

1. Summary/Purpose of Activity

The purpose of temporary waterway crossings is to gain safe access across waterways before the construction of permanent bridge or culvert structures & to retain the integrity of 'clean' flows from upper catchment areas. Temporary crossings should only be used when other alternatives have been exhausted, and be used for the shortest time required to complete their designed operational function.

2. Objectives of this CMS

The objectives of this CMS are to minimise the impact of construction on water quality and bank stability within waterways and to identify associated environmental and consultation requirements to be implemented prior to, during and following the completion of works.

3. Area/Location of Activity/Site:

Within the approved project corridor in the agreed location of least disturbance which is compatible with construction. The exact locations and site specific requirements will be detailed in ESCPs and associated construction sketches / drawings prior to works commencement.

4. Timing of works/Expected duration:

Most waterway crossings will occur just prior to or immediately after construction commences. Further crossings may be required during the construction period as specific requirements are identified. Crossings generally will take 2 days to construct. Temporary crossings should be used for the shortest time required to complete their designed operational function.

5. Approvals Required

Consultation with DI&I NSW (Fisheries) and DECCW is required prior to the installation of the temporary waterway crossings in major waterways or waterways potentially containing fish habitat.

6. Consultation Requirements:

No community consultation is expected to be required for the installation of temporary crossings. The Community Relations Team will be kept informed of any works with the potential to impact (noise, dust, traffic etc) on nearby receivers.

The Environmental Manager will be informed of any temporary crossings near to Aboriginal heritage sites as identified on the SAPs to enable the determination of required Aboriginal consultation.

7. Incident Response

In the event of an incident such as unauthorised access to or impacts to threatened vegetation/sensitive areas, or risk is presented to ground/bank/bed disturbance, diverting flows or sedimentation due to disturbance the Site Supervisor will immediately direct works to stop before contacting the Environmental Manager. The Environmental Manager, or their delegate, will respond to the incident in accordance with the relevant sections of either the early works EMP and Attachment 1; Incident and Emergency Response during early works; or the CEMP during full construction.

8. Relevant References:

The information included in this CMS has been drawn from the Construction EMP and the relevant Sub Plans. For additional information related to this CMS refer to the following documents:

- Ministers Conditions of Approval 30, for the project;
- Construction Environmental Management Plan; and
- Sub Plans
- Erosion and Sediment Control Plan
- DPI Policy and Guidelines for Fish Friendly Waterway Crossings
- "Why do Fish need to Cross the Road? Fish Passage Requirements for Water Way Crossings".

9. Related attached documents:

- Sensitive Area Plans and Proposed Locations and Extent of Early Works
- Vehicle Movement Plan
- Early works permit

Level	Likelihood	Description
A	Almost certain	Is expected to occur during the project, 90% or > probability
B	Likely	Will probably occur during the project, ~50% probability
C	Moderate	Might occur at sometime during the project, ~10% probability
D	Unlikely	Could occur at some time during the project, ~1% probability
E	Rare	Only occur in exceptional circumstances, < 1% probability
Level	Consequence	Description
1	Insignificant	Negligible Discharge
2	Minor	Uncontrolled Discharges in Minor Quantities
3	Moderate	Moderate Breach of Environmental Statutes
4	Major	Major Breach of Environmental Statutes
5	Severe	Shutdown of Project Due to Environmental Breach

Likelihood	Consequences				
	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Severe
A (Almost Certain)	Medium	Significant	High	High	Extreme
B (Likely)	Medium	Medium	Significant	High	Extreme
C (Moderate)	Low	Medium	Significant	High	High
D (Unlikely)	Low	Low	Medium	Significant	High
E (Rare)	Low	Low	Low	Medium	Significant

Construction Work Method and Risk Assessment

#	Sequence of Work Activities (How will work be done?)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Responsibility (Who will direct works to ensure compliance?)
Planning / Prior to commencement of Works					
1	Consult with NSW DI&I (Fisheries) & DECCW	Environmental harm and non-compliance with relevant legislation	Significant (D4)	Consult NSW DI&I (Fisheries) and DECCW regarding the location, type and method of installation prior to the commencement of construction in major waterways. Pipes or culverts used in temporary structures should reflect the category of the waterway, rainfall and runoff for the area, the catchment size and intended duration of the structure remaining in place.	Environmental Manager/ Officer
2	Planning for the installation of the erosion and sedimentation controls	Uncontrolled run off associated with the works Sediment controls appropriate to the crossing type.	Significant (D4)	Prepare and implement an ESCP for the area. If required, ensure a silt curtain is placed downstream of the works area whilst the crossing is installed. Leave the silt curtain in place for at least 24 hours after finishing construction. As required, undertake water quality sampling prior to accessing the waterway.	Project Engineer/ Environmental Officer/ Soil Conservation
			High (C5) High (C5)	Include control measures in ESCP for waterway dewatering or water diversion if required. Crossing types and sediment controls will be specific to each temporary crossing. They will be developed in consultation with agencies where relevant and reflect the category and sensitivity of the waterway being traversed. Such area specific considerations will be reflected on the ESCP, monitored for effectiveness and progressively updated should site specific control requirements evolve.	Environmental Officer/ Soil Conservation Environmental Officer/ Soil Conservation
3	Permit to Excavate and Permit to Work Under Power lines	Damage to services.	High (C5)	Complete a Permit to Excavate and Permit to Work Under Power lines and have it approved if relevant to works.	Foreman / Project Engineer
4	Prepare Safe	Unsafe work	High (B4)	SWMS for work activity to be completed, SWMS for use of excavator to be	Foreman / Project Engineer/

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	work method statements	practices		reviewed and approved by Project Safety Manager. UHF channel for works to be agreed at tool box prior to commencement of works. Site Safety Manual kept in nominated vehicle. Site foreman manages the site and checks in all visitors. External Plant Checklist, Operator assessment, tickets/licenses, Insurances to be checked and completed.	Safety Manager
5	Provide training to personnel and sub-contractors involved	Non-compliance with work methods.	High (C4)	Toolbox field operators on the requirements of this CMS and the ESCP.	Foreman
6	Mark out sensitive areas within or adjacent to works.	Damage to flora, fauna and/or heritage items.	High (C4)	Survey and fence any sensitive areas that require protecting within/adjacent to the works area in accordance with the sensitive area plans and in consultation with the Project Ecologist.	Project Engineer/ Surveyor
		Damage to aquatic habitat	High (C4)	Where necessary, undertake an assessment of waterways potentially containing aquatic habitat such as snags, gravel bars, in stream vegetation, tree roots or logs at the location of the temporary water crossing. Locations with aquatic habitat present should be avoided for installation of water crossing. Should removal of aquatic habitat be necessary, specific measures for dealing with the removal will be developed, consulted with agencies where relevant and implemented.	Environmental Officer / Soil Conservation / Foreman
		Consideration of increased flow from rain events or tidal effects	High (C4)	Monitor flow paths in lead up to works commencement, giving consideration to potential flow increases due to imminent rain events, or tidal effects in waterways of tidal influence. Should predicted fluctuations in water level present risk at time of commencement, works should be assessed by the Supervisor and Environmental Manager before proceeding.	
7	Mark out important elements such as utilities and services, truck, plant and materials storage, access locations etc.	Utilities such as water, electricity being damaged.	High (C4)	Dial before you dig receipt for the locations <u>must</u> be on site at all times. Foreman to ensure no services are damaged during works.	Foreman
		Injuries due to heavy vehicles	High (C4)	Vehicles to have flashing lights at all times and constant communication with ground personnel via hand-held radios	
		Unsafe access onto site	High (C4)	Safe access routes to be clearly marked on a vehicle management planned and outlined to the personnel prior to entering site.	
8	Mark out the location of the crossing	Damage to adjacent vegetation (including aquatic vegetation)	High (C4)	Mark out the limit of the works area to minimise disturbance.	Foreman/ Surveyor
9	Hold Point Release	Non-compliance with work methods	High (C4)	Ensure all of the activities above are completed and signed by the relevant person/s prior to commencing the works.	Foreman/ Project Engineer/ QA
10	Entering Work Site	No suitable access or traffic management	High (C4)	Ensure there is a suitable access track for heavy vehicles and implement a VMP if necessary. TCP to be approved if the entering of heavy vehicles onto site will disturb the natural flow of traffic.	
11	Notification to community	Community are exposed to impacts without prior notice	Significant (C3)	Landowners/community members who may be affected by works are to be notified 5 days prior to work commencing.	Community Relations Manager/ Project Engineer
		Non-compliance with Aboriginal Heritage Management Plan	High (C4)	Check SAPs. Inform Environmental Manager of any crossings in close proximity to Aboriginal heritage sites (PADs, Red or Purple Management Zones) to ensure required consultation has been undertaken	Project Engineer / Environmental Manager
Construction- Commencement					
12	Commencing work activities	Personnel unsure of the role, responsibility, authority, accountability and reporting	High (C4)	All personnel to be toolboxed on this CMS before commencement of work.	Foreman/ Engineer
13	Site establishment (ground)	Bank disturbance with potential erosion and sedimentation	High (C4)	Only the area of crossing is to be disturbed. Minimise disturbance to the bed and banks of the waterway where possible. Provide all necessary ERSED protection measures to ensure pollution of waterways does not occur from any disturbed ground created by the works.	Foreman

#	Sequence of Work Activities (How will work be done?)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Responsibility (Who will direct works to ensure compliance?)
	disturbance)	impacts Noise causing annoyance to local residents Air pollution caused by dust causing annoyance to local residents / road users. Uncontrolled flooding and stormwater Geotechnical disturbance Finding new heritage items	High (C4) High (C4) High (C4) High (C4) Low (E3)	Install controls as per the ESCP developed above during planning of works. Install silt curtain (wet waterways) / sediment fence (dry waterways) downstream of proposed crossing before commencing works and remove it 24hrs after completion of works. The removal of the silt curtain/sediment fence must be conducted such that all trapped sediment is collected and removed and does not wash downstream. Excavator to remain maximum possible distance from waterway bank. Ensure equipment/vehicles are serviced and all refueling to be done at least 20m away from waterways in accordance with the Refuelling Protocol. No fuel to be stored on site overnight Works are only to occur 7:00am to 6:00pm Monday to Friday; or 8:00am to 1:00pm Saturday. Ensure plant / equipment is fitted with appropriate silencers and is maintained in an efficient condition. All noise complaints to be recorded and actioned. Inform Community Manager of any complaints Equipment that is not in use will be switched off. Utilise water sprays, sprinklers and water carts where necessary on work areas and exposed soils to prevent the emissions of dust from the site. Trucks entering and leaving the premises that are carrying dust generating loads must be covered at all times except during loading and unloading. Storm water channels to be installed where necessary. Area to be tested prior to commencing works. In the event that human remains or unknown heritage items are discovered, stop work and contact the Environmental Manager. Follow the Chance Find Procedures in the Aboriginal Heritage Management Plan.	Foreman / Subcontractor Foreman
14	Strip loose vegetation	Stripping more than necessary Contact with Acid Sulfate Soils	High (C4) High (C4)	Area for temporary water crossing to be marked out and clear instructions are to be given for amount of vegetation to be stripped While ASS is not expected, if ASS is encountered, works will be stopped in the area of the disturbance, the Environmental Coordinator informed and the requirements the ASS Strategy located in the Soil and Water Management Plan	Foreman/ Engineer/ Survey
15	Lay down Geofabric	Tripping over the Geofabric	Low (B2)	Only unroll as much as will be needed. Do not leave strips of Geofabric lying in the middle of the work area	Foreman
16	Installing temporary pipes	Trips, cuts, and dropping pipes Injury due to heavy vehicles	High (C4)	Work area must be clear, spotters on site for the pipe carriers and constant communication with crane driver if pipes require heavy vehicles for unloading. Constant eye-contact with heavy vehicle operator, spotter to be concentrating on all activity around heavy vehicle and to keep in contact with operator at all times via hand-held radio.	Foreman
17	Fill with clean rock	Crushing pipe, possible blocking of pipe, and cuts/scratches of personnel handling rock	High (C4)	Rock to be placed carefully around pipe so as to not damage pipe or block either end of it. Personnel to handle rock carefully to avoid injury. All extra rock to be taken off-site and re-used rather than being left on site.	Foreman All
18	Overlay rock with Geofabric	Contamination of fines into the clean rock	Low (B2)	Ensure geofabric is tightly wrapped over the rock so as to ensure no contaminants penetrate through gaps	Foreman
19	ERSED controls in place.	Necessary ERSED controls	High (C4)	ERSED controls to be checked and to be on site at all times.	Foreman
20	Finish access track over the crossing	Sedimentation due to disturbance or contamination	High (C4)	Ensure adequate ERSED controls (if necessary diversion bund or sediment fence) are in place to avoid material falling over the temporary crossing into the waterway. Disturbed areas are to be seeded and re-vegetated.	Foreman
21	Operation and maintenance	Erosion downstream in high flows	High (C4)	Check erosion and sediment controls daily and after heavy rainfall (>20mm/day) and maintain as required. Environmental Officer to check integrity of crossings weekly as part of their usual	Foreman

#	Sequence of Work Activities (How will work be done?)	Potential Hazards (What harm can occur?)	Risk	Safeguards/controls (How can the risk be minimised?)	Responsibility (Who will direct works to ensure compliance?)
		Uncontrolled spreading of weeds	High(C4)	<p>weekly checklist.</p> <p>Provide maintenance as required. Fines and other loose material deposited by construction traffic should be removed regularly.</p> <p>Check forecasts for high flow/flood events. Partial or complete removal of the temporary crossing may be required prior to the forecasted high flow / flood events. If this is required, appropriate bed and bank stabilisation must be installed. The Environmental Manager/Environmental Officer is to inspect this area prior to it receiving flows.</p> <p>Weeds to be disposed of before, during and after construction in the necessary method based on type of weed</p>	<p>Environmental Officer</p> <p>Foreman</p> <p>Project Engineer / Foreman / Environmental Manager/Environmental Officer</p>

CMS Toolbox

<p>Also refer to Abigroup standard toolboxes</p> <ul style="list-style-type: none"> • Ensure pipes/culverts to be used in temporary crossing are adequately sized to reflect the rainfall and runoff for the area, the catchment size and intended duration of the structure. • Surveys to be completed to identify the areas to be protected and the project boundary. These areas are to be marked/fenced and works must stay outside of these areas. • Conditions of Permit to Excavate and Permit to Works under Power lines to be toolboxed. • SWMS and ESCP to be toolboxed. • Minimise ground and bank disturbance and install ERSED controls. Ensure controls are regularly maintained. • Only clean rock and pipes are to be used in the crossing (i.e. No fine material). • Prevent pollution of waterways due to spills/leaks. Report and clean up all spills to the EM. • Refuelling in accordance with Refuelling Protocol. • Works are only to occur 7:00am to 6:00pm Monday – Friday and 8:00am to 1:00pm Saturday. • Minimise noise and ensure plant / equipment is fitted with appropriate silencers and is maintained in an efficient condition. • Minimise dust by covering loads on public roads and using water carts on site. • Report any complaints to the Community Manager.

CMS Approval

Approved By	Name	Signature	Date
Originator Engineer	Eric Francis		
Reviewed Superintendent	Robby Curtis		
Approved Project Manager	Dave Houston		

Attachment 1: Incident and Emergency Response

An environmental incident may include a spillage or major leak, failure of a pollution control device such as a bund or basin, major settlement, collapse of bank or embankment, slip failure of cuts slopes or fill embankments, fire (e.g. loss of ground cover vegetation), damage to protected vegetation or animals on the highway.

Incident management flowcharts are also provided below.

The following framework supports is provided for consideration during incident response.

Define the problem

- establish the details of the immediate problem to facilitate the identification of short term response options.

Manage the situation

- the safety of any person, either works or others involved, is the priority;
- minimise environmental damage as quickly as possible. In a spill situation, use sandbags, absorbent material, soil, an excavation or barrier to prevent the pollutant from reaching a watercourse. In the event of slip failure/collapse of banks or cut batters, immediate protection, reinstatement and protection of the slip failure/collapse with the appropriate plant to be undertaken and additional ERSED controls to be implemented as necessary under the revised PESCP. Additional controls per spill situation may also be relevant in specific circumstances of slip failure/collapse;
- advise the RTA;
- advise DECCW if the incident 'causes or threatens to cause material harm to the environment'. *
- clean up the problem.

* Pollution incidents causing or threatening material harm to the environment must be notified to DECCW. A 'pollution incident' includes a leak, spill or escape of a substance, or circumstances in which this is likely to occur. Material harm to the environment includes on-site harm, as well as harm to the environment beyond the premises where the pollution incident occurred. An incident is considered to be notifiable to DECCW if the actual or potential harm to the health or safety of human beings or ecosystems is not minor OR if actual or potential loss or property damage (including clean-up costs) associated with a pollution incident exceeds \$10,000.

After the event

- develop an action plan to prevent a similar incident occurring again;
- develop a rehabilitation plan to address any remaining environmental effects (if any). This would include the following contingencies:
 - i) contact the relevant government agencies (eg. DI & I NSW (Fisheries) and DECCW) if the incident involves impact of sediment on a waterway or wetland;
 - ii) create an action plan in consultation with the relevant Government Agency;
 - iii) the action plan may involve the re-establishment of a permanent stabilised surface.
- restoring the controls;
- prepare a report on the incident.

An environmental incident is defined as an event which either resulted in, or could have resulted in, pollution of the environment. In accordance with the *POEO Act 1997*, it is an offence not to report incidents to the DECCW actual or potential harm to the health or safety of human beings or ecosystems is not minor OR if actual or potential loss or property damage (including clean-up costs) associated with a pollution incident exceeds \$10,000.

All incidents will be investigated and the following details recorded:

- the cause and extent of the incident;
- corrective action identified and implemented;
- personnel responsible for implementing the corrective action;
- modification or new controls required to prevent the incident occurring again;
- changes in procedures or safeguards required;
- details of waste and contamination treatment and/or disposal.

As required by the Project Deed, immediate notification will be provided to the RTA (in writing) of any breach, potential breach, non-compliance or potential non-compliance with the conditions of approval, requirements of any of the environmental documents or relevant legislation

A list of key contacts, phone (business and after hours) will be maintained and displayed. This list is provided below.

Emergency response equipment including booms, absorbent material, MSDS sheets, spill kits, sandbags, sediment fence and flocculating agent, will be located at the ancillary facility sites. Personnel will be provided with training and basic instructions for use.

The content of emergency equipment stores will be checked on at least a 6 monthly basis.

The following specific measures will also be implemented to minimise the risk of an incident occurring due to spillage, storage of hazardous materials or fire.

Spills and Leaks (chemicals, fuel, hazardous liquids)

- works involving the use of chemicals, dangerous good or other potential contaminant, will be planned and implemented to minimise the possibility of pollution;
- the use and storage of chemicals and dangerous goods will be strictly in accordance with relevant legislation, manufacturers instructions and the MSDS;
- transport, handling, storage and application methods will be established (with the relevant method statement) to prevent chemical, fuel and lubricant spillage on or around the site;
- adequate quantities of emergency response materials such as oil spill kits, absorbent materials, sand bags, flocculating agents and pH buffer solutions will be readily available and kept at designated ancillary facility sites. Oil spill kits will also be kept in emergency response vehicles, superintendents vehicles, environmental managers vehicle and vehicles that carry substantial quantities of chemicals;
- temporary bunding will be provided for refuelling or maintenance of plant and equipment, mixing of cutting oil with bitumen or any other activity that could result in spillage of a chemical, fuel or lubricant (where the activity is undertaken in a location with direct drainage to a waterway or environmentally sensitive area);
- where chemical drums are removed from banded areas, they will not be left unattended. Where this is not practical, the unbanded and unattended drums will be managed to minimise the risk of spillage and must only be for use on that day.
- drums used as markers must not contain chemicals or fuels or have been used for containment of chemicals and fuels unless appropriately cleaned;
- for spills and leaks the major response will involve containment of the offending material; and
- where safe to do so, containment measures such as sandbags, booms, earth bunds or cut drains will be installed to capture and retain spilled material and prevent it from leaving site, entering any watercourse or impacting on vegetation stands.

Storage of Liquids (chemicals, fuel, hazardous materials)

- all liquid storage areas will be banded in a manner that meets the requirements of the DECCW and WorkCover NSW;
- where applicable, the construction of bunds must comply with the requirements of *Australian Standard AS 1940B1993: The Storage and Handling of Flammable and Combustible Liquids* and *Australian Standard AS 4452B1997: The Storage and Handling of Toxic Substances the Dangerous Goods Act 1975*.
- chemical, fuel and lubricant storage areas will be suitably located and banded to minimise the impact of any spillage or contaminated on or around the site;
- storage areas will not be located within 20m of a natural or built drainage line, flood prone areas or on slopes steeper than 1:10 or near vegetated areas;
- water captured in a banded storage area will be monitored and drained after each rain event to ensure bund capacity is maintained at all times;
- before discharging water from banded areas, a verification procedure will be implemented to ensure the water complies with water quality criteria nominated by the DECCW;
- appropriate treatment or removal will be arranged if the water is not suitable for discharge;
- call Emergency Response Team if required; and
- records of water quality checks, discharges and any remedial actions taken will be recorded.

Fire

- fire fighting equipment will be available on site to facilitate an immediate response to a fire incident and help ensure the safety of public and property;
- spark arrestors will be fitted to plant that could discharge sparks which is being used during proclaimed high fire danger periods;
- cutting, welding, grinding and other activities with the potential to generate sparks will not be undertaken in the open on total fire ban days;
- in areas of high risk fire mats will be placed under areas being used for welding;
- personnel involved in work where there is a risk of fire being caused by hot work eg welding or in burning-off operations will be provided with adequate training in regard to fire prevention, safety and basic fire fighting skills; and
- personnel and vehicles involved in such activities will be equipped with fire fighting and safety gear.

Notification

The Environmental Manager will notify the DECCW Regional Manager (or DECCW Pollution Line should an incident occur outside normal business hours) of pollution incidents on or around the site which have occurred in the course of activities in the following circumstances:

- if the actual or potential harm to the health or safety of human beings or ecosystems is not minor; or
- if actual or potential loss or property damage (including clean-up costs) associated with a pollution incident exceeds \$10,000.

The RTA Representative will be notified verbally within 2 hours and in writing within 24 hours of any pollution incidents involving DECCW.

Incident Investigation

All incidents will be documented, investigations conducted and action plans established in order that the event does not occur again. Where lessons are learnt from the investigation or current procedures are identified as being ineffective, the EMP will be revised by the Environmental Manager to include the improved procedures or requirement.

An environmental investigation includes the following basic elements:

- identifying the cause, extent and responsibility of the incident;

- identifying and implementing the necessary corrective action;
- identifying the personnel responsible for carrying out the corrective action;
- implementing or modifying controls necessary to avoid a repeat occurrence of the incident;
- recording any changes in written procedures required; and
- advising the environmental authority(ies) if any substantial pollution has occurred.

All personnel are required to report all incidents, as it is regarded as a valuable method of addressing shortcomings in procedures, training or equipment, and is an opportunity for improvement. It is an offence not to report to the EPA environmental incidents that may exceed \$10,000 in harm, in accordance with part 5.7 of the POEO Act, 1997.

Company Form *AR702C Incident Investigation* shall be used when completing an incident investigation.

Emergency Contact List

Organisation	Name	Number/s	Other details
General Superintendent	Robby Curtis	0418 690 355	
Environmental Manager	Grant Fletcher	0416 120 963	
NSW Police		000	
NSW Fire Brigade		000	
Hospital/ Rural Fire Services		000	
DECCW (EPA)	Cameron Perry	49086808	
DI & I NSW (Fisheries)	Scott Carter	4916 3931/ 0419 185 508	
RTA Resident Engineer	Peter Bishton	0438 217 925	
Community Hotline		1800 001 267	