



Document Cover Sheet

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1.0 INTRODUCTION

1.1 Project Overview

Jemena Gas Networks (NSW) Ltd (Jemena) owns and operates the Killingworth to Kooragang Island Gas Pipeline, an approximately 33 kilometre (km) underground natural gas pipeline connecting the Killingworth trunk regulating station to Kooragang Island and forming part of Jemena’s Northern Trunk Pipeline.

Jemena are modifying this pipeline via the construction of the Lenaghan Lateral Pipeline (the Project) (SSI-46360740 Mod 1) to allow for bi-directional flow of gas between the Jemena Gas Network (JGN) and the approved Kurri Kurri Power Station (KKPS) via the approved APA Group’s (APA) Kurri Kurri Lateral Pipeline Project (KKLP) which was subject to a separate development application (SSI-22338205).

The Project will involve a new pipeline connection of approximately 400m in length at kilometre point 13.8. The construction footprint for the pipeline extension would typically be 25 m wide, with additional workspaces required for truck turnarounds, storage of cleared vegetation and soil, and line pipe storage areas (see Figures 1 and 2). The project is located within the City of Newcastle, local government areas (see Figure 2) and the traditional lands of the Awabakal and Wonnarua peoples.

The Project location is provided in Figure 1 and 2.



FIGURE 1.1
Killingworth to Kooragang Island Gas Pipeline

Figure 1: Killingworth to Kooragang Island Pipeline

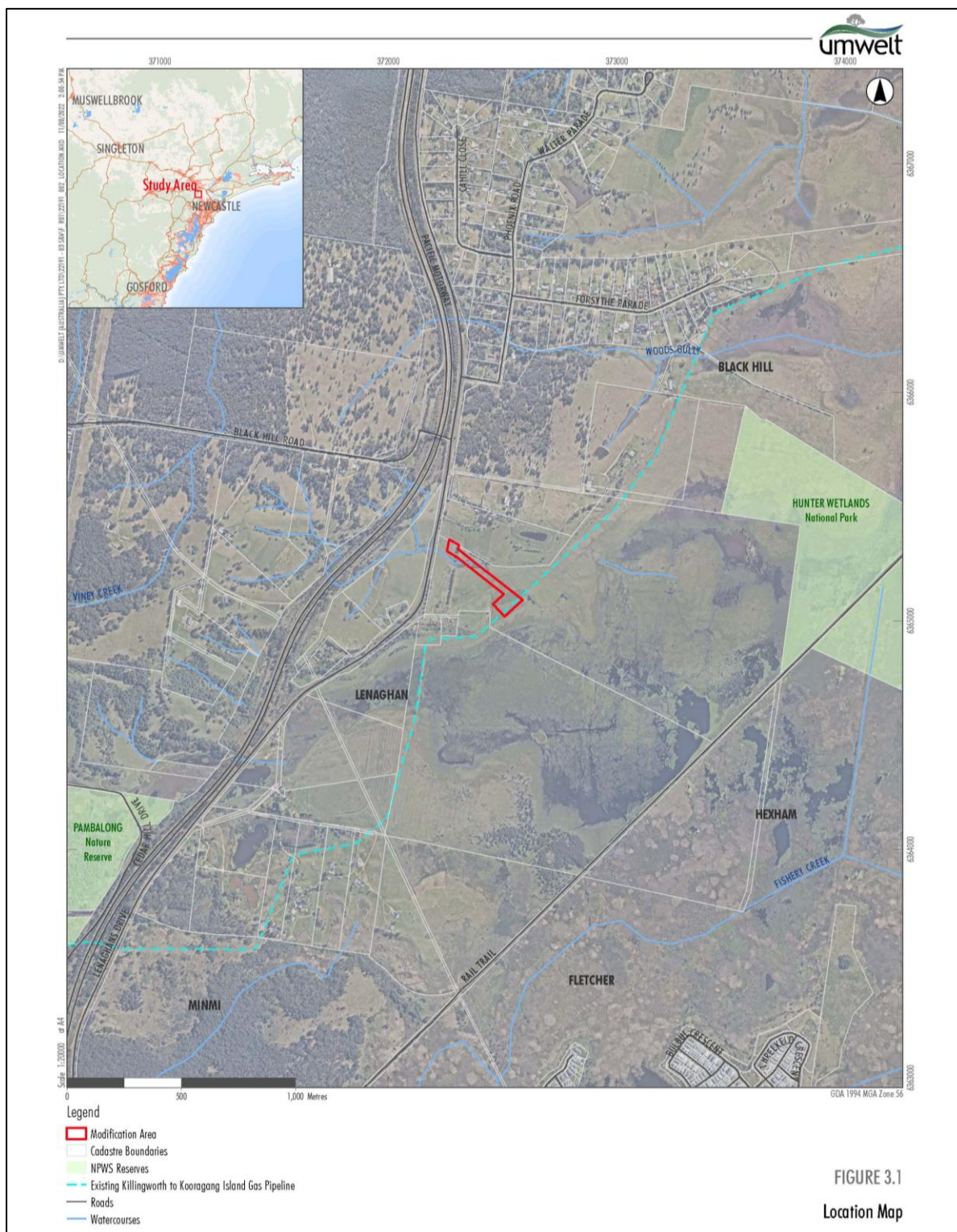


Figure 2: Lenaghan Lateral Pipeline Location

1.2 Document Purpose and Scope

This Environmental Management Strategy (EMS) has been developed to provide the strategic framework for environmental management of the Lenaghan Lateral Pipeline Development.

This document has been developed to comply with Condition C1 of the projects Consolidated Approval issued by the Department of Planning and Environmental under s.5.25 of the *Environmental Planning and Assessment Act 1979* in August 2023, reference SSI-46360740 Mod 1.

2.0 ABBREVIATIONS & REFERENCE DOCUMENTS

Table 1 Acronym List

Acronym List	
AGA	Australian Gas Association
APA	APA Group
BCA Act	<i>Biodiversity Conservation Act 2016</i>
CEMP	Construction Environmental Management Plan
DCCEEW	Department of Climate Change, Energy the Environment and Water
DPE	Department of Planning and Environment
EMS	Environmental Management Strategy
ELL	Environmental Line List
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
JGN	Jemena Gas Networks
KKLP	Kurri Kurri Lateral Pipeline Project
KKOMS	Kurri Kurri Offtake and Metering Station
KKSP	Kurri Kurri Storage Pipeline
MM	Management Measure
MNES	Matters of National Environmental Significance
NSW	New South Wales
NVMP	Vibration Management Plan
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
PMT	Project Management Team
RAP	Registered Aboriginal Party
ROW	Right of Way
SCA	Spiecapag Australia
SEPP	State Environmental Planning Policy
SWMP	Soil and Water Management Plan
SOW	Scope of Works
SWMS	Safe Work Method Statement

Table 2 Jemena Reference Documents

Reference	Document Title
GAS-1272-AC-RA-002	<u>SSI-46360740 - Modification 1 - Lenaghan Lateral Pipeline – Modification Report</u>
GAS-1272-AC-RA-003	<u>SSI-46360740 - Modification 1 - Lenaghan Lateral Pipeline – Response to Submissions</u>

Table 3 SCA Reference Documents

Reference	Document Title
21159-PL-HSE-0020	Construction Environment Management Plan
21159-PL-A-0018	Soil and Water Management Plan

Reference	Document Title
21159-PL-A-0024	Traffic Management Plan
21159-PL-A-0025	Out of Hours Work Protocol (Appendix to Construction Noise and Vibration Management Plan)
21159-PL-ER-0001	Emergency Response Plan
21159-PL-CN-0004	Construction Noise and Vibration Management Plan
21159-PL-HSE-0021	Biodiversity Management Plan
21159-PL-HSE-0022	Acid Sulfate Soil Management Plan
21159-PL-HSE-0027	Unexpected Contaminated and Asbestos Finds Procedure
21159-PR-A-0001	Project Inductions Procedure and Induction Package
21159-PR-HSE-0001	Management of Hazardous Material Procedure
21159-PL-HSE-0023	Bushfire Management Plan
21159-PL-HSE-0024	Weed and Seed Management Procedure
21159-PL-HSE-0029	Reinstatement and Rehabilitation Procedure
21159-PL-ER-0002	Flood Management and Response Plan
21159-PL-HSE-0028	Cultural Heritage Management Plan
21159-PL-HSE-0025	Ground Movement Management Plan
21159-PL-HSE-0026	Sodic Soil Management Plan
21159-SWM-HSE-0003	SWMS - Environmental Works
21159-SWM-HSE-0005	SWMS – Fauna Spotter Catcher Activities
21159-SWM-HSE-0028	SWMS – Reinstatement and Seeding
21159-SWM-HSE-0004	SWMS- Refuelling
21159-PR-A-0002	Survey and Site Setting Out Procedure
21159-PR-HSE-0002	Tree Felling Procedure
21159-PR-HSE-0003	Right of Way Preparation Procedure
21159-PR-QM-0212	Mainline Trenching Procedure
21159-PR-QM-0213	Trench Dewatering Procedure
21159-PR-QM-0216	Open Cut Crossing Procedure
21159-PR-QM-0217	Watercourse Crossing Procedure
21159-PR-QM-0215	Bedding, Padding, Backfill Procedure
21159-PL-QM-0021	Hydrotest Management Plan
21159-PR-QM-0219	Hydrostatic Test Procedure
21159-PL-QM-0019	Quality Management Plan

3.0 LEGISLATIVE FRAMEWORK

3.1 Approvals Permits and Licences

Jemena and SCA are committed to compliance with legislative requirements and industry standards through all of their activities. Construction activities will be conducted in line with the Federal and State legislative requirements set out in Table 4.

Table 4: Applicable legislation

Act	Requirement	Approval Status
Commonwealth Legislation		
<i>Environment Protection and Biodiversity Conservation Act 1999</i>	Under the EPBC Act, a referral is required to be submitted to the Department of Climate Change, Energy, the Environment and Water (DCCEE) for any 'action' that is considered likely to have a significant impact on any Matters of National Environmental Significance (MNES).	It is not considered that the Modification would have a significant impact any MNES and therefore it is considered that a referral is not required.
<i>Native Title Act 1993</i>	The Native Title Act 1993 provides a legislative framework for the recognition and protection of native title rights that in certain circumstances allow Indigenous people to continue to hold rights to land and water, which come from their traditional laws and customs.	A search of the Register of Native Title claims on 9 August 2022 did not identify Native Title applications or determinations that affect the Modification Area.
State Legislation		
<i>Environmental Planning and Assessment Act 1979</i>	The EP&A Act and EP&A Regulation establishes the planning and approvals process in NSW. The Killingworth to Kooragang Island Pipeline was approved under now-repealed provisions and has since been designated as SSI under Part 5, Division 5.2 of the EP&A Act.	The Director under delegation from the Minister for Planning and Public Spaces has, under s.5.25 of the Environmental Planning and Assessment Act 1979 (the Act), approved the modification subject to conditions. (See section 3.2)
<i>Pipelines Act 1967</i>	The Pipelines Act 1967 establishes the framework for the construction, licencing and operation of pipelines over land in NSW, but does not contain provisions for the planning and development approvals in relation to construction of pipelines.	Section 18 of the Act provides that a licensee may apply for a variation to a licence. The Killingworth to Kooragang Island Gas Pipeline has been granted Licence No. 8 under the Act. A variation of Licence No. 78 is being sought to amend it to include the Pipeline Modification.
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	The POEO Act aims to protect, restore and enhance the quality of the environment. It prescribes offences mainly regarding pollution of the environment and establishes a regime of environment protection licences for the carrying out of prescribed scheduled activities. It also establishes general environmental duties regarding disposal of waste (section 115), leaks or spills (section 116), emissions to air (section 117), water pollution (section 120) and land pollution (section 142A).	The Project is not expected to involve scheduled activities and accordingly an environment protection licence is not expected to be required.
<i>National Parks and Wildlife Act 1974</i>	Aboriginal Cultural Heritage Management Plan Approval	An Aboriginal Cultural Heritage Management Plan (ACHMP) was prepared by Umwelt (Australia) Pty Limited and accepted by DPE. as per B13

3.2 Consolidated Approval Conditions

The Consolidated Approval (SSI-46360740-Mod-1) sets out the conditions by which the Project must be undertaken. Condition C1 outlines the requirements of this Strategy, Conditions C2 and C3 require the Strategy to be submitted and approved prior to the activity being undertaken, refer to Table 5.

Table 5: Conditions relating to EMS

Condition Ref#	Requirement	Approval Status
ENVIRONMENTAL MANAGEMENT AND REPORTING		
ENVIRONMENTAL MANAGEMENT		

Condition Ref#	Requirement	Approval Status
C1	The Proponent must prepare an Environmental Management Strategy for the Lenaghan Lateral Pipeline Development. This strategy must:	
	(a) provide the strategic framework for environmental management of the Lenaghan Lateral Pipeline Development;	Section 4
	(b) identify the statutory approvals that apply to the Lenaghan Lateral Pipeline Development;	Section 3
	(c) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the Lenaghan Lateral Pipeline Development;	Section 4.1
	(d) detail how the performance outcomes, commitments and mitigation measures specified in the document(s) listed in condition A2(c) will be implemented and achieved;	Section 4
	(e) describe the procedures that would be implemented to:	Section 6
	(i) keep the local community and relevant agencies informed about the operation and environmental performance of the Lenaghan Lateral Pipeline Development;	
	(ii) receive, handle, respond to, and record complaints;	Section 7
	(iii) resolve any disputes that may arise;	Section 7.1.5
	(iv) respond to any incidents, non-compliances or exceedances of any impact assessment criterion or performance measures; and	Section 8
C2	(v) respond to emergencies; and	Section 9
	(f) include an environmental risk assessment and a description of the measures that would be implemented to manage the identified risks, including commitments in the document(s) listed in condition A2(c). The environmental risk assessment must:	Section 10
C3	(i) consider the environmental factors assessed in the Modification Report and any other environmental risks identified by the Proponent; and	Section 10
	(ii) include the mitigation measures identified in the Modification Report and any other mitigation measure required to manage the risks identified by the environmental risk assessment; and	Section 10.1
C4	(g) include a clear plan depicting monitoring to be carried out under the conditions of this approval.	Section 4.4
C2	The Proponent must submit the Environmental Management Strategy to the Secretary for approval.	This Strategy
C3	The Proponent must not commence construction until the Environmental Management Strategy is approved by the Secretary.	
C4	The Proponent must implement the Environmental Management Strategy as approved by the Secretary.	
REVISION OF STRATEGIES, PLANS AND PROGRAMS		
C5	<p>Within 3 months of:</p> <p>(a) the submission of an incident report under condition C6;</p> <p>(b) the submission of a compliance report under conditions C7 to C9;</p> <p>(c) the approval of any modification to the conditions of this approval; or</p> <p>(d) the issue of a direction of the Secretary under condition A4 of Schedule A;</p> <p>the Proponent must review and, if necessary, revise the studies, strategies or plans required under the conditions of approval.</p> <p>Where this review leads to revisions in any such document, then within 4 weeks of the review, unless otherwise agreed with the Secretary, the revised document must be submitted to the Secretary for approval.</p> <p>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Lenaghan Lateral Pipeline Development.</p>	Section 5.1
COMPLIANCE		
Incident Notification, Reporting and Response		
C6	The Secretary must be notified in writing via the Major Projects website immediately after the Proponent becomes aware of an incident. The notification must identify the Lenaghan Lateral Pipeline Development (including the application number and the name of the Lenaghan Lateral Pipeline Development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be	Section 8.3

Condition Ref#	Requirement	Approval Status
	given, and reports submitted in accordance with the requirements set out in Appendix 3.	
Non-Compliance Notification		
C7	The Secretary must be notified in writing via the Major Projects website within seven days after the Proponent becomes aware of any non-compliance.	Section 4.4.3
C8	A non-compliance notification must identify the Lenaghan Lateral Pipeline Development and the application number for it, set out the condition of approval that the Lenaghan Lateral Pipeline Development is noncompliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.	Section 4.4.3
C9	A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.	Section 4.4.3

3.3 Industry Standards and Guidelines

Australian Standards
Australian Standard AS 4970-2009 Protection of trees on development sites
Australian Standard AS4282 (INT) 2019 Control of Obtrusive Effects of Outdoor Lighting
Australian Standard AS 1940:2017 – The storage and handling of flammable and combustible liquids
Guidelines
APGA Code of Environmental Practice (APGA, 2022)
Acid Sulfate Soil Manual (ASSMAC, 1998)
Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2018 update) (ANZG, 2018), referred to herein as the ANZG (2018) Water Quality Guidelines
Australian and New Zealand Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ, 2000)
Approved Methods for Sampling and Analysis of Water Pollutants in NSW (DEC, 2004)
Saving our Species Hygiene Guidelines. DPIE 2020c
Best Practise Erosion and Sediment Control Appendix P Land-based Pipeline Construction (IECA 2015)
DPI Policy and Guidelines: Aquatic Habitat Management and Fish Conservation, NSW Fisheries 1999
New South Wales Weed Control Handbook (DPI 2018)
Managing Urban Stormwater: Soils and Construction, Volume 1 (Landcom 2004) and Volume 2 (DECC 2008) (the “Blue Book”).
Fish Passage Requirements for Waterway Crossings, (Witheridge 2002)
Fishnote – Policy and Guidelines for Fish Friendly Waterway Crossings – November 2003
Guidelines for riparian corridors on waterfront land (DPI Water, 2012)
Guidelines for vegetation management plans on waterfront land (DPI Water, 2012)
Guidelines for watercourse crossings on waterfront land (DPI Water, 2012)
Guidelines for instream works on waterfront land (DPI Water, 2012)
Guidelines for outlet structures on waterfront land (DPI Water, 2012)
Why Do Fish Need to Cross the Road (Fairfull and Witheridge, 2003)
Biodiversity Assessment Method (BAM) (DPIE 2020)
Storing and Handling Liquids: Environmental Protection: Participant’s Manual (DEC 2007)
Hygiene protocols for the control of diseases in Australian frogs (Murray et. al. 2011)
NSW Waste and Resource Recovery Strategy 2014-2021 (NSW EPA, 2014)
NSW Government Resource Efficiency Policy (OEH, 2014)
Waste Classification Guidelines (NSW EPA, 2014a)

NSW Protection of the Environment (Waste) Regulation 2014
NSW EPA Storing and Handling of Liquids: Environmental Protection – Participants Manual (DECC, 2007).
NSW Code of Practice: How to Manage and Control Asbestos in the Workplace (SafeWork Australia, 2020)
Code of Practice: How to Safely Remove Asbestos (SafeWork Australia, 2019)
NSW Asbestos Waste Strategy (NSW EPA, 2019)
National Environment Protection Council (NEPC) National Environment Protection (Ambient Air Quality) Measure 2021 (the Air NEPM)
Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007)
Technical Framework – Assessment and management of odor from stationary sources in NSW (the Technical Framework) (DEC, 2006)
Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (the Approved Methods) (EPA, 2017)
Guidance on the assessment of dust from demolition and construction (IAQM Guidance) (IQAM, 2016)
Environmental Management Plan Guideline – Guideline for Infrastructure Projects (DPIE, 2020).

4.0 STRATEGIC FRAMEWORK

4.1 Roles and Responsibilities

Environmental management and compliance are the responsibility of the entire Project Management Team; supervisors, work personnel and subcontractors. Roles and responsibilities of specific Project team members / groups are summarised below in Table 6. All project roles will be filled with suitably qualified and experienced personnel.

Table 6: Roles and Responsibilities

Project Role	Responsibility
Project Manager	<ul style="list-style-type: none"> • Demonstrate proactive support for environmental requirements, including ensuring sufficient resourcing for the Environmental Team, Engineering and Construction Teams; • Decision-making authority relating to environmental performance of the construction program; • Authority over project construction and site activities • Ensure implementation of Project of construction environmental management plan (CEMP); • Ensure relevant training is provided to all project staff prior to commencing individual activities; • Ensures appropriate contractor resources are allocated to implement the environmental requirements; • Orders STOP WORK for any environmental breaches and reports incidents to Jemena Project Manager; • Monitors performance against environmental Performance Standards.
Construction Manager	<ul style="list-style-type: none"> • Ensure all project staff have a clear understanding of the environmental requirements relevant to their area of works • Comply and implement SCA Environmental Management System • Ensure all Area Managers are familiar with the approved CEMP for construction and associated documents and their responsibilities within them • Ensure implementation of Project of CEMP; • Participate and provide guidance in the regular review of the CEMP and associated documents

Project Role	Responsibility
	<ul style="list-style-type: none"> • Take action in the event of an emergency and allocate the required resources to minimise environmental impact • Report any activity that has resulted, or has the potential to result, in an environmental incident to the Jemena HSE support and Project Manager. • Responsible for planning and scheduling of construction, and to ensure operations are conducted in accordance with statutory requirements and the CEMP; • Ensures that all environmental objectives associated with the Project are achieved; • Day-to-day decision-making authority relating to environmental performance of construction activities and direct site activities and construction in accordance with the CEMP; • To provide resources to ensure environmental compliance and continuous improvement; • Ensure all personnel are aware of any changes to CEMP and improved procedures.
Construction Supervisors	<ul style="list-style-type: none"> • Communicate with all personnel and subcontractors regarding compliance with the approved CEMP and site specific environmental issues • Coordinate implementation and maintenance of pollution control measures • Identify resources required for implementation of the CEMP • Ensure implementation of Project management measures per CEMP; • Identifying training and competency requirements for personnel under their control, and for ensuring that personnel have the requisite competencies, skills and training to carry out their assigned tasks • Reporting of hazards and incidents and implementing any rectification measures; • Coordinate action in emergency situations and allocate required resources in accordance with the incidents, complaints and communication action plan • Ensure that instructions are issued and adequate information provided to field based employees which relate to environmental risks on site • Implement requirements contained in the CEMP, work procedures and standard drawings; • Maintaining open and transparent communication with each other, project discipline Managers and other areas of the project (such as Workshop and Yard Manager etc.); • Ensures appropriate contractor resources are allocated; • Orders STOP WORK for any environmental breaches and reports incidents to SCA Project Manager and Environment team; • Ensures landowners and other interested parties are notified of noise, dust and traffic issues or other matters relating to their interest.
Environment Manager	<ul style="list-style-type: none"> • Provides environmental advice, assistance and direction to Project Manager, Construction Manager and Supervisors to ensure construction activities are conducted in accordance with regulatory legislation and CEMP; • Reports on the performance of the CEMP. Recommends changes or improvements to Project Manager, Construction Manager and Supervisors as required; • Co-ordinates internal audits and inspections of the CEMP; • Ensures that environmental measures are effectively implemented and monitored for whole of Project; • Develop strong working relationships with Jemena, regulatory agencies and stakeholders; • Provide Jemena all documents which are required to be kept under approval conditions; • Identify and propose solutions to environmental issues in consultation with key construction personnel;

Project Role	Responsibility
	<ul style="list-style-type: none"> • Ensure environmental risks are appropriately identified, communicated and effectively managed; • The Environment Manager can order Stop Work for any environmental breaches • Coordinate the preparation and review/amendment of the CEMP; • Coordinate investigation and response to environmental complaints and inquiries where required; • Manage specialist environmental sub-consultants; • Ensure communication of relevant environmental information to project personnel; • Instruct and advise management team on compliance issues; • Provide support in relation to Environmental incident reporting, investigation and implementation of corrective actions; • Ensure Construction Manager and Supervisors fully understand the environmental constraints and how construction practices must ensure any such constraints are considered and mitigated against during construction; • Have input to design development to ensure that all applicable environmental management measures are incorporated into design. • Manages cultural heritage issues for the Project; • Day to day on ground direction to the Environmental Officers;
Environment Advisor	<ul style="list-style-type: none"> • Ensure project compliance with commitments to fauna management; • Conduct fauna spotter catcher duties during all clearing activities; • Daily inspections of open trench for trapped fauna; • Reporting of fauna observation, relocations and deaths; • Undertake environmental monitoring and assist the Environment Manager in ensuring compliance with the CEMP; • On-site erosion and sediment control monitoring; • Develop, update and deliver environmental toolbox talks • Attend and contribute to construction team meetings; • Carry out regular environment themed training and participate in daily pre-start meetings.
Fauna Spotter Catcher	<ul style="list-style-type: none"> • Conduct Pre Clearance Reports within 48 hours of any clearing activities • Delineate any habitat from clearing crews if required • Advice clearing crews on clearing methodologies to reduce impact to fauna where possible • Fauna Spotter Catch during tree felling • Maintain a fauna register • Catch and release fauna on Project • Take injured fauna from Project to Wildlife Groups / Veterinary Practises
Subcontractors	<ul style="list-style-type: none"> • Comply with Project approval, induction and legislative requirements; • Participate in daily inspections and audits; • Follow environmental procedures; • Report all environmental incidents and hazards; • Introduce environmental topics to prestart meetings; • Ensure that all relevant permits and clearances are in place prior to commencing work; • Provide specialist advice and input as required.
Site Personnel and Visitors	<ul style="list-style-type: none"> • Comply with Project approval, induction and legislative requirements;

Project Role	Responsibility
	<ul style="list-style-type: none"> • Follow environmental procedures; • Report all environmental incidents and hazards; and • Participate in training as required.

4.2 Training and Communication

4.3 Training

SCA will ensure that all project personnel have appropriate training and experience necessary for their roles and responsibilities and an awareness of their environmental duties and obligations. Training may include inductions, toolbox meetings, safe work method statement (SWMS), specific Project training. All Project personnel will complete the Project Induction prior to commencing works. The Project Induction will include all the environmental aspects identified in this CEMP.

Job specific environmental training will be undertaken prior to the commencement of the project as required. SCA will keep records of project personnel’s experience, qualifications and training undertaken.

Cultural awareness training will be delivered to the Senior Project Team and all personnel involved in ground disturbance activities in accordance with the agreements made with Traditional Owners, Native Title holders and their representatives.

Records of training and competencies will be kept on SCA’s Rapid Induct System and maintained by SCA’s Safety and Environment Team during construction.

4.3.1 Induction

All personnel undertaking works on the Project will undertake the required Project Induction. All SCA personnel and sub contractors will be required to undertake any required Jemena Environment and Heritage Inductions and SCA’s Project Induction will include standard company rules and procedures and Project specific aspects of environmental, community and legal importance.

Key Project Induction topics include:

- An overview of environmental risks and environmental issues on site (no-go areas, clearing boundaries, weed and pest control, waste management, dust control, noise control, refuelling and storage, cultural heritage values etc), including those identified in the Project HAZID for environment and cultural heritage aspects;
- An outline of requirements for environmental management, including a summary of key management measures required to be implemented during Project construction;
- Overview of the CEMP;
- Outline environmental systems to be implemented during Project construction;
- All SCA personnel and sub contractor responsibility to stop works and notify Supervisor if unsure of how to conduct works or any environment or cultural heritage risk has been identified;
- Responsibilities of project staff, sub-contractors and suppliers;
- Reporting of potential and actual environmental incidents;
- Unexpected finds procedures;
- Waste management requirements;
- Spill kit types and locations; and
- Contacts for environmental incidents and emergencies;

- Key compliance requirements;
- Importance of delivering on Project Approvals and legislative conditions;
- Expectations of Leadership and Management for environment and cultural heritage compliance.

4.3.2 Supervisor Project Training

Prior to undertaking Project construction activities, all Construction Supervisors will complete the Supervisor Project Training. Supervisor Project Training will cover SCA's environmental systems, Project approval documents and conditions and SCA's environmental management measures and implementation strategy for compliance.

The environmental component of Supervisor Project Training will focus on informing the Supervisor of the Project's Environmental Documentation and the conditions within, their responsibilities to implement management measures for compliance and their incident and near miss reporting responsibilities. Challenge questions will be required to be answered by the Supervisor to check their understanding and competency of Project requirements.

As part of the Supervisor Project Training, the following environmental documents will be supplied to the Construction Supervisors:

- Cheat sheets containing all the environmental documentations conditions and how they are to be implemented during Project construction. The cheat sheets will also include links / information regarding where to find all original documents on SCA's SharePoint.
- Supervisor Project reporting and compliance responsibilities
- The Project's Environmental Line (ELL) List which highlights all the major environmental aspects and risks in relation to their specific Kilometre Point (KP).
- Information on how cheat sheet information / ELL content is required to be extracted and placed onto Daily Supervisor Pre-Starts and disseminated throughout the work force.

4.3.3 Daily Supervisor Pre Starts

Construction Supervisors are responsible for completing a Daily Pre Start which they deliver to their work crew prior to each shift. The Supervisors will be responsible for understanding what KP point they will be working between and extracting relevant information out of the environment cheat sheets and ELL to be including in the Pre Start and communicated to their works crews.

SCA PMT will also send out an email containing supplementary information for inclusion in Supervisor Pre Start's which will capture any environmental incidents and lesson learnt, ancillary environmental information for work crews, high risk activities required to be managed and any additional environmental aspects or risks that need to be communicated to the workforce.

4.3.4 Toolbox Talks

Toolbox meetings are an open forum for the workforce to raise safety concerns they have encountered or foreseen which did not require immediate action by themselves or their supervisors.

These Project wide meetings will be held monthly; however, they may be held more frequently at the discretion of the Project Manager (e.g. following incidents, change in work process or procedures, etc) or by request by Jemena in response to incidents to discuss corrective actions and lessons learnt. Toolbox talks will also be undertaken at the beginning of each new activity. These task specific toolbox talks will reinforce the Project training requirements, promote greater awareness of Project risks and their associated management measures.

By using this methodology, safety issues and concerns become a focal point and control measures can be initiated to reduce the likelihood of risk. Environment and Cultural Heritage matters which could be discussed include, but are not limited to the following:

- Toolbox meeting minutes and actions arising.
- Environment issues identified and remedied during the period.
- Problems identified with remedial action yet to be completed. Reasons for incomplete rectification plus a progress report.
- Incidents including near misses occurring during Project construction.
- Environment statistics.
- Training programmes.
- Work progress (short term and overall).
- Environment audits and inspections findings.

During all Toolbox talks, members of SCA’s PMT and specifically Project Environment personnel will encourage interaction with all Project personnel to open source environmental knowledge sharing and give and receive feedback on environmental management requirements.

Attendance records shall be signed by all in attendance and records will be kept.

4.3.5 Safe Work Method Statement

SWMS will be used to assist in the implementation, communication and verification of compliance requirements and Project Specific environment and cultural heritage controls during Project construction.

SWMS identify, analyse, and manage hazards that exist in high risk work activities. It formalises the process of hazard identification and management that must be followed when working. The SWMS requires personnel to examine the task they are about to undertake, and:

- To break the job into separate, defined steps;
- For each step identify the potential hazards (safety and environmental) that could occur with that job step; and
- For each potential hazard, list the method to be followed to prevent or minimise injury, loss, damage or environmental incident.

SWMS which will include environment and cultural heritage management measures include:

Table 7: Environment and Cultural Heritage SWMS

SCA SWMS	Document Number
Site Establishment	21159-SWM-HSE-0002
Environmental Works	21159-SWM-HSE-0003
Fauna Spotter Catcher Activities	21159-SWM-HSE-0005
Survey and Setting Out	21159-SWM-HSE-0015
Tree Removal	21159-SWM-HSE-0016
ROW Fencing	21159-SWM-HSE-0006
Clear and Grade	21159-SWM-HSE-0017
Locating Existing Services	21159-SWM-HSE-0007
Pipe Load Out & Transport Activities	21159-SWM-HSE-0010
HDD Drilling Operations	21159-SWM-HSE-0008

Hydrostatic Testing	21159-SWM-HSE-0014
Excavator Operations	21159-SWM-HSE-0024
Dam Remediation / Backfill	21159-SWM-HSE-0020
Special Crossings	21159-SWM-HSE-0029
Reinstatement and Seeding	21159-SWM-HSE-0028
Refuelling	21159-SWM-HSE-0004

4.4 Monitoring and Auditing

During construction there will be continuous monitoring, auditing and reporting of the construction activities occurring as part of the Project. Individuals and work crews will be required to demonstrate that the requirements of the CEMP are being adhered to. Construction Supervisor(s) will be required to record daily and weekly activities on pre starts showing relevant CEMP compliance.

All reports, inspections, and audits will be maintained by the Environment Manager and made available to the appropriate Managers (Jemena and SCA) and regulatory authorities as required. Audit results will be used to review management techniques to ensure compliance with the CEMP.

4.4.1 Monitoring

SCA will implement the below monitoring program during Project works.

Table 8: Environment Monitoring Requirements

Frequency	Actions	Records
Daily	<ul style="list-style-type: none"> Check meteorological conditions including rainfall, hourly temperature, relative humidity, wind (direction and speed) and barometric pressure. Pre-start inspections of open trenches, and removal of fauna by suitably qualified personnel as required. Fauna Spotter Catcher Records for pre clearance and during clearing. Inspection of vehicles and equipment to check for oil, lubricant or fuel leaks and general wear and tear of hoses. Water use- source and volumes used 	Toolbox records Pre-start records Fauna handling records Water use records Environment checklist
Weekly	Environmental Inspection <ul style="list-style-type: none"> Site wide inspection of activity areas to identify risk or occurrence of watercourse, soil and land issues or harm; Activity areas inspected to identify the risk or occurrence of noise and/or vibration emissions; Chemical and fuel storage facilities; Erosion and sediment controls. Water management measures 	Weekly Environmental Inspection Checklist Monitoring records

Frequency	Actions	Records
	<ul style="list-style-type: none"> • Visual and olfactory inspections for dust and odour on work in areas including, but not limited to: <ul style="list-style-type: none"> ○ Excavations; ○ Stockpiling locations; ○ Site area boundaries; and ○ Internal and external roads. • Implementation of waste management activities • Integrity and effectiveness of environmental management strategies. • Site tidy and litter free; • Waste collection point clearly segregated and signposted, and collection adequate. • Performance and effectiveness of clear and grade (topsoil stripping depth, soil amelioration etc), compliance with site boundaries revegetation, exclusion fencing, exclusion signage and adherence to exclusion zones during all activities, especially clear and grade. • Dewatering system to confirm integrity and note impacts at point of release. <p>Monitoring:</p> <ul style="list-style-type: none"> • Water quality monitoring and analysis of dewatering water discharged. • Conduct required water/soil monitoring (upstream/downstream) • Monitoring of fauna mortality rate • Restored areas stability and rehabilitation success • Visual monitoring of watercourses to confirm bank stabilisation • Activity areas should be inspected to identify the risk of occurrence of dust and / or odor emissions. 	
<p>Monthly</p>	<p>Review of records:</p> <ul style="list-style-type: none"> • Inspection and/or monitoring data/findings should be evaluated and management methods developed to mitigate and/or control risk of: <ul style="list-style-type: none"> ○ Watercourse, soil and land issues; ○ Noise and/or vibration emissions; ○ Fauna Mortality Rate; ○ Waste management register (to be maintained monthly) <p>Visual Inspection:</p>	<p>Waste Management Register</p> <p>Disposal receipts</p> <p>Monthly Environmental Inspection Record</p> <p>Environmental Inspection Checklist</p>

Frequency	Actions	Records
	<ul style="list-style-type: none"> Inspection of trenched watercourse crossings for signs of scouring or erosion; Inspection of watercourse flow diversion infrastructure and other ESC controls adjacent to watercourses and waterfront land. Visual inspection and co-ordinate management for weeds within the construction footprint. Monitoring of the condition of the ROW and other disturbed areas post construction and remedial measures undertaken. 	
As per Audit schedule	<p>Environment Audit:</p> <ul style="list-style-type: none"> Any environmental incidents have been reported and investigated in accordance with the Incident Reporting Procedure. Non-conformance with CEMP performance standards Tracking and reporting of all waste in accordance with the NSW EPA waste classification guidelines. Waste facility receipts are maintained. 	<p>Environmental Incident Report</p> <p>Waste Management Register</p> <p>Disposal receipts</p> <p>Environmental Audit Report</p>
As required	<p>Close out of incidents:</p> <ul style="list-style-type: none"> Lessons learned are circulated to project personnel 	<p>Toolbox records</p> <p>Pre-start records</p>
As required	<p>Environmental Inspection:</p> <ul style="list-style-type: none"> Inspection of erosion and sediment controls before and after rainfall events (forecast >10mm) 	<p>Environmental Inspection Checklist</p>
As required	<p>Attend and / or unattended noise monitoring:</p> <ul style="list-style-type: none"> Within first month of construction commencing and throughout construction period to confirm noise predictions and effectiveness of mitigation and management measures In response to noise related complaints Where there is a change in methods or equipment As required by a Construction Noise and Vibration Impact Statement (refer to Project CEMP) <p>Vibration Monitoring:</p> <ul style="list-style-type: none"> If vibratory rollers or other vibration inducing construction sources are required within safe working distances for residential receivers. 	<p>Environment Incident Report</p> <p>Monitoring records</p>
As required	<p>Response to complaint:</p>	<p>Environmental Inspection Checklist</p> <p>Environmental Incident Report</p>

Frequency	Actions	Records
	<ul style="list-style-type: none"> Activity areas should be inspected to identify the risk or occurrence of dust / or odour, light and / or noise emissions. Air quality monitoring and assessment against criteria if required. 	Monitoring records

4.4.2 Audits

An environmental audit will be used during construction to review compliance with the requirements of this CEMP. SCA will undertake an internal audit within one month of the project commencing. The Environment Manager or delegate will be responsible for undertaking these audits. Corrective action plans will be generated by SCA Environment Manager or delegate to address internal audit findings and will make these available to Jemena upon request.

Table 9: Audit Schedule

Number	Audit	Timing
1	CEMP compliance	Within 1 month of site establishment
2	CEMP Compliance	Mid way through the project

4.4.3 Non-Conformances and Notifications

The DPE must be notified in writing via the Major Projects website within seven days after the Proponent becomes aware of any non-compliance (Jemena responsibility).

A non-compliance notification must identify the Lenaghan Lateral Pipeline Development and the application number for it, set out the condition of approval that the Lenaghan Lateral Pipeline Development is noncompliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

A non-compliance which has been notified as an incident does not need to also be notified as a noncompliance.

4.4.4 Corrective Actions Register

Findings from any SCA monitoring activities, inspections, audits or incidents will be placed in the SCA Project Corrective Action Register.

Suitable timeframes, depending on the risk, will be placed against the close out of each finding. Corrective actions will be assigned to Construction Supervisors to be closed out.

5.0 DOCUMENT CONTROL AND RECORD KEEPING

A copy of the projects CEMP will be kept at the Project Office for the duration of construction and rehabilitation works, until the site offices are demobilised.

All records and registers specified in the CEMP and maintained by SCA for the project shall be made available for inspection upon request by Jemena. Records to be kept are shown in Table 10 below.

Table 10: Environmental records to be kept during the Project

Document	Responsibility	Updated
CEMP	Environment Manager	As required
Air Quality Monitoring Register	Environment Manager	As required
Noise Monitoring Register	Environment Manager	As required
Waste Register	Environment Manager	Upon receipt of waste docket
Water Quality Monitoring	Environment Manager	Upon conducting water quality monitoring in situ or lab results are received
ASS Soil Validation Reports	Environment Manager	As required
Induction Records	Safety Manager	Post induction
Environmental Checklist	Environmental Advisor	Weekly
Environmental Incident Reports	Environment Manager	As required
Notifications and Regulatory Reporting	Environment Manager	As required
Complaints and Corrective Action Register	Community Manager	Daily
Records of meetings with external parties and stakeholders	Project Manager	Daily
Implementation of Emergency Response Procedures	Project Manager	As required
Records of Cultural Heritage unexpected finds	Environment Manager	As required
Vehicle and machinery inspection and maintenance records	Plant Manager	Upon receipt of plant induction information
Register and copies of all safety data sheets	Safety Manager	Prior to chemicals coming onto site
Register of spill kit equipment	Environment Manger	Daily
Vegetation Survey	Survey Manager	Monthly
Weed Survey	Environmental Manager	As required
Fauna injured / relocated register	Fauna Spotter Catcher	Daily
Fauna Pre Clearance Survey	Fauna Spotter Catcher	Daily (during clearing)
Fauna Trench Inspection	Fauna Spotter Catcher / Environment Advisor	Daily for all open trenches)
Greenhouse Gas	Fuel consumption by fuel type	Monthly
Toolbox Talk Attendance Register	Environment Manager	Post Toolbox Talks

5.1 Revision and Review

Within 3 months of:

- a. the submission of an incident report under condition C6;
- b. the submission of a compliance report under conditions C7 to C9;
- c. the approval of any modification to the conditions of this approval; or

d. the issue of a direction of the Secretary under condition A4 of Schedule A; the Proponent must review and, if necessary, revise the studies, strategies or plans required under the conditions of approval. Where this review leads to revisions in any such document, then within 4 weeks of the review, unless otherwise agreed with the Secretary, the revised document must be submitted to the Secretary for approval.

6.0 COMMUNICATION

Operation of the pipeline and JGN meter station would require an incremental increase in Jemena’s existing operational workforce consisting of 1 to 2 field operators that would visit the meter station weekly for routine maintenance.

Field operators will be responsible for day-to-day operations and maintenance activities, ground patrols, communication with local stakeholders and facilitation of third-party access to the easement.

Contractors operating under Jemena’s supervision would be responsible for activities including:

- Easement maintenance, such as vegetation control, weed management, erosion and subsidence monitoring.

Field operators will access the pipeline to conduct operations and maintenance activities as required, in consultation with the host landholder.

7.0 COMPLAINTS MANAGEMENT

All complaints and incidents will be dealt with promptly and efficiently in accordance with the SCA’s Stakeholder Management and Communications Plan (21159-PL-A-0023). Jemena will be notified within 2 hours of SCA becoming aware of a community or landholder complaint. Communication will be verbal from the SCA’s Land Liaison to their Jemena counterpart, unless the complaint constitutes an incident and the Incident Reporting Procedure will be followed.

7.1 Complaint Management Procedure

7.1.1 Purpose

This procedure defines how enquiries and complaints will be managed and recorded from receipt to resolution. It will ensure that enquiries and complaints are:

- recorded, acknowledged and responded to in a timely, accurate and respectful way
- regularly reviewed to improve future performance and minimise the causes of common complaints

7.1.2 Scope

This procedure applies to all enquiries and complaints received from community members and other stakeholders by SCA or Jemena or third party stakeholders (e.g. the NSW EPA). This includes enquiries and complaints received face-to-face, by phone, by email or by mail.

7.1.3 Approach

All enquiries and complaints will be recorded within one day of receipt. The complaints register for the Project will record the:

- number of complaints received
- the date and time of the complaint
- the method by which the complaint was made

- any personal details of the complainant which were provided by the complainant, or if no such details were provided, a note to that effect
- nature of the complaint
- means by which the complaint was addressed and whether resolution was reached, with or without mediation
- if no action was taken, the reason(s) why no action was taken.

The complaints management system will be in place for the duration of construction until at least 12 months after construction is complete.

Complainants who provide personal information (for example, contact details to provide response to complaint), are to be advised that:

- The complaints register may be forwarded to government agencies to allow them to undertake their regulatory duties
- By providing personal information, the complainant authorises Jemena to provide that information to government agencies
- Supplying personal information is voluntary
- The complainant has the right to contact government agencies to access personal information held about them and to correct or amend that information (Collection Statement).

The Collection Statement is to be included on the project webpage to inform prospective complainants of their rights under the *Privacy and Personal Information Protection Act 1998* (NSW).

7.1.4 Record Management and Corrective Actions

A Complaints Register will be maintained by SCA's Land Liaison and will be supplied to Jemena upon request.

Corrective actions and other recommendations including, where applicable, modifications to practices and procedures shall be made and closed out under the direction of the Project Manager or delegate. The outcomes from incident investigations will be discussed at daily pre-starts and toolbox talks and will be introduced into induction programs as appropriate.

7.1.5 Dispute Resolution

Where a complainant or enquirer does not consider their feedback has been resolved, Jemena will escalate the matter to Senior Management. Dissatisfied complainants may ask the Community Complaints Mediator (a person who is independent of design and construction personnel that is nominated by Jemena) to review unresolved disputes. Jemena and the Contractor are to implement the recommendations provided by the Community Complaints Mediator within the agreed timeframes, unless otherwise agreed with the Planning Secretary.

Where a dispute arises with a member of the public, the following protocol is to be observed:

- Community Complaints Mediator to review unresolved dispute at the request of dissatisfied complainant and to provide recommendations to Jemena and Contractor
- Community Complaints Mediator to provide a copy of the recommendations.

The complainant or enquirer complainant may raise this issue with the department of planning if no resolution can be reached.

8.0 INCIDENT REPORTING AND MANAGEMENT

8.1 General

Incident Notification, Reporting and Response will be undertaken in accordance with Consolidated Approval Condition C6 (SSI-46360740 Mod 1) and cover incident reporting and notification requirements outlined in Appendix 3 of the Approval.

All personnel shall be responsible for reporting all incidents including near miss events to their supervisor. Investigating and implementing remedial actions is in accordance with guidelines outlined in this section.

All incidents and near misses, including those involving contractors and visitors, that occur during construction will be recorded, managed and reported to Jemena.

The Environment Manager shall maintain an electronic database of all incidents and retain copies of all reports and investigation documentation at the Project office for auditing and review purposes.

All incidents no matter how insignificant they may seem must be reported and investigated to ensure:

- Timely containment of any potential pollutant and immediate reporting to relevant authorities, including Jemena;
- Every unplanned event or incident that causing or has the potential to cause environmental harm is investigated to establish source and cause; and
- That effective management control(s) are developed and implemented to prevent recurrence of any similar reported unplanned events or incident or worse incidents occurring.

8.2 Incident Classification

An Incident is an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.

Under the *Protection of the Environment Operations Act 1997* (NSW) section 147, environmental harm is defined as:

“harm to the environment that involves actual or potential harm to health or safety of human beings or to the ecosystem that is not trivial”

Events that do not meet the environmental harm definition, e.g. a small hydraulic hose leak that is cleaned up immediately onsite, will be classified as a near miss. A near miss is an event that could have reasonably resulted in an incident.

8.2.1 Risk Based Incident Classification

- All incidents shall be risk assessed to facilitate the level of notification within the Project (all stakeholders) and determine the structure of the investigation team and the level of investigation to be conducted.
- High potential (high or extreme ranking according to the SCA risk matrix) incidents shall, at a minimum, be the subject of a root cause analysis.
- The risk classification of an incident shall be calculated using the SCA Risk Matrix (SCA-HSE-FOR-031).

8.3 Statutory Notifiable Incidents

In accordance with Condition C6 of the consolidated consent, the Planning Secretary (DPE) will be notified in writing via the Major Projects website immediately after the Proponent becomes aware of an incident. The notification must identify the Lenaghan Lateral Pipeline Development (including the application number and the name of the Lenaghan Lateral Pipeline Development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 3 of the Consolidated Approval.

The DCCEEW must be notified electronically within 2 business days of Jemena becoming aware of any incident which has the potential to, or does, impact on any national protected matter. Notification must include any condition or commitment of a plan which may have been breached (if known), a short description of the incident and the location (including co-ordinates), date and time of the incident.

SCA will provide Jemena with a Heads Up Notification within 2 hours of an Incident occurring that requires reporting to DCCEEW. Jemena will be responsible for notifying DCCEEW within 2 business days.

8.4 Incident Reporting Procedure

If any environment or Cultural Heritage Incident(s) occur during the construction of the Project, SCA will follow the below Incident Reporting Procedure. A flowchart of SCA’s Incident Reporting Procedure can be viewed in Appendix D.

SCA will supply Jemena will Environmental Incident Reports within **7 days** of the incident occurring.

8.4.1 Incident Notification

SCA requires that all incidents be reported immediately following occurrence. All incident reports will be verbally communicated immediately to Spiecapag and Jemena HSE Manager / Advisor and Senior Managers in all instances. SCA will follow up with a written Heads Up Notification to Jemena within **2 hrs** via email, using the below table structure:


 Heads Up Notification	
Name of Project	Lenaghan Lateral Pipeline (SSI-46360740 Mod 1)
Time	
Date	
Location	
Incident Classification	
Actual or potential NCR?	
How incident was detected	
Brief Incident Description	
Immediate Action	
Any further actions	

Figure 3: SCA Incident Heads Up Notification

8.4.2 Incident Investigation Reports

Low and Medium Level Incidents

The Supervisor will immediately notify the Environment Manager in the event of any actual or potential environmental harm. The Construction Supervisor shall lead investigations for Low and Medium level Incidents (unless determined otherwise for Medium Level incidents) in consultation with the Construction Manager and Project Safety / Environment Manager. Medium level incidents may require a detailed investigation.

High and Extreme Level Incidents

Within 1 working day of a High or Extreme level incident, the Project Safety / Environment Manager will define a 'Scope of Investigation' and recommend appointments to the investigation team in accordance with the requirements of the section Incident Investigation Teams below.

The investigation team shall document all facts, gather evidence and take witness statements to determine where possible the cause of the incident and to allow preventative and/or corrective actions to be developed.

Investigation teams for high and extreme level incidents shall be led by the Project Safety / Environment Manager and includes as a minimum the Supervisor, Construction Manager, employees (subcontractor) as necessary, Jemena's HSE representative.

The Project Safety / Environment Manager shall document all incident findings and corrective actions, into the incident report using the project corrective action register. A draft report of any significant incident investigation report will be provided to Jemena for review/feedback, prior to finalising the investigation report.

Incident Reports and near miss notifications will be provided to Jemena within **7 days** of the event occurring.

Incident Reports requiring notification to the DPE via the Major Project website (Jemena responsibility) will be provided to Jemena within **5 days** of the event occurring.

8.4.3 Incident Investigation Team

The depth of an investigation and involvement of the SCA Project Team shall be dependent upon the incident risk classification. The table below provides a guideline on determining the level of investigation.

Table 11: Incident Investigation Teams

Incident Type	Investigation	Investigation Team
Extreme	TapRoot RCA	Corporate management (as required), Project Manager, Client representative, Construction Manger, Project Safety Manager, Environment Manager, external consultant (as required)
High	TapRoot	Project Manager, safety Manager, Environment Manager, Construction Manager, involved parties.
Medium	Incident Report as a minimum	Environment Advisor, Construction Superintendent, Construction Supervisor, involved parties
Low	Incident Report only	Environment Advisor, Construction Superintendent, Construction Supervisor, involved parties
Near Miss	Near Miss Notification	Environment Advisor, Construction Supervisor

8.4.4 Corrective Actions

Determination of corrective actions shall be made in consultation with the relevant stakeholders (being those that perform the work, those that will approve the implementation and budget) to ensure the proposed measures:

- Are workable and practicable (i.e. corrective actions should be determined thoughtfully and with regard to their effective implementation such that they will be used); or
- Do not present or introduce new hazards; and
- Will effectively mitigate the risk of incident recurrence.

The assignment of corrective actions shall be managed through the project Corrective Action Register with close out evidence collected and stored. Corrective actions shall as a minimum:

- Reflect the Causal Factors of the incident investigation
- Be specific such that the person assigned with implementation has a thorough description of what is required
- Be allocated a suitable timeframe for completion
- Consider the resource (practicability) requirements for implementing the control measure; and
- Be determined in accordance with the Hierarchy of Control which includes:
 - Elimination of the hazard
 - Substitution of hazard with a measure carrying less risk such as changing a dust suppression material with a more effective product
 - Isolating personnel from hazardous areas or items
 - Engineering of the hazard such as machine guarding, modification to plant, addition of noise dampeners to noisy machinery, etc
 - Administrative measures such as reduced exposure time, training, etc
 - Personal Protective Equipment (where PPE is supplied as a control measure an assessment must be conducted to ensure the type of PPE is appropriate for the hazard the person/s are exposed to).

Further, the assigner of preventative and corrective actions shall follow up overdue actions with the assignee. The Project Environment Manager shall also generate a list of the corrective and outstanding corrective actions from the Corrective Action Register and table this list at the Project Construction meetings for follow up and confirmation of completion. An incident report itself may be considered closed once the incident investigation is completed and corrective/preventative actions are assigned.

8.4.5 Incident Communication


Following the incident investigation, feedback must be given to relevant personnel on the incident causes and future control measures to be implemented. This may be achieved through toolbox meetings, operational meetings and/or daily pre-start meetings.

The Safety Manager or Environment Manager will also develop and distribute Incident Alerts in the following circumstances:

- For all Notifiable Incidents and incidents classified with a High/Extreme risk potential; and
- Where it is deemed necessary that all personnel need to be made aware of the occurrence, its causes and preventative measures; and
- Where supplied and requested to be distributed by a Jemena representative.

Incident Alerts shall be released only following completion of any Incident Investigation proceedings.

The Project's Safety and / or Environment Manager is responsible for posting and removing Incident Alerts from all SCA Health, Safety and Environment Noticeboards. Alerts shall be posted for a period no longer than four (4) weeks. These forms shall be signed by all workers reviewing the alert and returned to the Project Safety Manager / Environment Manager. Crew supervisors shall be responsible for discussing the contents of Incident Alerts at their daily prestart meetings and will oversee the completion of the sign-off forms.

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9.0 EMERGENCY RESPONSE

All Project personnel will receive basic training which will be incorporated into the Project Induction, regarding the Project’s Emergency Response Plans.

Emergency response on the Project will be coordinated and managed by the below plans depending on the emergency event:

- Jemena Emergency Response Plan (document number), responsible for;
 - Being the overarching Project emergency response document to be complied with by both SCA and Jemena
- SCA Emergency Response Plan (21159-PL-ER-0001), responsible for;
 - Complying with Jemena’s Emergency Response Plan (document number);
 - Emergency response for injuries and medical emergencies and impacts on third party assets (including gas assets)
 - Describing SCA’s responsibilities when responding to a Project emergency relating to Project health and safety;
 - Outlining SCA’s emergency flowchart to be followed during a Project health and safety emergency;
 - Describing timing for emergency drills to be conducted during Project construction;
 - Outlining the health and safety emergency response procedure, including the Project’s evacuation procedure.
- SCA Bushfire Management Plan (21159-PL-HSE-0023)
 - Emergency response for fires and bushfires;
 - Comply with SCA’s Emergency Response Plan (21159-PL-ER-0001);
 - Determine the bushfire risk for the Project and controls required to reduce the risk;
 - State the required bushfire response equipment to be maintained onsite;
 - Outline training requirements;
 - Determine any required permits for ‘hot works’ on fire ban days.

9.1 Emergency Drills

SCA will conduct emergency drills in accordance with the requirements of the Project’s Emergency Response Plan (21159-PL-ER-0001).

An evacuation exercise will be scheduled to be carried out within the first two weeks after SCA’s laydowns are mobilised and functional. Jemena will be invited to participate in the evacuation exercise and the Emergency Drill Debrief Form (SCA-HSE-FOR-012) will be used to record the exercise. A debrief session will be held after the exercise between SCA and Jemena PMT to discuss and deficiencies and improvements required.

9.2 Emergency Contacts

SCA will provide the names and contact details for the following key emergency response organisations and people on site at all times on Health, Safety and Environment notice boards which will be placed at all fixed laydown facilities and site offices. Emergency contacts will also be provided to Construction Supervisors during Supervisor Project Training and will be included in the Project Induction.

- Police, Ambulance, Fire Services;
- 24-hour emergency contact;
- Principal Contractor Environmental Manager;
- Principal Contractor Project Manager; and
- Environmental Representative.

SCA will contact the local emergency services prior to the commencement of construction works to confirm the site and laydown locations, on site incident management ability, peak personnel number and key project contacts. Verification of this information sharing is to be made to Jemena construction supervisors.

9.3 Environment and Cultural Heritage Emergency Response

9.3.1 Contamination Events

The following procedure will be followed if a hazardous chemical spill event or contamination event occurs during the Project:

1. Assess the Situation for Safety
 - a. Determine the type and severity of the spill and ensure safety of all personnel and plant;
 - b. Active the Emergency Response Plan (21159-PL-ER-0001) if injury or medical emergency.
2. Notify
 - a. Notify SCA Supervisor
 - b. SCA Supervisor to notify Environment Manager immediately upon becoming aware of spill or contamination.
 - c. SCA Environment Manager responsible for notifying Jemena within 2 hours in accordance with Incident Notification and any emergency authorities if required.
3. Isolate and Contain
 - a. Establish an exclusion zone around the spill or contamination event within the construction footprint to stop access of other activities;
 - b. Mobilise spill kit to spill or contamination area;
 - c. Contain the spill or contamination event to the construction footprint using earth bunds / absorbent soaks or pads from the spill kit. Key importance is to stop the flow of hazardous materials / contaminants from being released off the construction footprint.
4. Clean Up
 - a. Use PPE provided in the spill kit during any hazardous chemical / contaminant clean up;
 - b. Absorb all hazardous chemical / contaminant using absorbent pads, loose absorbent material, booms etc provided in spill kits.
 - c. Place all absorbent material in appropriate hazardous chemical waste bags where applicable. Dispose of all hazardous chemicals in a hazardous chemical disposal bin provided at site laydown areas and dispose of at licensed facility in accordance with waste management measures.
5. Record and Documentation
 - a. SCA Environment Manger and Construction Supervisor will record the events leading up to and causing the event and following SCA's Incident Reporting and Management procedures.
6. Replacement of Spill Kit Material
 - a. Spill kits used will be restocked and replenished of all materials used in a timely manner or replaced with a fully stocked spill kit.

9.3.2 Unexpected Contamination Finds

In the event contamination is uncovered during Project construction, the "Unexpected Contaminated Finds Procedure" will be developed as part of the project CEMP and followed.

9.3.3 Unexpected Cultural Heritage Finds

In the event a Cultural Heritage artefact, object or potential human remains are uncovered during Project construction, the 'Unexpected Cultural Heritage Finds Procedure' or 'Unexpected Human Remains Procedure' will be followed as set out in the AHCMP.

10.0 ENVIRONMENTAL RISK ASSESSMENT

As part of the project's Modification Report a Preliminary Environmental Risk Assessment was undertaken. This risk assessment was based on the results of the preliminary impact assessment and DPE's response to the

scoping report. The risk assessment is summarised in Table 12 and management measures listed in Section 10.1.

A construction environmental risk assessment workshop or HAZID was conducted with members of Jemena and SCA’s project teams on the 23rd of January 2024 which considers likelihood, consequence, risk level, management measures, residual risks following mitigation. A copy of the HAZID is included as Appendix A, management measures listed within the HAZID and section 10.1 will be included in the projects CEMP.

Table 12: Preliminary Risk Assessment

Project Role	Responsibility
Biodiversity	<p>The Project will result in the loss of native and non-native vegetation as well as fauna habitat within the Project Area during the construction phase. It is expected that approximately 0.03 ha native vegetation, with a further 1.7 ha area of non-native vegetation will be impacted by the Proposed Modification. A Biodiversity Development Assessment Report (BDAR) was completed in accordance with the Biodiversity Assessment Method (BAM).</p> <p>Management measures to be implemented during construction are summarised in Section 10.1.</p>
Aboriginal cultural heritage	<p>The Project Area is located within the traditional homelands of the Awabakal and Wonnarua people and falls within the Mindaribba Local Aboriginal Land Council (Mindaribba LALC) boundary.</p> <p>A modified Aboriginal Cultural Heritage Assessment (ACHA) was undertaken for the Proposed Modification. The draft ACHA was provided to registered aboriginal parties (RAPs) for review and comment. An ACHMP has been approved through the DPE.</p> <p>Management measures to be implemented during construction are summarised in Section 10.1 and within the ACHMP.</p>
Water and Soils	<p>The Project Area is situated in the Hunter River catchment in NSW. An unnamed ephemeral watercourse traverses through the Modification Area, and discharges to Hexham Swamp which eventually flows to the Hunter River. Flow diversion is proposed for a trenched crossing through the watercourse, should water (standing or flowing) be present.</p> <p>The key water resources related impacts are expected during construction and are associated with surface water quality risks, mainly at the intersection of the construction works with the watercourse and a general risk of erosion as a result of disturbed or exposed soils.</p> <p>A comprehensive water resources impact assessment was undertaken to assess the potential impacts of the Project.</p> <p>Management measures to be implemented during construction are summarised in Section 10.1.</p>
Noise and vibration	<p>Potential noise and vibration impacts associated with the Proposed Modification will be primarily associated with construction activities and will have the potential to affect rural residential properties located in the vicinity of the Modification Area. A detailed Noise and Vibration Impact Assessment (NVIA) was undertaken for the Project.</p> <p>Management measures to be implemented during construction are summarised in Section 10.1.</p>
Hazards	<p>As part of the construction and operation of the Proposed Modification, hazardous materials and dangerous goods will be stored, handled and transported to the Modification Area. Furthermore, natural gas is a Class 2.1 flammable gas. A Preliminary Hazard Analysis (PHA) has been prepared in accordance with the Resilience and Hazards SEPP.</p> <p>Management measures to be implemented during construction are summarised in Section 10.1.</p>

10.1 Environmental Management Measures

Environmental management measures identified in the Modification Report are summarised below. The measures will be included in the project CEMP along with additional measures within the HAZID attached as Appendix A.

Table 13: Management Measures


Project Role	Responsibility
Biodiversity	
B1	Salvage of biodiversity features, including habitat resources (e.g., hollow logs, tree hollows, fallen timber and rocks/boulders).
B2	A pre-clearing procedure will be implemented to minimise the potential for impacts on native fauna species (focusing on threatened species) as a result of the clearing of hollow-bearing trees. The pre-clearing procedure is designed to minimise impacts to hollow-dependent and ground-dwelling fauna.
B3	Water management measures consistent with the APGA Code of Environmental Practice (2022) will be employed during the construction of the Proposed Modification.
B4	All machinery and equipment will be cleaned thoroughly prior to entering the Development Subject land.
B5	Appropriate fencing and signposting of areas to prevent the uncontrolled entry of people, accidental disturbance and to minimise vehicular and human traffic.
B6	Clear and visible signage is to be appropriately located to inform the workforce and others of the restricted access or otherwise of areas outside the Subject land.
B7	Locking of gates to prevent unauthorised vehicle, person access and disturbance.
B8	Preparation of a Soil and Water Management Plan (SWMP). The SWMP will be incorporated into the CEMP and include mitigation measures.
B9	Minimising to the extent practicable the period of time the trench is open.
B10	Providing opportunities for fauna to exit the trench such as trench plugs or other appropriate measures at a minimum of every 500 m along the trench.
B11	Installation of fauna shelter devices such as sawdust filled bags at 250 m intervals along the trench.
B12	Daily pre-start inspections of the open trench and removal of trapped fauna by suitably qualified personnel as required.
B13	Welded pipe strings will be end capped to prevent fauna entry.
B14	A construction Environmental Management Plan will be prepared to document the environmental impact mitigation, performance targets and monitoring requirements for the construction and operational phases of the Proposed Modification.

Project Role	Responsibility
Section 3.6.1.1 Mod Report	Cleared vegetation will be stockpiled in designated areas within the Modification Area’s construction Footprint.
Aboriginal Cultural Heritage	
A1	The Proponent should ensure that all employees and contractors are aware that it is an offence under Section 86 of the NPW Act to harm or desecrate an Aboriginal object unless that harm has been subject to approval as part of the necessary approvals process.
A2	<p>An AACHMP for the Modification has been developed in consultation with the registered Aboriginal parties as per requirements of SSI-4636074. It includes measures that will be implemented for:</p> <ul style="list-style-type: none"> • Impact to the area of archaeological potential identified in Section 6.2 and 6.3 (i.e. KKLP PAD08) that cannot be practically avoided. This will include the provision of methodologies for the completion of the recommended mitigation activities. This may include community collection and/or excavation (refer to Section 11.0 for methodologies). • Protocols to be followed in the instance that additional ground disturbance works are required outside the Modification Area. This will include requirements for further survey and assessment of any such works. • The management of any new Aboriginal archaeological sites that may be identified during these inspections or over the course of construction or operational activities (refer to Section 11.3). • The management of Aboriginal skeletal remains should any be identified within the construction or operational activities for the Modification (refer to Section 11.4). • Monitoring and reporting on the effectiveness of these measures and the outcome of any approved mitigation works. • Ensuring that all staff and contractors working on the Modification receive Aboriginal cultural heritage awareness training and are informed of their obligations to comply with the requirements of the Aboriginal cultural heritage management plan.
Water	
W1	A construction monitoring program is recommended to be developed and included in the CSWMP for the Proposed Modification to observe any changes in surface water quality during construction and inform appropriate management measures.
W2	Development and implementation of a CEMP that addresses temporary storage and handling of fuels, oils and chemicals, including a Spill Response Plan.
W3	Preparation of a Dewatering Procedure to be implemented in the event of excavations encountering ephemeral or temporary groundwater, including shoring advice to minimise groundwater inflows, water quality requirements before discharge, any recommended treatment, discharge location and method, monitoring requirements and permits and records required.
W4	Excavation activities will implement testing and management procedures for potential acid sulfate soils in accordance with Acid Sulphate Soil Manual (Acid Sulphate Soil Management Advisory Committee, 1998).
W5	Monitoring of the receiving waterways downstream of the pipeline location to identify any evidence of channel erosion and scour

Project Role	Responsibility
W6	An operational monitoring program is recommended to be developed and included in the OEMP for implementation following completion of construction to observe any changes in surface water from operation of the Proposed Modification.
Section 6.4.3.4 Mod Report	The CEMP to be implemented as part of the Proposed Modification would consider extent and nature of temporary works, including equipment storage, with respect to the flood risk described by the mapped inundation extents, flood depth, velocity and hazard
Noise	
N1	<p>A Noise and Vibration Management Plan (NVMP) will be prepared and implemented as part of the Construction Environmental Management Plan (CEMP). The NVMP will generally follow the approach in the ICNG and identify:</p> <ul style="list-style-type: none"> • All potential significant noise and vibration generating activities associated with the Modification • Feasible and reasonable mitigation measures to be implemented • A monitoring program to assess performance against relevant noise and vibration criteria • Arrangements for consultation with affected neighbours and sensitive receivers, including notification and complaint handling procedures • Contingency measures to be implemented in the event of non-compliance with noise and vibration criteria.
N2	<p>All sensitive receivers likely to be affected by highly or moderately intrusive noise levels, or noise levels above the Sleep Disturbance NMLs for work outside of standard construction hours (identified in the Hydrostatic testing scenario) will be notified at least 7 days prior to commencement of any planned works associated with the activity that may have an adverse noise or vibration impact. The notification will provide details of:</p> <ul style="list-style-type: none"> • The Modification • The construction period and construction hours • Contact information for Modification management staff • Complaint and incident reporting • How to obtain further information.
N3	<p>All employees, contractors and subcontractors are to receive an environmental induction. The induction must include at a minimum:</p> <ul style="list-style-type: none"> • All applicable mitigation measures • Hours of works • Any limitations on high noise-generating activities • Location of nearest sensitive receivers • Designated parking areas • Relevant approval conditions • Incident procedures.
N4	Where feasible, contractors are to keep noise to a minimum including no shouting or the use of loud stereos/radios on site.
N5	No dropping of materials from height, throwing of metal items or slamming of car doors.
N6	In the event of noise complaints from the community, a noise verification program should be carried out in accordance with the NVMP for the Modification.
N7	The combined noise levels of plant and equipment must have operating sound power levels consistent with those assessed in each scenario.
N8	Non-tonal reversing beepers must be fitted and used on all construction vehicles and mobile plant used regularly on site and for any out of hours work.

Project Role	Responsibility
N9	Limit the use of engine compression brakes at night.
N10	The CEMP and NVMP should be regularly updated to account for any changes in noise and vibration management of the Modification.
N11	Where feasible and reasonable, construction should be carried out during the standard daytime working hours. Work generating high noise and/or vibration should be scheduled during less sensitive time periods.
N12	Noise emitting plant to be directed away from sensitive receivers.
N13	Plant used intermittently to be throttled down or shut down when not in use.
N14	Where practical, loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers.
N15	Given the distance between the Modification and receivers, no construction vibration impacts are anticipated based on the safe working distances outlined in the CNVG. Should more intensive vibration generating equipment be proposed at locations nearer to receivers or near identified heritage structures, it is recommended that a targeted vibration assessment be undertaken to determine impacts and specific mitigation measures, if required.
N16	<p>Vibration generating plant listed in Table 5.6 should not be used within the identified safe working distances. If vibratory rollers or other vibration inducing construction sources are required within the safe working distances for residential receivers nominated in Table 5.6 the following is recommended:</p> <ul style="list-style-type: none"> • An independent specific structural assessment is undertaken on the structure to ascertain the structural integrity and its ability to withstand vibration, and establishment of an appropriate vibration criterion • A dilapidation survey is undertaken on the structure prior to works commencing, and regular inspection of the structure throughout the construction activities • Pre-construction vibration monitoring to establish baseline vibration impacts induced on the structure from road traffic • Where appropriate, continuous vibration monitoring is conducted on the structure for the duration of the period of construction while vibration generating equipment is used. The vibration logger should be equipped with the facility to remotely alert the site to reduce or cease construction activities if vibration levels are approaching the criterion threshold • Stationary noise sources should be enclosed or shielded where feasible or reasonable.
Hazards – Also refer (GAS-1272-RP-HZ-002) KKMOS HAZOP Report	
H1	All underground pipelines and stations will be designed and constructed in accordance with relevant standards including the AS/NZS 2885 series and ASME B31.12 (for pipelines and stations that are to be 10 mol% hydrogen ready).
H2	All fittings and equipment will be Australian Gas Association (AGA) certified and suitably rated for the area in which it is installed.
H3	<p>The transmission pipeline will be designed and constructed not to rupture when subject to the identified credible threats (including ground movement and buoyancy, external interference, flooding, lightning, corrosion, fatigue) along the pipeline alignment. These threats will be mitigated through:</p> <p>Minimum pipeline wall thickness</p> <ul style="list-style-type: none"> • Appropriate depth of cover

Project Role	Responsibility
	<ul style="list-style-type: none"> • Unconsolidated backfill for pipeline sections with greater potential for ground movement (areas with potential for mine subsidence) • Corrosion protection coatings (fusion bonded epoxy) and cathodic protection systems • Lightning protection <p>Selection of pipeline alignment to as far as practicable avoid residential land use and areas of geotechnical instability.</p>
H4	Pipeline systems will have appropriate controls and interlocks to detect significant loss of containment events and automatically shut down gas supply. This will limit the potential for ignition of a gas release by limiting the duration of the release as well as limiting the duration of a jet fire event should the release be ignited.
H5	Surface facilities will be located in a secure compound.
H6	Asset protection zones around the compounds will be maintained free of combustible material.
H7	Hazardous area classification will be undertaken for all installations and a hazardous area dossier prepared for the Proposed Modification.
H8	Weekly site checks of surface facilities which will include audible and visual leak inspections
H9	Atmosphere testing (e.g. oxygen, LEL) as required (depending on activities) for personnel entry to surface facility compounds and mandatory testing for vehicle entry (as a vehicle is an ignition source).
H10	Surface facility fencing to ensure off-site ignition sources (e.g. smokers) are excluded from the defined hazardous envelope.
H11	Bollards and concrete edging/kerbing (generally at edge of hazardous area) to protect pipe and fittings from vehicle/mobile plant impacts.
H12	Commissioning activities will be strictly controlled to ensure no ignition sources near vented gas.
H13	A maintenance system will be implemented that includes routine inspection and maintenance plans in accordance with AS/NZS 2885.3.
H14	A work permit system and job safety analyses will be implemented for maintenance activities.
H15	Hot work procedures and permits.
H16	Signage and pipeline markers will be located in consultation with land holders, with markers placed at a frequency to ensure continual line of sight along the alignment and will also be located at any bends, at property boundary fences and either side of crossings such as roads or watercourses.
H17	Pipeline marker tape will be buried above the along entire length of the underground pipeline to indicate the presence of the pipeline to anyone undertaking an excavation.
H18	The location of the underground pipeline will be registered with Dial Before You Dig.
H19	Prepare, or update as appropriate, emergency management plans consistent with HIPAP No. 1 Emergency Planning (Department of Planning, 2011b) and Planning for Bushfire Protection 2019 (NSW Rural Fire Service, 2019) for both the construction and operation phases of the Proposed Modification.

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APPENDIX A: ENVIRONMENTAL RISK ASSESSMENT (HAZID)

5 HSE Risk Register

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Work Description:		Environmental Conditions													
#	Hazard / Aspect (Pathway to Harm)	Inherent Risk Rating Risk rating prior to controls in place			Controls Controls required to eliminate or minimise the potential for injury of harm based upon the hierarchy of control	Hierarchy of Controls	Reference Documents	Residual Risk Rating				Monitoring Requirements	Comments		
1	Aspect: Contamination of waterways or land	3 Severe	3 Possible	Significant	13	<p>Any excavated topsoil and spoil removed and stockpiled separately to aid in rehabilitation (stored on uphill side of site or where practicable)</p> <p>Any loose/spilt soil or sediment cleaned from road surfaces immediately or where likely to result in sediment runoff</p> <p>Water containing elevated suspended solids/contamination shall not be discharged from site</p> <p>Contaminated water treated onsite or removed by licensed contractor for disposal at licensed facility</p> <p>If ground water is encountered, discharge onto adjacent land accepted only after the following procedures: - Testing pH between 6.5 to 8 using test strips - Water is free from oil films and is clear (no turbidity) - Turbidity less than 50 NTU - Pump water onto grassed areas only - Water is discharged at a low velocity to minimise erosion and run offs</p> <p>Ground disturbance will be minimised as much as possible or practicable</p> <p>No chemicals, fuels or wastes stored near drains, watercourses or on unsealed surfaces</p> <p>All chemicals defined as Hazardous Substances/Dangerous Goods must be stored in bunds</p> <p>If water/soil contamination discovered (e.g. asbestos, discoloured soil, strong chemical or petrol odours), works are to cease. The HSEQ BP, Zinfra superintendent, Project Manager and appropriate authorities shall be notified immediately.</p> <p>If Acid Sulphate Soils (ASS) is identified in the vicinity of works, procedure must be developed and followed regarding excavation, storage, treatment and disposal of ASS.</p> <p>Provide training and promote awareness of construction soil and water quality issues and the project's soil and water quality requirements to all personnel and subcontractors. Relevant topics include: • Erosion and sedimentation control • Stormwater management • Spill prevention, response and clean-up procedures • Waste storage areas and management (including concrete washout bays if required) • Dust control and traffic delivery routes</p> <p>Compliance with environmental permits and approvals</p>	<p>Elimination</p> <p>Isolation</p> <p>Administration</p> <p>Administration</p> <p>Administration</p> <p>Administration</p> <p>Administration</p> <p>Administration</p> <p>Administration</p> <p>Administration</p>	<p>JAA HSE PR 0010 Managing Contaminated Soil</p> <p>JAA HSE PR 0018 Managing Wastewater Discharges & Dewatering</p> <p>JAA HSE PR 0015 Managing Acid Sulfate Soils</p>	2 Serious	2 Unlikely	Moderate	10			
2	Aspect: Waterways contamination Land Management	2 Serious	3 Possible	Moderate	10	<p>Assess the likely soil and water implications of works in the planning stage based on assessment of site constraints and opportunities</p> <p>Contractor to implement erosion and sediment controls as per approved Construction Environmental Management Plans (CEMP). CEMP to be reviewed and approved by Jemena/ Zinfra. CEMP also needs to include plant and equipment.</p> <p>Slow vehicle speed and utilise designated tracks where possible</p> <p>Maintain erosion and sediment control measures throughout the construction phase</p> <p>Minimise disturbed and exposed areas by phasing works and limiting access</p> <p>Conserve topsoil for site rehabilitation/revegetation works</p> <p>Rehabilitate disturbed areas as soon as practicable</p> <p>Ensure all erosion and sediment control measures are kept in a properly functioning condition</p> <p>Avoid excessive construction vehicle movements in residential streets</p> <p>Dewater to open areas only, check the quality of water and include erosion controls</p> <p>Wash the tracks and wheels of plant before entering and exiting the site if driving on public road</p> <p>Check weather prior to works and if inclement weather is expected, reschedule works and/or implement sed controls such as sandbags or coirlogs</p>	<p>Administration</p> <p>Administration</p> <p>Engineering</p> <p>Engineering</p> <p>Administration</p> <p>Engineering</p> <p>Engineering</p> <p>Administration</p> <p>Administration</p> <p>Engineering</p>	<p>JAA HSE PR 0014 Managing Erosion & Sediment</p>	2 Serious	2 Unlikely	Low	4	Inspection		

Work Description:		Environmental Conditions													
#	Hazard / Aspect (Pathway to Harm)	Inherent Risk Rating Risk rating prior to controls in place			Controls Controls required to eliminate or minimise the potential for injury of harm based upon the hierarchy of control			Hierarchy of Controls	Reference Documents	Residual Risk Rating			Monitoring Requirements	Comments	
3	Aspect:	Fauna and Flora						Administration							
	Destruction of native flora and fauna	2 Serious	3 Possible	Moderate	10	<p>Prior to mobilising on site, property owner to be notified to move all cattle another paddock. No excavation to commence if cattle is present.</p> <p>No removal and/or pruning of trees/vegetation unless an approval/condition issued by appropriate authority</p> <p>Plant/equipment received onsite must be free of soil/organic matter to prevent introduction of weeds, inspected and documented in a site diary (or similar) as being clean on arrival</p> <p>Vehicles moving between private properties must be cleaned prior to entry/exit if invasive aquatic or riparian species are an identified risk</p> <p>Materials/equipment lay-down areas established and clearly marked at each work site to prevent damage to surrounding trees/vegetation</p> <p>Do not touch, harm or kill animals including snakes. Engage a licensed handler should animal or snake removal be required.</p> <p>Contact the local council or wildlife assistance group to report injured animals.</p>	Administration Administration Elimination Administration Administration Engineering	JAA HSE PR 0009 Managing Flora and Fauna	2 Serious	1 Rare	Low	3	Inspection		
4	Aspect:	Noise and Vibraton													
	Air pollution Disturbance of community	3 Severe	3 Possible	Significant	13	<p>Except in emergency situations construction shall be undertaken during the following hours: Monday to Friday 7 am to 6 pm and Saturday 8 am to 1 pm No work would be undertaken on Sundays or public holidays without prior approval</p> <p>Works scheduling shall be used to minimise noise to adjacent residents where practicable</p> <p>Plant/equipment to be appropriately silenced in accordance with manufacturer's requirements</p> <p>Conduct community consultation and response to noise complaints</p> <p>Noisy machinery and equipment shall be switched off when not in use</p> <p>Construction vehicle movements will avoid the use of residential streets to access the area where possible, particularly outside standard hours</p> <p>Complaints relating to noise/vibration shall be directed to Site Supervisor and reported to Zinfra Superintendent, addressed and resolved as soon as possible</p> <p>Environmental assessment created as part of the approval. Any changes to assessment will need to back to DPE for approval.</p> <p>Local council, police and if applicable affected residents notified of intention to perform night works</p>	Administration Administration Engineering Administration Elimination Administration Administration	JAA HSE PR 0013 Managing Noise and Vibration	2 Serious	1 Rare	Low	3	Inspection		
6	Aspect:	Air quality						Administration							
	Air poluiton	3 Severe	3 Possible	Significant	13	<p>Stockpiling of soil shall be kept to minimum to minimise dust. Planning undertaken to ensure that minimum amount of spoil and materials are stored on site</p> <p>Period of time between excavating and backfilling minimised where possible</p> <p>Vegetation clearing activities staged to minimise exposure to bare soil</p> <p>Reduce the effects of wind erosion by controlling on-site traffic and watering exposed areas</p> <p>Groundcover maintained particularly surrounding access tracks</p> <p>Stockpiles covered or watered down if dust is a risk</p> <p>Disturbed areas and access roads visually monitored for dust generation</p> <p>Dust suppression as required in dry/windy conditions using water</p> <p>All air quality controls will need to be captured in the CEMP.</p> <p>Complaints received relating to air quality/dust reported to Site Supervisor, Zinfra Superintendent, addressed and resolved as soon as possible</p>	Administration Isolation Administration Administration Administration Engineering Administration Engineering Administration	JAA HSE PR 0012 Managing Air Emissions	3 Severe	1 Rare	Moderate	9	Inspection		
7	Aspect:	Cultural Heritage						Engineering							
	Destruction of cultural heritage artefacts	3 Severe	3 Possible	Significant	13	<p>Prior to commencement of works, items of heritage significance located and identified, construction practices modified to minimise disturbance. Protect known sites of Aboriginal significance where impacts can be avoided.</p> <p>Consultation with traditional owners/heritage groups undertaken where required, agreement on monitoring prior to commencement of works</p> <p>Area is classified as Cultural Heritage. Investigations to be completed this week, ACHMP to outline specific controls.</p> <p>Known heritage areas/items flagged off, No-Go Zone signs established prior to any construction works commencing. Checklist completed</p> <p>If previously unknown Aboriginal or European heritage items/areas identified during construction, cease works immediately. Site Supervisor, Team Leader, HSEQ Advisor notified immediately, notify Zinfra Superintendent to enable them to contact relevant authorities</p>	Administration Administration Engineering Administration	JAA HSE PR 0043 Managing Unexpected Finds	3 Severe	1 Rare	Moderate	9	Inspection		

Work Description:		Environmental Conditions												
#	Hazard / Aspect (Pathway to Harm)	Inherent Risk Rating Risk rating prior to controls in place			Controls Controls required to eliminate or minimise the potential for injury of harm based upon the hierarchy of control	Hierarchy of Controls	Reference Documents	Residual Risk Rating				Monitoring Requirements	Comments	
8	Aspect:	Waste and Energy												
	Innappropriate use or disposal of waste	3 Severe	3 Possible	Significant	13	<p>SDSs obtained and kept on site for all chemicals (information on SDSs communicated to affected staff)</p> <p>Controlled/Regulated Wastes disposed of at licensed EPA facilities and removed from site by EPA licensed sub-contractors</p> <p>All servicing of equipment carried out off site in an approved area or within an approved area onsite</p> <p>Excess vegetative material reused or spread where appropriate or in consultation with landowners</p> <p>All reasonable steps shall be taken to:</p> <ul style="list-style-type: none"> • Avoid waste generation • Reduce waste and to keep waste to a minimum • Recover, re-use and recycle waste • Use recycled products where appropriate and where technical – specifications allow • Dispose of waste/s that cannot be reduced/ re-used/ recycled, to an appropriately designed and licensed waste facility <p>Storage of any vehicle, equipment or materials not directly required on the Site is prohibited.</p>	<p>Administration</p> <p>Administration</p> <p>Administration</p> <p>Engineering</p> <p>Substitution</p> <p>Elimination</p>	JAA HSE PR 0016 Managing Waste	3 Severe	1 Rare	Moderate	9	Inspection	
9	Aspect:	Bushfire												
	Wide-spread bushfire	4 Major	2 Unlikely	Significant	14	<p>Site Risk Assessment must consider bushfire risk with the use heavy plant or excavator in an area with Dry/combustible vegetation or Total Fire Bans</p> <p>Monitor Alerts from Rural fire service for total fire ban warnings</p> <p>No works to proceed if fire ban, unless there is a permit</p> <p>Hot work to be suspended during Total Fire Bans until approval provided by Rural Fire service</p>	<p>Administration</p> <p>Administration</p> <p>Elimination</p> <p>Administration</p>	JAA HSE PR 0042 Preventing Bushfires	4 Major	1 Rare	Moderate	11	Inspection	
10	Aspect:	Negative Community Impacts												
	Complaints from Landholders	3 Severe	2 Unlikely	Moderate	10	<p>Dilapidation report must be completed prior to commencement of works for gates, access, haul road, work area, stockpile storage area, lay down area and all related areas in which will be affected during operation</p> <p>Access to land:</p> <ul style="list-style-type: none"> • Assess landholder requirements for entry and leave gates as found. <p>Notification:</p> <ul style="list-style-type: none"> • Assess the work site for community impacts (odour and noise) and notify parties potentially impacted. 	<p>Engineering</p> <p>Engineering</p>	JAA HSE PR 0013 Managing Noise and Vibration	3 Severe	1 Rare	Moderate	9	Inspection	

CONSEQUENCE TABLE					
	Minor	Serious	Severe	Major	Catastrophic
Safety	Minimal impact on health, safety which can be resolved by day to day operational procedures. Requirement for minor on site first aid.	Medical Treatment Injury or Lost Time Injury.	Single permanent partial disability or multiple serious injuries. Requirement for medical aid to be administered to public.	Multiple hospitalisations, single permanent disability, or long term illness	Fatality(ies) or Total Permanent Disability(ies) .
Environment	Negligible environment impact (contained on site) which can be resolved by day to day operational procedures.	Short term environmental impact, contained on site and not reportable.	Temporary environmental impact with off-site release, medium to long term containment to small area, duty to notify regulator.	Substantial environmental impact with off-site release, medium-long term widespread detrimental effects where rectification is difficult.	Substantial environmental impact with off-site release having long-term widespread detrimental effects to environment and/or people which requires major clean-up.

LIKELIHOOD TABLE					
	Rare	Unlikely	Possible	Likely	Almost Certain
Description	Improbable the event will occur	Could occur.	Might occur at some time.	Will probably occur.	Very likely.
Guide	That is, the event will only occur in exceptional circumstances as there is less than a 5% chance of occurrence or, it will only occur in more than 10 years.	That is, there is between a 5% and 25% chance the event will occur or the event will occur within the next 10 years.	That is, there is between a 26% and 50% chance that the event will occur or it is possible that the event will occur within the next 5 years.	That is, there is between a 51% and 75% chance that the event will occur or it is likely that the event will occur at some time within the next 2 years, or has a history of occurrence.	That is, there is over 75% chance that the event will occur or the event is expected to occur in most circumstances as there is a history at Zinfra and /or similar companies.

RISK MATRIX CONSEQUENCE					
LIKELIHOOD	Minor	Serious	Severe	Major	Catastrophic
Almost Certain	Moderate (7)	High (16)	Extreme (20)	Extreme (22)	Extreme (25)
Likely	Moderate (6)	Significant (12)	High (17)	Extreme (21)	Extreme (24)
Possible	Moderate (5)	Moderate (8)	Significant (13)	High (18)	Extreme (23)
Unlikely	Low (2)	Low (4)	Moderate (10)	Significant (14)	High (19)
Rare	Low (1)	Low (3)	Moderate (9)	Moderate (11)	Significant (15)

HSE Hazard Prompts

Hazard / Aspect	Potential for harm
Biological	Human exposure to flora and fauna including insect stings, bites, bacteria and other disease agents, viruses, bacteria and natural poisons.
Climatic / Natural Events	Extreme natural, environmental or climatic sources and weather events (incl. lightning, high winds, flooding etc.).
Electricity	Contact with or close exposure to electrical energy sources.
Explosion	A rapid release of energy from a chemical, heat, electrical or gaseous reaction.
Fauna	Potential for positive or negative impacts to animal life
Fire	Fires sourced from any flammable material (solid, powder, liquid or gas).
Flora	Potential for positive or negative impacts to plant life
Gravity	Potential for a person, object or structure, subject to its weight or momentum to fall, move unexpectedly or be otherwise subject to uncontrolled gravitational forces.
Hazardous substances	Exposure through inhalation, contact, absorption, or ingestion of acids, alkalis, organic substances (e.g. gases, lubes, degreasers, solvents, paints) or ozone depleting substances.
Land	Management of land resulting from pollution, clearance or any other degradation.
Manual Handling	Physical stress applied on the human body by forces, exertion, posture, repetition, duration, movement, and vibration sources.
Mechanical	Sources of mechanical energy; including equipment and uncontrolled forces or movement with the potential to cause harm to person, equipment/assets or the environment.
Mobile plant	Potential for harm (including property damage) to result from the operation of self-propelled equipment - typically related to a heavy or fast moving impact or collision.
Pressure	Potential for harm resulting from the sudden release of pressure from a specific source (e.g. gas, fluid etc.).
Psychological	Negative emotional, cognitive or behavioural outcomes.
Radiation	Exposure to or contact with radiation waves from either natural (e.g. ultraviolet) or manufactured (e.g. x-ray) sources.
Sound	Sudden or prolonged exposure to excessive noise for person or environment.
Thermal	Exposure with extreme or artificial temperatures (Hot or Cold).
Waste	Inappropriate use of resources or inadequate management or disposal of waste material.
Water	Submersion of persons or inappropriate use of water resources or contamination of waterways

Risk Escalation and Control table

Residual Level of Risk	Actions Required
Extreme	<p>Task cannot commence until the risk / hazard is eliminated or reduced. This means a reassessment of the risk / hazard needs to be undertaken. Where the reassessment does not achieve the desired result then:</p> <ul style="list-style-type: none"> a) Inform the relevant Business Unit GM / Operation Manager by email including possible alternative risk / hazard control solutions. b) Arrange for a risk review involving the Project/Contract Manager and National Safety Manager or National Environmental Manager. c) Seek written approval from the Operational Manager for the risk / hazard controls solutions as agreed and prior to the commencement of works. d) Document new / additional risk control solutions in the HSE Risk Register. e) Monitor and review effectiveness of risk control solutions as scheduled.
High	<p>Task can commence with a combination of Risk Control Levels 1-4 and 5-6. This means a reassessment of the risk / hazard needs to be undertaken. Where the reassessment does not achieve the desired result then:</p> <ul style="list-style-type: none"> a) Arrange for a risk review involving the Project/Contract Manager and Divisional Safety Manager or Divisional Environmental Manager. b) Seek written approval from the Project/Contract Manager for the risk / hazard controls solutions as agreed and prior to the commencement of works. c) Document new / additional risk control solutions in the HSE Risk Register. d) Monitor and review effectiveness of risk control solutions as scheduled.
Significant	<p>Task can commence with a combination of Risk Control Levels 1-4 and 5-6. This means a reassessment of the risk / hazard needs to be undertaken. Where the reassessment does not achieve the desired result then:</p> <ul style="list-style-type: none"> a) Arrange for a risk review involving the Project/Contract Manager and Project Safety Manager or Project Environmental Manager. b) Document new / additional risk control solutions in the HSE Risk Register. c) Monitor and review effectiveness of risk control solutions as scheduled.
Moderate	<p>Task can commence under the following actions:</p> <ul style="list-style-type: none"> a) Implement the risk control solutions as documented. b) Monitor and review effectiveness of risk control solutions as scheduled.
Low	<p>Task can commence under the following actions:</p> <ul style="list-style-type: none"> a) Implement the risk control solutions as documented. b) Monitor and review effectiveness of risk control solutions as scheduled.