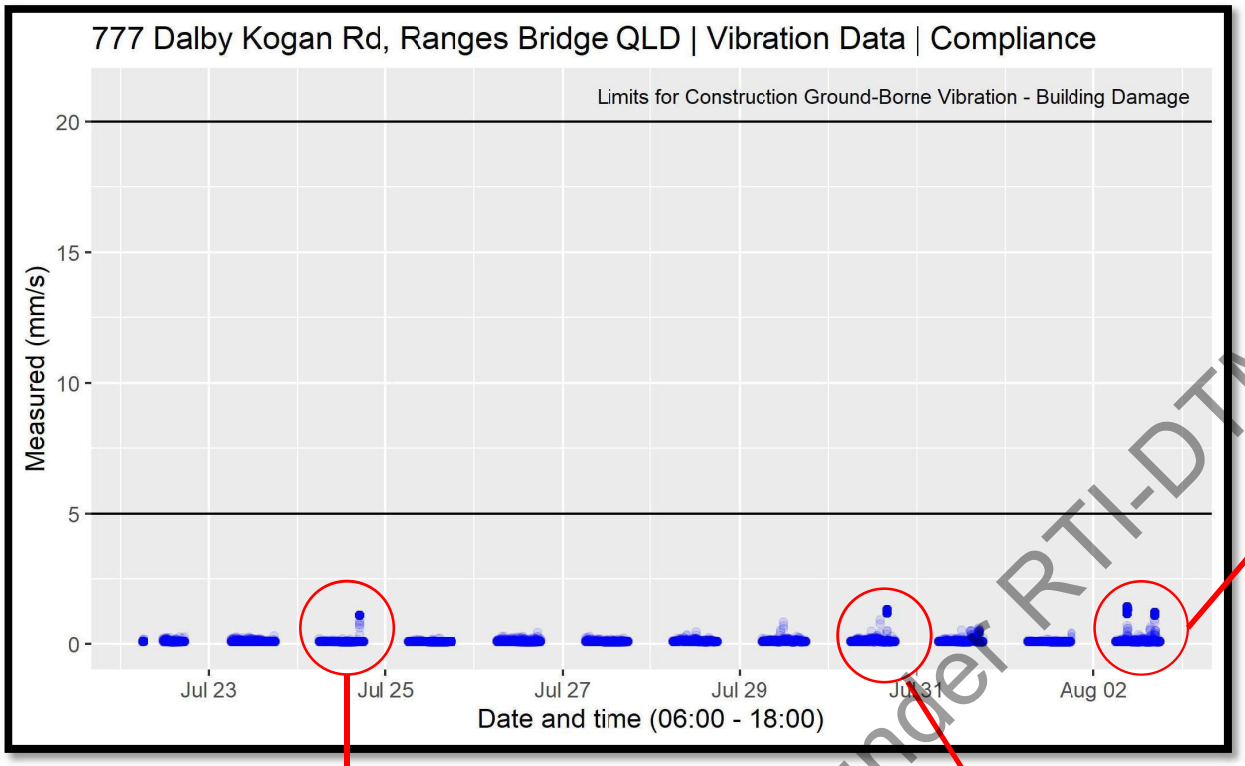
Construction Noise & Vibration Assessment: Dalby-Kogan Road/Daandine-Nandi Road Intersection: Surat Infrastructure SGB-Road Upgrades. Stage 1C,. RedLeaf Environmental, 2021.

[1]Perception Threshold: subjective effect of changes in sound pressure level (Section 7.6, Noise & Vibration Assessment Dalby-Kogan Road/Daandine-Nandi Road Intersection (2021))

*Site-specific controls and measures to manage Noise as described in the *Noise & Vibration Management Plan* (2021). If all reasonable and feasible mitigation measures are implemented, no immediate action.

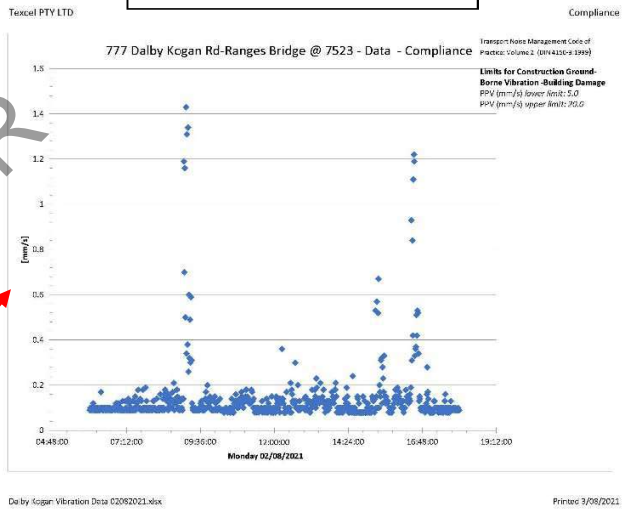
**Reciprocal engagement and consultation to negotiate in good faith any further measures to minimise noise impacts.

***Action to investigate and determine if further mitigation measures possible from a technical or site constraint perspective.



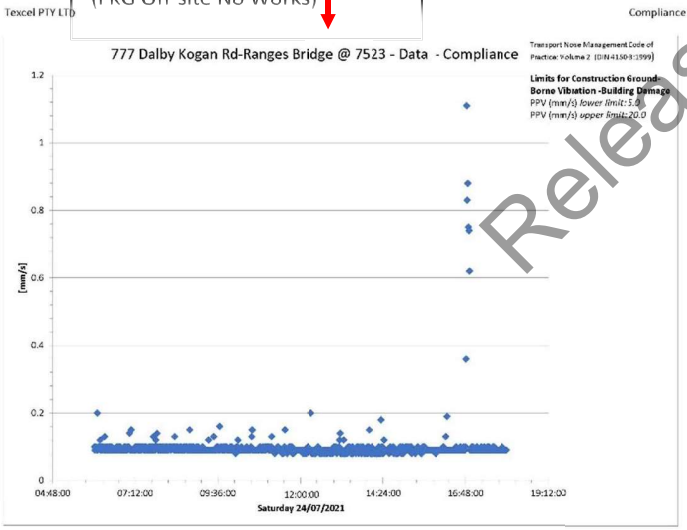
Monday 02 August 2021

(FKG On-site Works In Progress)



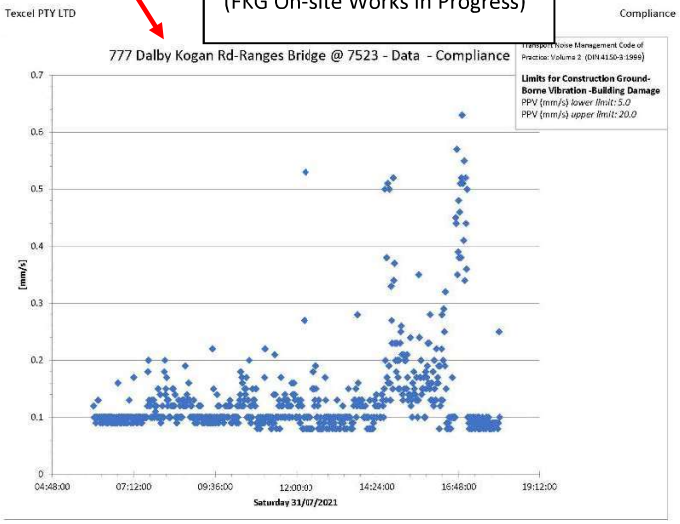
Saturday 24 July 2021

(FKG Off-site No Works)



Saturday 31 July 2021

(FKG On-site Works In Progress)



Checklist – CAC003M
Environmental Management Plan Review Checklist (MRTS51 and GCoC, Annexure A to GCoC)

Contractor	**FKG**	**Date**	**19th April 2021**	**Review No.**	
Contract No.		**Project No.**	TMR21-032122; TMR-032095; TMR20-031032	**Project Name**	**Arrow Energy Development Assessment Works at WDRC area intersections**

Review Decision	
☒	The EMP is considered compliant with the requirements of MRTS51 and should be deemed suitable by the Administrator.
☐	The EMP contains minor non-compliance with the requirements of MRTS51 that require to be addressed. However the submitted EMP(C) is considered suitable as an Interim EMP(C) under Clause 33.3 of the General Conditions of Contract for Works other than ground disturbance and vegetative clearing.
☐	The EMP is not considered compliant with the requirements of MRTS51 and not suitable for the environmental or Cultural Heritage risk associated with the Contract. It is advised that Work under the Contract should not commence until the EMP(C) is revised, resubmitted and accepted by the Administrator.

Reviewed by:	Peter Sparshott	Environmental Officer	Not Relevant	19th April 2021
	Name	**Position**	**Signature**	**Date**

Definitions

Conformance (C)	Fulfilment of a requirement, either contractual or legislative.
Non-conformance (NC)	A failure to comply with a requirement of contract.
Not Fully Verifiable (NFV)	There was insufficient evidence to determine conformance or non-conformance.
Observation (O)	A positive or negative comment of the auditor based on evidence and / or an observation made during the audit. Observations may or may not suggest corrective actions.

Reference	Requirements	Addressed	Comments / Observations
General Conditions of Contract (C7830) and Annexure A (C7831) of the Transport Infrastructure Contract – Construct Only			
Clause 14.3	The Contractor holds all Approvals required to undertake the Contract. Copies of Approvals have been provided to the Contract Administrator?	C	
Item 24B (Annexure A) Clause 33.3	No works under the Contract have commenced on Site without the EMP (or interim EMP) deemed suitable by the Contract Administrator.	C	
Item 29A and C (Annexure A)	The Environmental Representative is sufficiently experienced and qualified.	NC	Details of the environmental representative was not provided in the EMP. Suggest requesting this information prior to works commencing

Reference	Requirements	Addressed	Comments / Observations
MRTS51 Environmental Management			
Administrative Requirements			
Clause 6.4	Procedure for periodic review of EMP(C) including identification of continual improvement.	C	
Administrative Requirements (MRTS51)			
Clause 7.1	Weekly Site Inspections Procedure for weekly Site inspections include: ☐ how to identify whether measures are present, functional and adequate ☐ reporting of inspections, and ☐ identify corrective actions and management of outcomes.	C	
Clause 7.3	**Environment-related Complaint Management** Procedure for notification, investigation, management and reporting of complaints regarding environmental or Cultural Heritage harm from Work under Contract. (*Noise and Vibration Complaint Management shall comply with Noise Code of Practice Volume 2*).	C	
Clause 7.5	**Monitoring** Procedures for all monitoring to be undertaken under the Contract. Details of Monitoring include: ☐ specific location of monitoring (a unique name) ☐ method ☐ timing ☐ frequency ☐ duration ☐ parameter to be monitored ☐ objective / criteria measured against ☐ management of non-conformances in accordance with quality plan, and	C	

Reference	Requirements	Addressed	Comments / Observations
	☐ reporting requirements.		
Clause 7.6	**Monthly Environmental Reporting** EMP(C) includes Monthly Environmental Reporting template.	C	*Either Transport and Main Roads or Contractor's that complies with the same reporting requirements.*
Clause 7.7	**Notification and Management of Environmental Incidents** Contractor's procedures for notification and management of environmental and Cultural Heritage incidents in accordance with Clause 7.7 of Technical Specification and relevant legislation. Contractor's procedures to cover: 1. Notification - must extend to both: ☐ administrating authority for reportable incidents ☐ Contract Administrator for reportable incidents as well as those listed in Clause 7.7.1 incidents listed under MRTS51 for notifying to Administrator ☐ actual or potential material or serious Environmental Harm as defined in the *Environmental Protection Act* 1994 ☐ reportable breach of legislation ☐ breach of an Approval condition/s ☐ monitoring non-conformances against Water Quality Criteria ☐ injury or death of native fauna other than least concern species, potentially caused by Work under the Contract, including the occurrence of a fish kill on Site or in Waterways receiving Discharge from Site ☐ tampering with a native animal breeding place/s other than in accordance with an applicable Species Management Program ☐ ground disturbance or vegetation clearing beyond the Contractual Limits of Clearing or areas otherwise deemed suitable by the Administrator ☐ damage to known or potential Cultural Heritage ☐ ground disturbance or vegetation clearing beyond the boundary of the Contract's Cultural Heritage Management Agreement or Plan otherwise deemed suitable by the Administrator ☐ movement or relocation of Cultural Heritage without approval of the Indigenous Party/s	C	

Reference	Requirements	Addressed	Comments / Observations
	☐ clearing of a protected plant under State or Commonwealth legislation other than authorised under an Environmental Approval ☐ identification of a new Biosecurity prohibited matter or restricted matter (Category 1 or 2) on Site or breach of a condition of a biosecurity zone, and ☐ discovery of a Contaminated Site (including unexploded ordinance) or land contamination occurred on the Site during the Work under the Contract. 2. Management of Incidents including: ☐ immediate remedial actions to mitigate harm ☐ investigate ☐ report – provide Environment and Cultural heritage Incident report to Administrator within 40 Business Days of the incident detailing: a) nature of the incident b) what management measures in place c) probable cause, and d) corrective actions.		
Clause 7.9	All environment and Cultural Heritage specific roles and responsibilities of project personnel?	C	
Clause 7.11	Details of all Approvals relevant to the Contract held by either Principal or Contractor. Including: ☐ name and type of licence, permit or approval ☐ administering authority ☐ reference number ☐ commencement and expiry date, and ☐ conditions of the Approval.	C	No approval required for these intersection upgrades. General environmental duty identified
Clause 7.12	Copy of the Environmental Site Induction. Induction includes: ☐ basic roles and responsibilities for E&CH management ☐ specific locations within the Site of E&CH significance or high risks ☐ works managed under an Environmental Approval and its conditions ☐ the scope and conditions of Approvals	C	Details of the site induction are listed in S.8.1

Reference	Requirements	Addressed	Comments / Observations
	☐ locations of ancillary activities (including but not limited to stockpile sites turnaround points, construction water and material sources) ☐ the Limit of Clearing and boundary of CHMP or CHMA where applicable ☐ environmental management measures and strategies in EMP(C) ☐ staff responsibilities and contingencies to be used when operating under an approved TMR held species management program ☐ procedures for notifying of potential environmental incidents or non-conformances, and ☐ contingency plans and management procedures for unplanned events.		
EMP(C) Specific Element Requirements			
General			
Clause 8.1	The EMP (C) covers E&CH management of all the Works under the Contract including Temporary Works and ancillary activities including sourcing water, gravel, side tracks, stockpile sites, Contractor's Site facilities and camps, and turnaround points.	C	
Water Quality			
Clause 8.2 & Annexure Cl 2	EMP(C) shall include descriptions and diagrams of: ☐ potentially affected waterbodies and waterways within 200 m of the Site ☐ concentrated discharge locations from the Site, and ☐ concentrated flow paths to waterbodies and waterways within and adjacent to Site. ☐ list works under the Contract (including ancillary activities and temporary works) at risk of impacting water quality, including: a) the potential contaminants b) locations of Works in relation to waterbodies and waterways, and c) flow paths to waterbodies and waterways within and adjacent to Site. ☐ water quality management strategies and measures that are reasonable and practical and brief risk-based justification has been provided (Clause 8.1) ☐ water quality monitoring plan (commensurate with risk - see notes), and	C	*Low water quality risk* - *monitoring = visual* - *monitoring plan – locations, frequency and methodology* *Medium and high water quality risk* - *monitoring = field and laboratory testing* - *Monitoring plan – meets DEHP Sampling Manual (sampling scope, design, spreadsheet template)*

Reference	Requirements	Addressed	Comments / Observations
	☐ contingency plans or procedures for events causing adverse water quality impacts or complaints received from the public.		
	Cultural Heritage (MRTS51)		
Clause 8.4 & Annexure CI 3.1-6	EMP(C) shall include descriptions and diagrams of: ☐ the Principal's Cultural Heritage Officer contact details ☐ location of known sites / places of cultural heritage significance within and adjacent to the work Site ☐ work under the Contract likely to occur in proximity to sites / places of cultural heritage significant ☐ Cultural Heritage management measures that are reasonable and practical and brief risk-based justification has been provided (Clause 8.1), and ☐ a monitoring plan for Cultural heritage (both historical and indigenous).	C	
	Noise (MRTS51)		
Clause 8.5 & Annexure 4.1 - 3	**For projects with Low Noise Risk** EMP(C) shall include descriptions and diagrams of: ☐ location of any sensitive receptors and critical facilities, infrastructure and utilities in proximity to the project ☐ noise (including air blasting overpressure) generating activities, their locations, work periods ☐ applicable construction noise criteria for assessment (including Monitoring) ☐ evaluation outcome of whether Sensitive Receptors will likely be impacted by construction noise ☐ noise management measures and strategies that are reasonable and practical and brief risk-based justification has been provided (Clause 8.1), and ☐ contingency plan for adverse noise impacts.	C	
Clause 8.5 Annexure 4.1 – 4.3	**Medium and High Noise Risk** A stand-alone Noise Management Plan has been prepared in accordance with the Noise Code of Practice: Volume 2.	NA	

Reference	Requirements	Addressed	Comments / Observations
	Refer to CAS form CAC____ Noise and Vibration Management Plan to assess the Contractor's NVMP against the Code of Practice Vol 2.		
	Vibration		
Clause 8.6 Annexure 5.1 – 5.6	**For projects with Low Vibration Risk** EMP(C) shall include descriptions and diagrams of: ☐ type of vibration sensitive receptors and critical facilities, infrastructure and utilities potentially impacted by Site and their location in relation to Site ☐ location of significant vibration and air blasting overpressure generating works, within the Site ☐ applicable construction vibration criteria ☐ list which sensitive receptors, structures and / or buildings will likely be impacted by construction vibration and air blast overpressure and from what works ☐ vibration management measures and strategies that are reasonable and practicable to avoid or minimise vibration (human comfort) and vibration (structural / building) impacts and brief risk-based justification has been provided (Clause 8.1), and ☐ contingency plan for observed damage to structures (private, public or Departmental-owned).	C	
Clause 8.6 Annexure 5.1 – 5.6	**Medium and High Vibration risk** A stand-alone Noise Management Plan has been prepared in accordance with the Noise Code of Practice: Volume 2 Refer to CAS form CAC____ Noise and Vibration Management Plan to assess the Contractor's NVMP against the Code of Practice Vol 2.	NA	
	Air Quality		
Clause 8.7 Annexure 6.1 - 6.4	EMP(C) shall include descriptions and diagrams of: ☐ location of Air Quality Sensitive Receivers to the Site ☐ Works likely to cause environmental harm from air quality and location of the Works ☐ prevailing wind direction and speeds (wind rose) generally expected for the Site	C	

Reference	Requirements	Addressed	Comments / Observations
	☐ evaluation outcome of which air quality sensitive receivers will likely be adversely impacted ☐ management measures and strategies that are reasonable and practicable for minimising adverse air quality impacts and brief risk-based justification has been provided (Clause 8.1) ☐ where required, air quality monitoring methodology, equipment used, frequency, duration, location of equipment and details of the person undertaking the monitoring assessment ☐ where required, air quality Compliance Testing methodology, equipment used, frequency, duration, location and details of the person undertaking the Compliance Testing assessment, and ☐ contingency plan for observations of emissions exceeding criteria.		
Acid Sulphate Soils			
Clause 8.8 MRTS04 Clause 10 (Clause 10.2 – 10.7)	Requirements as listed in Clause 5.5 of Annexure MRTS04.1: ☐ compilation of an Acid Sulphate Soil Management Plan where potentially acid sulphate soils are discovered, and ☐ testing and reporting of test results for all excavated material that could reasonably be expected to have acid sulphate potential. The testing frequency and reporting shall be as detailed below: • visual testing undertaken by trained personnel shall be continuous throughout the earthwork phase. • field pH testing for both actual and potential acid sulphate soils on all borrow material to be imported to the Works and all material excavated or exposed in the Works in areas specified as having acid sulphate potential. A minimum of one test per soil type shall be carried out, and • where materials test positive to actual or potential acid sulphate contamination in the field, the Administrator shall be notified immediately. Such soils shall not be used on the Site until the results of subsequent quantitative laboratory testing negates the results of the field testing. ☐ soil collection, handling and transport (as per MRTS04, Clause 10.4.5) ☐ method for treatment of all acid sulphate soils encountered, and	NA	

Reference	Requirements	Addressed	Comments / Observations
	☐ method for treatment of all runoff from stockpiles of acid sulphate soils, and exposed groundwater potentially contaminated by acid sulphate soils.		
	Contaminated Sites (MRTS51)		
Clause 8.9.5 & Annexure Clause 7.1 – 7.3	EMP(C) shall include descriptions and diagrams of: ☐ location of known contaminated sites and type of in situ contaminants ☐ reasonable and practicable management measures and monitoring requirements applicable to each contaminated Site and brief risk-based justification ☐ where required, a Contaminated Site Management Plan including methods of assessment, remediation and Compliance Testing, and ☐ contingency plan for the event of contaminants leaving Site or being discovered on Site.	C	Identified in S.7.5
	Native Fauna		
Clause 8.10 & Annexure 8.1 – 4	EMP(C) shall include descriptions and diagrams of: ☐ location of known native fauna habitat and breeding places in relation to Site and Limits of Clearing ☐ identification of activities that are likely to impact fauna, habitat or animal breeding places and the nature of impacts ☐ identification of mapped Fish Passage Waterways impacted by the Work under the Contract and location of any temporary Waterway Barrier Works ☐ reasonable and practicable management measures and strategies for native fauna, breeding places, habitat and fish passage, and brief risk-based justification (Clause 8.1) ☐ details of any Suitably Qualified and Experienced Person to be utilised for fauna management ☐ contingency plan including procedures for fauna rescue and release including treatment of fauna injured by Work under the Contract, and ☐ contact details for emergency wildlife care shall be included on the Site's emergency contact list and within the fauna management plan.	C	

Reference	Requirements	Addressed	Comments / Observations
	Vegetation (MRTS51)		
Clause 8.11.4 & Annexure Clause 9	EMP(C) shall include descriptions and diagrams of: ☐ a drawing depicted: a) location and dimensions of Contractual Limits of Clearing (as specified in Clause 8.11.1 of this Technical Specification) b) limits of Contractor's intended vegetation clearing (demonstrating minimised clearing area) c) restrictions to clearing in waterways (as specified in Clause 7.2.2 of MRTS04) d) any areas required for clearing additional to the Contractual Limit of Clearing e) locations of Significant Vegetation and any specific trees identified in Clause 9 of Annexure MRTS51.1 or Annexure MRTS04.1 to be retained on Site f) a program of clearing operations demonstrating progressive clearing stages where practicable ☐ identification method for the Limit of Clearing and method of identifying Significant Vegetation ☐ reasonable and practical management measures and strategies to minimise the area of vegetation clearing and brief risk-based justification including where reasonable and practicable: • progressive vegetative clearing • progressive rehabilitation, and • protection of individual trees or vegetation to be retained. ☐ where required, Environmental Approval for additional clearing.	C	
	Biosecurity Management		
Clause 8.12.4 & Annexure 10.1 - 2	EMP(C) shall include descriptions and diagrams of: ☐ details of the Biosecurity Matter including photo, location, the Biosecurity Matter category and respective management measures ☐ location of applicable biosecurity management zone boundaries in relation to Site (including ancillary activities such as water source, stockpile sites, gravel sources, spoil locations)	C	Identified in S.7.7

Reference	Requirements	Addressed	Comments / Observations
	☐ identify movement of Biosecurity Matter carriers across biosecurity zone boundaries and Biosecurity Instrument Permit details pertaining to these movements ☐ reasonable and practicable management measures for preventing the spread of Biosecurity Matters within Site and out of the Site ☐ reasonable and practicable management measures to exclude access to known areas of Biosecurity Matter infestation such as flagging ☐ location of clean-down facility. If temporary clean down bay is to be constructed on Site, specify: • design and maintenance requirements and procedures • method of contain wastewater and restrict movement of biosecurity matters particularly to Waterways and drainage lines • management measures to contain biosecurity matter, sediments, oils and greases, and • prevention of vehicle recontamination. ☐ specific monitoring procedures for biosecurity matters (method, timing, frequency, duration, parameter to be monitored, criteria / outcome measured against) ☐ pesticide treatment schedule addressing method of control, chemicals, locations, timing of works, and ☐ details of biosecurity Matter control operator licence.		
Waste (MRTS51)			
Clause 8.13.1 & Annexure 11.1	EMP(C) shall include descriptions and diagrams of: ☐ estimates of type and quantity of Waste expected to be generated and their source ☐ waste management strategies (avoidance, reuse, recycling, energy, recovery, disposal) ☐ waste containment locations ☐ all mulch stockpiles identified on plans with maximum dimensions specified, and ☐ the procedure for measuring and recording Waste generated, reused, recycled and disposed of under the Contract.	C	

Reference	Requirements	Addressed	Comments / Observations
	Chemicals and Fuels (MRTS51)		
Clause 8.14.3	EMP(C) shall include descriptions and diagrams of: ☐ list chemical and fuels stored on Site in volumes greater than 250 L, the maximum quantity to be stored at any one time, storage location, management and containment practices for storage ☐ type, location, size of spill response equipment stored on Site ☐ reasonable and practicable management measures for avoiding contamination or Discharge to land or water from fuels and chemicals and brief risk-based justification ☐ details of any approvals held in relation to fuel and chemical storage or use, and ☐ contingency plan in the event of a contamination or discharge.	C	
	Material Sourcing (MRTS51)		
Clause 8.15.4 & Annexure 12.1	EMP(C) shall include descriptions and diagrams of: Water Sourcing ☐ key water consumption activities under the Contract ☐ the estimated volumes of water ☐ the identified construction water source/s and proposed volume of take ☐ legislative requirements and applicable conditions for take of water and whether notification to other users has been undertaken ☐ water efficiency strategies to be utilised under the Contract, and ☐ procedures for monitoring against requirements of any applicable Environmental Approval (exemption) (IE capacity level of non-flowing source). Construction Material ☐ Identified gravel, fill or sand sources ☐ distance to Site ☐ access track and stockpile area requirements ☐ associated approvals and conditions ☐ proposed volume of take	NFV	Unable to view documents, will assume the relevant information is contained within; ORG-ARW-HSM-GUI-00146 ORG-ARW-HSM-FOR-00242

Reference	Requirements	Addressed	Comments / Observations
	☐ progressive rehabilitation processes, and ☐ activity based management plan for extraction sites. Other ☐ Other construction material requirements identified sources and management measures		
Supplementary Conditions			
Annexure Clause 14	*[enter where applicable]*	NA	

Christopher R Green

From: Alyce M Schlothauer
Sent: Friday, 13 August 2021 2:01 PM
To: Not Relevant
Cc: Christopher R Green
Subject: RE: Response and noise complaints (DES ref: CTS 14594-21)
Attachments: 777 Dalby Kogan Road - Vibration Data.pdf; 777 Dalby Kogan Road - Noise Data - ending 060821.pdf

Thanks Not Relevant that's great.

Nothing further at this stage.

Enjoy your weekend when you get to it.

Cheers,
Alyce

Alyce Schlothauer
Senior Communications Advisor | **Southern Queensland Region**
Program Delivery and Operations | Infrastructure Management and Delivery | Department of Transport and Main Roads

Floor 2 | 1-5 Phillip Street | Toowoomba Qld 4350
Locked Bag 1 | Warwick Qld 4370
(07) 4639 0605 | M: Not Relevant
alyce.m.schlothauer@tmr.qld.gov.au
www.tmr.qld.gov.au

From: Not Relevant
Sent: Friday, 13 August 2021 1:56 PM
To: Alyce M Schlothauer <Alyce.M.Schlothauer@tmr.qld.gov.au>
Subject: FW: Response and noise complaints (DES ref: CTS 14594-21)

Hi Alyce

Further to our catch up over the phone earlier…

The following email trail is the latest detailed correspondence with Shay Dougall on behalf of the Removed

Let me know if you have any questions in relation to any of this.

Not Relevant

Not Relevant

From: Arrow Energy Info <info@arrowenergy.com.au>
Sent: Tuesday, 10 August 2021 4:28 PM
To: Removed Removed
Cc: info@fkg.com.au; Arrow Energy Info <info@arrowenergy.com.au>
Subject: RE: Response and noise complaints (DES ref: CTS 14594-21)

Good afternoon Removed

Please see below further information related to your vibration complaint on 2 August 2021, and other matters raised via correspondence on 27 July 2021.

Claims of alleged vibration impact

As per my email last week, Arrow and FKG have undertaken an investigation in to your claims of vibration impacts on Saturday 31 July and Monday 2 August. An analysis of onsite vibration monitoring data has determined that the ground-borne vibration during this time was fully compliant. Please see the attached vibration monitoring report for further information.

This information has also been provided to Workplace Health and Safety Queensland.

Noise monitoring data

Please see attached noise report. Please note that the data demonstrates that all activities have been compliant with the Noise and Vibration Management Plan.

Dilapidation survey

Arrow are in the process of engaging a company to undertake a dilapidation survey on behalf of Mr Matthews. We will provide the name of the survey company once they have been engaged, and instruct them to contact Mr Matthews directly to coordinate the works.

Works update

Activity
Ongoing earthworks on the western side of Daandine Nandi Road
Ongoing importation and placement of pavement gravels on the northern side of Daandine Nandi Road
Ongoing construction of new drainage culverts on the western side of Daandine Nandi Road
Commence the sealing works on the northern side of Daandine Nandi Road
Construct temporar_ western driveway access from Removed roperty to Dalby-Kogan Road. *This activity is pending confirmation from* Removed *- see notes below for further detail*
Commence permanent works new western driveway access, including new drainage pipes, earthworks and placement of pa gravel. *As above, this activity is pending confirmation from* Removed *see notes below for further detail*

Western driveway access
Recently, FKG have met with you onsite to discuss temporary access arrangements that would enable the permanent works to upgrade your existing western driveway. This would involve constructing a temporary gravel driveway close to your existing driveway. The temporary arrangements would be in place for several weeks (pending weather and construction progress), while your permanent access is constructed.

These temporary arrangements are designed to meet your in-person request to maintain access via two driveways at all times.

Please confirm in writing you are satisfied with these arrangements.

Kind regards

Elliot Willemsen-Bell
Principal Community
Arrow Energy Pty Ltd
Level 39, 111 Eagle St, Brisbane QLD 4000
GPO Box 5262, Brisbane QLD 4001, Australia
T: +61 7 3012 5311 (direct)
M: Not Relevant
elliot.willemsen-bell@arrowenergy.com.au

ARROW ENERGY IS PROUD TO SUPPORT OUR PARTNERS

From: Arrow Energy Info
Sen
To: Removed
Cc: Removed info@fkg.com.au; Arrow Energy Info <info@arrowenergy.com.au>
Subject: RE: Response and noise complaints (DES ref: CTS 14594-21)

Good afternoon Removed

Thank you for your email today and previous email on 27 July 2021.

I request that you include info@arrowenergy.com.au in all correspondence to ensure a timely response to your enquiries.

Claims of vibration impacts

In relation to the vibration impacts you have raised on 2 August 2021, Arrow and FKG have commenced an urgent internal investigation into your claims. We will provide you with an update on the investigation as soon as practical.

To help facilitate a speedy resolution, we would respectfully request that you provide any information or evidence you may have to support your claims as a matter of urgency. Alternatively, we request that you provide Arrow personnel access to the property during works to witness and document the alleged vibration.

Matters raised on 27 July 2021

As per my response dated 28 July 2021, we have been preparing a detailed response to the issues you have raised, which may be seen below.

1. **The family has not denied Arrow undertaking a dilapidation survey, in the email on 6 July, they consented to the survey under reasonable conditions - specifically:**

We note your proposed conditions and refer to our correspondence dated 14 July 2021, when Arrow directly addressed these proposed conditions. For convenience, please see below:

-the family will also require a written undertaking from Arrow that the building condition survey will remain private and confidential within Arrow's legal department and will only be utilized by Arrow in relation to the impacts from the road works and will be referred to for no other purpose.

"Arrow will respect the appropriate level of privacy and confidentiality in relation to all aspects of this matter, including the building condition survey. However, Arrow reserve the right to share this information with relevant third parties as needed to resolve matters arising relation to these works or future activities."

Arrow's position on this condition has not changed.

-Also, that the family receives a copy of the report *from the third party* concurrently with Arrow and prior to any works.

"Arrow agree that the report should be provided concurrently to Arrow and the landholder. However, as we have attempted to undertake this survey since 3 June 2021 an Removed *as not responded to our request, we do not agree that the drafting and supply of this report prevent the commencement of the safety upgrade works."*

Arrow's position on this condition has not changed.

-with the additional condition in response to recent issues that Arrow staff are not to be on the property.

As per previous correspondence, Arrow personnel will not enter Removed private property without his explicit permission. Should a dilapidation survey occur, Arrow will provide details of the contractor who will require access to the property and all buildings and infrastructure, once they have been engaged.

Please confirm in writing that you are satisfied with the above conditions, and Arrow will engage a suitably qualified contractor to complete the works. We respectfully request that confirmation as to this offer be provided by Monday 16 August 2021 after which time, we will consider the matter closed.

I would also like to reiterate Arrow's position, as stated in our correspondence dated 23 July 2021, that Arrow and FKG are satisfied that the intersection upgrade works can be safely completed as planned and that the survey would be fo Removed enefit.

2. **Please provide written evidence that this has been formally logged with FKG as per their Environmental Management Plan, the dilapidation survey was to be conducted prior to commencing, representing a non-conformance with the Plan**

As previously discussed in person and via correspondence (most recently on 23 July 2021), we have attempted to organise a dilapidation survey in consultation with Removed since 3 June 2021. Until now, he has been unresponsive to our requests for an appropriate time and date to carry out the survey.

Based on Removed delayed response on this issue, Arrow and FKG have developed alternate controls to manage the type of risk that may be identified via the dilapidation survey.

Arrow are satisfied that FKG have taken appropriate action in this regard.

Further, Arrow are responsible for ensuring contractors adhere to all contractual requirements, including management plans, and undertake internal audits of project documentation as required. Arrow are confident that FKG are meeting their EMP requirements. Documentation will not be provided to this effect.

3. **The family do not understand how a risk assessment regarding the vibration issues could be conducted with veracity without accessing the property or understanding the physical conditions and request a copy of such a document and the subsequent 'plan' if Arrow is to rely upon it.**

As previously stated in person and via correspondence, Arrow and FKG are satisfied the risk has been adequately assessed and appropriate controls have been put in place, and that the upgrade works can be safely completed as planned.

To [redacted]ave voluntarily supplied an extensive volume of information, including internal management plans, to [redacted] The supplied information has included:

- Dial Before You Dig information in relation to the APA pipeline (adjacent to [redacted] roperty)
- *DK Batch Traffic Impact Assessment* prepared by Cardno on behalf of Arrow
- *Surat Infrastructure Dalby-Kogan Road and Daandine Nandi Road Intersection Safety in Design Report* prepared by Brandon and Associates Engineering Consultants on behalf of Arrow
- Survey maps prepared by Brandon and Associates Engineering Consultants on behalf of Arrow
- Traffic Control Permit issued to FKG by Department of Transport and Main Roads (DTMR)
- Location and wording of temporary Variable Message Signs (VMS) in relation to the works
- Traffic Management Plans including maps that identify types and placement of signage and traffic control for each stage of construction (stage 1a, Stage 1b, Stage 2, Stage 3)
- Site layout maps identifying planned work areas, traffic flow and proposed access arrangements to your property for all stages of construction
- Itemised table identifying Mr Matthews concerns, Arrow's response and reference location within the attached documentation.
- FKG's *Surat Off-Plot Civils and Specialist Roads Construction Environment Management Plan*
- FKG's *Surat Off-Plot Civils and Specialist Roads Health and Safety Management Plan*
- FKG's *Surat Infrastructure – Roads Stage 1C Intersections – Traffic Management Plan*
- Staged construction drawings (repeatedly provided)

These documents have been provided voluntarily and in good faith, to help [redacted] understand the project and demonstrate Arrow's transparency with information and its works.

We note that, despite Arrow's provision of information and efforts to address [redacted] concerns, he remains hostile toward the safety upgrade project, FKG and Arrow.

We further note that all relevant management plans have been reviewed and approved by the Department of Transport and Main Roads, as part of the project approval process. Other project documentation, including safety and environmental documentation, is subject to Arrow's rigorous internal contractor auditing processes.

We believe that the information we have provided adequately addresses the concerns raised, and respectfully decline the request to provide the vibration management plan.

4. **Please proceed with arrangements for the dilapidation survey.**

Please confirm in writing that you are satisfied with Arrow's response to your proposed conditions in point 1.

Once we receive your confirmation, Arrow will engage a suitably qualified contractor and provide further detail regarding logistics t[redacted]

5. **Arrow has previously undertaken (via FKG) at the meeting at Dalby that the noise and vibration data will be provided on a 10-day basis. Please provide the data to date and on an ongoing manner without delay.**

Arrow and FKG are currently collating the noise data, and will aim to have this provided to you by the end of the week.

We further note that no commitment regarding vibration data has been made previously.

6. **Further, Arrow undertook to provide the data relating to the cadastral survey (+1m). Please provide that information urgently.**

Please see the attached document: *Plan of Identification Survey of part of Lot 1 on RP83134*.

7. **Arrow via FKG provided an undertaking to provide the family with contact details for persons with direct responsibility for the works to whom they can relay their concerns (eg HSE Advisor). Please provide that data urgently.**

As discussed at the meeting on 14 July 2021, Eric Smit is the FKG Project Manager for the intersection safety upgrade project. His contact number is 0418 111 487.

8. **Please note and provide written evidence of the family's complaints being logged by FKG, as per the Environmental Management Plan re community complaints of noise and vibration - the family has complained to individuals on-site including Police officers present since last Monday approximately 6 times regarding noise. The EMP is specific in regard to the method of handling such complaints.**

Arrow are responsible for ensuring contractors adhere to all contractual requirements, including management plans, and undertake internal audits of project documentation as required. Arrow are confident that FKG are meeting their EMP requirements. Documentation will not be provided to this effect.

9. **The FKG Environmental Management Plan is also specific regarding a commitment that "Noise from construction activities must not cause environmental nuisance at any noise sensitive place."**

As stated above, Arrow is confident that FKG are meeting the requirements of their EMP.

If you have specific concerns beyond those we've previously discussed, we ask you to relay these to us and we will investigate.

Alternately, you may raise your concerns with the Department of Transport and Main Roads.

Additional actions

Further to the above points, we would like to note that Arrow and FKG have proactively implemented additional actions to address Removed concerns, beyond project requirements. These actions include the installation of noise matting on ATF temporary security fencing and additional traffic controls to assist M Removed safe exit from his property.

We remain committed to completing the intersection upgrade in a safe manner that minimises impacts to stakeholders, including Removed

Kind regards,

Elliot Willemsen-Bell
Principal Community
Arrow Energy Pty Ltd

From: Removed
Sent: Monday, 2 August 2021 9:35 AM
To: Elliot Willemsen-Bell <Elliot.Willemsen-Bell@arrowenergy.com.au>; info@fkg.com.au; HORTON Sarah <Sarah.Horton@des.qld.gov.au>; Dennis Henningsen <Dennis.Henningsen@oir.qld.gov.au>

Cc Removed ; Ann Leahy <warrego@lnpq.org.au>; phil.joyce@dsdilgp.qld.gov.au
Su ec : w : esponse an no se comp a n s ES ref: CTS 14594-21)

[External Email]

This email was sent from outside the organisation – be cautious, particularly with links and attachments.

Elliot, FKG, OIR, DES,

the Family has still not received an adequate response to the email below. The FKG H&S advisor failed to attend a meeting with the family on Friday.

Saturday and this morning the vibration in the house was so bad that the dishes were moving in the kitchen and kids were holding their ears and crying. They have had to leave their home.

It is very difficult to understand how the statutory duty to the health, safety, and wellbeing of this family is being fulfilled.
They wish this also to be lodged as an urgent formal complaint with Arrow, FKG, DES, and OIR.

Removed

www.molliwell.com.au
M: Not Relevant

---------- Forwarded messa e ---------
From: Removed olliwell.com.au>
Date: Tue, Jul 27, 2021 at 2:11 PM
Subject: Response and noise complaints (DES ref: CTS 14594-21)
To: Elliot Willemsen-Bell <Elliot.Willemsen-Bell@arrowenergy.com.au>, <info@fkg.com.au>
Cc: Removed , HORTON Sarah <Sarah.Horton@des.qld.gov.au>

Elliot,
Please be advised of the following:

1. The family has not denied Arrow undertaking a dilapidation survey, in the email on 6 July, they consented to the survey under reasonable conditions - specifically:
   -the family will also require a written undertaking from Arrow that the building condition survey will remain private and confidential within Arrow's legal department and will only be utilized by Arrow in relation to the impacts from the road works and will be referred to for no other purpose.
   -Also, that the family receives a copy of the report *from the third party* concurrently with Arrow and prior to any works.
   -with the additional condition in response to recent issues that Arrow staff are not to be on the property.
2. Please provide written evidence that this has been formally logged with FKG as per their Environmental Management Plan, the dilapidation survey was to be conducted prior to commencing, representing a non-conformance with the Plan
3. The family do not understand how a risk assessment regarding the vibration issues could be conducted with veracity without accessing the property or understanding the physical conditions and request a copy of such a document and the subsequent 'plan' if Arrow is to rely upon it.
4. Please proceed with arrangements for the dilapidation survey.

5. Arrow has previously undertaken (via FKG) at the meeting at Dalby that the noise and vibration data will be provided on a 10-day basis. Please provide the data to date and on an ongoing manner without delay.
6. Further, Arrow undertook to provide the data relating to the cadastral survey (+1m). Please provide that information urgently.
7. Arrow via FKG provided an undertaking to provide the family with contact details for persons with direct responsibility for the works to whom they can relay their concerns (eg HSE Advisor). Please provide that data urgently.
8. Please note and provide written evidence of the family's complaints being logged by FKG, as per the Environmental Management Plan re community complaints of noise and vibration - the family has complained to individuals on-site including Police officers present since last Monday approximately 6 times regarding noise. The EMP is specific in regard to the method of handling such complaints.
9. The FKG Environmental Management Plan is also specific regarding a commitment that "Noise from construction activities must not cause environmental nuisance at any noise sensitive place."

Thank ou.

Removed

www.molliwell.com.au

M: Not Relevant

FK Gardner & Sons

SURAT OFF-PLOT CIVILS AND SPECIALIST ROADS CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Surat – Off-Plot Civils and Specialist Roads

Document No.: S00-ARW-ENV-PLA-00008

ARW Rev	FKG Rev	Date	Description	By	Checked	QA	Approved
1.0	C	25/03/2021	Issued for Use				
0.1	B	11/03/2021	Issued for Review	AH	LH		

This document is considered uncontrolled when printed.

REVISION HISTORY

This table describes the primary reason for the production of each new revision after Rev 1.0

Date	Rev	Reason for change

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

Principal Contract Number:	103999CNT
Project Code:	20052
Project Name:	Arrow SGP Civils & Specialist Road Construction
FKG Division Conducting Works:	**FKG Civil Pty Ltd ABN 65 123 436 751**

PLAN APPROVAL

Completion of this section indicates acceptance of the content and approval to proceed with use on the project as specified. ALL fields shall be completed prior to commencing works. ALL Plan re-issues shall be re-approved with superseded versions retained on site HC File. Scanned copies along with the source electronic version shall be retained in HC section 19-1.

FKG Revision:	**C**	**Arrow Revision:**	**1.0**	**Date of Issue:**	**25/03/2021**

ROLE	COMPANY	NAME	DATE	SIGNATURE
Environmental Advisor	FKG Civil Pty Ltd			
Project Manager	FKG Civil Pty Ltd			
Operations Manager	FKG Civil Pty Ltd			

THIS DOCUMENT IS ELECTRONICALLY CONTROLLED WHEN VIEWED FROM THE FKG INTRANET AND IS UNCONTROLLED WHEN PRINTED UNLESS MARKED OTHERWISE.

TABLE OF CONTENTS

1	**PLAN MANAGEMENT DETAILS**	**6**
1.1	Plan Template Amendments Record	6
1.2	Project-Specific Amendments Record	6
1.3	Electronic Forms	7
1.4	Reference Documents	7
2	**PROJECT DETAILS**	**10**
2.1	Background	10
2.2	Site Description	10
2.3	Scope of Works	10
2.4	Management and Reporting Structure	11
2.5	Environmental Contract Requirements	11
2.6	Arrow Mode 2 Contractor Requirements	12
3	**ENVIRONMENTAL MANAGEMENT SYSTEM**	**13**
3.1	Environmental Management Plan	13
3.2	FKG Environmental Policy	13
3.3	Engineering Integrated Management System Structure	14
3.4	Environmental Objectives and Targets	15
4	**LEGISLATIVE AND REGULATORY COMPLIANCE**	**16**
4.1	Relevant Legislation, Guidelines and Standards	16
4.2	Approvals, Licences, Permits	18
5	**STRUCTURE AND RESPONSIBILITIES**	**19**
5.1	FKG Environmental Roles & Responsibilities	19
6	**ENVIRONMENTAL RISK MANAGEMENT**	**21**
6.1	Project Risk Assessment	21
7	**ENVIRONMENTAL CONTROL MEASURES**	**22**
7.1	Soil & Water Quality	22
7.2	Cultural Heritage	25
7.3	Noise and Vibration	26
7.4	Air Quality	27
7.5	Land Management	28
7.6	Flora and Fauna Management	30
7.7	Weed and Pest Management	32
7.8	Waste Management	34
7.9	Dangerous Goods & Hazardous Materials	36
7.10	Reinstatement and Stabilisation	38
8	**TRAINING AND AWARENESS**	**41**
8.1	Site Induction	41
8.2	Toolbox Training	41
8.3	Environmental Management Training	41
9	**ENVIRONMENTAL INCIDENT PROCEDURE**	**42**
9.1	Environmental Incident Levels	42
9.2	Environmental Incident Investigation and Close-out	43
10	**MONITORING AND REVIEW**	**45**
10.1	Daily Site Inspections and Surveillance	45
10.2	Weekly Site Environmental Inspection	45

10.3 Auditing & Reporting 45
10.4 Continuous Improvement 46
10.5 Environmental Records 46
10.6 Document and Data Control 47

APPENDIX 1 VEHICLE AND MACHINERY HYGIENE PROCESS FLOW CHART 48

APPENDIX 2 FKG CORPORATE ENVIRONMENTAL POLICY 49

APPENDIX 3 FKG PROCEDURES AND FORMS 50

List of Tables

Table 1 Referenced Documents 7
Table 2 - Referenced Documents 8
Table 3 - Related Documents 11
Table 4 - Relevant Legislation, Policies and Guidelines 17
Table 5 - FKG Key Personnel Environmental Responsibilities 19
Table 6 - Soil & Water Quality Mitigation Measures 23
Table 7 - Cultural Heritage Management Measures 25
Table 8 - Noise & Vibration Mitigation Measures 26
Table 9 – Air Quality Mitigation Measures 27
Table 10 - Land Management Mitigation Measures 29
Table 11 - Flora & Fauna Mitigation Measures 30
Table 12 - Weed & Pest Mitigation Measures 32
Table 13 – Waste Management Control Measures 35
Table 14 - Dangerous Good & Hazardous Materials Mitigation Measures 36
Table 15 – Reinstatement and Stabilisation Measures 39
Table 16 - Environmental Incident Classes 42

List of Figures

Figure 1 - Project Location 10

PART A: PLAN MANAGEMENT

1 Plan Management Details

Document Control

The Project Manager is responsible for ensuring that this plan is reviewed and approved. The Project Environmental Advisor / Officer is responsible for updating this plan to reflect changes to the project, legal and other requirements, as required.

Review and Amendments

This Plan shall be reviewed whenever there is a significant change to the scope of works, critical incident or other change that may impact upon environment management of the Project. Any revisions or amendments must be approved by the Project Manager and Project Environmental Advisor before being distributed and implemented.

1.1 Plan Template Amendments Record

Date	Revision Number	Amendment Details	Controlled Copy No.	Issued To
30 Aug 2019	A	Template review and update	1	Server
31 Oct 2019	B	IMS Structure update	1	Server
05 May 2020	C	Plan structure update	1	Server
NOTE: For Version History refer to 'The Store' for further information.				

1.2 Project-Specific Amendments Record

Date	Template Revision	Issue	Section	Details	Prepared By
13/01/21	C	1	All	Addition of project-specific details	C.O'Sullivan

1.3 Electronic Forms

In order to streamline QSE data collation on site, FKG has adopted the use of a digital EHS platform – ***Lucidity*** – for the completion of electronic forms, project risk assessment and incident reports.

Electronic equivalents of the relevant FKG IMS forms are available for use within the Lucidity platform. All incidents are reported via the Lucidity platform.

1.4 Reference Documents

FKG procedures and forms referenced within this plan and are applicable to the Project are listed in below in *Table 1*, and can be accessed via FKG's intranet page, the Store.

Documents numbers marked with an (E) denotes that the form is available for use in electronic format via Lucidity.

Table 1 Referenced Documents

Procedure/Form Name	Document Number
Construction Management Plan	S00-ARW-PMC-PLA-00077
Erosion and Sediment Control Procedure	ENV P01CV
Internal Audit Management Procedure	AUD P01
Cultural Heritage Management Procedure	ENV P02
Spills Management Procedure	ENV P08
Flora and Fauna Management Procedure	ENV P05
Waste Management Procedure	ENV P09
Dewatering Procedure	ENV P11
Environmental Inspection Checklist	ENV06 (E)
Water Quality Sampling Form	ENV10 (E)
Dewatering Approval Form	ENV12 (E)
Rainfall Inspection Checklist	ENV14 (E)
Non-Conformance / Corrective Action Report	PM16 (E)
Monthly Project Review	PM28CV
QSE Monthly Planning Meeting	PM60CV
Lessons Learnt / Innovations	PM62 CV
Site Induction Register	WHS03
Toolbox Training Attendance Form	WHS04 (E)
Dangerous Goods & Hazardous Materials Register	WHS09
Hazardous Substances & Dangerous Goods Risk Assessment	WHS46
Lucidity – Risk Module Project Set up	LP RSK01

The following Procedures, Guides, Forms and Schedules shall be used in the delivery of the scope of works controlled by this CEMP:

Table 2 - Referenced Documents

Title	Document Number
Procedures	
SGP Civils & Specialist Road Construction Services	ORG-ARW-PMC-SOW-00035
Surat Off Plot Category 4 Works Premobilisation Scope of Work	S00-ARW-PMC-SOW-20070
Health Safety and Environment Policy	ORG-ARW-HSM-POL-00001
Environmental Management Plan	ORG-ARW-ENV-PLA-00003
Arrow Property Biosecurity Plan	ORG-ARW-ENV-PLA-00011
Arrow Energy Species Management Program	ORG-ARW-HSM-PLA-00070
Environmental Management Plan	ORG-ARW-ENV-PLA-00003
HSE Hazard Management Procedure	ORG-ARW-HSM-PRO-00017
HSE Competence and Induction Procedure	ORG-ARW-HSM-PRO-00024
Environmental Noise and Vibration Management Procedure	ORG-ARW-HSM-PRO-00064
Waste Management Procedure	ORG-ARW-HSM-PRO-00066
Fauna Management Procedure	ORG-ARW-HSM-PRO-00067
Visual Amenity and Lighting Procedure	ORG-ARW-HSM-PRO-00068
Air Emissions Procedure	ORG-ARW-HSM-PRO-00069
Ecological Impact Assessment Procedure	ORG-ARW-HSM-PRO-00070
Land Rehabilitation Procedure	ORG-ARW-HSM-PRO-00073
Incident Management Procedure	ORG-ARW-HSM-PRO-00089
Pest Management Procedure	ORG-ARW-HSM-PRO-00096
Vehicle and Machinery Hygiene Procedure	ORG-ARW-HSM-PRO-00138
Weed Management Procedure	ORG-ARW-HSM-PRO-00139
Site Handover Procedure	ORG-ARW-HSM-PRO-00144
Land Disturbance Procedure	ORG-ARW-HSM-PRO-00146
Standards and Guidelines	
Arrow HSE Standards	ORG-ARW-HSM-STA-00001
Dust Management Guideline	ORG-ARW-HSM-GUI-00050
Waste Classification and Tracking Guideline	ORG-ARW-HSM-GUI-00052
Ecological Survey Guideline	ORG-ARW-HSM-GUI-00070
Land Disturbance Guideline	ORG-ARW-HSM-GUI-00094
Ornamental Snake Guideline	ORG-ARW-HSM-GUI-00101
Fauna Management Guideline	ORG-ARW-HSM-GUI-00103
Biosecurity Guideline	ORG-ARW-HSM-GUI-00123
CSG Water Use Guideline	ORG-ARW-HSM-GUI-00146

Residual Drilling Material RDM Sampling Guideline	ORG-ARW-HSM-GUI-00114
African Lovegrass Tipton Field Biosecurity	ORG-ARW-HSM-PLA-00052
Erosion and Sediment Control – Surat & Bowen Basin Well Pads Plan	ORG-ARW-HSM-PLA-00004
Linear Infrastructure Standard Drawing Plan	ORG-ARW-HSM-PLA-00010
Forms	
Vehicle Hygiene Log (Weed Declaration)	ORG-ARW-ENV-FOR-00007
Vehicle Hygiene Inspection Checklist	ORG-ARW-ENV-FOR-00008
Fauna Incident Notification Form	ORG-ARW-ENV-FOR-00009
Permit to Work	ORG-ARW-HSM-FOR-00151
Long HSE Inspection	ORG-ARW-HSM-FOR-00196
Short HSE Inspection	ORG-ARW-HSM-FOR-00197
HSE Premobilisation Checklist	ORG-ARW-HSM-FOR-00217
Site Stabilisation Plan	ORG-ARW-HSM-FOR-00223
CSG Water Application Log	ORG-ARW-HSM-FOR-00242
Contractor Pre-Mobilisation Checklist	ORG-ARW-PMC-FOR-00001

PART B: PROJECT OVERVIEW

2 PROJECT DETAILS

2.1 Background

The purpose of this document is to communicate relevant environmental management requirements for construction activities under the Master Services Agreement to FKG staff and subcontractors.

2.2 Site Description

Works are to take place at Surat Operations located in the Surat Basin.

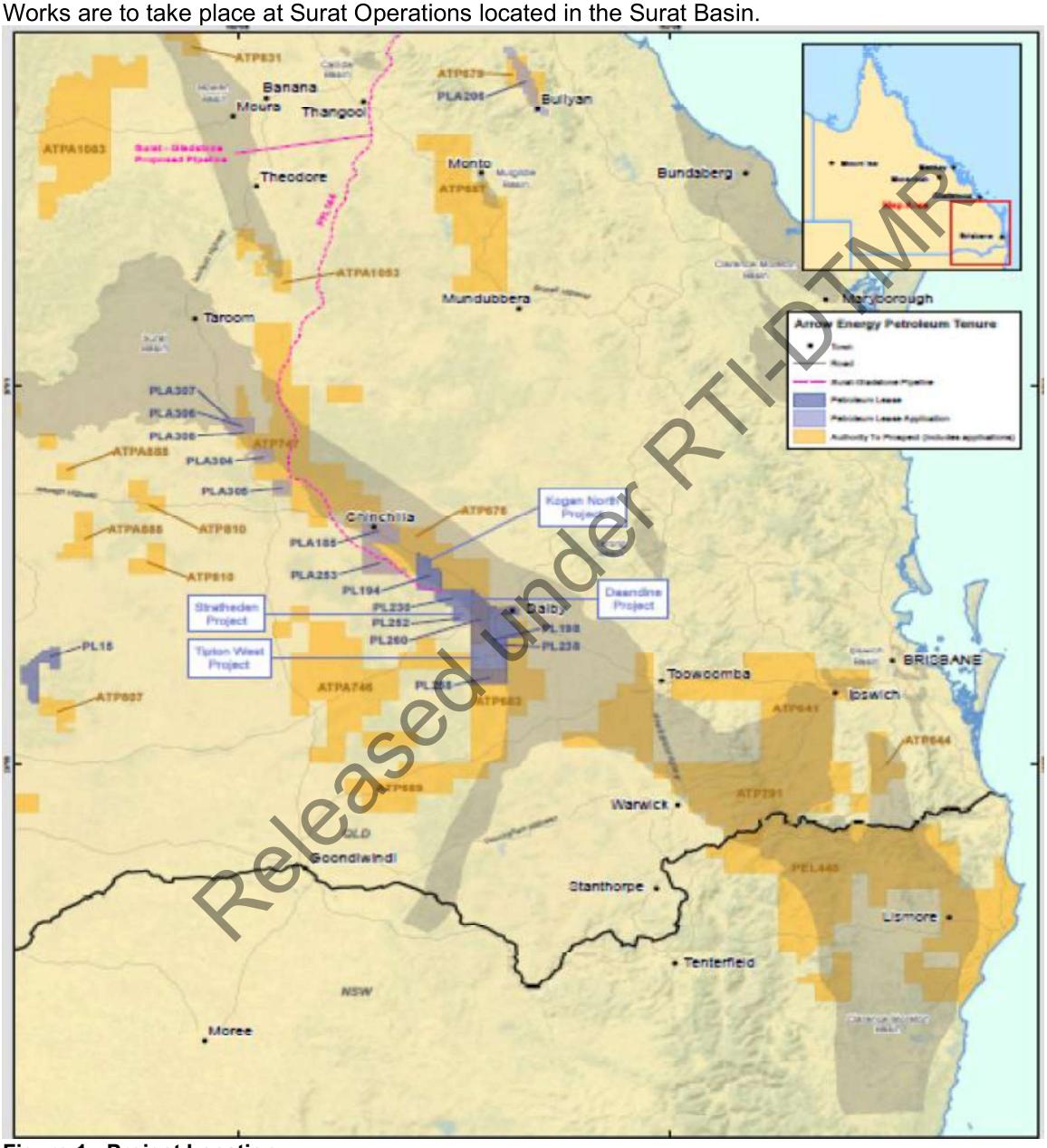


Figure 1 - Project Location

2.3 Scope of Works

This Master Services Agreement (**ORG-ARW-PMC-SOW-00035 Civils & Specialist Road Construction Services**) will allow Arrow to Call-Off works on a schedule of prices basis for:

- 2.1 SGP Civil Works
- 2.2 Specialist Roads

The scope of work will include the following work activities:

- Construction of Side Roads (Turn outs)
- Pavement Construction
- Single and multi-well pad construction, including:
  - Site Clearing and preparation
  - Vegetation strip and stockpiling
  - Topsoil strip & stockpiling
  - Earthworks
  - Bog mats, where necessary
  - Cutting sumps
  - Gravel pad
  - Wellhead fencing and gates
  - Rural fencing
- Access Road Construction, including:
  - Earthworks
  - Table drains
  - Scour protection, trafficable drains
  - Pavements
  - Road furniture, guideposts
  - Cattle grids & gates
  - Creek crossings
  - Culverts and stormwater drainage
  - Geometry provisions for oversize vehicles

2.4 Management and Reporting Structure

Refer to the organisational chart provided in the **Project Management Plan (S00-ARW-PMC-PLA-00077)**, which provides the management and reporting structure for the Project.

2.5 Environmental Contract Requirements

The following contractual requirements shall be implemented in the delivery of the Project, in accordance with the Contract:

- Compliance with all conditions of approval relevant to the Project
- Compliance with the Principal's HSE documents
- Compliance with the Principal's minimum HSE Premobilisation Criteria (Mode 2)
- Any additional approvals that may be required are secured by FKG, in agreement with the Principal Representative
- Suitably qualified environmental resources will be provided to undertake environmental duties relevant to the Project, including the implementation of the CEMP
- Mechanisms will be established and implemented to ensure continual improvement
- Compliance with any reasonable direction given by the Principal Representative to improve or rectify the Project's environmental practices.

This CEMP addresses all relevant requirements detailed in the Principal's environmental documentation, including all relevant project approvals, licences and permits. Refer to Table 2 for a list of Principal-supplied Contract documents relevant to the environmental management requirements of the Project.

Table 3 - Related Documents

Title	Reference
Land Rehabilitation Plan	ORG-ARW-HSM-PLA-00064
Arrow Energy Species Management Program	ORG-ARW-HSM-PLA-00070
Permit to Work Manual	ORG-ARW-HSM-MAN-00005

2.6 Arrow Mode 2 Contractor Requirements

Arrow's **HSE Mode 2 Schedule (ORG-ARW-HSM-SCH-00012)** included in Section VI of the Master Agreement forms the minimum HSE requirements for the Works. Prior to mobilisation to site, FKG must meet the minimum HSE Premobilisation Criteria (Mode 2) outlined within the **HSE Premobilisation Checklist (ORG-ARW-HSM-FOR-00217).**

Refer to the **Project Execute Stage Construction Environment Management Plan (ORG-ARW-ENV-PLA-00003)** for the environmental management requirements for Mode 2 Contractors.

PART C: GENERAL SECTION

3 Environmental Management System

3.1 Environmental Management Plan

This **Construction Environmental Management Plan** is designed to comply with the requirements of AS/NZS ISO 14001:2006 Quality Management Systems – Requirements and identifies the environmental requirements for construction of the Project.

The primary purpose of the CEMP is to provide an easily interpreted reference document that ensures all the Projects environmental commitments, safeguards and mitigation measures are collectively being implemented, monitored, audited/reviewed and improved during the course of construction activities.

The CEMP is designed to reflect and operate under the Principals and objectives of the both the FKG **Integrated Management System** (IMS) and the Principal's environmental requirements.

The key environmental performance objectives for the Project are to ensure compliance with all environmental legislation and approvals; and mitigate the risks of causing environmental harm.

This plan has the following framework:

Part A: Plan Management	This section details: Plan amendments FKG Procedures and Forms
Part B: Project Overview	This section clearly defines: Project Details / Contacts Project Scope Contract Requirements
Part C: General Section	This section outlines in detail the key factors for managing quality on the project: Environmental Management System Legislative Requirements Structure and Responsibilities Key Environmental Aspects, Impacts & Risks Environmental Control Measures Training and Awareness Monitoring and Review
Part D: Appendices	This section contains Appendices providing additional detail to support this plan: Principal Environmental Specifications and Approvals FKG Environmental Policy

This Plan is to be read in conjunction with the **Integrated Management System (IMS) Manual**. In the event of a conflict between the requirements of the Manual and this site-specific Plan, this Plan shall take precedence.

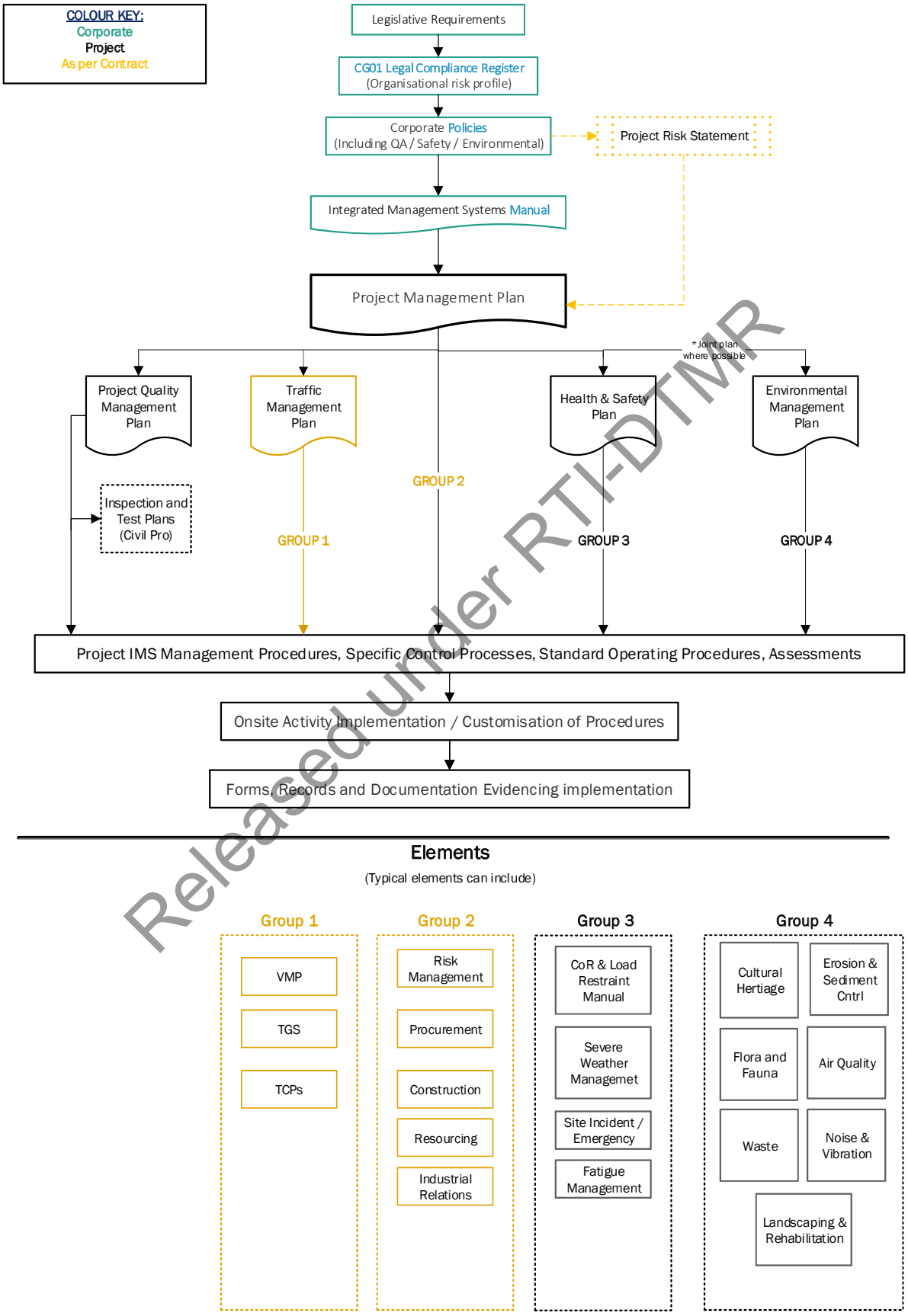
The following flowchart (also detailed in the FKG **IMS Manual** section 3.3) outlines the structure of the FKG Integrated Management System.

3.2 FKG Environmental Policy

This Plan has been developed in accordance with FKG's Corporate **Environmental Policy** (refer to Appendix 2). The **Environmental Policy** shall be displayed on site (e.g. Site office or Lunch area).

3.3 Engineering Integrated Management System Structure

The following Integrated Management System structure applies to all works delivered by the company.



3.4 Environmental Objectives and Targets

As set out in the **FKGCP03 Environmental Policy**, the FKG Environmental Management System objectives are summarised by a single Daily Mission of '**No Harm to the Environment**'.

In support of this Daily Mission, the environmental performance indicators and targets for the project are specified as follows:

No	Metric	Target	Tracked	Reported
1	Senior management inspections (PM36 or PM36a)	1 / month / project	Lucidity	• BFM (PM28CV) Project Reviews • Business Unit Monthly meetings • Bi-Weekly Management Meetings • Bi-Weekly System Improvement meetings
2	Project QSE Planning / Risk Review (PM 60CV)	1 / month /project	Project folder, Lucidity Risk module	
3	Task Observations Checklists (TOCs)	1/ week / project	QSE Dashboard	
4	Reportable environmental incidents	0	QSE Dashboard	
5	Environmental inspections (ENV06)	1 / week	QSE Dashboard	
6	Environmental toolbox talks	1 / month	QSE Dashboard	

4 LEGISLATIVE AND REGULATORY COMPLIANCE

The Project is to be delivered in compliance with all applicable Acts and Regulations relevant to the scope of works. Legal Compliance monitoring, review and change shall be managed in accordance with FKG's Legal Compliance Management Procedure.
The **Legal Compliance Register (CG01)** identifies all current legislation, guidelines and standards. This Register is used to guide the development of the **Project Risk Assessment** (PRA / **Lucidity Risk Register**) for the Project, which references the legislation applicable to the Project within the relevant section of the PRA.

The key environmental legislation, guidelines and standards applicable to the Project are detailed below.

4.1 Relevant Legislation, Guidelines and Standards

4.1.1 Key Environmental Legislation

The key environmental legislation relevant to the Project includes the following:

- *Environmental Protection Act 1994 (QLD)*

The object of the Queensland Environmental Protection Act 1994 is to minimise the impact of development on all aspects and parameters of the natural environment. All persons are obliged under this Act to ensure they do not cause any environmental harm unless all practical measures to avoid that harm have been taken.

The Project will mitigate its possible impacts on natural water bodies, soil health and stability, air and noise pollution and native flora and fauna. In accordance with the Act, FKG will notify the Principal Representative and/or the regulator of any potential or actual serious or material environmental harm caused by the Project's actions.

- *Nature Conservation Act 1992 (QLD)*

The Nature Conservation Act 1992 seeks to protect designated natural areas and the native flora and fauna which are likely to inhabit and depend on those areas. All persons are obliged under this act to ensure they, and their activities, do not cause harm to native plants and wildlife and the ecosystems in which they are found and depend on.

The Project will consider and avoid impacts on surrounding natural areas, native plants and animals and the ecological processes on which they depend.

- *Biosecurity Act 2014 (QLD)*

The main purpose of the Biosecurity Act 2014 is to provide a biosecurity system that helps to minimise biosecurity risks and facilitates responding to biosecurity events in a timely and effective way. The Act provides comprehensive biosecurity measures to safeguard the economy, agricultural and tourism industries, environment and way of life, from: pests (e.g. wild dogs and weeds); diseases (e.g. foot-and-mouth disease); and contaminants (e.g. lead on grazing land).

In accordance with the General Biosecurity Obligation, the Project shall take all reasonable and practical steps to prevent or minimise each biosecurity risk; minimise the likelihood of causing a 'biosecurity event' and limit the consequences if such an event is caused.

- *Soil Conservation Act 1986 (QLD)*

The object of the Soil Conservation Act 1986 is to conserve the states soil resources by ensuring land holders facilitate appropriate soil conservation measures at a property scale. All landholders or organisations with a management right over a landholding have an obligation under this act to mitigate soil erosion.

Management of all disturbance areas within the Project will ensure, via the use of approved management and control plans, its operations preserve the existing site soil qualities and abate any decline in or loss of them.

- *Water Act 2000 (QLD)*

The object of the Water Act 2000 is to achieve sustainable use of water resources by mitigating or abating any negative impacts on the quality of water that occurs within water courses, springs, lakes or dams. All persons are obliged under this act to ensure they and their activities do not negatively impact on the health and ecological functioning of these landscape features.

4.1.2 Relevant Legislation, Guidelines and Policies

Table 4 below provides the environment-related instruments relevant to the Project.

Table 4 - Relevant Legislation, Policies and Guidelines

Type	Title
Legislation	Aboriginal Cultural Heritage Act 2003
	Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Commonwealth)
	Biosecurity Act 2014
	Chemical Usage (Agricultural and Veterinary) Control Act 1988
	Environmental Protection Act 1994
	Environmental Protection Regulation 2019
	Environment Protection and Biodiversity Conservation Act (Commonwealth) 1999
	Environment Protection and Biodiversity Conservation Regulations (Commonwealth) 2000
	Fisheries Act 1994
	Land Act 1994
	Local Government Act 2009
	Nature Conservation Act 1992
	Nature Conservation (Wildlife) Regulation 2006
	Nature Conservation (Protected Areas Management) Regulation 2006
	Native Title (Queensland) Act 1993
	Planning Act 2016
	Queensland Heritage Act 1992
	Soil Conservation Act 1986
	Transport Infrastructure Act 1994
	Vegetation Management Act 1999
	Vegetation Management Regulation 2012
	Water Act 2000
	Waste Reduction and Recycling Act 2011
	Waste Reduction and Recycling Regulation 2011
	Work Health and Safety Act 2011

Type	Title
	Work Health and Safety Regulation 2011
Policies	Environmental Protection (Air) Policy 2019
	Environmental Protection (Noise) Policy 2019
	Environmental Protection (Water & Wetland Biodiversity) Policy 2019
	State Policy for Vegetation Management (VEG/2014/1084) Version 4, 2014
Guidelines / Other	*QLD Water Quality Guidelines 2009* https://environment.des.qld.gov.au/water/pdf/water-quality-guidelines.pdf
	International Erosion Control Association (IECA) - *Best Practice Erosion and Sediment Control – for building and construction sites (November 2008)* http://www.austieca.com.au/publications/best-practice-erosion-and-sediment-control-bpesc-document
	Erosion and Sediment Control – A Field Guide for Construction Site Managers (Catchments and Creeks) *http://www.catchmentsandcreeks.com.au/docs/Erosion-and-Sediment-Control-A-Field-Guide-for-Construction-Site-Managers-screen.pdf*
	National Environment Protection Measures (NEPMs) http://www.nepc.gov.au/nepms
	Monitoring and Sampling Manual 2009 (Environmental Protection (Water) Policy 2009. *Version 2 July 2013 https://environment.des.qld.gov.au/water/pdf/monitoring-man-2009-v2*

4.2 Approvals, Licences, Permits

In the event that works are required in addition to the specified Scope of Works, FKG will seek the necessary approvals in consultation with the Principal Representative.

5 STRUCTURE AND RESPONSIBILITIES

5.1 FKG Environmental Roles & Responsibilities

All FKG personnel (including sub-contractors) have a general environmental duty of care as defined in the Environmental Protection Act 1994; and are responsible for their own environmental performance whilst on site.

5.1.1 Key Personnel Environmental Responsibilities

Table 5 outlines the specific responsibilities of key FKG personnel working on the Project.

Table 5 - FKG Key Personnel Environmental Responsibilities

Role	Responsibilities
Project Manager	- Ensure compliance with all applicable legal, approval and project environmental obligations - Ensure all project staff are competent to undertake their duties including fulfilment of the general environmental duty, with regard to appropriate education, training and experience - Ensure the necessary resources and processes are in place for implementation of required environmental controls - Ensure all site supervisors are familiar with environmental obligations, project approvals, CEMP, relevant environmental management plans and associated documents, and their responsibilities within them - Participate and provide guidance in the regular review of the CEMP and associated documents - Take action in the event of an emergency and allocating the required resources to minimise environmental impact - Ensure non-conformances are identified, recorded and reported - Report any activity that has resulted, or has the potential to result, in an environmental incident to the Principal Representative - Work with the Environmental Advisor / Officer in planning and implementing environmental requirements
Site Supervisor	- Communicate with all personnel and subcontractors regarding compliance with the CEMP and site-specific environmental issues - Coordinate the implementation of the CEMP - Work with the Environmental Advisor / Officer in planning and implementing environmental requirements - Undertake site inspections - Ensure non-conformances are identified, recorded and reported - Drive implementation of preventative and corrective actions - Co-ordinate the implementation and maintenance of pollution control measures. - Provide necessary resources required for implementation of the CEMP - Co-ordinate action in emergency situations and allocating required resources - Ensure that instructions are issued and adequate information provided to field based employees which relate to environmental risks on site

All FKG Personnel	- Report any activity that has resulted in, or has the potential to result in an environmental incident immediately to the Site Manager, Project Manager and Environmental Officer - Where necessary, ensuring environmental inspections are undertaken and any environmental records are kept - Carry out all activities in accordance with the CEMP - Identify and report non-conformances - Implement corrective and preventative action - Work with the environmental team in planning and implementing environmental requirements
Site Environmental Advisor / Officer	- Implement the environmental management plans and procedures, and update as required in consultation with the FKG Environment Manager - Monitor the implementation and effectiveness of the FKG CEMP - Review and update the FKG CEMP in consultation with the FKG Environment Manager - Conduct environmental auditing, monitoring and training - Complete environmental reporting requirements - Provide advice on environmental matters and corrective actions as requested - Assist with environmental incident response, management, reporting and close out

6 Environmental Risk Management

Environmental aspects as referred to in this document are those activities associated with the Project that have the potential to cause, or result in, environmental harm.

Environmental harm is defined by the *Environmental Protection Act* 1994 (Qld) as any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value. It may be caused by direct or indirect result of an activity. An environmental value is a quality or physical characteristic of the environment that is conducive to ecological health or public amenity; or another quality of the environment identified and declared to be an environmental value under an environmental protection policy or regulation.

An environmental risk assessment process has been utilised to identify and assess the environmental aspects & potential impacts associated with the Project; and to identify appropriate mitigation strategies to minimise the likelihood of environmental risks associated with each aspect. This process is summarised as follows:

- Identify the hazards
- Assess risks that may result because of the hazards
- Decide on appropriate control measures to prevent, or minimise the level of the risks
- Implement control measures
- Monitor and review the effectiveness of the measures.

6.1 Project Risk Assessment

This risk assessment process is completed via the **Lucidity Risk Register**, which generates a detailed **HAZID Risk Assessment (S00-ARW-HSM-LRM-00009)** for the Project, inclusive of any environmental aspects and risks.

The Project Manager is responsible for the development of the **Lucidity Risk Register** at Project commencement, as per **LP RSK01 Lucidity – Risk Module Project Set up.**

The Project Manager & Environmental Advisor shall ensure that:

- all Project environmental risks are identified within the **Lucidity Risk Register,** which generates a detailed **HAZID Risk Assessment (S00-ARW-HSM-LRM-00009)**
- all necessary mitigations measures and controls relating to manage the risks are documented within this Plan (see Section 7)
- The aspects and risk are to be routinely assessed as suitable/applicable to the Project's activities, as per the Section 6.1.1 below.

The Project's **Lucidity Risk Register,** which generates a detailed **HAZID Risk Assessment (S00-ARW-HSM-LRM-00009)** is a 'live' document, to be continuously updated as the Project progresses. An uncontrolled copy of the Register can be exported from Lucidity upon request.

6.1.1 PRA / HAZID Risk Assessment Review & Update

The **PM60CV QSE Planning Meeting** is to be carried out monthly by the Project team, and includes a review and update of the **Lucidity Risk Register** which generates a detailed **HAZID Risk Assessment (S00-ARW-HSM-LRM-00009)** relevant to upcoming works and activities of the Project.

Where required, actions can be generated and allocated to Project personnel within the Lucidity platform, in response to newly identified environmental risks, including for example the implementation of additional environmental controls, and updates to this Plan as appropriate.

7 ENVIRONMENTAL CONTROL MEASURES

The environmental control measures for the Project have been developed in accordance with the Principal's HSE Management System and environmental documentation. The control measures identified in this section are to be implemented to ensure that the residual risk levels identified in the **Lucidity Risk Register/HAZID** are realised.

The project shall also adopt the management strategies and control measures detailed in the Principal's Project Execute Stage Construction Environmental Management Plan – Appendix D General Aspects, Impacts and Management Measures Overview.

Refer to Section 9 for the environmental incident management procedure and Section 10 for details regarding environmental reporting and compliance.

7.1 Soil & Water Quality

7.1.1 Objective

The Soil and Water quality objectives for the Project are to:

- Minimise the potential for sediment loss from the site and contamination of downstream waters.
- Effective management of construction works, including topsoil stripping, vegetation clearing and bulk earthworks.
- Ensure that all construction activities do not cause environmental harm with respect to soil & water quality

7.1.2 Performance Criteria

- Implement and maintain a site-specific Erosion and Sediment Control Plan, in accordance with the IECA Best Practice Guidelines (2008).
- No degradation of water quality offsite.
- Suspended solids not to exceed the relevant criteria for discharges to the receiving environment.
- Avoid loss of fertile topsoil.
- No disturbance to vegetation outside of the disturbance approval area, and minimised disturbance of vegetation within the approved area boundary.
- No spills or incidents associated with stored fuels or other contaminants that may result in the contamination of soils and/or watercourses.

7.1.3 Mitigation Measures

Table 6 outlines the key mitigation measures to be implemented to minimise impacts to soil and water quality during construction.

FKG will utilise Arrow Energy standardised **Erosion and Sediment Control Plans** (**ORG-ARW-HSM-PLA-00004** & **ORG-ARW-HSM-PLA-00010**) for each Call-Off order received. If conditions are different to the standardised Arrow ESC plans mentioned above, then FKG will site team alongside FKG environmental officer are to review site conditions in accordance with the **Erosion and Sediment Control Framework (S00-ARW-ENV-PLA-00013)** and FKG Erosion and Sediment Control Procedure ENV P01CV. A risk assessment will be created based on the differing site conditions from the standardised document.

Table 6 - Soil & Water Quality Mitigation Measures

Action	Responsibility	Timing
Call-Off Order received, review of feasibility of utilisation of Arrow Standardised ESC plans **ORG-ARW-HSM-PLA-00004** & **ORG-ARW-HSM-PLA-00010**). If conditions are different then review against **Erosion and Sediment Control Framework (S00-ARW-ENV-PLA-00013)**	Project Manager/Environmental Officer	As required
Erosion and sediment controls shall be installed progressively during site preparation works, in accordance with the ESC Plan. Where possible, control measures should be installed prior to disturbance for construction, vegetation clearance or services installation.	Project Manager	As required
Stabilised access points (e.g. rumble grids, rock pad) shall be installed at site entry/exit points where appropriate.	Project Manager	Prior to construction
Topsoil shall be stripped and stockpiled for reuse in stabilisation activities as required.	Project Manager / Environmental	As required
Disturbed areas shall be reinstated and stabilised as soon as practical to minimise erosion. Where areas are required to be disturbed/exposed for extended periods, temporary ground cover measures shall be implemented where possible (e.g. geo-fabric, emulsion spray) to minimise erosion potential.	Project Manager / Environmental Officer	As required
In the event Potential Acid Sulphate Soils (PASS) is identified, the located is to be recorded and reported to the Principal Representative. Management of PASS/ASS shall be conducted as directed by the Principal Representative.	Project Manager	As required
Where possible, construction works should be staged in a manner that minimises the duration and extent of exposed soils and sub-soils.	Project Manager	Project duration
Surface water diversion systems and erosion control measures including sediment traps and fences shall be in place during all construction works, until such time as the relevant area has been fully reinstated and/or stabilised.	Project Manager / Environmental Officer	Project duration
Stormwater shall be diverted around the construction site, and any stormwater generated on site will be captured and treated appropriately prior to discharging off site. Refer to **ENV P11 – Dewatering Procedure** and/or the ESC Plan for details.	Project Manager / Environmental Officer	Project duration
Sediment fences will be located along contours where possible with appropriate spacing between stakes as required.	Project Manager	Prior to construction
Erosion and sediment controls will be visually inspected on a daily basis by the supervisor, weekly as part of the environmental inspection, within 24hrs following any rainfall event causing runoff, and prior to any site shutdowns greater than 3 days.	Project Manager / Environmental Officer	Project duration
Sediment removed from erosion and sediment control devices will be stockpiled and used in stabilisation of the Project.	Project Manager / Environmental	Project duration
Movement of vehicles will be restricted to access tracks and designated haul roads. Vehicles will follow onsite speed limits at all times.	All personnel	Project duration

Action	Responsibility	Timing
Visual water quality monitoring is to be carried out at the following frequencies/triggers during construction activities: • Weekly during construction where there is a potential impact to a Waterway with water present (for example from earthworks, stockpiling, clearing and grubbing) • As soon as practicable following a rain event causing runoff to a Waterway with water present Weekly visual monitoring results are to be recorded in the **ENV06 Weekly Environmental Inspection Checklist**; and following a rainfall event causing runoff, results are to be recorded in the **ENV14 Rainfall Inspection Checklist**.	Project Manager / Environmental Officer	As required
Where required, baseline and/or background water quality monitoring shall be conducted of waterways within the construction footprint and at upstream and downstream locations. Water quality monitoring results shall be recorded using **ENV10 Water Quality Sampling Form**	Project Manager / Environmental Officer	As required
Prior to offsite discharge of any water accumulated on site, the **ENV12 – Dewatering Approval Form** shall be completed and signed off. Refer to the **ENV P11 - Dewatering Procedure** for further details.	Project Manager / Environmental Officer	As required
Water quality release limits for water accumulated in excavations or trenches in the Project area, which requires active discharge off site are as follows: • pH: 6.5 – 8.5 • TSS: 50 mg/L (or equivalent Turbidity, established by site correlation) • Hydrocarbons: no visible trace • Waste: no litter	Project Manager/ Site Environmental Representative	When required
The key construction activities that require consumption of water include earthworks, pavements, stabilisation, landscape watering and dust control.	Project Manager/ Site Supervisor	Project duration
Refer to the **CSG Water Use Guideline (ORG-ARW-HSM-GUI-00146)** for the management measures required to ensure lawful use of coal seam gas water for dust suppression, construction and operational activities.	Project Manager/ Environmental Representative	Prior to commencement of work
All water take records shall be kept in accordance with the **CSG Water Use Guideline.** The **CSG Water Application Log (ORG-ARW-HSM-FOR-00242)** shall be maintained to record all water use.	Project Manager/ Environmental Representative	As required

7.1.4 Corrective Actions

- Revision of construction activities and/or the ESCP shall be conducted as required.
- All incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.

- In the event of an environmental incident, appropriate corrective actions shall be implemented to ensure environmental harm from the event is minimised.
- All soil & water quality related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident/non-conformance reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure**.

7.2 Cultural Heritage

7.2.1 Objectives

The cultural heritage objectives of the Project are to:

- Comply with contractual and legislative requirements and
- Ensure that the bulk earthworks and construction activities do not have the potential to damage/ destroy places/ artefacts of cultural significance.

7.2.2 Performance Criteria

- No incidences where damage/ destruction occurs to a place of cultural significance or an archaeological artefact.
- No access to areas identified as culturally significant, except with written approval from the Principal Representative

7.2.3 Mitigation Measures

Table 7 identifies the management measures to be implemented to avoid impacted on any items of cultural heritage significance.

Table 7 - Cultural Heritage Management Measures

Action	Responsibility	Timing
In the event of suspected cultural heritage items being identified on site, all works within 100m of the find will cease and the area made secure to enable inspection and sampling of the site. Any unexpected finds are to be reported immediately to the Principal Representative.	Project Manager / Principal Rep	As required
Refer to the **ENV P02 Cultural Heritage Control Procedure** for further information regarding the management of unexpected finds.	Project Manager	As required

7.2.4 Corrective Actions

- All unexpected finds shall be reported to the Project Manager and Environmental Officer immediately.
- In the event of a disturbance of an item of cultural heritage significance or similar incident, appropriate actions shall be implemented to ensure damage of to the item or items is minimised.
- All incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- All heritage related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure**.

7.3 Noise and Vibration

The Project shall adopt the strategies and control measures detailed in the Principal supplied Environmental Noise and Vibration Management Procedure (ORG-ARW-HSM-PRO-00064).

7.3.1 Objectives

The Noise and Vibration Management objectives are to:

- Minimise excessive noise and vibration resulting from the Project.
- Implement proactive measures to minimise noise and vibration complaints from land based sensitive receivers during the construction works.
- Achieve compliance with environmental nuisance laws, as well as relevant noise and vibration criteria.

7.3.2 Performance Criteria

- Noise from construction activities must not cause an environmental nuisance at any 'noise sensitive place' as defined under the Environmental Protection (Noise) Policy 2008, or any commercial place.
- Corrective action in response to complaints is to occur immediately following receipt of a complaint.

7.3.3 Mitigation Measures

Table 8 outlines mitigation measures that shall be implemented to minimise noise and vibration related issues during construction.

Table 8 - Noise & Vibration Mitigation Measures

Action	Responsibility	Timing
Construction activities will occur between 0600hrs and 1800hrs, 7 days a week. Or as otherwise specified within the AAP.	All personnel	Daily
Construction activities will not occur outside of standard hours unless written approval has been obtained from the Principal Representative (AAP)	Project Manager	Project duration
The Principal Representative will be notified 2 weeks in advance of all high noise and/or vibration generating activities (e.g. rock breaking, pile driving, etc), and submit a noise mitigation plan for the proposed activity for approval.	Project Manager	Monthly
Construction site personnel shall be made aware of all community attitudes and noise complaints through toolbox talks and awareness training sessions	Project Manager	As required
Stationary equipment such as generators shall be located as far as practicable from noise sensitive receptors. Noise barriers are to be utilised where required	Construction crews	Weekly
Horn signals shall be kept at a low volume, where feasible.	Construction crews	Project duration
All vehicles and equipment shall be turned off when not in use.	All staff	Daily
Regular maintenance of plant and construction equipment shall be conducted to ensure items are kept in good working order.	Project Manager	Project duration
All noise complaints shall be logged and reported to the Environmental Officer and Project Manager immediately upon receipt of the complaint and the actions that were taken shall be recorded.	Project Manager	As required
When requested by the Environmental Officer or Principal Representative, noise monitoring shall be undertaken by appropriately qualified personnel to investigate any complaint of noise nuisance. The Principal Representative shall be issued the results within 14 days of the monitoring being completed.	Project Manager	As required

7.3.4 Corrective Actions

- All incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- The Project Manager and/or Environmental Officer will liaise with the Principal Representative to outline the measures undertaken to mitigate the noise and/or vibration impact.
- All noise & vibration related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident/non-conformance reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure**.

7.4 Air Quality

The Project shall adopt the strategies and control measures detailed in the Principal supplied Air Emissions Procedure and Dust Management Guideline.

7.4.1 Objectives

The Air Quality Management objectives are to:

- Minimise impacts of dust generated due to construction works.
- Minimise impacts of dust generated from moving vehicles on unsealed tracks/roads.
- Minimise complaints from the community in relation to dust generated from construction activities.
- Preventing the release of any odour, dust or any other airborne contaminant that cause an environmental nuisance

7.4.2 Performance Criteria

- Dust generated during construction is appropriately managed.
- The release of dust, odour or particulate matter resulting from the construction activities must not cause an environmental nuisance.

7.4.3 Mitigation Measures

*Table **9*** details the air quality mitigation measures that shall be implemented during construction.

Table 9 – Air Quality Mitigation Measures

Action	Responsibility	Timing
Exposed areas are to be sprayed with water during dry conditions to minimise dust generation.	Supervisor	As required
Ensure all construction related stockpiles are covered or regularly watered to prevent dust emissions.	Supervisor	Weekly
Confine traffic to defined roads and tracks (including haul roads).	Supervisor	Weekly
Construction vehicles onsite are to observe speed limits.	All Personnel	Weekly
Dust generating activities shall be limited during periods of high velocity wind, as determined by the Project Manager in consultation with the Environmental Officer	Project Manager	As required
Visual monitoring for dust resulting from construction activities shall be undertaken by all personnel. Excessive dust generation shall be reported to the supervisor.	All staff	As required
All dust complaints from construction activities shall be recorded and reported to the Project Manager immediately after receipt of the complaint. All actions taken are to be recorded.	All staff	As required

Action	Responsibility	Timing
Where directed by the Principal, dust and particulate monitoring may be undertaken to investigate any complaint of environmental nuisance caused by construction dust and/or particulate matter. Monitoring shall be carried out at a place(s) relevant to the potentially affected dust sensitive place and at upwind control sites.	Environmental Officer	As required
All trucks transporting spoil and fill material to and from the site shall have covered loads if travelling on public roads.	Supervisor	Daily
All trucks, plant and temporary equipment used on site shall be regularly serviced such that they operate efficiently and do not emit excessive exhaust.	Supervisor	As required
Truck queuing, unnecessary idling of trucks and unnecessary trips shall be avoided through proper planning, toolbox sessions and awareness training.	Supervisor	As required
Burning of vegetation or other waste materials is not permitted	All Staff	At all times
No vegetation is to be cleared without approval from the Project Manager, in consultation with the Environment Officer. The clearing of vegetation is to be avoided where possible. No vegetation shall be cleared outside the approved footprint/alignment.	Project Manager / Environmental Officer	At all times
Areas disturbed due to construction activities are to be reinstated or stabilised as soon as practicable following construction.	Project Manager / Environmental Officer	As required

7.4.4 Corrective Actions

- If the Project Manager / Environmental Officer identifies that dust cannot be satisfactorily suppressed, dust generating construction activities shall cease until conditions allow recommencement of activities without causing dust nuisance.
- In the event of any air quality incident, appropriate actions shall be implemented to ensure environmental harm from the event is minimised.
- All air quality incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- All air quality related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or the **AUD P02 Incident Management Procedure** and/or **Incident Management Procedure ORG-ARW-HSM-PRO-00089**.

7.5 Land Management

The Project shall adopt the strategies and control measures detailed in the Principal supplied Land Disturbance Procedure (ORG-ARW-HSM-PRO000146) and Land Disturbance Guideline (ORG-ARW-HSM-GIU-00094).

The land management objectives of the Project are to:

- Avoid impacting the known contamination areas located adjacent to the Project site
- Ensure that any construction-related activities do not cause contamination of the site or the surrounding areas
- Carry out construction activities in a manner that minimises any potential impacts on surrounding land uses and access by landholders

7.5.1 Performance Criteria

- No disruption to, or complaints regarding, the activities of land holders in the area
- Maintain landholder property access at all times
- No damage to existing infrastructure, or injury to livestock
- No contamination of land resulting from construction activities

7.5.2 Mitigation Measures

Table ***10*** outlines the mitigation measures to be implemented to minimise impacts to the land during construction.

Table 10 - Land Management Mitigation Measures

Action	Responsibility	Timing
The construction site area is restricted to the Project area specified in the contract and the AAP. This area will be appropriately demarcated and all personnel, equipment, plant and vehicles are to remain within this area at all times.	Project Manager	Project duration
In the event of suspected contaminated material being identified on site, all works within 50m of the find will cease and the area made secure to enable inspection and sampling of the site. Any unexpected finds of suspected contamination are to be reported immediately to the Principal Representative. Works shall proceed only as directed by the Project Manager and/or Principal Representative.	Project Manager / Principal Rep	As required
Any excavated contaminated material is to be stockpiled separately from other material to avoid cross contamination. Contamination stockpiles are to be properly stabilised to prevent erosion and contaminated sediment runoff.	Project Manager / Environmental Officer	As required
Contaminated material shall not be removed from site without the appropriate permits/approvals in place.	Project Manager	As required
All fuels, chemicals and other hazardous materials stored on site, and all maintenance and refuelling areas will have a secondary containment system (e.g. impervious bunding) in place to minimise the risk of contamination	Project Manager	Project duration
All plant and machinery used on site will undergo regular maintenance and inspections for leaks etc, and all maintenance records are kept on file.	Project Manager	Project duration
Spill Kits shall be provided on site, specific to the hazardous substances being used on site.	Project Manager	Project duration
All spills are to be managed in accordance with Section 9 of this Plan, and with reference to the **ENV P08 Spills Management Procedure** as required.	Project Manager	Project duration
In the event that unexploded ordnance (UXO) is identified on site, DO NOT TOUCH OR DISTURB. Works shall cease immediately, and the site supervisor notified. The site supervisor shall then notify the Police. The area shall be clearly demarcated, and no access permitted to the area until further instruction from the Police or relevant authority.	Site Supervisor	As required
All vehicles are to remain on the designated access roads at all times.	Project Manager	Project duration

Action	Responsibility	Timing
A dilapidation survey shall be conducted prior to works commencing, including survey of the surrounding public roads in order to manage any damage to roads and property caused by the Project.	Project Manager	Prior to construction

7.5.3 Corrective Actions

- All incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- In the event of a land management incident, appropriate corrective actions shall be implemented to ensure environmental harm from the event is minimised.
- All land management related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure** and/or **Incident Management Procedure ORG-ARW-HSM-PRO-00089**.

7.6 Flora and Fauna Management

The Project shall adopt the strategies and control measures detailed in FKG's ENV P05 Flora and Fauna Management Procedure . The management strategies below shall be adopted in conjunction with the following Principal supplied documents:

- **Fauna Incident Notification Form – ORG-ARW-ENV-FOR-00009**
- **Ecology Survey Guideline – ORG-ARW-HSM-GUI-00094**
- **Ornamental Snake Guideline – ORG-ARW-HSM-GUI-00101**
- **Fauna Management Guideline – ORG-ARW-HSM-GUI-00103**
- **Fauna Management Procedure – ORG-ARW-HSM-PRO-00067**
- **Pest Management Procedure – ORG-ARW-HSM-PRO-00096**

7.6.1 Objectives

The flora and fauna objectives for the Project are to:

- Avoid any adverse impacts on flora and fauna species as a result of construction activities
- Minimise any disturbance to remnant native vegetation
- Protect any significant ecological communities and habitat values identified on site

7.6.2 Performance Criteria

- No clearing of vegetation or potential habitat areas without an approved permit in place
- No clearing outside of the disturbance approval area
- Successful stabilisation and reinstatement of temporarily disturbed areas

7.6.3 Mitigation Measures

Table 11 outlines only the key mitigation measures to be implemented to minimise the impact to flora and fauna on the site.

Table 11 - Flora & Fauna Mitigation Measures

Action	Responsibility	Timing
All personnel, equipment, plant and vehicles are to remain within the project limit at all times.	Project Manager	Project duration

Action	Responsibility	Timing
A certified fauna spotter/catcher (i.e. Holding a government-issued Rehabilitation Permit) shall be engaged to inspect the Project area prior to vegetation clearing.	Project Manager / Environmental Officer	Prior to clearing
The fauna spotter/catcher shall identify and clearly mark and map all hollow bearing and potentially hollow bearing trees as well as hollow logs to be relocated.	Project Manager / Environmental Officer	Prior to clearing
Any injured animals are to receive veterinary attention immediately and a **Fauna Incident Notification Form (ORG-ARW-ENV-FOR-00009)** must be completed and the incident registered.	Project Manager / Environmental Officer	Project duration
Displaced fauna shall be relocated (within their hollows) to a suitable, previously identified recipient site, provided the animal did not sustain any injuries. The relocated fauna will be noted within the fauna spotters daily report which will be made available.	Project Manager / Environmental Officer	Prior to clearing
In the case of the presence of other fauna species, the spotter/catcher shall encourage the fauna to leave by reasonable means or capture and relocate it in the local environment prior to felling and trimming.	Project Manager / Environmental Officer	Prior to clearing
The spotter/catcher shall be given 2 weeks' notice prior to clearing works commencing. There shall be at least one spotter/catcher for each clearing front at all times.	Project Manager / Environmental Officer	As required, during clearing
Vegetation to be cleared shall be restricted to that required for the construction of the Project. No vegetation outside the disturbance approval area shall be cleared.	Project Manager	Project duration
Clearly designated no-go areas shall be established prior to any vegetation clearing to prevent unnecessary encroachment or disturbance to vegetation. Temporary bunting or fencing and appropriate signage shall be utilised.	Project Manager / Environmental Officer	Prior to construction
Vegetation to be cleared shall be restricted to that required for the construction of the Project. No vegetation outside the disturbance approval area shall be cleared.	Project Manager	Project duration
Machinery, equipment and vehicles shall not be parked under the drip line of trees and shall not be left on site overnight, they must be parked up at stockpile, laydown or site compound areas.	Project Manager/ Site Supervisor	Project duration
Machinery shall only be driven on road shoulders and turned around in designated turnaround sites such as stockpile sites.	Project Manager/ Site Supervisor	Project duration
FKG as Mode 2 Contractor will monitor open excavations for trapped fauna. Mitigation measures may need to be installed to ensure fauna can escape open excavations (ramps and/or other measures as per Arrow direction)	Project Manager/ Site Supervisor	As required, while Mode 2.

7.6.4 Corrective Actions

- Any injured wildlife (native or introduced) are to be taken to receive veterinary attention immediately; once recovered, wildlife will be relocated to an area of similar habitat adjoining the Project area.

- All unauthorised clearing or other incident shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- All flora or fauna related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident/non-conformance reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure** and/or **Incident Management Procedure ORG-ARW-HSM-PRO-00089**.

7.7 Weed and Pest Management

The Project shall adopt the strategies and control measures detailed in the Principal supplied Vehicle and Machinery Hygiene Procedure (ORG-ARW-HSM-PRO-00138), Weed Management Procedure (ORG-ARW-HSM-PRO-00139), Biosecurity Guideline (ORG-ARW-HSM-GUI-00123) and the Arrow Property Biosecurity Plan (ORG-ARW-HSM-PLA-00052).

7.7.1 Objectives

The Weed and Pest Management objectives of the Project are to:

- Manage and control the spread of declared weed and pests within the Project area.
- Prevent the introduction of new declared weed or pest species to the Project area

7.7.2 Performance Criteria

- No spread or introduction of declared pest animal species
- No spread of declared weed species
- No introduction of declared weed & pest species to non-infested areas

7.7.3 Mitigation Measures

Table 12 outlines only the key mitigation measures to be implemented to minimise the impacts of weeds and pests on the site.

Table 12 - Weed & Pest Mitigation Measures

Action	Responsibility	Timing
Depending on the project area, the presence and/or distribution of high-risk weeds will be identified in the AAP relevant to the site. Arrow's high-risk weeds are comprised of Weeds of National Significance (WONS), Prohibited and Restricted category 1-7 plants under the *Biosecurity Act 2014* and other weeds declared under the *Local Government Act 2009* as local law.	Project manager	Project duration
Refer to the Principal supplied Weed Management Procedure to determine if a Biosecurity Plan is required for the works.	Project manager/ Environmental Officer	Project duration
All declared weed & species present within the construction area shall be identified and any weed infestations isolated and/or treated prior to construction commencing.	Project manager / Environmental officer	Prior to construction
The following records are required to be recorded and retained: • High risk weed mapping data and infestation information • Herbicide use records • Biosecurity plans and monitoring information	Project manager/ Environmental Officer	Project duration

Action	Responsibility	Timing
All site personnel shall be inducted on the weed management requirements, vehicle & equipment cleaning procedures, and weed & pest identification and reporting. Additional toolboxes and training sessions shall be rolled out as required.	Project manager	Project duration
Refer to Appendix A for the process flowchart provided by Arrow which defines the vehicle hygiene requirements for vehicles, machinery and loads before entering site, and on leaving the site.	Project manager	Project duration
A Driver must: 1. Obtain a weed hygiene declaration if carrying a load 2. Review relevant AAP Conditions for the site 3. Before going to site, assess whether vehicle is clean according to the Vehicle Hygiene Log (VHL). Inspect and cleandown if required - update VHL. 4. On leaving site, determine if an inspection and cleandown is required before accessing the next site (If staying on formed roads, hardstand areas or tracks free of vegetation – there is no requirement to inspect, cleandown or close out the VHL) 5. When travelling off formed roads, inspect and cleandown vehicle if inspected dirty, and fill out the VHL. If continuing to drive the vehicle, start another entry. 6. Complete the VHL as necessary in the vehicle, and where applicable, keep declarations for loads in the vehicle. Note that a weed hygiene declaration will be accepted instead of the VHL for one off or infrequent field visits.	Operators/ HSE Officer	Project duration
A copy of the VHL shall remain with the vehicle for duration that the certificate remains valid. If provided at a an external washdown facility, a copy of the certificate shall also be kept by the weed inspector.	Project Manager	Project duration
Vehicles and machinery shall be inspected by a trained person. Trained persons can inspect and sign for their own cleandown. The Vehicle Hygiene Inspection Checklist is available to highlight key areas to inspect.	Project Manager/ Site Supervisor	Project duration
The following completed documents are to be maintained: • Copy of VHLs for all vehicles and machinery • Copy of weed hygiene declarations Records shall be provided to Arrow Energy on a regular basis and/or when requested.	Project Manager	Project duration
The method selected to clean a vehicle or machinery should be appropriate to the risk, scale and type of activities being undertaken, and to the site conditions. When working in dry conditions, it is acceptable to use brooms/brushes, compressed air or a vacuum to remove contaminants.	Project manager	Project duration
Where practical, cleandowns shall be conducted on the site where the work has been undertaken. Cleaning activities will be undertaken using facilities and equipment with effective environmental controls to prevent weed spread.	Project manager	Project duration

Action	Responsibility	Timing
Loads of materials may pose a risk of introducing invasive biosecurity matter to a site and are subject to additional requirements. The following must be met: 1. All loads that could pose a biosecurity risk must have a current weed hygiene declaration 2. The declaration should be completed by the supplier and carried with the vehicle from the start of the journey 3. A copy of the declaration must be available to be provided to the Line Manager prior to unloading. 4. In the event that a vehicle requires multiple trips of the same load (e.g. moving quarry material), the materials are to be inspected and one declaration can support the duration of the activity.	Project manager	Project duration

7.7.4 Corrective Actions

- In the event of a weed or pest management incident, appropriate corrective actions shall be implemented to ensure environmental harm from the event is minimised.
- All incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- All weed or pest related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure** and/or **Incident Management Procedure ORG-ARW-HSM-PRO-00089**.

7.8 Waste Management

The Project shall adopt the strategies and control measures detailed in FKG's Waste Management Procedure.

7.8.1 Objectives

The Waste Management objectives of the Project are to:

- Minimise waste generated through construction activities and maximise waste recycling and reuse.
- Ensure that waste materials are handled, stored and disposed of in a manner that minimises impacts on air, water and land resources and protects the health of people working on the Project and in the surrounding community.

7.8.2 Waste Management Hierarchy

The waste and resource management hierarchy ("waste hierarchy") is to be applied for waste management on all project sites:

1. **AVOID** unnecessary resource consumption;
2. **REDUCE** waste generation and disposal;
3. **RE-USE** waste resources without further manufacturing;
4. **RECYCLE** waste resources to make the same or different products;
5. **RECOVER** waste resources, including the recovery of energy;
6. **TREAT** waste before disposal, including reducing the hazardous nature of waste;
7. **DISPOSE** of waste only if there is no viable alternative.

7.8.3 Performance Criteria

- Waste generation is minimised through the Waste Management Hierarchy
- Recycling bins are to be set up at strategic positions onsite.
- No litter to be observed at work sites.
- No unauthorised discharge of contaminants or wastes to the environment

7.8.4 Mitigation Measures

Table 13 outlines the control measures that shall be implemented to minimise waste production during construction and to prevent environmental incidents occurring as a result of waste produced onsite.

Table 13 – Waste Management Control Measures

Action	Responsibility	Timing
Waste materials, including spoil and construction wastes, should be separated onsite into dedicated bins/areas where practicable, for either reuse onsite, to be recycled or disposed of in an appropriate manner at licensed facilities as per the **ENV05 Waste Tracking Register**	Project Manager	Project duration
Waste storage facilities and spoil placement areas shall be located in easily accessible locations, away from existing drainage lines.	Project Manager	Project duration
The waste storage area shall be of adequate capacity to handle the volumes of waste being stored without posing a risk to the environment	Project Manager	Project duration
Appropriate spill kits shall be provided in the vicinity of the waste storage area and shall be maintained regularly to ensure no equipment is missing from the kits	Project Manager	Project duration
Watercourse, site drains and waterbodies shall not be polluted by waste.	Project Manager	Project duration
Where applicable, green waste should be mulched and reused onsite for landscaping and stabilisation.	Project Manager / Environmental Officer	As required
Packaging materials shall be returned to the supplier where possible.	Project Manager	Project duration
Where possible, goods shall be ordered in bulk to minimise packaging wastes. Where bulk delivery is not feasible, the purchase of products based on minimalist packaging and biodegradable materials shall be considered.	Project Manager	Project duration
No litter to be left onsite. All work areas to be tidied each day.	All staff	Weekly
Lids and seals shall be maintained on all odour generating waste material; and all domestic and food scrap waste shall be secured to prevent wildlife access	Project Manager	Project duration
FKG shall adhere to additional EA requirements for waste management on site: • No onsite disposal of waste unless permitted under the EA • No onsite burning of waste unless permitted under the EA • Manage waste in accordance with the waste and resource management hierarchy and the waste and resource management Principals	All staff	Project duration
Storage and disposal of chemicals shall be in accordance with SDS and Australian Standards for storage of chemicals and dangerous goods.	Project Manager	Project duration
Regulated wastes shall be stored in an appropriately secure containment area and managed by appropriately qualified licensed contractors.	Project Manager	Project duration
Regulated waste storage areas shall be clearly demarcated to prevent mixing with non-regulated waste. The **ENV05 Waste Tracking Register** shall be used to record all regulated wastes on site.	Project Manager	Project duration

Action	Responsibility	Timing
All sewage waste generated on site shall be collected and pumped out as necessary for offsite disposal to an appropriately licensed facility.	Project Manager	Project duration
The Site Induction & toolbox training shall include information on the following waste management issues: - The waste hierarchy as outlined in the Waste regulations. - The waste streams produced by the Project - Reuse and recycling strategies. - Waste handling, waste storage and disposal. - Management of waste spills, contamination and contaminated material. - Concrete washout.	Project Manager	Project duration

7.8.5 Corrective Actions

- In the event of a spill or similar incident, appropriate actions shall be implemented to ensure environmental harm from the event is minimised.
- All incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- All waste related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure** and/or **Incident Management Procedure ORG-ARW-HSM-PRO-00089**.

7.9 Dangerous Goods & Hazardous Materials

7.9.1 Objectives

The Dangerous Goods & Hazardous Materials objective of the Project is to safely manage dangerous goods and hazardous substances within the Project site, ensuring no environmental harm is caused.

7.9.2 Performance Criteria

- Compliance with relevant legislative requirements and Australian Standards.
- No environmental harm caused by dangerous goods or hazardous materials.

7.9.3 Mitigation Measures

Table 14 outlines mitigation measures that shall be implemented to minimise potential impacts from hazardous substances and dangerous goods associated with construction activities of the Project.

In the event of a hazardous materials spill or related incident, refer to the **HSMP** and Section 9 of this CEMP.

Table 14 - Dangerous Good & Hazardous Materials Mitigation Measures

Action	Responsibility	Timing
A Safety Data Sheet (SDS) for each dangerous good and hazardous substance used on site shall be available on site and will be located near the place of use.	HSE Officer	As required

Action	Responsibility	Timing
A **WHS09 Hazardous Chemicals Register** shall be maintained for all hazardous materials and dangerous goods used on site; and a risk assessment shall be completed using **WHS46 Hazardous Substances & Dangerous Goods Risk Assessment** where appropriate – refer to the **HSMP** for further details.	Project Manager	Project duration
All personnel involved in the handling of hazardous materials shall be suitably qualified / experienced. Additional toolbox training on the properties, hazards, maintenance and PPE associated with hazardous substances shall be provided where required.	Project Manager	Project duration / As required
Herbicides shall only be used by suitably licensed personnel, in accordance with the manufacturer's procedures and guidelines.	Project Manager	As required
Spill kits shall be provided in all dangerous goods and hazardous materials storage and handling areas. All key staff shall be trained in spills prevention and clean up.	Project Manager	Project duration
All spills are to be managed in accordance with Section 9 of this Plan, and with reference to the **ENV P08 Spills Management Procedure** as required.	Project Manager	Project duration
Plant & vehicle maintenance areas shall have built in spill control and containment.	Project Manager	Project duration
Storage & handling areas shall be located >100m from any waterways and be constructed in accordance with the relevant Australian Standard, including secondary containment impervious to the materials being stored and appropriate signage at the entrance to the storage area.	Project Manager	Project duration
Secondary containment systems (e.g. bunding, drip trays, etc) shall be: - In place for all hazardous and dangerous goods storage, transfer and refuelling areas. - Constructed from material that is impervious to the material being stored or transferred - Designed and constructed to minimise the risk of leakage, spillage or contaminated fire water from contaminating the surrounding soil or entering any waterway - Separated for hazardous or dangerous materials that are incompatible	Project Manager	Project duration
Any vehicle and plant washing facility installed on site shall be appropriately bunded and have the ability to collect & remove any potential weed seeds for proper disposal. Where required, written approval shall be obtained from the Principal Representative prior to construction of a weed wash down facility.	Project Manager	Project duration
Vehicles transporting fuel or flammable liquids shall be parked in sealed and/or bunded areas.	Project Manager	Project duration
Double skinned fuel tanks shall be used on site for refuelling of plant and machinery, and shall include adequate secondary containment measures in accordance with Australian Standards.	Project Manager	Project duration
All vehicles and plant shall be sent offsite for major maintenance.	Project Manager	Project duration

Action	Responsibility	Timing
Regular inspections shall be undertaken to ensure the structural integrity of storage facilities and secondary containment systems. These inspections shall occur as part of the weekly site environmental inspections, ensuring the potential to cause environmental harm is being minimised.	Project Manager / Environmental Officer	Project duration
All equipment and vehicle operators shall be trained in the safe operation of the equipment (including operating procedures for the refilling and maintenance of fuel storage tanks) and the relevant emergency response procedures outlined in the **EPR001** and Section 9 of this CEMP.	Project Manager	As required
In the event of any spill or leak to the environment, action shall be taken immediately to contain the spill, and the spill response procedures initiated in accordance with the **EPR001** and Section 9 of this CEMP.	Project Manager	As required
Where any spill to the environment has occurred regardless of scale, the Principal Representative shall be notified immediately. All spills are to be managed in accordance with the **EPR001** and Section 9 of this CEMP.	Project Manager	As required
No abrasive blasting or wet blasting shall occur on site.	Project Manager	Project duration
No spray painting or coating using lead carbonate, carbon disulphide or tetrachloroethane shall occur on site.	Project Manager	Project duration

7.9.4 Corrective Actions

- In the event of a spill or similar incident, appropriate actions shall be implemented to ensure environmental harm from the event is minimised.
- All spills/incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- All spill related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure** and/or **Incident Management Procedure ORG-ARW-HSM-PRO-00089**.

7.10 Reinstatement and Stabilisation

The Project shall adopt the strategies and control measures detailed in the Principal supplied Land Rehabilitation Procedure (ORG-ARW-HSM-PLA-00064) and Land Disturbance Guideline (ORG-ARW-HSM-GUI-00094).

7.10.1 Objectives

The reinstatement & stabilisation objectives for the Project are to ensure that the site is stabilised/reinstated progressively during construction where possible and at construction completion.

7.10.2 Performance Criteria

- Effective ground cover to disturbed areas to prevent erosion.
- Temporarily disturbed land is returned to its previous condition or better
- No complaints from stakeholders regarding land reinstatement
- No contamination of land or water, and no breach of water quality objectives.

7.10.3 Mitigation Measures

Table 15 outlines the mitigation measures to be implemented to ensure effective reinstatement and stabilisation of the Project site.

Table 15 – Reinstatement and Stabilisation Measures

Action	Responsibility	Timing
Active construction areas should be progressively stabilised and reinstated as soon as possible after works have completed in that area.	Project Manager	Project duration
All remaining waste material shall be removed, temporary access roads closed, and topsoils replaced at the end of construction.	Project Manager	Project duration
Where required, reinstated and stabilised areas shall be progressively reported to the Principal Representative.	Project Manager	Project duration
Unless otherwise specified in the scope of works, vegetation used for stabilisation should be consistent with the surrounding regional ecosystem types. Any topsoil stockpiles containing seed banks should be utilised within the areas from where they were collected, where applicable.	Project Manager	Project duration
Subject to the scope of works, stabilisation of the project area should include: - reshape all significantly disturbed land to a stable landform; - re-profile all significantly disturbed land to original contours & surface drainage lines where appropriate; - reinstate the top layer of the soil profile; and - establish groundcover with seed or other methods to ensure that erosion is minimised.	Project Manager	Project duration
Completed areas of work should be reinstated and be appropriately demarcated to prevent access to facilitate stabilisation.	Project Manager	Project duration
A selection of hollow logs, rocks and other potential habitat features identified during the pre-clearance survey should be reused for microhabitat stabilisation.	Project Manager	Site reinstatement
Stockpiled materials (topsoil or mulch/stacked timber) shall be spread over the area to be reinstated or stabilised following backfilling, re-contouring and compaction relief work. If in the event imported topsoil is required for stabilisation works, it must be accompanied by certification that is contamination, weed and pest free.	Project Manager	Project duration
Public and private access tracks utilised during construction shall be reinstated to their pre- construction condition or as otherwise agreed with the relevant landholder or authority.	Project Manager	Project completion
Temporary access roads not required for operations or to be retained by landowner shall be closed and reinstated to a condition compatible with the surrounding land use. No control measures requiring on-going maintenance and access are permitted to remain post reinstatement and stabilised.	Project Manager	Project completion
A visual inspection of decommissioned and stabilised chemical and fuel store areas shall be conducted, and any contaminated soil found present shall be removed and managed in accordance with the relevant guidelines	Project Manager	Project completion

7.10.4 Corrective Actions

- Reinstatement and stabilisation shall occur progressively during the Project.

- All incidents shall be reported to the Project Manager and Environmental Officer immediately. The Project Manager/Environmental Officer will advise the Principal Representative as soon as possible after becoming aware of an incident.
- All reinstatement & stabilisation related incidents identified shall be corrected as soon as possible and strategies implemented to reduce the likelihood of the incident/no reoccurring.
- All corrective actions resulting from an incident are to be closed out by the Environmental Officer and signed off by the Project Manager in accordance with the procedures identified in the relevant sections of this CEMP and/or in the **AUD P02 Incident Management Procedure** and/or **Incident Management Procedure ORG-ARW-HSM-PRO-00089**.

8 TRAINING AND AWARENESS

FKG shall ensure that all project personnel are aware of and understand the environmental requirements of the project relevant to their role and responsibilities. This includes regulatory requirements, any contractual environmental requirements and this CEMP and associated procedures. To achieve this, the training and awareness measures identified below shall be implemented as required for the duration of the Project.

8.1 Site Induction

Prior to commencing works on site, all personnel shall undertake a site-specific environmental induction addressing the environmental management risks and requirements for the Project.

The environmental induction shall include as a minimum:

- Arrow AAP and sign-on
- The relevant environmental legislation and the General Environmental Duty
- Conditions of the relevant licences and approvals
- The environmental management strategies provided in this CEMP
- The project environmental performance indicators and targets (refer Section 3.4)
- Identification of the site-specific environmental aspects of the Project including:
    - Clearing limitations & specific “No Go” zones
    - Vehicle Hygiene Requirements
    - Sensitive receiver locations
    - Approved stockpile locations & laydown/storage areas,
    - Spill kits, concrete washout areas, clean down locations
    - Approved access routes, etc
- Definitions and management of environmental incidents
- Housekeeping (refuelling, waste disposal, etc)
- Cultural Heritage requirements

A record of all persons who have attended the environmental induction shall be maintained using the **WHS03 Site Induction Register** (refer to the **HSMP** for further details).

8.2 Toolbox Training

Toolbox training will help to ensure that relevant information is communicated to the Project personnel and that feedback can be provided on issues of interest or concern. Toolbox training will generally be prepared and delivered by the Project Engineers, Site Foreman and/or Environmental Officers and will reflect risks and concerns associated with construction activities occurring onsite.

Toolbox training shall be conducted on a weekly basis; and shall include environmental risks and responsibilities where required. The Principal Representative may from time to time provide additional toolbox topic training materials or require environmental stand-down toolbox training to occur in response to specific high risk issues identified on the project. Any additional training shall be undertaken as directed by the Principal Representative.

Records of all toolbox training will be kept on file (**WHS04 Toolbox Training Attendance**), including details of the training topic(s) presented, participants and training dates. All participants will be required to ‘sign-off’ that they have been informed and understand their obligations at the conclusion of each training session.

8.3 Environmental Management Training

Where the need is identified, FKG will conduct any additional training of employees and subcontractors. Targeted environmental management training may be provided to individuals responsible for environmental

management onsite, or groups who are undertaking activities which have been identified as high risk, in accordance with the **Lucidity Risk Register/HAZID** for the Project.

9 ENVIRONMENTAL INCIDENT PROCEDURE

The following sections provide details regarding the classification of environmental incidents and the process for investigation and close out of environmental incidents. All environmental incidents shall also be managed in accordance with **AUD P02 Incident Management Procedure** and **Incident Management Procedure ORG-ARW-HSM-PRO-00089**.

The relevant FKG Business Unit Safety Manager shall be responsible for ensuring that any Notifiable incidents are reported to the relevant authorities using the correct documentation within the required timeframes.

9.1 Environmental Incident Levels

Environmental Incidents are classified into the levels as detailed in the **EPR002 Emergency Response Categories & Response Timelines** and in Table 16 below.

Table 16 - Environmental Incident Classes

Definition			EVENT Environmental / Cultural Heritage Incident

LEVEL	1	Insignificant	• Minor contamination event which can be addressed by internal resources and is contained on site; little short term to no long term affects likely. The damage is easily rectified usually within one day.
			• Level 1/2 Incidents typically cause short term or nuisance damage; they do not cause medium- or long-term damage.
			• No mandatory reporting; typically <$5k worth of damage
			• Examples include:
			  ○ Minor leaks and spills (<20L)
			  ○ Sediment Control - Damage or partial failure where run-off does not leave the site
			  ○ Dust emission (remaining visible at 20 m from site – or visible at a sensitive receptor, whichever is less, e.g. dust settlement on surrounding properties.)

	2	Minor	

	3	Moderate	• Level 3/4 Environmental Incidents can create short to medium term damage to the environment.
			• Potential or actual material environmental harm or damage reportable as per State regulation
			• Moderate harm >$5,000 up to $50k worth of damage; Serious harm >$50k
			• Occurrence of a "Notifiable Event" to an Authority
			• Issuance of infringement notice or similar
			• Examples include:
			  ○ Damage to cultural/heritage items
			  ○ Failure of, or inappropriate Erosion Sediment Controls leading to uncontrolled discharge from site; negligent discharge of untreated water
			  ○ Damage to external property as a result of construction vibration
			  ○ Any fuel/oil/chemical leaks/spills to waterways.
			  ○ Damage of loss to treated/vulnerable/ endangered species, i.e. protected by Legislation

	4	Major	
	5	Catastrophic (Emergency Event)	• Level 5 Environmental Incidents have significant environmental impact and can create permanent or long-term damage to the environment • Serious environmental harm or damage reportable as per State regulation, >$50k worth of damage • Major public outcry, media involvement and significant costs and resources to rectify. • Occurrence of a "Notifiable Event" to an Authority • Examples include: ○ Sediment basin/containment pond fails and causes significant downstream impacts

		○ Breaking an Environmental Protection Order / Notice ○ Wilful discharge or disposal of contaminated materials/liquids off site or waterways ○ Wilful damage/destruction to protected vegetation, cultural/heritage artefacts or significant places ○ Extensive damage to equipment, plant or facilities caused by explosion or other means. ○ Site evacuation required due to discovery of unexploded ordinance, suspected gas leak or similar
	HPI	HPI (High Potential Incident) can be allocated to an "event" level or type where the event had potential of being of a greater severity if the circumstances had been changed slightly – The definition for **HPI** can be found in **WHS P01**

9.2 Environmental Incident Investigation and Close-out

The following section outlines the environmental incident investigation process and is to be undertaken in conjunction with the **AUD P02 Incident Management Procedure, Incident Management Procedure ORG-ARW-HSM-PRO-00089** and **EPR002 Emergency Response Categories & Response Timelines**. The actual detail required will vary depending on the level & type incident.

For all incidents, an Incident Report shall be raised via the Lucidity Incident module, and for all necessary information shall be recorded within the report (e.g. detailed investigation, root cause analysis, etc).

Note – the Lucidity platform will provide the appropriate prompts to complete the investigation, as appropriate to the nominated severity of incident.

For all environmental incidents, the Principal Representative shall be notified by the Project Manager immediately upon becoming aware of the incident. The determination to notify the relevant authority shall be made in consultation with the Principal Representative. The relevant site personnel shall work with the Principal Representative as required during incident investigation activities.

9.2.1 Environmental Incident Investigation process

Once the incident has been adequately contained, the following steps provide guidance for the investigation process:

Step 1- Identify the class of incident and obtain the incident details.

- The first priority is to understand the incident and how the incident occurred.
- For potential Level 4 (High) and Level 5 (Major) incidents, liaise with the FKG Environment Manager / Senior Management to determine whether legal privilege is to be established. If yes, only proceed with the following steps under direction of legal counsel.

Step 2 - Observation and information gathering

- **Take samples or obtain results (required for Level 2&3 Incidents)** - laboratory results or in-situ samples (Note: NATA certified laboratories are required).
- **Interview persons involved where required** - Include witnesses / supervisors / experts
- **Inspect the incident scene** - Take measurements (do not guess), photos, videos, drawings, diagrams / sketches.
- **Collect related documentation** - Attach additional material as appropriate such as Erosion and Sediment Control Plans, Risk Assessments, induction records, toolbox talks, training records, subcontractor/Principal incident report

Step 3 – Provide a detailed description of the incident (within Lucidity), providing only the known facts of what happened. Include the following details where known/applicable:

- Area or people affected and pollutant type as appropriate
- Time, date and weather conditions
- Plant, equipment, organisations involved

- Potential stakeholders involved
- Describe the nature of the incident including (e.g. cultural heritage, spill, unauthorised discharge to the environment)
- Performance of the environmental controls
- Describe the immediate remedial actions undertaken
    - Notification to relevant parties
    - Repair to environmental controls
    - Rectify damage and remediate the affected area

Step 4 - Undertaken basic level incident analysis

- List the elements involved including people, equipment and environment (weather conditions) elements involved in the incident
- List the essential and contributing factors for the items above

Step 5 - Identify the corrective and preventive actions

- Change to equipment/machinery design / maintenance
- Improve environmental control measures
- Implement additional resources
- Change to work methods or processes
- Change or additional induction training
- Additional ongoing training

Step 6 - Implement the corrective and preventive actions outlined above

- Outline responsibilities and accountabilities
- Obtain relevant approvals for the corrective and preventive actions (i.e. Regulatory Authority or Principal requirement)
- Provide proposed completion dates for the approved actions
- Document actions implemented and close out

10 MONITORING AND REVIEW

10.1 Daily Site Inspections and Surveillance

Inspections and surveillance of construction activities (including sub-contractors) will be undertaken on a day-to-day basis by the Superintendent, Supervisor, Project Engineer and/or Environmental Officer. These inspections will not be documented unless significant actions or non-conformances are identified.

As part of daily activities, the Supervisor will be required to maintain a site diary detailing the day's activities and any issues (including environmental issues) which may have arisen during the course of operations.

10.2 Weekly Site Environmental Inspection

The effectiveness of environmental protection measures will be assessed weekly by the Environmental Officer (or a nominated delegate) unless otherwise specified. A site environmental inspection checklist has been developed addressing the key environmental impacts which have the potential to arise during construction activities (**ENV06 Weekly Environmental Inspection Checklist**).

The **ENV06** is to be completed with Lucidity, and any actions that are identified as a result of these site inspections will be recorded within the actions section of the form and issued to the relevant personnel (e.g. the Supervisor or Engineer) for action.

Actions identified in weekly inspections are to be closed out prior to the nominated due date for the action. However, in certain circumstances only and upon consultation with the Environmental Officer, an extended timeline to close out particular actions may be established.

10.3 Auditing & Reporting

10.3.1 Record-keeping and Reporting

Particular environmental records are required to be handed over to Operations. These include records and documents related to the following:

- Environmental assessments and modelling;
- Project-specific environmental management plans (e.g. CEMPs, ESCPs, flora or fauna management plans);
- Environmental testing, monitoring, data and results;
- Environmental incidents, incident management and closeout;
- Site clearance details, including "as built" clearance data and fauna clearance reports;
- Site stabilisation details, including methodologies and areas stabilised;
- Data required for greenhouse emissions and energy consumption reporting (Mode 1 contractors only). Mode 2 contractors are responsible for meeting their greenhouse and energy reporting obligations; and
- Secondary environmental approval documents (e.g. waterway barrier works permits and notifications required under other applicable guides/plans such as Accepted development requirements for operational work that is constructing or raising waterway barrier works (Department of Agriculture and Fisheries, 2018)).

Refer to Section 9 of the **Project Execute Stage Construction Environment Management Plan (ORG-ARW-ENV-PLA-00003)** for all mandatory deliverables and reporting that is required for the project, including Geospatial Data Collection and Reporting of Land Disturbance Rehabilitation.

10.3.2 Monthly Project Reviews

Internal reviews shall be conducted and reported on a monthly basis using **PM28CV Monthly Project Review**. These reviews shall include a summary of environmental performance of the project, based on the performance indicators detailed in Section 3.4, which are captured & monitored via the QSE Dashboard (published on the FKG Intranet).

10.3.3 Internal Audits

Internal Audits shall be conducted by the FKG Environmental Manager and/or Senior Environmental Advisor. Elements that may be audited include but are not limited to:

- Compliance with the CEMP and associated sub-plans
- Compliance with approvals, permits and licence obligations
- Compliance with method statements
- Complaint responses
- Sub-contractor activities
- Training records
- Environmental monitoring results
- System documentation such as checklist completion

Internal audits will likely occur on a three (3) month basis. Any opportunities for improvement or corrective actions identified during audits will be recorded within the audit report. Audits are to be conducted in accordance with the **AUD P01 Internal Audit Management Procedure.**

10.3.4 External Audits

External audits may be conducted by Principal, accreditation agencies and/or environmental authorities during the course of construction. Following each audit, audit reports will be providing detailing the scope of the audit and subsequent findings. These reports will be reviewed by the Project Manager and Environmental Officer and all proposed corrective actions and observations will be addressed. Details of all actions undertaken as a result of the audit will be documented and filed onsite for reference.

10.3.5 Environmental Non-Conformances

Where any significant deficiencies are identified during an (internal or external) audit, a stand-alone **PM16 Non-Conformance Report** (NCR) may be raised against the Project.

The **PM16** form outlines the procedure for actioning and closing out a non-conformance.

Any identified environmental **PM16** non-conformances are to be recorded, managed and closed out within Lucidity, including the tracking and close out of corrective and preventative actions implemented.

10.4 Continuous Improvement

Where environmental lessons-learnt or innovations are identified on the Project, through the monitoring and review process (e.g. inspections, audits, incidents), these can be raised and tracked for action or implementation via the **PM62CV Lessons Learnt / Innovations** form on Lucidity.

10.5 Environmental Records

FKG personnel shall be responsible for maintaining the following records in accordance with the Integrated Management System:

- The CEMP and associated sub-plans
- Relevant approvals, regulatory licences and permits
- Inspection records and checklists
- Environmental monitoring results (including any positive and negative fauna records)
- Environmental accident/incident/emergency reports
- Non-conformance documentation
- Environmental complaint reports
- Waste reports
- Audit reports
- Management review minutes and action taken

Records will be maintained for at least the minimum period specified by the Principal and/or relevant legislation; and will be available to Principal Representatives and authorised Government officers as required.

10.6 Document and Data Control

The Environmental Officer shall coordinate the preparation, review and distribution of environmental documents as required.

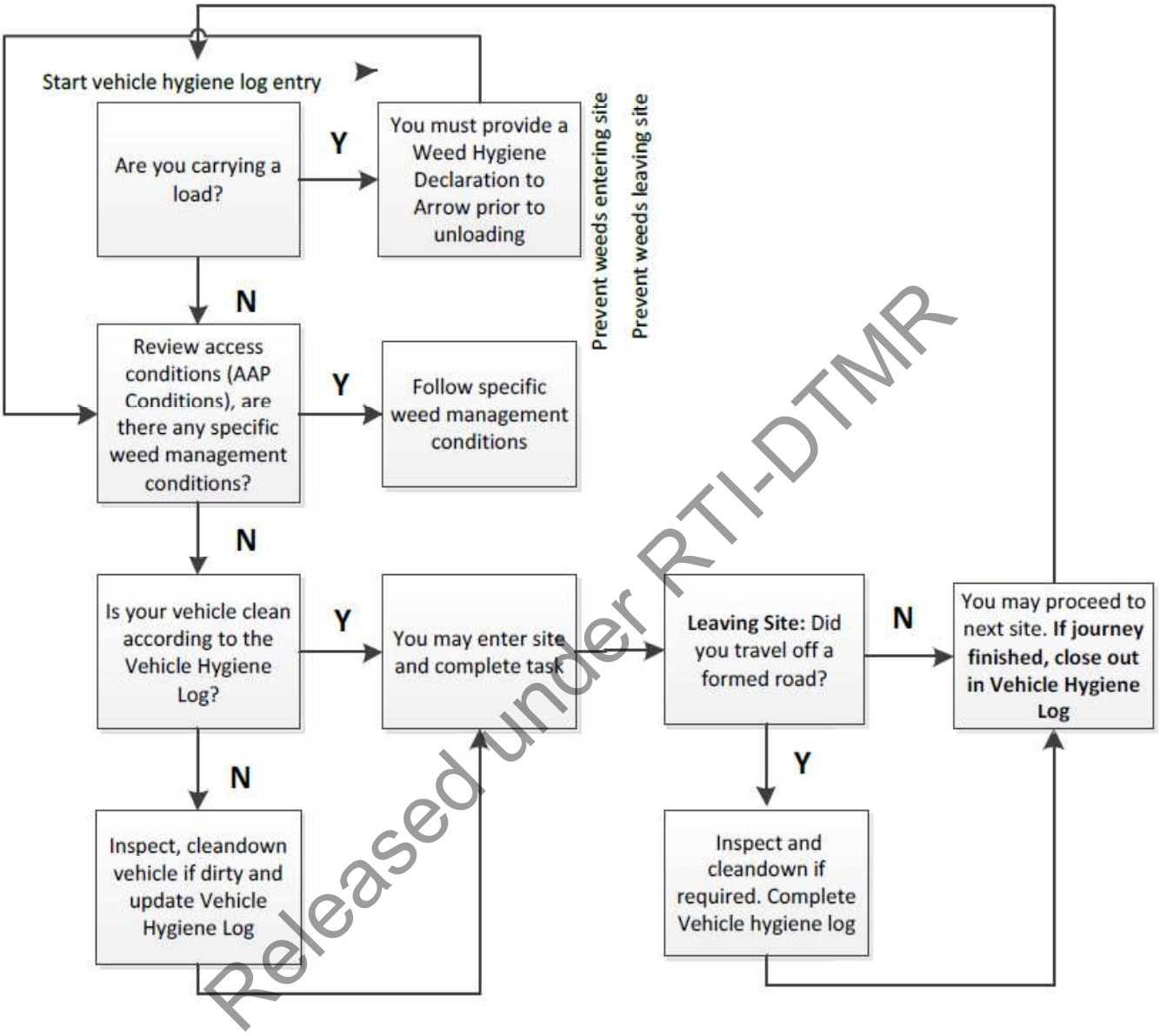
Documents and data that are to be issued will be controlled to ensure that they are approved prior to issuing and that the current issue or revision is known to relevant personnel.

Controlled documents will be distributed on a revision basis only, with obsolete documents clearly marked or filed as “superseded”. Obsolete documents will be maintained and filed for contractual purposes onsite.

Controlled documents will be uniquely identified with a defined revision number recorded on each page. All controlled document revision numbers will be included into a register for reference.

During the course of construction, environmental documents will be stored online or at the main site office and can be issued upon written request of the Environmental Officer.

Appendix 1 Vehicle and Machinery Hygiene Process Flow Chart



Appendix 2 FKG Corporate Environmental Policy

(2 Pages including this page)

Appendix 3 FKG Procedures and Forms

(135 pages including this page)