NEWest Alliance

Construction Environmental Management Plan

METRONET – Delivery of the Thornlie to Cockburn Link

Document Approval

Rev	Date	Prepared by	Reviewed By	Approved by
A	17/03/2020	C. McDonald	L. Pero	G. McLaughlin
B	04/05/2020	C. McDonald	L. Pero	G. McLaughlin
0	05/06/2020	C. McDonald	L. Pero	G. McLaughlin
1	17/06/2020	C. McDonald	L. Pero	G. McLaughlin
1.1	09/02/2021	C. McDonald	L. Pero	G. Locke
2	08/03/2021	C.McDonald	L.Pero	G. Locke
3	27/06/2022	T. Tucker	M. von Kaschke	G. Locke
4	02/12/2022	T.Tucker	M. von Kaschke	C. Schoonakker
Signature:				

Document Details

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Revision:	4

DETAILS OF REVISION AMENDMENTS AND PLAN TERMINOLOGY

Document Control

The Alliance Manager is responsible for ensuring that this plan is reviewed and approved. The Environment & Sustainability Manager is responsible for updating this plan to reflect changes as required.

Amendments

Any revisions or amendments must be approved by the Alliance Manager and/or client before being distributed or implemented.

Revision Details

Revision	Details
A	**Issued for PTA Review** Notes; 1st review – comprising responses to PTA's comments relating to the *Construction Environmental Management Plan Outline YRE and TCL* TCYAD-NWA-EN-PLN-00002, and updates relating to the latest Environmental Approvals
B	**Issued for PTA Review** Notes; 2nd review – comprising of PTA's comments relating to the *Construction Environmental Management Plan Rev A* W801032-TCL-NEW-EN-PLN-0001/ TCL-NWA-EN-PLN-00002, and updates relating to the Environmental Obligations Register (GEN-TCY-GEN-PTAWA-000015.00 issued to NEWest. Scope of Work and Technical Criteria, Book 3: Part D – Scope of Work – BP Kewdale White Oil Pipeline Relocation Environmental requirements and control included.
0	**Issued for PTA Approval**
1	**Issued for PTA Approval** Formatting errors corrected
1.1	**Annual Review** Reviewed and re-issued for approval Inclusion of the S45C amendment and EPBC variation. Section 3.1 document marks ups in accordance with W801032-TCY-NEW-IM-GDL-0008[CM1] Quick Guide – Track Changes – PTA Deliverables Rev 1. Table 1 Plan interfaces with ASS Management Plan and OHNVMP. References updated throughout document to include MS1114 and EPBC amendment. The name Acid Sulfate replaced Acid Sulphate throughout document. Safety Essentials. Section 8 Safety Essential updated to capture working around rail. Table 7 updated with the latest MS1114, EPBC and NVCP areas. Table 10 – irrelevant flora and vegetation controls removed, and some items updated. Table 11 updated with the latest MS1114, EPBC and NVCP areas. Table 14 minor updates to fauna controls. Table 15 minor updates to hazards and risks. Table 17 additional controls and references from the GAEMP included. Table 19 minor updates to objectives. Table 20 minor edits to the contamination controls. Table 23 minor edits to hazardous substances controls. Table 26 17 additional controls and references from the ASS Management Plan included. Table 32 additional controls included from the OHNVMP. Appendix B Environmental Policy

	updated. Appendix D updated to include ASS, dewatering, groundwater monitoring, reporting and auditing requirements.
3	**Annual Review** Reviewed and re-issued for approval General formatting Inclusion of S45c 2 and 3 Inclusion of changes to legislation ie. EP Act NVCP Pressure testing (dewatering) sub-contractor Inclusion of definition of terms
4	**Annual Review** Reviewed and reissued for approval

Abbreviations and Acronyms

Abbreviation/Acronym	Definition
ACM	Asbestos containing material
ALT	Alliance Leadership Team
AMP	Alliance Management Plan
AS	Australian Standards
ASS	Acid Sulfate Soils[TK2]
CCW	Conservation Category Wetland
CAP	Construction Area Plan
CCW	Conservation Category Wetland
CEMP	Construction Environmental Management Plan (this document)
CSA	Contaminated Sites Auditor
DA	Development Approval
DBCA	Department of Biodiversity, Conservation and Attractions (Western Australian)
DEC	Department of Environment Conservation
DER	Department of Environment Regulation
DPLH	Department of Planning, Lands and Heritage
DoW	Department of Water (now incorporated into DWER) (Western Australian)
DWER	Department of Water and Environmental Regulation
DSI	Detailed Site Investigation
DOORS NG[TK3]	This is a project compliance management tool used to track project compliance requirements
EMS	Environmental Management System

Abbreviation/Acronym	Definition
EPA	Environmental Protection Authority (Western Australian)
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
EP Act	Environmental Protection Act 1986 (Western Australian)
GAEMP	Groundwater Abstraction Environmental Management Plan
GHG	Greenhouse Gases
HAZMAT	Hazardous Materials
HDPE	High-Density Polyethylene
HSE	Health Safety and Environment (committee etc)
JDE	JD Edwards financial management system
KPI	Key Performance Indicators
LGA	Local Government Agency
MS	Ministerial Statement
MIRRA	Monitoring, Inspections, Reporting, Review and Audit Schedule
NEPC	National Environment Protection (Assessment of Site Contamination) Measures
NVCP	Native Vegetation Clearing Permit
NVRZ	Native Vegetation Retention Zones
NGER	National Greenhouse and Energy Reporting
OEM	Original Equipment Manufacturers
OHNVMP	Out of Hours Noise Vibration Management Plan
PAA	Project Alliance Agreement
PASS	Potential Acid Sulfate Soils
PDE	Project Development Envelope
PEC	Priority Ecological Community
PMS	Project Management System
PPRR	Principal Project Risk Register
PTA	Public Transport Authority
QMS	Quality Management System
RAZ	Restricted Activity Zone
REW	Resource Enhancement Wetlands
RIWI	Right in Water and Irrigation Act
RoW	Right of Way
SDS	Safety Data Sheet
SEH	Significant Environmental Hazard
SHEQ	Safety, Health, Environment and Quality (manager etc)
SMP	Site Management Plan
SOP	Standard Operating Procedure
SWTC	Statement of Works and Technical Criteria

Abbreviation/Acronym	Definition
TCL	Thornlie -Cockburn Link
TEC	Threatened Ecological Communities
TMV	Traffic Management Vehicles
UWPCA	Underground Water Pollution Control Area
WA	Western Australia
WAIPS	Western Australian Industry Participation Strategy
WONS	Weeds of National Significance
WPCA	Water Pollution Control Area

Definitions of Terms

Term	Definition
Compliance audit	Verification of how implementation is proceeding with respect to a CEMP (which incorporates the relevant Approval conditions)
Dewater	The translocation of water from one area to another by means of pumping, including but not limited to groundwater drawdown, construction/commissioning test water discharges and stormwater, excluding water pumped into water trucks from dedicated construction water basins.
Environmental impact	Defined by AS/NZS ISO 14001 as any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects.
Environmental incident	An unexpected event that has, or has the potential to, cause harm to the environment and requires some action to minimise the impact or restore the environment.
Environmental objective	Defined by AS/NZS ISO 14001 as an overall environmental goal, consistent with the environmental policy, that an organisation sets itself to achieve.
Environmental policy	Statement by an organisation of its intention and principles for environmental performance.
Non-compliance/compliant	Failure to comply with the requirements of the Project approval or any applicable licence, permit or legal requirements
Non-conformance	Failure to conform to the requirements of Project system documentation including this CEMP or supporting documentation
Unauthorised discharges	Translocation of water without permit to dewater

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Part A: Plan Overview

1. ABOUT THE PROJECT

1.1 METRONET VISION

The vision for METRONET is: a well connected Perth with more transport, housing and employment choices.

1.1.1 NEWEST ALLIANCE

NEWest Alliance ('the Alliance') brings together the major Australian infrastructure collaborative contracting resources, processes and experience of CPB Contractors and Downer EDI Works. The Design Joint Venture made up of AECOM, BG&E and Arcadis and Architectural Joint Venture CAMPS (Coniglio Ainsworth Architects and MPS Architects) brings shared collaborative success and experience with the Public Transport Authority (PTA) stations and network projects.

1.1.2 ALLIANCE VISION

In early 2019, the Alliance Leadership Team and Alliance Management Team, in collaboration with PTA developed a vision for the Alliance which is underpinned by the 14 objectives and 32 critical success factors of the Project. The vision, included in Figure 1 and team priorities in Figure 2, will be regularly communicated and displayed internally at site offices as a guide and reminder of what a successful outcome will look and feel like at the completion of the Project.

Figure 1: NEWest Alliance Vision

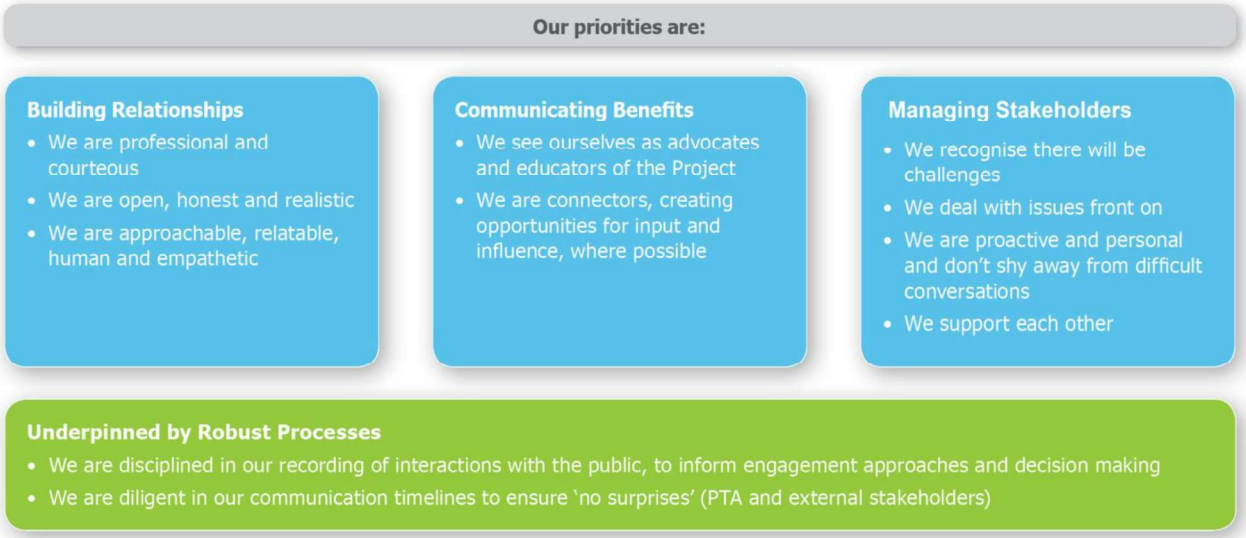


Figure 2: Team Priorities

1.2 THORNLIE-COCKBURN LINK PROJECT OVERVIEW

The Thornlie-Cockburn Link (TCL) is one of WA's Government's major infrastructure projects being delivered to support Perth's population growth. The Proposal includes construction of a 14.5 kilometre (km) new dual railway track within existing railway and road reserves, to extend the existing Thornlie line to Cockburn Central station as well as the duplication of 3 km of railway track between Beckenham Junction and Thornlie train station (Figure 3). To facilitate the new rail line construction, the project scope includes the relocation and upgrade of 13 km of the BP Kewdale White Oil Pipeline along the rail corridor.

Pursuant to Section 45 of the *Environmental Protection Act 1986* the Project was approved by the Minister for Environment on the 23 September 2019, with the release of Ministerial Statement 1114 (MS1114) establishing conditions for the Project implementation.

- A section 45C amendment, seeking minor alterations to the project boundary was approved 9 October 2020[TK4]. A second section[TK5] 45c amendment was approved (2021).
- On the 8th[TK6] of March 2022 further amendments were requested to the previous approval, this approval now supersedes the previous s45c amendment. Attachment 5 to the Ministerial Statement 1114 contains the latest approved extents.

Impacts on Matters of National Environmental Significance (MNES) listed under the EPBC Act have been assessed as part of the EP Act assessment process. Approval was granted by the Department of the Environment and Energy 20th January 2020 subject to conditions specific to the action, including the protection of protected matters such as fauna foraging habitat and breeding trees, and threatened ecological communities and flora. To minimise impact on the protected matters further compliance requirements have been detailed for dewatering, water quality, acid sulfate soils and contaminated sites.

The PTA received an EPBC variation 21 November 2020 of the conditions attached to EPBC Act approval 2018/8188 to change the development envelope as part of the above section 45C amendment.

MS1114 defines the project's development envelope (PDE). Construction of permanent infrastructure is to be contained within the MS1114 PDE. The proponent is required[TK7] to minimise impacts from construction on Flora and Vegetation, Terrestrial Fauna, Inland Waters, Social Surroundings, Terrestrial Environmental Quality and Air Quality.

The key environmental factors are summarised:

- Flora and Vegetation – Direct and indirect impacts from clearing of flora and vegetation including impacts to Bush Forever, Priority Ecological Community, Threatened Ecological Community and potential impacts to *Caladenia huegelii* habitat.
- Terrestrial Fauna – Direct and indirect impacts associated with the clearing of fauna habitat and impacts from construction and operation activities.
- Inland Waters – Potential impacts to the hydrological regimes and water quality of groundwater resources including the Jandakot Underground Water Pollution Control Area (UWPCA) and surface water features including the Canning River, Conservation Category Wetland (CCW) [TK8]and Resource Enhancement Wetlands (REW).
- Social and Heritage– Potential impacts to social surroundings from construction and operational activities.
- Terrestrial Environmental Quality – Potential impacts to the quality of the soils and the environmental values supported by those soils (including water quality) from disturbance of a potentially contaminated site.
- Air Quality – Potential impacts to nearby receptors from construction activities on the former landfill site that may result in an increase in landfill gas/vapour generation and/or migration (gas phase or dissolved). Impact of dust generation along the TCL alignment from the construction activities.

Figure 3: Thornlie Cockburn Link

1.3 PURPOSE OF THIS PLAN

This Construction Environmental Management Plan (CEMP) defines the environmental management principles, processes, procedures, systems, tools, and templates implemented for use throughout the duration of the Metronet Stage 1: Thornlie Cockburn Link Project (the Project).

This plan is subordinate to the Alliance Management Plan which has been developed to:

- Satisfy the requirements of the contract; and
- Support the project team in completing the requirements of the project.

Implementation of this CEMP will:

- Identify the environmental obligations attached to the Project and the hazards and risks associated with the works;
- Assist in the prevention of unauthorised environmental harm;
- Fulfil Public Transport Authority's (PTA) environmental requirements as defined in the Project Alliance Agreement (PAA), including complying with relevant permits and approvals;
- Comply with all relevant environmental legislation;
- Minimise negative impacts on the community that relate to the Project's environmental impacts;
- Identify and implement feasible opportunities to reduce the environmental impact of the Project that are beyond contractual and compliance requirements; and
- Fulfil CPB Contractors' Environmental Management System (EMS) requirements enabling continued certification to ISO14001.

The Alliance Manager, with advice and input from senior construction staff, is responsible for the Plan.

2. DISTRIBUTION

The master 'controlled' plan will be held within the NEWest document management system, where it can be accessed by personnel as necessary.

2.1 ISSUE, REVISION AND RE-ISSUE

This plan has been prepared by the AMT in accordance with the relevant requirements. The initial issue of this plan has been reviewed by the NEWest Alliance Manager and has been endorsed for use on the project by the Alliance Management Team (AMT).

This plan is to be submitted to the PTA's representative prior to commencement of work on site.

Revisions of this plan may be required throughout the duration of the project to reflect changing circumstances or identified opportunities for improvement. Revisions will be proposed by the relevant personnel and reviewed, developed and finalised in conjunction with the Alliance Manager.

The Alliance Manager will refer revisions of this plan to the AMT for endorsement. Revisions of this plan must not reduce the scope or level of management control. Revisions may result from:

- Management Review
- Changes to the standard system
- Audit (either internal or by external parties)
- Client complaints or non-conformance reports.
- Legislative changes
- Improvement initiatives and process changes within NEWest Alliance.

Revisions will be reviewed and endorsed by the AMT prior to issue[TK9]. Updates to this plan will be numbered consecutively and transmitted to holders of controlled copies.

Updates to this plan and any other NEWest sub-plans will be provided to the PTA representative for endorsement within five business days of amendment. Amendments to documents will be clearly marked in the document in accordance with W801032-TCY-NEW-IM-GDL-0008[CM10] Quick Guide – Track Changes – PTA Deliverables Rev 1 and summarised in Revision Details.

3. PLAN COMPLIANCE TO SWTC BOOK 2

Appendix A includes a compliance table that lists the minimum requirements for this Plan as defined in the METRONET Scope of Work and Technical Criteria (SWTC) Book 2. This table also shows where each SWTC requirement has been addressed within this Plan and the corresponding DOORS NG reference.

4. RELATIONSHIPS TO OTHER PLANS

This CEMP forms part of the NEWest Alliance Project Management System (PMS). It is part of a suite of inter-related plans that together outline how the Project will be managed to ensure application of an integrated approach to meeting contract requirements. Other project plans that integrate with this CEMP are illustrated below in Figure 4 and outlined in Table 1.

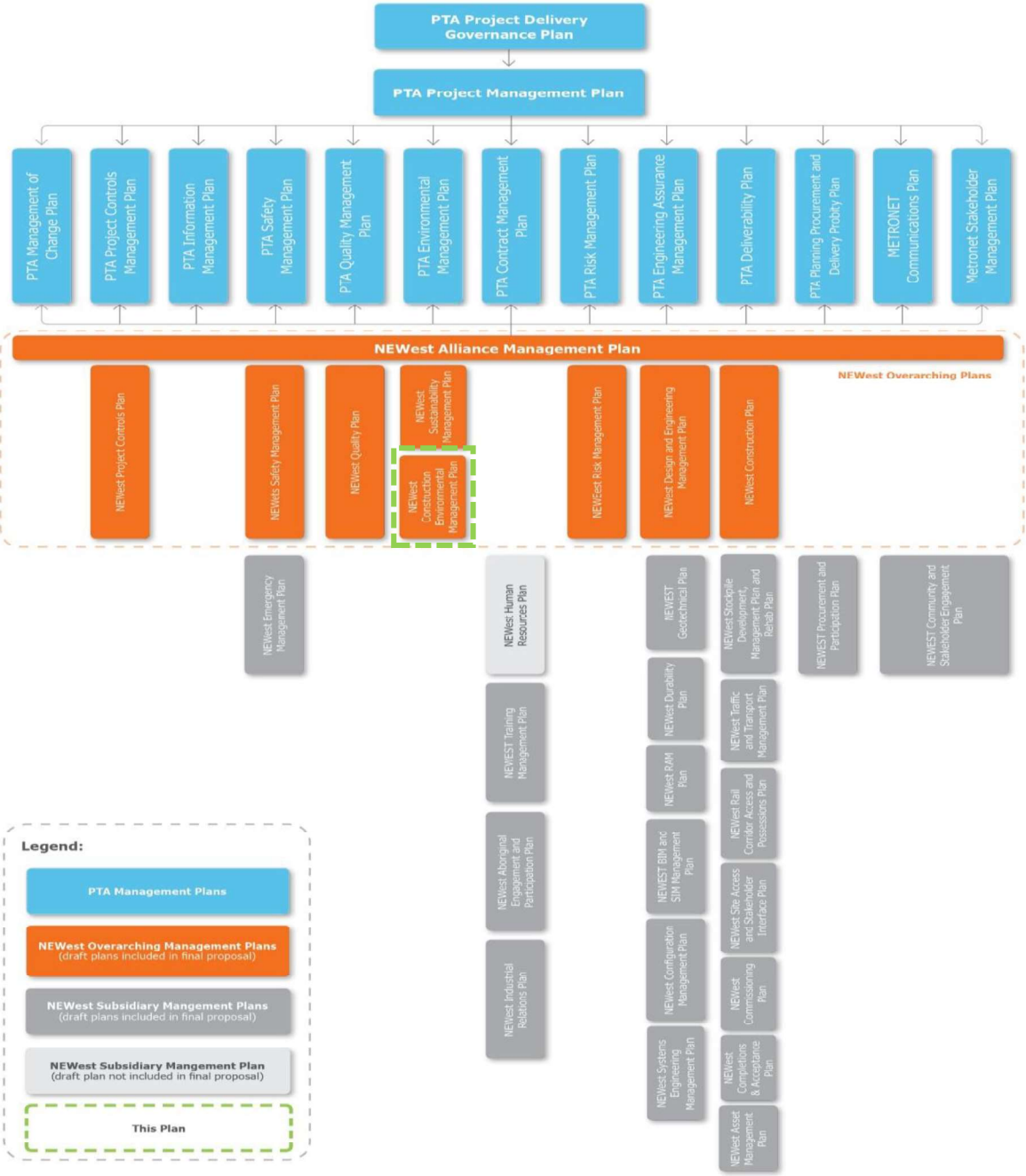


Figure 4: Plan Interface Visual Representation

Table 1: Plan interfaces

Plan	Interface with CEMP
Aboriginal Engagement Participation Plan	The CEMP's Heritage Sub Plan includes objectives, targets and controls for ensuring Aboriginal cultural awareness, managing Aboriginal land access and managing Aboriginal sites during construction.
Community Engagement Plan	Includes engaging, managing and responding to stakeholder and community concerns, issues and complaints associated with direct and indirect construction environmental, human health and heritage impacts.
Construction Plan	The CEMP informs the construction requirements and methodology for completing the works in a manner that minimises adverse impacts to the environment and heritage.
Emergency Management[TK11] Plan[TK12]	Includes responding to construction related environmental emergencies such as major hazardous liquid spills, bush fires, major surface water or groundwater contamination events and significant environmental impacts to human health resulting from construction impacts.
Geotechnical Plan	Includes environmental considerations of Acid Sulfate Soils (ASS) conditions, environmental management and heritage requirements for geotechnical investigations, and the management of contamination encountered during the investigations.
Quality Plan	The Quality Management System (QMS) governs implementation of the EMS, specifically the management of records, non-conformances, audits, and continuous improvement.
Risk Management Plan	Includes consideration of project environmental and heritage risks and opportunities.
Safety Management Plan	Underpins all Project activities including construction environmental management.
Site Access and Stakeholder Interface Plan	The proposed construction activities will trigger the requirement for environmental approvals, licences and permits from local authorities, government agencies and departments, and other interface and site access stakeholders.
Stockpile Development, Management and Rehabilitation Plan	Includes the environmental management, delivery and reporting for stockpile development, management and rehabilitation.
Sustainability Management Plan	Includes the consideration of environmental sustainability in design, procurement, construction and a broad range of construction related economic, environmental and social themes.
Training Management Plan	Includes environmental awareness, inductions and training requirements and outcomes.
Contaminated Site Management Plans (SMP)	Includes site controls and management relevant to the works at the historical Ranford Road Landfill site.

Plan	Interface with CEMP
Acid Sulfate Soil Management Plan	Incudes site controls to mitigate or control potential impacts relating to the disturbance of Acid Sulfate Soils ('ASS') associated with construction earthworks.
Groundwater Abstraction Environmental Management Plan	The GAEMP informs construction about the requirements and methodology for abstracting groundwater in a manner that minimises adverse impacts to the environment.
Out of Hours Construction Noise and Vibration Management Plan	Outlines the management of the out of hours construction noise and vibration for the whole project with regards to impacts on the environment and/or community.
Dewatering MP[TK13]	Provides dewatering estimates and addresses management of the potential impacts of dewatering and effluent disposal on the local environment and water resources.
Canning River EMP	Outlines controls to minimise potential environmental impacts on the Canning River and its precinct attributable to the Works being carried out in the areas.

Table 2: Structure of this plan

Part A: Overview	This section clearly defines: ▪ Purpose of the CEMP ▪ Environmental Requirements and Objectives ▪ Summary of the Significant Environmental Hazards and Environmental Sub Plans
Part B: Implementation Plan	This section outlines in detail the key elements for environmental management on the Project including: ▪ Expectations ▪ How they will be met ▪ Responsibilities ▪ Associated deliverables
Part C: Environmental Sub-Plans	▪ This section contains the Environmental Sub-Plans developed by the project to manage Significant Environmental Hazards and other potential impacts on the environment and community
Part D: Appendices	This section contains Appendices providing additional detail to support this plan including: ▪ SWTC Compliance Table ▪ Environment Policy ▪ Environmental Roles and Responsibilities ▪ Environmental MIRRA Schedule ▪ Construction Program Outline

5. ENVIRONMENTAL MANAGEMENT SYSTEM (EMS[TK14])

The NEWest Alliance EMS is based on the requirements of the CPB Contractors' PMS, which has been specifically tailored to ensure compliance with the PTA. The NEWest Alliance EMS has been specifically tailored to ensure compliance with PTA contract requirements of the Metronet Stage 1: Thornlie Cockburn Link Project. These include the CEMP being prepared in accordance with the requirements of CPB's AS/NZS ISO 14001:2015 certified EMS, and complying with:

- PTA Doc No. 9302-000-001 Rev1.06 "Environment Policy";
- PTA's Environmental Management System Manual (Doc No. 7300-000-001 Rev A);
- the CEMP prepared by PTA for the referral area as required by the EPA assessment process, namely: TCL CEMP, Aurora 2019; and
- the "Instructions on how to prepare EP Act Part IV environmental management plans" (EPA, April 2018).
- Environmental Protection Authority, Thornlie-Cockburn Link, Ministerial Statement No.1114,
- 23 September 2019 (inclusive of amendments)
- Department of the Environment and Energy, Thornlie-Cockburn Link EPBC 2018/8188, 20 January 2020. (inclusive of amendments)

The Management System has been developed and implemented to ensure a consistent approach to Project delivery. The Management System comprises the following components:

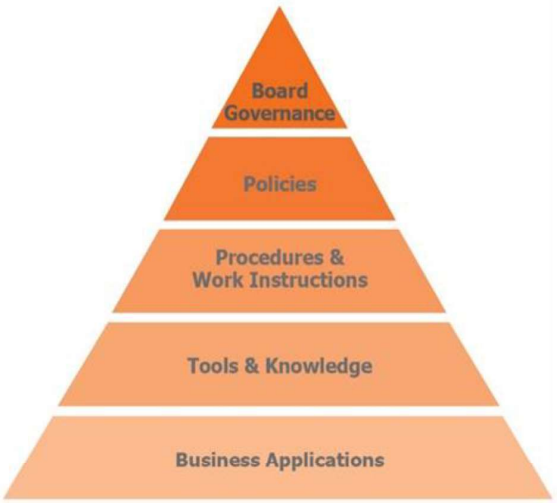


Figure 5: NEWest Alliance Project Management System

- **Policies** which are statements of strategic intent and commitment and define the minimum mandatory requirements that NEWest Alliance expects all levels of the organisation to comply with
- **Procedures** and Work Instructions to specify how to undertake and control specific activities. They also list accountable roles and the tools and knowledge to be used. Where appropriate and approved by the respective Project functional manager, Project specific procedures may be produced to reflect specific Project circumstances
- **Tools** which are preformatted documents such as forms and templates that are required to be completed as part of a Procedure
- **Knowledge documents** that are reference material to provide context, additional information or guidance to a Policy or Procedure or Work Instruction
- **Business Applications** that are the software tools used to manage our business and support our operations.

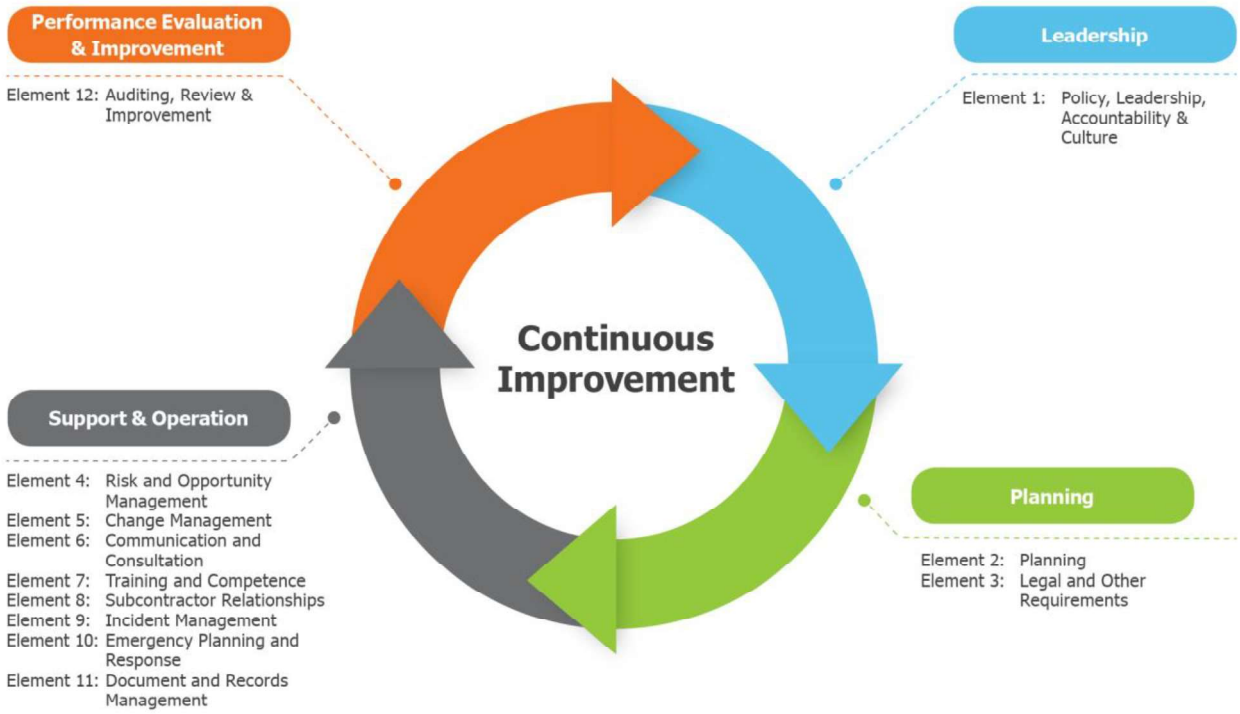
The Alliance Management Plan (AMP) details "The Way We Operate' and the processes adopted to deliver against PTA's overall requirements. The Alliance Management Plan also outlines how the Project will be managed and it is supported by a suite of functional management plans.

6. CONTINUOUS IMPROVEMENT

In addition to specifying the day-to-day environmental management of a project, each CEMP details activities to be performed to deliver continual improvement in environmental performance.

Continual improvement is achieved through constant measurement and evaluation, audit and review of the effectiveness of CEMP and adjustment and improvement, project environmental outcomes, legislation and regulations, and the EMS.

Figure 6 Continuous Improvement Mechanism



7. THE SAFETY ESSENTIALS

The Safety Essentials set out the minimum, non-negotiable requirements to manage Safety Essential related tasks on METRONET Stage 1: Thornlie-Cockburn Link. The Safety Essentials are a suite of controls for critical safety risks that have been identified through data analysis that would have given rise to the potential for serious injury, if they were not understood and had appropriate controls in place.

The Safety Essentials support and reinforce the NEWest AMS including the Project Management System (PMS) – they do not replace them.

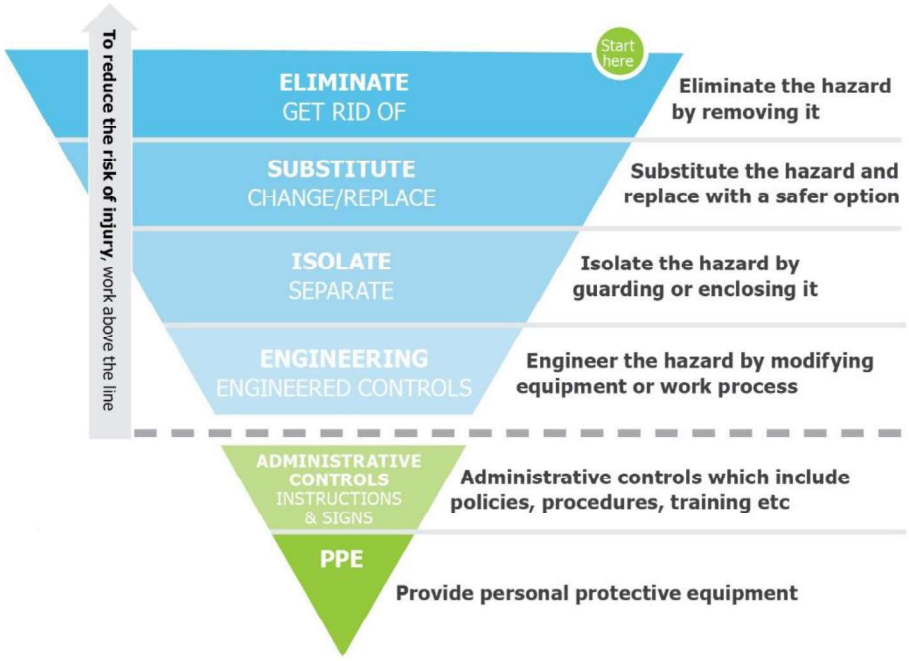


Figure 7: Hierarchy of Control

'Above the Line' controls are mandatory for all 'Safety Essentials'.

Where an 'Above the Line' control cannot be identified as the primary control for a Safety Essentials related task, then a Safety Essentials Exception must be approved by the Alliance Manager before work can commence on the Safety Essentials related task.

The Safety Essentials are:

- Work at Heights
- Working Near Live Traffic
- Working with Live Services
- Mobile Cranes and Lifting Operations
- Electrical Work
- Working in and Around Mobile Plant Including TMV(s)
- Working with Temporary Works
- Working on and around Railways

The Tools and Knowledge documents for applying The Safety Essentials will be available on the Project Intranet.

8. PROJECT OBJECTIVES

The following project objectives must be achieved to ensure the project is a success both during execution and beyond. Leaving a legacy for the people of Perth. The project objectives will be achieved by NEWest high-performance driven team, who are selected on experience, technical and personal attributes. The NEWest team understand the complexities and sensitivities surrounding such a large scale, complex project and will demonstrate alignment to the objectives at all times and resilience in times of need.

Table 3: Key Project Objectives

Objective	Description
A robust and cooperative team culture.	Assessment of risk and compliance with rail and occupational safety requirements Project Controls Engineering assurance, including quality assurance and quality control processes Resolution of unforeseen situations.
Timely delivery of the Works	Achieve the project milestones in accordance with the agreed program.
That inclusion of process that will:	Embrace and promote open-tendering processes Promote the development of packages of work that encourage and enable tendering by 2nd and 3rd tier suppliers.
Compliance with the WAIPS	A procurement process that is compliant with the Western Australian Industry Participation Strategy.
Whole of Life	Optimisation of operational costs and Whole of Life costs.
Stakeholder and Community	Ensuring appropriate consultation and integration with community and stakeholders.
Safety	Provide passengers with safe and secure services and facilities.
Minimise Disruption	Minimise disruption to current and anticipated rail operations.
Industrial Relations	Recognise the desired industrial relations objectives of the State.

8.1 ENVIRONMENTAL REQUIREMENTS AND OBJECTIVES & TARGETS

The Construction Environmental Management objectives and targets outlined in Table 5 are designed to facilitate the management and implementation of Construction Environmental Management activities for the Project.

Construction Environmental Management performance will be monitored, and work processes reviewed to improve, innovate and learn. Employees are responsible for complying with relevant procedures, reporting and rectifying non-compliance, and actively participating in environmental meetings, committees and various training sessions.

Table 4: Leading Indicators [TK15]

Key Performance Indicator	Target	Time Frame	Actions to be Taken	Accountability
SHEQ observations	100% of scheduled observations are conducted Leadership Team per month	Monthly	Task observations to be conducted by required personnel Leadership Team per month	Alliance Management Team (AMT)
Completion of inspections	100 per cent of scheduled inspections of environmental controls	Monthly	Inspections of environmental controls to be identified, scheduled and conducted	Superintendent Supervisor

Table 5: Lagging [TK16] *Indicators*

Key Performance Indicator	Target	Time Frame	Actions to be Taken	Accountability
Level 1, 2 & HPI environmental incidents	Zero	Ongoing	Implementation of the CEMP	Alliance Manager
Number of actions taken by regulators	Zero	At all times	Implementation of the CEMP	Alliance Manager
Area of land cleared or disturbed without authorisation	Zero ha	At all times	Implementation of the Flora & Vegetation Management and the Fauna Management Sub Plans	Alliance Manager
Number of unauthorised discharges	Zero	At all times	Implementation of the Soil and Water Management Sub Plan	Alliance Manager
Damage to heritage items or places without relevant approvals	Zero	At all times	Implementation of the Heritage Sub Plan	Alliance Manager
100% of all fuel use and GHG emissions generated by the project is	All fuel use / emissions entered into JDE System	Monthly	Implementation of the Energy Sub Plan	Procurement Manager

Key Performance Indicator	Target	Time Frame	Actions to be Taken	Accountability
captured and entered into JDE				
Percent of waste reused or recycled	75% of waste generated reused or recycled	Annually	Implementation of Waste Management Sub Plan	Alliance Manager

8.2 SIGNIFICANT ENVIRONMENTAL HAZARDS AND ENVIRONMENTAL SUB PLANS[TK17]

Part C of this CEMP includes Environmental Sub Plans for Significant Environmental Hazards (SEH), and Environmental Sub Plans for Other Environmental Hazards. As with all Environmental Hazards, SEHs have been identified through the review and analysis of environmental reports, contractual documents, community and legal compliance requirements relating to the Project and professional experience. Each of the Sub Plans listed below will be regularly reviewed during construction as the project risks are reviewed.

Table 6: Sub plans

Environmental Hazards (Aspect)	Associated Significant Environmental Impact (Risk)	Environmental Sub Plans (Part C)
Unauthorised clearing	Uncontrolled impacts to flora, including wetland vegetation	Flora and Vegetation Management
Unauthorised clearing	Uncontrolled impacts to fauna	Fauna Management
Increased sediment load in run off waters	Obstruction / alteration of surface water flows and water quality	Soil and Water Management
Exposing of contaminated land	Spread of contamination and exposure to contaminated material	Contaminated Land
Known (asbestos, chromates, etc.) and unknown hazardous substances buried or in structures	Damage to environment from contamination	Hazardous Substances
Disturbance of acid sulfate soil	Oxidation of acid sulfate soil and delivery of acidic leachate to receiving waters	Acid Sulfate Soil
Construction works disturbing an Aboriginal site	Loss or damage to heritage items / areas	Heritage
High impact noise and excessive vibration	Adverse impact on sensitive receivers and infrastructure	Noise and Vibration

Environmental Hazards (Aspect)	Associated Significant Environmental Impact (Risk)	Environmental Sub Plans (Part C)
Exhaust, smoke and dust emissions	Reduction in local air quality, public nuisance and reduced visibility	Air Quality
Generation of general and construction wastes	Unnecessary loan on landfill and incorrect disposal resulting in soil / water contamination / pollution	Waste Management
Light spill into residential areas and fauna habitat	Impacts to community / fauna	Light
Energy consumption and emissions impacts	Generation of greenhouse gas emissions and excessive energy consumption	Energy
Dewatering and effluent discharge: removing water from site	Contamination of wetlands, waterways and drinking groundwater systems	Dewatering Management [TK18] plan

Part B: Implementation

9. ELEMENTS AND EXPECTATIONS

The Environmental Management Plan is structured using a common set of Elements and Expectations:

Element	Key aspects for managing this function on the Project
Expectation	The high-level outcomes achieved as part of each Element

This two-level hierarchy provides a consistent structure that is applied across all Management Plans on the Project. Those Elements are:

Element 1: Policy, Leadership, Accountability and Culture

Element 2: Planning

Element 3: Legal and Other Requirements

Element 4: Risk and Opportunity Management

Element 5: Change Management

Element 6: Communication and Consultation

Element 7: Training and Competence

Element 8: Subcontractor Relationships

Element 9: Incident Management

Element 10: Emergency Planning and Response

Element 11: Document and Records Management

Element 12: Auditing, Review and Improvement

Element 1: Policy, Leadership, Accountability and Culture

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
1.1 Environmental accountabilities, roles and responsibilities for managers, staff, employees and subcontractors are clearly defined, documented and communicated	**Roles and Responsibilities** Environmental responsibilities are included in all Position Descriptions. Roles that carry specific environmental accountabilities (e.g. those that supervise or manage work with specific environmental risks) will contain more detailed environmental content. The environmental responsibilities contained in Position Descriptions are communicated to each person by their immediate supervisor upon commencing in their role.	HR/IR Manager Environment & Sustainability Manager Line managers	Position Descriptions
1.2 Environmental leadership and commitment is demonstrated through measurable participation in environmental management	**Participation and Measurement** All personnel in leadership roles on the Project participate in environmental management activities, including observations, incident reviews and HSE committee meetings. In addition, Alliance management will: ▪ regularly review environmental performance against Project KPIs and raise corrective actions to maintain or improve environmental performance as necessary; and ▪ address pertinent environmental matters at communication forums.	Alliance Manager Line managers Functional managers Supervisory staff Environment & Sustainability Manager	Observation records Incident reviews HSE Committee meeting attendance (minutes) Delivering toolbox talks
1.3 Environmental expectations are clearly defined with appropriate	**Environmental Policy** The NEWest Alliance Environmental Policy (see Appendix B) will be communicated in project inductions and prominently displayed at the Project.	Alliance Manager Line managers	Environmental policy displayed and communicated in site inductions

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
reward and disciplinary processes in place	**Project Environmental Rules** The Alliance Manager and Environment & Sustainability Manager will assist in development of "Project Rules" during Project start-up to address key environmental matters. These rules will be documented, communicated and prominently displayed at the Project and will be reviewed at least every six months. Any person who breaches these rules will be managed in accordance with NEWest Alliance's requirements for counselling, discipline and, if needed, termination.	Functional Managers Supervisory staff Environment & Sustainability Manager	Project environmental rules KPIs defined (Part A)
	Performance Targets Environmental performance targets for the Project have been identified in Part A of this document. The associated key performance indicators (KPI) include lead and lag indicators. Measurable targets have been set for each KPI and an applicable time frame nominated.	Alliance Manager Environment & Sustainability Manager	Monthly reports
	Managing Personal Performance Environmental performance goals will be set and reviewed for individuals with environmental leadership roles during the performance and development review process.	Alliance Manager Environment & Sustainability Manager	Performance and development reviews

Element 2: Planning

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
2.1 Adequate resources are provided to effectively implement the CEMP	**Resources** The Project budget includes sufficient allowances to implement the CEMP, including people, technical environmental expertise, equipment, materials, training, plant and infrastructure. The Environment & Sustainability Manager is consulted in setting and revising (forecasting) the Project budget. Sufficient people are appointed to the Project to implement the CEMP.	Alliance Manager Commercial Manager Environment & Sustainability Manager P & C Manager	Project budget Project forecasts Organisational structure Training matrix Training schedule
	Environmental Monitoring The Environment & Sustainability Manager is accountable for developing the Environmental Monitoring Schedule (Appendix D) prior to any works commencing on the project. The Environment & Sustainability Manager will identify all equipment, equipment maintenance (including calibration) and personnel required to implement the schedule and ensure necessary allowances in the Project budget and forecasts. All environmental monitoring on the Project is planned according to the requirements of the Knowledge document Environmental Monitoring and is defined where relevant in the Environmental Sub-Plans in Part C of this Plan.	Environment & Sustainability Manager	Environmental Monitoring Schedule Environmental Sub-Plans Environmental input into Project budget Project forecasts
2.2 Business systems are defined and established	**Define and set up IT Systems** Applications required to management environment on the Project are defined and established prior to works commencing. Systems to be used include: ▪ Synergy to report and record all environmental incidents, audit results and corrective actions	Environment & Sustainability Manager	Applicable business systems

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	▪ Synergy to schedule all inspections and environmental monitoring activities and track completion of scheduled activities ▪ JDE to capture energy use and emissions, and water and waste data ▪ TeamBinder to manage and archive records and documents ▪ Environmental Monitoring Spreadsheet to capture and analyse all environmental monitoring data.		
2.3 Environmental Sub-Plans are prepared and maintained for Significant Environmental Hazards	**Identify Significant Environmental Hazards (SEH)** Significant environmental hazards relating to the project's activities have been identified through the review and analysis of environmental reports, contractual documents, and community and legal compliance requirements relating to the Project and supported by professional experience of the assessor. The project SEH list in Part A is reviewed by the Environment & Sustainability Manager at a minimum of six-monthly intervals. The review should be supported by the current environmental risk and opportunities identification and analysis assessment and project environmental performance.	Environment & Sustainability Manager	Significant Environmental Hazards and Environmental Sub-Plans listed in Part A Sub-Plans contained in Part C
	Environmental Sub-Plans Environmental Sub-Plans (contained in Part C) are reviewed for on-going relevance and accuracy by the Project Environment & Sustainability Manager. The frequency of review is triggered by incident history, changes to the project, including contract variations, and management review requirements. Reviews are documented and records retained in the project document management system.	Environment & Sustainability Manager	Reviews of SEH and environmental Sub-Plans

Element 3: Legal and Other Requirements

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
3.1 Relevant legal, contractual and other requirements are identified and maintained	**Identifying Environmental and Heritage Obligations** The Environment & Sustainability Manager has reviewed the Contract, construction methodology and program and identified all: ▪ Contractual conditions specific to environmental management. ▪ Regulatory approvals required and associated conditions. ▪ Specific requirements of local, state and Federal laws that are additional to the requirements of Project approvals using online subscription to EnviroLaw. The sources and details of, and means of compliance with the above, are captured within an Environmental and Heritage Obligations Register (GEN-TCY-GEN-PTAWA-000015.00-7303-000-001). Documentary evidence must be available to show that all owners of obligations have been informed of their responsibility and are in a position to deliver the obligation. Copies of licences, approvals and permits relevant to the Works will be kept on file available for audit and inspection purposes, and for PTA upon request. Copies of all Alliance, and where applicable, Subcontractor, approvals, permits, licenses obtained during the Project will be provided to the PTA within the Alliance's monthly environmental report.	Environment & Sustainability Manager Alliance Manager	Environmental and Heritage Obligations Register
3.2 All necessary environmental approvals are obtained prior to commencing	**Obtaining and Surrendering Environmental and Heritage Approvals** Approvals required to deliver the project are obtained prior to the commencement of any activities relating to the scope of the approval. The	Environment & Sustainability Manager Engineers	Environmental approvals in program

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
relevant works and surrendered on completion	timing to obtain each necessary regulatory approval is determined and included within the Project program linked to relevant activities. Details of all approvals and licences (including applications and decision notices where appropriate) are maintained in the Project's Environmental and Heritage Obligations Register GEN-TCY-GEN-PTAWA-000015.00-7303-000-001. All regulatory approvals will be surrendered according to the requirements of the approval or, where not stated, as soon as practical following the completion of the activity to which the approval relates. The Environmental and Heritage Obligations Register will be maintained as a live document and will be updated regularly to include conditions associated with newly received regulatory approvals. A current electronic copy of the Environmental and Heritage Obligations Register will be included in the Alliance's Monthly Environmental Report.	Alliance Manager	Environmental approval documentation Updated Environmental and Heritage Obligations Register
3.3 Work is planned and executed to ensure compliance and consistent with the timing of construction activities	Planning for Compliance The CEMP and associated environmental management sub-plans and procedures will include the commitments contained in the Environmental and Heritage Obligations Register and will be updated as the Environmental and Heritage Obligations Register changes. Based on the timing of construction activities (Appendix E: Baseline Construction Program Summary), the Environment & Sustainability Manager (or delegate) will be consulted on commencement of development of all Construction Area Plans (CAPs) and Work Packs, and throughout their development. All controls necessary to ensure compliance will be included in the CAPs and Work Packs and in the Environmental Sub-Plans (Part C of this Plan).	Construction Manager Supervisors Engineers Environment & Sustainability Manager Design & Engineering Manager	Reviewed CAPs and Work Packs Updated project program

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	CAP's and Work Packs will include Site Environmental Plans that clearly show the controls to be implemented. The Project program will also be updated to include new approvals determined to be necessary following the review of work plans. CAPs and Work Packs will be reviewed by the Environment & Sustainability Manager (or delegate) prior to the commencement of the works described in their scope.		
3.4 Inspections, observations and monitoring are performed to ensure compliance is maintained	**Implementing Controls** Controls required to achieve compliance, as detailed in the CAPs and Work Packs, will be implemented before relevant works commence.	Supervisors Engineers Environment & Sustainability Manager	Engineered (physical) and administrative controls (e.g. procedures, forms, training) in place
	Inspections and Observations Controls will be inspected regularly to ensure their ongoing suitability and effectiveness. Inspections and observations will be planned and conducted according to the requirements of the Workplace Hazard Inspections and Observations Procedures. Inspections and observations will be scheduled as detailed in Appendix D. The outcomes of inspections will be captured on the inspection checklists. Corrective actions will be raised, tracked and closed out in the Synergy 'Action Plan' Module or through the inspection records (for actions closed out within agreed timeframes) for all controls found to be inadequate.	Supervisors Engineers Environment & Sustainability Manager	Observation records Inspection schedules Inspection checklists Corrective actions in Synergy – Action Plan Module or inspection records

Expectations		How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
		Environmental Monitoring Environmental monitoring will be carried out to confirm compliance with the conditions of environmental approvals and laws, and to provide early indication of potential adverse impacts to the environment or community. All monitoring will be planned and conducted according to the requirements of the procedure Environmental Monitoring and as detailed in the Environmental Sub-Plans. Calibrated or verified monitoring and measurement equipment will be used and maintained. Calibration records will be kept for auditing purposes and will be made available to the PTA's Representative upon request. Environmental monitoring results will be interpreted to identify actual and potential non-compliances and events that may result in nuisance, environmental harm and unacceptable loss of amenity or community complaints. Corrective actions will be taken immediately and/or raised and managed using Synergy	Environment & Sustainability Manager	Environmental Monitoring Schedule Monitoring records Calibration records Corrective actions
3.5	**All non-compliances are reported as incidents**	**Reporting Non-Compliances** All non-compliances will be recorded and reported as incidents in the Synergy. This includes events involving an action taken against the Project by a regulator.	Environment & Sustainability Manager All personnel	Incident reports
3.6	**All energy and greenhouse data are collected and entered into JDE**	**Greenhouse and Energy** All subcontractor fuel use will be collated and entered into JDE Projects will track subcontractor energy reporting. All relevant records relating to the reporting of NGER data will be retained with project records for seven years.	Environment & Sustainability Manager Commercial Manager Alliance Manager	NGER subcontractor register NGER data checklist

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	Any NGER data to be reported to PTA will be extracted from JDE using the Business Intelligence Tool. All energy (fuels, oils, greases, gases, electricity, solvents) purchased by the Alliance and processed through JDE are captured centrally at the CPB Contractors Group level.		Completed NGER subcontractor records Monthly HSE Statistical reports
3.7 Personnel on the site have access to current versions of relevant legislation, standards and codes of practice	**Updates to Legislation, Standards and Codes of Practice** Access to all relevant legislation will be available to personnel via EnviroLaw or other online resources (e.g. state or Commonwealth government websites or www.austlii.edu.au). Updates to legislation, standards and codes of practice will be reviewed to determine relevance. Work practices, the Environmental Sub-Plans and the Environmental and Heritage Obligations Register will be altered where appropriate to ensure compliance and all affected personnel informed in a timely manner. Regulatory approvals will be obtained or amended as necessary, work practices altered to ensure compliance and all affected personnel informed in a timely manner.	Environment & Sustainability Manager	Updates distributed

Element 4: Risk and Opportunity Management

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
4.1 Systematic processes are defined and implemented for identifying environmental risks and opportunities at all stages of the Project	**Identifying Environmental and Heritage Risks and Opportunities** Within three months of the date of the Project Alliance Agreement (PAA), and prior to mobilisation, the NEWest Alliance will conduct an environment and heritage specific risk workshop and provide to the PTA a project environmental and heritage risk assessment ensuring all approvals and environmental and heritage management requirements are in place prior to commencing ground disturbance or any Temporary Works or Works. The PTA Representative will be invited to the workshop as an active participant. Environmental and heritage risks and opportunities are considered during all subsequent project risk assessments as per the Alliance Management Plan. This includes: ▪ Construction Area Plan (CAP) risk assessments ▪ Work Pack risk assessments ▪ Site Environmental Plans ▪ Project Prestart Meetings	Alliance Manager Environment & Sustainability Manager Design & Engineering Manager Engineers Supervisors	Principal Project Risk Register Work Area Plan risk assessments Project Prestart Meeting
4.2 Identified risks and opportunities are analysed and evaluated according to agreed criteria and	**Analysing Environmental and Heritage Risks and Opportunities** Each environmental and heritage risk and opportunity will be evaluated and assigned a rating which is determined using the consequence and likelihood criteria in the PTA Risk Management Policy 9502-000-001 Rev 5.05. The influence of existing controls is considered in determining the risk rating. For each environmental and heritage risk: ▪ An owner will be assigned by the Alliance Manager;	Alliance Manager Risk owners Environment & Sustainability Manager Engineers	Environmental and Heritage Risk and Opportunity Register Work Area Plan risk assessments

Expectations		How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	recorded in a risk register	▪ Existing controls will be recorded, including the owner of that control; and ▪ The residual risk will be evaluated. Opportunities will be assessed to determine whether or not they can be implemented on the project and be based on a cost-benefit business case for the opportunity. Advice will be sought from the Environment & Sustainability Manager as necessary by the project team to ensure CAP, Work Pack and SEP risk assessments are as informed and accurate as possible.		Project Prestart Meeting
4.3	**Environmental controls appropriate to the level of risk are identified, documented and implemented**	**Identifying Adequate Controls** If the risk rating returns a result of 'medium' or above, then additional controls sufficient to reduce the risk rating to 'low' or an alternative acceptable level using cost effective designs and engineering and/or administrative controls will be utilised. Residual risks with a high or extreme risk rating will be considered 'significant' and must be controlled using appropriate systems of work, including Environmental Sub-Plans and project work procedure, along with available "hard controls". Approval to proceed will be required prior to commencing works. Accountability for the implementation of each control will be assigned in the respective Sub plan and SEPs and a due date will be set for its implementation as appropriate. Controls are selected in consultation with the Environment & Sustainability Manager to achieve the following, in order of preference: ▪ Eliminate the risk by not performing the relevant activity; ▪ Substitute by performing the relevant activity in a way that presents a lower risk;	Risk owners Environment & Sustainability Manager Alliance Manager Project Engineers	Controls agreed (engineered or administrative)

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	▪ Implement physical (engineered) controls (e.g. sediment basins, check dams); and ▪ Implement administrative controls (e.g. procedures, training, inspections).		
	Implementing Controls Controls are implemented by the accountable person as specified in the Sub Plan or SEP by the due date. No activity is commenced until all relevant controls are implemented.	Risk owners	Controls in place (engineered or administrative)
4.4 Feasible opportunities are implemented	**Implementing Opportunities** Opportunities identified and for which a business case has been developed, will be submitted to the appropriate member of the Alliance Leadership Team for approval. Once approved, accountability for implementation of the opportunity will be assigned and the opportunity will be implemented. Environmental and cost benefits are recorded and reported in monthly reporting.	Alliance Manager Opportunity Owner	Monthly reports Case studies
4.5 Identified environmental risks and controls are communicated to all relevant personnel	**Communications in line with Construction Planning** The environmental risks, controls and accountabilities are communicated to all relevant personnel. This is achieved through the preparation and communication of the construction methodology, CAPs, Work Packs, and SEPs.	Alliance Manager Engineers Environment & Sustainability Manager	Toolbox talk content and attendee records Pre-start meeting content Records of communications and meetings

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	Project Communications Environmental risks, controls and accountabilities are also communicated through Project and HSE communications, including HSE Committee meetings, toolbox talks, pre-start meetings and post-shift debrief meetings. Environmental information will also be posted on notice boards.	Environment & Sustainability Manager Alliance Manager Safety and Systems Compliance Manager	Site induction content Toolbox talk content and attendee records Pre-start meeting content Records of communications and meetings
	Communication through Training Nominated administrative controls, including procedures and training, will be communicated through the delivery of training in their requirements. The planning and delivery of this training is provided according to the requirements of Human Resources Management Plan.	Environment & Sustainability Manager HR/IR Manager	Training schedule Training matrix Training records
4.6 Regular inspections and monitoring are conducted to check effectiveness of controls	**Inspections, Observations and Monitoring** The processes for inspections, observations and monitoring are described in Element 3 of this CEMP and detailed in Appendix D.	Environment & Sustainability Manager Alliance Manager Engineers Supervisors	Observation records Inspection schedules Inspection checklists Corrective actions in Synergy

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
4.7 Environmental risks and controls are regularly reviewed.	**Risk Review** The Alliance's Project environmental and heritage risks contained in the Environmental and Heritage Risk Register will be reviewed quarterly by the Alliance as well as in response to any high or extreme environmental incidents, changes in legal requirements or following approvals obtained by the Alliance, changes in Project scope and/or any inspection, audit and management review findings. Any updates to the Alliance's Project environmental and heritage risks throughout the course of the construction activities will be provided to the PTA's Representative in the monthly environmental Report. The relevance and adequacy of environmental risks and controls identified in this CEMP, CAP and Work Pack risk assessments will be reviewed and updated according to Alliance Management Plan.	Alliance Manager Environment & Sustainability Manager Engineers	Principal Project Risk Register Updated risk registers in, CAPs and Work Packs

Element 5: Change Management

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
5.1 Changes to planned operations that have potential environmental consequences are identified	**Identifying Change** Project personnel will be required to promptly report any 'medium' or 'major' changes that could affect the environment and/or community. A 'medium' or 'major' change could result from a change to design, plant (fixed and mobile), systems, personnel, and work methods such that the absence of a considered review could compromise the Project's ability to comply with its obligations and/or result in an inadequate range of controls which could lead to an incident or result in community nuisance. A 'medium' change is one which includes permanent changes to Work Pack methodology or work conditions. A 'major' change is one which is site-wide or requires a revision of CAP's. Project personnel will receive training to identify changes and apply change management processes. This includes all supervisory staff being informed of the need to have changes approved prior to commencing relevant works.	Alliance Manager Environment & Sustainability Manager Design & Engineering Manager Engineers Supervisors	Change Requests Training matrix Training records
5.2 Risks associated with identified changes are assessed and controlled before changes are implemented	**Risks Associated with Change** All proposed changes will be documented, including the assessment of risks relating to the change. Key personnel affected by the change will be involved in the risk assessment. All changes will be requested or sponsored by a supervisor or manager, who will then become the change owner. Input from environmental personnel will be sought as necessary. The approach to risk assessment and the implementation of controls will follow the requirements of Element 4 of this CEMP.	Alliance Manager Change owner Supervisors Environment & Sustainability Manager	Change Requests Revised risk assessments

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
5.3 All changes with environmental consequences are authorised before they are implemented	**Approvals of Change** All change requests will be approved by the supervisor or manager of the change owner, or as otherwise required by the project delegations, before any relevant work commences, and a record will be maintained. This will include any approvals associated with revised CAPs and Work Packs by the Environment & Sustainability Manager.	Alliance Manager Construction Manager Design & Engineering Manager Environment & Sustainability Manager	Change Requests
5.4 Controls associated with change are communicated to all affected personnel	**Communication of Change** Affected personnel will be consulted to ensure that they understand the effects of change before the relevant works commence. This will be achieved through toolbox talks, daily pre-start meeting, HSE committees or forums arranged to specifically address changes.	Change Owner Supervisors	Toolbox talk material Pre-start meetings Attendance records Meeting minutes

Element 6: Communication and Consultation

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
6.1 External environmental stakeholders are identified	**Identifying External Stakeholders** A comprehensive stakeholder analysis will be performed to identify external stakeholders and their interests in the environmental management of the Project. This will include community members and others who could be affected by the Project works, as well as government and environmental lobby groups. The Environment Lead will be involved in the analysis process.	Stakeholder & Community Manager Environment & Sustainability Manager	Stakeholder register or database Stakeholder Analysis
6.2 Relationships with external stakeholders are effectively managed	**Managing Relationships** Activities that will be performed to effectively manage relationships with external stakeholders will include: ▪ identifying environmental risks that relate to stakeholder interests by considering the impacts to stakeholders; ▪ determining suitable controls and activities to mitigate risks with general controls and activities documented in the PPRR and detailed in the Environmental Sub-Plans, CAPs and Work Packs; ▪ performing inspections, audits, stakeholder engagement and monitoring activities to assess the effectiveness of the controls; and ▪ actively engaging stakeholders through open communication and involvement.	Environment & Sustainability Manager Stakeholder & Community Manager Alliance Manager	Risk assessments in CAPs and Work Packs Environmental Sub-Plans and Procedures Audit reports Monitoring results Communications material Forums and opportunities for stakeholder engagement

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
6.3 Internal consultative forums are established with regular meetings scheduled, conducted, documented and communicated	**Consultative Forums** A schedule of communication forums will be developed, including: ▪ managers' meetings to address environmental matters at least monthly; ▪ environmental Toolbox Talks quarterly; and ▪ pre-start meetings prior to commencing shifts. The Alliance Manager will establish appropriate environmental interfaces with the PTA and with the relevant regulatory agencies and government departments. Records will be kept of all HSE communication activities (e.g. attendance records) and the effectiveness of meeting outcomes will be reviewed.	Alliance Manager Environment & Sustainability Manager Safety and Systems Compliance Manager	Minutes of meetings Toolbox Talks Pre-Start meetings Attendance records
	Actions from Consultative Forums The actions arising from the consultative forums will be assigned and communicated to responsible persons and the status thereof will be confirmed until completed.	Community & Stakeholder Liaison Environment & Sustainability Manager	Minutes of meetings Attendance records
	HSE Signs and Notice Boards Dedicated HSE notice boards will be prominently located and maintained with current environmental information.	Environment & Sustainability Manager	Signs and notice boards installed with current environmental content
6.4 Environmental complaints and enquiries	**Responding to Complaints and Enquiries** All environmental related complaints will be classified according to the Incident Classification Matrix and recorded in Consultation Manager.	Community & Stakeholder Manager	Incident records Records of communications

Expectations		How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	are recorded and responded to appropriately	Corrective actions will be agreed and implemented, and accountabilities and time frames assigned for closing them out. In accordance with the Community and Stakeholder Issues Management: Complaints and Enquiries Process, the complainant or enquirer will be notified of the intended Project response once approved by the Alliance Manager.	Environment & Sustainability Manager Alliance Manager	
		Changes to Environmental Monitoring Environmental monitoring programs will be reviewed to address matters raised through valid stakeholder complaints and consultations with stakeholders. Amendments to the monitoring program will ensure the early identification of conditions likely to result in further complaints and/or exceedances. The monitoring data will be analysed to identify actual and potential impacts to the community, and corrective actions will be implemented.	Environment & Sustainability Manager Stakeholder & Community Manager	Monitoring schedule Monitoring records Corrective actions in Synergy
		Client and Internal Notifications The CPB and Downer Corporate Communications Managers will be notified of complaints that have or are likely to generate media interest. The PTA will also be notified according to the requirements of the Contract conditions.	Alliance Manager	Record of communication
6.5	The effectiveness of internal and external stakeholder engagement is evaluated and improved.	**Evaluation of Internal and External Communications** The effectiveness of both internal and external communication and consultation activities will be formally reviewed as required. The Environment & Sustainability Manager will participate in these reviews, which will be led by the Alliance Manager and will include the Community and Stakeholder Manager and the Health and Safety Manager.	Alliance Manager Stakeholder & Community Manager	Meeting minutes

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	The Environment & Sustainability Manager will also regularly attend and review the effectiveness of forums and recommend changes to the scheduling or style of forum.	Environment & Sustainability Manager Safety and Systems Compliance Manager	

Element 7: Training and Competence

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
7.1 All personnel have completed an induction containing relevant environmental information before they are authorised to work on the Project	**Inductions** Within three months of the date of the PAA, an Environmental and Heritage Site Induction package will be submitted to PTA for approval. Work will not commence on the Project until PTA's Representative has issued written confirmation that the induction meets PTA's requirements. All personnel, subcontractors and visitors will undergo the environmental and heritage site induction before commencing work on-site. PTA requires that as a minimum, the induction will cover: ▪ ground disturbance work requirements; ▪ threatened ecological communities, declared rare flora, black cockatoo habitat and quenda habitat (i.e. trapping and translocation); ▪ environmental monitoring and data reporting requirements; ▪ ASS, groundwater and contaminated land management requirements; ▪ noise and dust management requirements; ▪ Aboriginal heritage management requirements; ▪ inspection and audit requirements (i.e. audit schedule and protocols); and ▪ environmental emergency / spill response and incident management and reporting. The induction will also address general and Project-specific environmental issues, including: ▪ the NEWest Alliance environmental policy; ▪ how the CEMP will be implemented on-site; and ▪ high-risk environmental activities on the Project and their controls.	Environment & Sustainability Manager HR/IR Manager Safety and Systems Compliance Manager	Induction materials Training attendance records Completed induction assessments

Expectations		How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
		▪ An assessment will be conducted on completion of the induction. The induction materials will be reviewed at least annually and will be amended to reflect changes to Project environmental risks, the status of community relations and the occurrence of incidents.		
7.2	**A training plan is developed and documented**	**Identifying Training Needs** The NEWest Alliance will develop and maintain an environmental training / induction matrix to ensure that relevant personnel receive training / inductions to implement the Project environmental and heritage requirements and deliver this CEMP. In populating the training matrix, the environmental training requirements for each role will be addressed, including competency, needs and capability. The Environment & Sustainability Manager will contribute to the development of the training matrix. Environmental and heritage induction records will be maintained by the Alliance in readily available auditable files that will be made available to the PTA's Representative upon request. The NEWest Alliance performance and development management process will provide an opportunity to identify and plan the delivery of training needs not provided in the training matrix, or that are necessary to aid in the development of the individual. Subcontractor training and competency responsibilities will be included in subcontractor agreements.	Environment & Sustainability Manager HR/IR Manager	Training matrix Performance and Development management plans Subcontractor agreements Subcontractor Start-Up Meeting minutes
		Scheduling Training Needs A Project training schedule, including an environmental training / induction matrix will be developed to plan the delivery of training needs identified in the	HR/IR Manager Environment & Sustainability Manager	Training schedule Training records

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	training matrix. Refresher training intervals will also be stated where applicable.		
7.3 Personnel are trained and assessed according to the training plan	**Provide Training Resources** The Project budget will allow for all resources required to deliver the training schedule, including personnel, equipment, funding and materials.	Alliance Manager Environment & Sustainability Manager	Project budget
	Delivery of Training All training identified in the environmental training / induction matrix will be delivered according to the training schedule. Training and development needs identified through the performance and development process will be delivered according to the nominated timeframes. The personnel responsible for delivering environmental training must be deemed competent by the Environment & Sustainability Manager.	Alliance Manager HR/IR Manager	Training records
	Training Evaluation and Review Training assessments and evaluation forms will be used to assess training effectiveness. Training evaluation and feedback will be reviewed and used to improve the quality of environmental training delivered on the Project. The environmental training / induction matrix and schedule will be reviewed at least annually and prior to the commencement of major new tasks.	HR/IR Manager Environment & Sustainability Manager	Training evaluation forms Training matrix
7.4 Training records are maintained and accessible to relevant personnel.	**Training Records** Records of all training activities including inductions and assessments will be maintained. Records will include the name and role of the attendee, the name of the course and, where applicable, reference to the document-controlled version of the material presented.	HR/IR Manager Environment & Sustainability Manager	Training records

Element 8: Subcontractor Relationships

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
8.1 Selection processes ensure that subcontractors meet NEWest Alliance's minimum environmental requirements	**Subcontractor Selection and Engagement** Subcontractors engaged on the project will be required to undergo a thorough assessment prior to selection. The Environment and Sustainability Manager will be consulted on environmental and sustainability requirements of subcontracts and the adequacy of proposed conditions. Subcontractors will be made aware of NEWest Alliance's environmental and sustainability requirements during the tender process and start-up meetings.	Commercial Manager Engineers Environment & Sustainability Manager	Subcontractor Agreements
8.2 Planning requirements of all subcontractor work scopes are completed and communicated prior to commencing work	**Identify, Complete and Communicate Planning Requirements and Documentation** The scope of work to be performed by each subcontractor will be reviewed to determine whether it includes works for which project planning and environmental risk assessments have been completed. If so, the subcontractor will be formally informed of all relevant risks and existing project documents, systems and procedures to be followed prior to commencing works (in addition to being informed of these during the tendering process). This may include the contents of the construction methodology, CAPs, Work Packs, SEPs, and Environmental Sub-Plans in this CEMP. If the scope of works includes activities not already addressed in Project planning and risk assessment, then an appropriate risk assessment will take place and the existing documentation will be revised or new documentation will be produced. The Environment & Sustainability Manager will review all new documentation to ensure it meets Project requirements.	Engineers Environment & Sustainability Manager Commercial Manager	Construction Area Plans (CAPs) Work Packs SEPs Records of subcontractor notification

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
8.3 Compliance requirements for high risk environmental activities are identified and enforced	**Compliance requirements** For high risk environmental activities, the Environment team will review the subcontractor's scope of works with the supervising Engineer and: ▪ identify any new issues relevant to the subcontractor's scope of works; ▪ identify any additional compliance requirement not captured; ▪ identify necessary approvals not already in place and obtain those approvals prior to any works commencing; ▪ update the relevant Environmental Sub-Plans, SEPs, and Environmental and Heritage Obligations Register with the new approval details and conditions. The Environment team will review the CAP and Work Packs for high risk environmental issues. The subcontractor will be informed of all relevant environmental issues/risks and controls, procedures and documents to be followed and implemented to achieve compliance during the tendering process. This will be reinforced during the Start-Up meeting. The subcontractor will be informed of the requirement to provide all relevant data relating to their works as required by the *National Greenhouse and Energy Reporting Act 2007 (Cth)*.	Engineers Environment Team Commercial Manager	Records of subcontractor notification
8.4 Subcontractor documentation is submitted and reviewed to meet Project requirements	**Documentation Preparation and Review** The subcontractor will provide NEWest Alliance with all required environmental documentation prior to commencing work on the Project as described in the executed agreement, including any requirement to produce	Environment & Sustainability Manager Commercial Manager	Subcontractor environmental documentation

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	an CEMP. Any further requirements will be agreed by the Commercial Manager and the Environment & Sustainability Manager.		
8.5 Changes to the scope of work are managed as a Project change	**Manage Changes/Variations** Changes and variations to subcontractor scopes of work will be assessed as a change according to the requirements of Element 5 of the CEMP. Documentation will be amended accordingly.	Commercial Manager Engineers	Change Requests
8.6 Subcontractors actively participate in environmental management and training on the Project	**Subcontractor Environmental Participation** Subcontractors will participate in HSE communication forums and monitoring activities, as a minimum, including: ▪ environmental and heritage site induction; ▪ scheduled HSE management meetings, toolbox talks, pre-start meetings, HSE committees (as required); ▪ HSE observations, inspections and audits; ▪ incident investigations (as required); and ▪ development or review of safe work systems and SEPs (as required).	Commercial Manager Environment & Sustainability Manager Subcontractors Engineers	Attendance records Monitoring records
	Subcontractor Training Subcontractors will undergo all necessary environmental training including any required by the Project. The required training will be determined by reviewing the environmental training / induction matrix relative to the scope of work and roles being filled or supplied by the subcontractor. The delivery and management of training will be as per Element 7 of the CEMP.	Subcontractor Environment & Sustainability Manager	Subcontractor training records
8.7 Subcontractors are reviewed to assess their performance and	**Subcontractor Audits and Reviews** Subcontractors will be regularly inspected and observed for environmental performance as per Element 3.4 of this CEMP.	Environment & Sustainability Manager	Audit reports Inspection and monitoring records

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
compliance with our minimum environmental requirements		Engineers Supervisors	

Element 9: Incident Management

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
9.1 All incidents are followed by appropriate response and notification	**Incident Response** The immediate response to all incidents is to make the area safe and undertake measures to prevent further environmental harm. An assessment will be made in consultation with the Environment & Sustainability Manager to ensure that responses do not result in further harm. **Initial Incident Notification** The Alliance Manager and Environment & Sustainability Manager are to be notified immediately of all Class 1 environmental incidents. The Environment & Sustainability Manager is also to be notified of any actual Class 3 environmental incident, procedural or legal breach. For a Class 1 incident, the Alliance Manager will immediately notify the Business Unit General Manager and the Business Unit Environment Manager. The Alliance Manager will also notify the Business Unit General Manager of the need to activate the Project's Emergency Response Procedure and the Group Crisis Management Plan if necessary. The PTA is notified of all environmental incidents as per the agreed contractual arrangements. Where the Alliance holds a licence, permit or approval, environmental incidents in breach of those instruments will be reported to the regulator(s) in accordance with the requirements of local, state and federal government regulations. **Preserve the Incident Scene** Scenes of environmental Class 1 and 2 incidents are to be preserved until the incident investigation team has collected relevant data and evidence.	Alliance Manager Environment & Sustainability Manager Stakeholder & Community Manager Engineers Supervisors	Records of incident notifications

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
9.2 All incidents are entered and managed in Synergy	**Incident Classification and Reporting** As a minimum, environmental incidents include events that can directly or indirectly cause environmental impacts or harm as well as events involving non-compliance with Project procedures and "near miss" events which may or may not result in an environmental impact. Environmental incidents will be classified using the Incident Classification Matrix by the Environment & Sustainability Manager in consultation with the Alliance Manager. NEWest Alliance will submit an environmental incident report immediately to the PTA's Representative for all significant and high-risk environmental incidents (as defined in the Alliance's incident reporting and management procedure). NEWest Alliance will submit an environmental incident report to the PTA's Representative for all other environmental incidents within 48 hours of the environmental incident occurring. The environmental incident report will include as a minimum: ▪ description of incident (date, time, location, GPS co-ordinates, factual description of the incident); ▪ incident type (environmental impact, environmental non-compliance, potential incident, community complaint); ▪ incident classification; ▪ incident investigation findings; and ▪ actions. All environmental incidents will be reported using Synergy. Root causes will be identified and recorded in Synergy for all Class 1 and 2 incidents (and optionally for Class 3 incidents). PTA's Representative will be provided with access to the online system (Synergy) used for incident reporting.	Environment & Sustainability Manager Alliance Manager	Incident records Root cause coding

Expectations		How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
		All statutory notices received from regulators, including penalty notices and fines, will be entered as Environmental Legal Issue incidents upon receipt.		
9.3	**Incident investigations are conducted appropriate to the type of incident**	**Project Incident Investigations** All incidents will be investigated according to NEWest Alliance procedures. The level of investigation required will depend on the incident classification. Corrective actions, including those required to help prevent future incident occurrences, are a key outcome of incident investigations. Incident investigation reports will be completed on Synergy. **Statutory Authority Investigations** Before any staff member is questioned by officers of a statutory authority, they will endeavour to consult the Alliance Manager to determine whether Legal Counsel is needed. Regulatory inspectors must be given appropriate assistance during their own investigations.	Alliance Manager Environment & Sustainability Manager Supervisors Engineers	Incident investigation reports
9.4	**All personnel conducting incident investigations are trained to competently perform the task**	**Incident Investigation Teams Competent and Trained** The selection of the investigation team will be up to the Alliance Manager and will depend upon the severity of the incident, and the availability of experienced personnel. However, the investigation team does need to have a mix of both Operational and HSE Staff. The following should be considered when selecting an investigation team: ▪ statutory requirements; ▪ Corporate requirements; ▪ technical specialists with an understanding of the work process; ▪ administrative support; ▪ mix of skills and experience; and	Alliance Manager	

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	▪ potential conflict of interest for any proposed member.		
9.5 Corrective and preventive actions are taken after incidents and lessons are shared with other projects	**Corrective & Preventive Actions** Following an incident, corrective and preventive actions will be identified, assigned to the appropriate person/s and closed out according to set time frames. Time frames will be set to ensure damage incurred is rectified and any chance of recurrence is eliminated as soon as practicable. Synergy will be used to assign and track corrective actions. All corrective actions will include reference to the relevant incident record for ease of tracking. As a minimum, corrective actions are systematically implemented and reviewed by the Alliance to ensure they adequately resolve the issue and minimise the risk of reoccurrence of the incident or hazard.	Alliance Manager Environment & Sustainability Manager	Corrective action records on Synergy
	HSE Alerts HSE Alerts will be submitted for all Class 1 and 2 incidents to the Alliance Manager and Business Unit Environment Manager for distribution outside of the project team. HSE Alerts will also be raised for all other incident types at the discretion of the Environment & Sustainability Manager, Alliance Manager or Business Unit Environment Manager.	Environment & Sustainability Manager Alliance Manager	HSE Alerts
9.6 High potential and repeat incidents are regularly reviewed by the project management team	Each month the Environment & Sustainability Manager will, as a minimum, identify trends in incidents (as a minimum for all Class 1 and 2 incidents) and trends in root causes to suggest the nature of preventative actions which are warranted. The Alliance Manager will approve actions to address incident occurrences and incident and root cause trends. Actions will be managed using the Synergy.	Environment & Sustainability Manager Alliance Manager	Monthly project reports Corrective actions

Element 10: Emergency Planning and Response

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
10.1 Potential emergencies are identified using a formal risk assessment process	**Identifying Potential Emergencies** Risk assessments conducted in accordance with Element 4 of the CEMP will be used to identify potential emergencies on the Project. Activities found to have an environmental consequence of 4 or 5 as per the definitions for environmental consequence contained within the PTA Risk Management Policy 9502-000-001 Rev 5.05 will be considered potential emergencies.	Alliance Manager Environment & Sustainability Manager	Environmental and Heritage Risk Register Principal Risk Assessment
10.2 Emergency response plans and procedures are developed and regularly reviewed	**Emergency Response Plan** An Emergency Response Plan that addresses all identified potential environmental emergencies with specific emergency procedures for each different potential emergency will be developed. The plan will address or include the following: ▪ nominated and trained emergency coordinator and emergency wardens; ▪ explanation of communications to be performed during an emergency; ▪ explanation of what a crisis is as compared to an emergency and what to do in the event of a crisis; ▪ the details of emergency services contacts; ▪ emergency assembly locations; ▪ a detailed location map showing the site in relation to local public roads; ▪ a detailed site layout diagram; ▪ information about personnel and facilities available to help emergency services; and ▪ specific emergency procedures for each potential emergency identified that aim to protect human health and environmental values, including assessment of resources required to respond to that emergency.	Alliance Manager Environment & Sustainability Manager Safety and Systems Compliance Manager	Emergency Response Plan and Procedures

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	Post-emergency actions The Emergency Response Plan will be updated annually and also following significant changes to project activities or in response to revised and new risk assessments.		
10.3 Adequate resources are provided to effectively implement emergency response plans and procedures	**Emergency Response Plans Adequately Resourced** The resources required to implement the Emergency Response Plan will be available on the Project and will include: ▪ an emergency coordinator and emergency wardens; ▪ spill response kits; ▪ firefighting equipment; ▪ barricading; and ▪ vehicles.	Alliance Manager Environment & Sustainability Manager Safety and Systems Compliance Manager	Project resources for Emergency Response Plan and procedures
10.4 Environmental emergency response drills are conducted	**Environmental Emergency Response Drills** Environmental emergency response drills will be conducted annually. The emergency scenario of the drills will be rotated to avoid repetition and be relevant to the activities occurring at the time. Records will be kept of the results for all drills. Where testing and evaluation shows a deficiency in either emergency preparations or the Emergency Response Plan, appropriate corrective and preventive actions are taken and raised and managed using Synergy.	Alliance Manager Environment & Sustainability Manager Safety and Systems Compliance Manager	Emergency response drill records Corrective action records in Synergy
10.5 Employees, contractors and visitors are given appropriate	**Emergency Training** Emergency coordinators and wardens will be trained to implement the emergency response plans. Specific training requirements will be identified and captured within the training matrix and will be delivered according to company procedures.	HR/IR Manager Environment & Sustainability Manager	Training matrix Training schedule

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
emergency response training.	Visitors will be informed of the emergency requirements during the visitors' induction. **General Workforce Training and Awareness** All personnel and subcontractors will receive training to inform them of their roles and responsibilities in the event of an emergency. This training and awareness will be provided during Project induction.	Safety and Systems Compliance Manager	Training and induction records

Element 11: Document and Records Management

Expectations	How we will meet the Expectations (minimum requirements)	Responsibilities Key Contributor	Deliverables
11.1 Current versions of all relevant documents and records are available and controlled.	The Project will ensure that all documents and records referred to and required to implement the CEMP, including the plan are controlled and maintained according to the NEWest Alliance requirements. This includes but is not limited to all: ▪ management plans & procedures; ▪ knowledge and tools; ▪ templates e.g. audit template and training matrix; and ▪ all electronic records saved in electronic databases such as Synergy, ChemAlert TeamBinder etc. **Document Types** ▪ The types of records to be generated on the Project that are to be stored and maintained include: ▪ environmental approvals, permits, certificates and licences - 7 years from completion of the Project; ▪ environmental monitoring results - 30 years from the date of any incident or completion of the Project, whichever is later; ▪ complaints and enquiries received - 7 years from completion of the Project; ▪ notifications received by regulators - 30 years after the completion of the Project; ▪ audit and inspection reports - 7 years from completion of the Project; ▪ completed inspections and observations - 30 years from the creation of the record; ▪ waste tracking certificates - 7 years from the creation of the record; ▪ induction attendances, training matrices and training records - 7 years from the end of the employee's employment; ▪ incident reports - 30 years from the creation of the record;	Environment & Sustainability Manager Alliance Manager	Controlled and maintained documents and records

Expectations	How we will meet the Expectations (minimum requirements)	Responsibilities Key Contributor	Deliverables
	▪ calibration records for monitoring equipment; ▪ monthly reports and Meeting minutes - 7 years from completion of the Project or from the date on which work was last performed on the Project; ▪ records as required under the National Greenhouse and Energy Reporting Act 2007 - 7 years from the creation of the record; ▪ HSE Alerts; and ▪ any editing and access restrictions to environmental documents and records and who has authority to dispose of nominated documents and records. These environmental records will be made available for checking and auditing by the PTA's Representative. The environmental records will be safeguarded against accidental destruction or deterioration to ensure that they remain legible, identifiable and traceable. At the completion of the Works, all environmental records will be provided to the PTA's Representative in the Project Environmental Close Out Report. ▪ The Environment & Sustainability Manager will authorise any disposal of any environmental documents or records.		
11.2 Relevant documents and records will be maintained using corporate business applications and systems	Relevant environmental documents and records generated on the Project will be stored and managed using TeamBinder with the following exceptions: ▪ environmental monitoring data will be managed and stored using the Project drive; ▪ NEWest Alliance's environmental performance data will be managed and stored in JDE and Synergy, including Water, Waste and Energy and Greenhouse Gases; ▪ incident reports and corrective actions will be stored and managed using Synergy; and ▪ risk registers will be retained in excel spreadsheet.	Alliance Manager	Controlled and maintained documents and records

Element 12: Auditing, Review and Improvement

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
12.1 Environmental performance trends are identified and corrective actions are implemented as required	**Performance Trends** Environmental performance will be reviewed and reported at least monthly to identify trends. Performance will be assessed against both lead and lag measures and relative to specific targets agreed as per Expectation 1.3 of the CEMP, and in the sub-plans contained in Part C. Action plans will be developed to improve performance as required, and corrective and preventative actions will be managed using the Synergy Action Plan Module.	Alliance Manager Environment & Sustainability Manager	Monthly reports Corrective & Preventative actions in Synergy – Action Plan Module
12.2 A monthly environmental report is produced and distributed	**Monthly Environmental Reporting** A Monthly Environment Report for TCL will be prepared for the Alliance Manager for inclusion in the Monthly Project Report, and will include: ▪ a brief description of construction activities undertaken for the month with a summary of current key environmental issues and risks; ▪ an updated version of the Environmental and Heritage Obligations Register including status and copies of any new environmental approvals; ▪ a summary of spoil type and classification, spoil quantity and disposal locations for the month, ASS treatment and validation, analytical result, any unexpected finds and associated management actions (all spoil disposal documentation will be retained and made available to the PTA's Representative upon request); ▪ a summary of dewatering status including: – areas being dewatered; – water quality parameters pre and post treatment; – dewatering flow rates (instantaneous and cumulative); – groundwater Levels; and	Environment & Sustainability Manager Alliance Manager	Monthly environment report Monthly HSE Statistical Report

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	– daily discharges from the dewatering system, with separate metering for each discharge point (e.g. each recharge well, sewer etc.). ▪ Records of: – water usage (potable vs non-potable) (in litres);; – fuel usage (in litres); – waste including waste to landfill (in tonnes and m3), types of Wastes, (in tonnes and m3) and hazardous wastes such as fibrous materials, oily water, waste oil etc. (tonnes and m3); – chemical usage (in litres); – land cleared (ha). ▪ a summary of environmental incidents and corrective actions; ▪ a summary of audit / inspection findings and corrective actions undertaken; ▪ a summary of community and Stakeholder environmental complaints; ▪ a summary of key environmental risks for the next period and proposed mitigation measures; ▪ dewatering system records of construction progress (wells drilled, pipe installed etc.), a summary of system performance, any configuration changes (pumps on, pumps off, pipe work changes, maintenance performed) and records of issues identified and agreed solutions; ▪ a summary of environmental monitoring undertaken for the month and a copy of any environmental reports or data undertaken by the Alliance or its Subcontractors; ▪ a summary of any environmental inductions, training or awareness sessions; ▪ all spatial data (e.g. monitoring wells, recharge wells, noise monitoring locations) in a format compatible with ArcGIS and AutoCAD; and ▪ an update on sustainability performance, including progress against the Sustainability Management Plan.		

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	The monthly environmental report will also comply with all relevant conditions of approval and regulatory requirements.		
12.3 Close-out reporting is completed as required	**Close-out Reporting** **Acid Sulfate Soil and Dewatering Management Plan (ASSDWP) Close-Out Report** The Alliance will satisfy DWER reporting guideline requirements for close out reporting associated with the completion of dewatering in accordance with "Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes" (DER, 2015). The Alliance will gain endorsement of the close out report from the DWER within six months of the Date of Practical Completion. **Detailed Site Investigation (DSI) Close-Out Report** The Alliance may be required to produce a DSI close-out report of the Ranford Road Construction Site in accordance with the Contaminated Sites Act 2003 (WA), the "Assessment and Management of Contaminated Sites – Contaminated Sites Guidelines" (DER, 2014), the "National Environment Protection (Assessment of Site Contamination) Measure" (NEPC, 2013), the "Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia" (Department of Health, 2009), the "Landfill Waste Classification and Waste Definitions 1996" (as amended 2018) (DWER 2018), the "Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes" (DER, 2015), and the Project Environmental and Heritage Obligations Register. Key items that will be included as a minimum are: ▪ conceptual site model and risk assessment based on the end land use; ▪ management and disposal of spoil generated by the Works; ▪ groundwater monitoring and management;	Alliance Manager Environment & Sustainability Manager	ASSDWP Close-Out Report DSI Close-Out Report Project Environmental Close-Out Report

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables

- management and disposal of hazardous substances;
- remediation and Validation of contamination, either pre-existing or resulting from Works;
- Validation sampling (including from base of excavations prior to concrete pours); and
- contamination status of the Construction Site upon the Date of Practical Completion. The Construction Site must be delivered suitable for the intended end use.

The DSI close-out report will be prepared by a suitably experienced and qualified environmental professional with experience in the preparation of similar reports.

The Alliance will submit the DSI close-out report to the PTA's Representative within six months of the Date of Practical Completion. The PTA's Representative will provide the DSI close-out report to the CSA for review and endorsement. All CSA review comments will be incorporated into the final DSI close-out document by the Alliance. Any additional investigations or reports required by the CSA will be undertaken by the Alliance.

Project Environmental Close-Out Report

NEWest Alliance will prepare a Project Environmental Close-Out Report at the completion of the Works and prior to the completion of demobilisation which provides a detailed and collective summary of the information and data collected throughout the Project and through the monthly environmental reports.

The Project Environmental Close-Out Report will include an electronic copy of all environmental data obtained throughout the Works (e.g. electronic shapefiles in a format compatible with ArcGIS and AutoCAD (produced in PCG2020, but convertible to GDA2020), environmental monitoring data etc.).

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
12.4 Regular management reviews are conducted to determine the continuing suitability, adequacy and effectiveness of the Environmental Management System	**Management Reviews** The Project will conduct formal management reviews to assess the adequacy of the EMS as part of its annual management system reviews. The outputs of the review will be incorporated into the CEMP. The review will take into account the results of: ▪ audits undertaken; ▪ communication, participation and consultation; ▪ relevant communication including complaints from external stakeholders; ▪ the performance of the Project; ▪ the extent to which the objectives and targets have been met; ▪ the outcomes of incident investigations and any corrective actions; ▪ changes to legislation; and ▪ actions from previous management reviews and recommendations for improvement. The CEMP will be reviewed and periodically updated and amended to reflect changes in contractual or Project requirements, to correct disparities identified during Project auditing and to ensure it is consistent with the commitments outlined in the Environmental and Heritage Obligations Register.	Alliance Manager Alliance Leadership Team (ALT) Environment & Sustainability Manager	Management review report Actions in Synergy

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
12.5 Audits are undertaken to ensure compliance with the requirements of the CEMP	**Compliance with Environmental Management Plan** Regular audits and reviews will be conducted to confirm compliance with the CEMP and associated obligations. A schedule of audits, reviews and inspections will be developed and maintained, and will include the following audits as a minimum: ▪ regular (i.e. at least monthly) subcontractor environmental audit / inspection assessing conformance with the CEMP; ▪ an internal environmental systems audit within three months of commencement of the Works or Temporary Works; ▪ six monthly internal environmental compliance and sustainability management system audits; ▪ internal environmental compliance audits within one week of the commencement of environmentally significant construction activities (i.e. clearing, excavation and dewatering); ▪ annual third-party environmental compliance and sustainability management system audits commissioned by the PTA's Representative; ▪ a post-mobilisation audit within three months of the date agreed for the finalisation of Alliance mobilisation; ▪ two demobilisation audits; one three months prior to demobilisation completion and one on the planned last day of demobilisation by the Alliance (demobilisation pre-audits may be arranged between the PTA's Representative and the Alliance before and during demobilisation to assist the Alliance to meet its demobilisation date); and ▪ fortnightly environmental site inspections to be undertaken by the PTA's Representative. The Environment & Sustainability Manager will accompany the PTA's Representative during any PTA audit along with their subcontractors' environmental representative (if	Alliance Manager Environment & Sustainability Manager	Audit reports Corrective actions in Synergy

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
	applicable). The Alliance will allow a minimum of two days to assist the PTA in undertaking any of the audits outlined above and provide any required information within one week of it being requested by the PTA's Representative (unless otherwise agreed). All Alliance audit reports / inspections etc. will be made available to the PTA's Representative within two weeks of completing the audit / inspections. NEWest Alliance will provide the PTA's Representative with electronic access to the Alliance's environmental incident reporting and audit systems (including Synergy) upon request. Action plans will be developed to improve performance as required. Necessary corrective actions will be managed using Synergy. All audit / inspection actions will be tracked and closed out to the satisfaction of the PTA's Representative within the agreed timeframe		
12.6 Contaminated Sites Auditing if required by the MS1114 condition for Ranford Road	**Contaminated Sites Auditor (CSA)** NEWest Alliance notes that PTA has engaged a CSA in a voluntary capacity for auditing of investigations and activities at the City of Canning former landfill site at Ranford Road. NEWest Alliance will undertake all investigations and manage construction activities for the Ranford Road Station site in accordance with the Contaminated Sites Act 2003 (WA), DWER contaminated sites management guidelines and CSA requirements.	Alliance Manager Environment & Sustainability Manager Contaminated Sites Auditor	Audit reports Corrective actions in Synergy

Expectations	How we will meet the Expectations (minimum requirements)	Responsible Key Contributor	Deliverables
12.7 Audit non-conformance and corrective actions	**Non-Conformance and Corrective Actions** Sources of corrective actions may include hazard reports, incident investigations, audits, inspections, observations, monitoring and management reviews. Following an audit, non-conformances and corrective actions will be identified, assigned to the appropriate person/s and closed out according to set time frames. Synergy will be used to assign and track corrective actions. All corrective actions will include reference to the relevant audit record for ease of tracking. As a minimum, corrective actions will be systematically implemented and reviewed by the Alliance to ensure they adequately resolve the issue and minimise the risk of reoccurrence of the incident or hazard.	Alliance Manager Environment & Sustainability Manager	Corrective action records on Synergy
12.8 All audits are undertaken by suitably qualified and experienced personnel	**Auditor Competency** Persons conducting audits and reviews will be suitably experienced and qualified. There are two levels of internal auditor that can be obtained, namely Auditor and Lead Auditor. A mix of general education, specific auditor training and work experience are considered in determining the level of auditor. Auditors must be approved by the Environment & Sustainability Manager.	Environment & Sustainability Manager	Training records

[TK19]

Part C: Environmental Aspects and Impacts

The following sub plans apply to all project work activities and identifies environmental hazards, risks, and controls; environmental objectives; and monitoring requirements. Controls stipulated for the BP KWOL works are to be implemented in addition to all other controls detailed throughout the sub plans.

10. FLORA AND VEGETATION MANAGEMENT SUB PLAN

10.1 SCOPE

This plan addresses flora and vegetation management, and the management of impacts to the environment and/or community. The project will involve large scale clearing of native vegetation consisting of a wide variety of vegetation and floristic communities in a range of conditions. The table below summaries the total potential vegetation clearing associated with the project.

Table 7: Vegetation Clearing Details

Activity	Details
Clearing of native vegetation – MS1114/ Section 45C Attachment 5 May 2022 Variation	Within a 121.9 ha development envelope, clearing and disturbance of no more than 119.7 ha of vegetation consisting of up to 30.2 ha of native vegetation, which includes no more than: [TK21][TK22][TK23] ▪ Clearing of up to 3.0 ha of native vegetation within Bush Forever site 388 ▪ Clearing of up to 2.6 ha of Priority 3 PEC - Low lying *Banksia attenuata* woodlands or shrublands (Floristic Community Type 21c) ▪ Clearing 3.9 ha of *Caladenia Huegelii* Habitat ▪ Clearing 23.7 ha of Carnaby's Black Cockatoo Foraging Habitat ▪ 17.1 ha of Forest Red Tailed and Baudins Black Cockatoo Foraging Habitat ▪ 51 potential Black Cockatoo Breeding Trees ▪ 3.2 ha Conservation Category Wetlands (including UFI 13332, UFI 7446, UFI 14900, UFI 6911)
Clearing of native vegetation - EPBC 2018/8188 June 2022 Variation	▪ 23.7 ha Carnaby's Black Cockatoo Foraging Habitat ▪ 17.1 ha Forest Red Tailed and Baudins Black Cockatoo Foraging Habitat ▪ 51 Carnaby's Black Cockatoo and Forest Red Tailed Black Cockatoo Potential Black Cockatoo Breeding Trees ▪ 2.6 ha Banksia Woodlands TEC ▪ 3.9 ha *Caladenia Huegelii* Habitat
Clearing of native vegetation - Native Vegetation (NVCP) Clearing Permit CPS 9024/2	Authorisation to clear native vegetation for the purpose of relocating services to outside the project development envelope. ▪ Clearing no more than 1.56 hectares

Additionally, the project carries a significant threat through its related activities to impact on biosecurity matters present in the area inclusive of weeds and *Phytophthora* dieback

occurrence. The project intersects with a number of known dieback occurrence areas as well as areas with known infestations of a variety of weeds and introduced pest species.

Activities conducted on the project that has the potential to impact flora, vegetation and biosecurity matters are provided below. These have been extracted from the project risk assessments

Table 8: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Clearing and grubbing/ earthworks	Unauthorised clearing	Uncontrolled impacts to flora Uncontrolled impacts to wetlands and wetland vegetation
Vehicle and machinery movement	Damage to vegetation outside disturbance area Spreading of weeds & fungi	Uncontrolled impacts to flora
Importation of landscaping materials	Introduction and spreading of weeds & fungi	Uncontrolled impacts to flora

10.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 9: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Area of total native vegetation cleared under MS1114.	*No more than* 30.2 ha	At all times	Alliance Manager
Area of total native vegetation cleared under NVCP.	No more than 1.56 ha[TK24][TK25]	At all times	Alliance Manager
Clearing of habitat trees in Native Vegetation Retention Zone	Zero	At all times	Alliance Manager
Area of vegetation cleared outside of allowable PDE	Zero	At all times	Alliance Manager
Area of vegetation cleared without prior approval/permit	Zero	At all times	Alliance Manager
Number of actions taken by regulators	Zero	At all times	Alliance Manager

Metric/Measure	Objective	Timeframe	Accountability
Introduction of new weed species in PDE during and attributable to construction	Zero	At all times	Alliance Manager
Introduction/spread of weed species (declared or WONS) into surrounding native vegetation/wetlands or off site during and attributable to construction	Zero	At all times	Alliance Manager
Spread of dieback attributable to construction to areas of vegetation outside and within 50 metres of the PDE.	Zero	At all times	Alliance Manager
Fires directly caused by TCL construction works.	Zero	At all times	Alliance Manager
No evidence of vegetation decline from significant weeds, pests and plant pathogens as a result of the Proposal within 50m of the PDE	Zero	5 years post practical completion	Alliance Manager (years 1-2) PTA (years 3-5)

10.3 CONTROLS USED TO MANAGE FLORA AND VEGETATION

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 10: Flora & vegetation controls

Ref no.	Control	Accountability
10.3.1	*Flora and Vegetation*	
i	Disturbing, removing or clearing vegetation will require a NEWest Permit to Clear Land or Vegetation and, where relevant, landholder approvals. [TK26][TK27] The following should occur prior to disturbance: ▪ Consultation with NEWest Environmental team in relation to clearing requirements and the application process for clearing permits; ▪ Consultation with the PTA if any additional clearing areas are required;	Design Manager Construction Manager Environment & Sustainability Manager

Ref no.	Control	Accountability
	▪ Application to Modify an Occurrence of a Threatened Ecological Community where applicable. ▪ NEWest Permit to Clear Land and Vegetation approved by the Environmental & Sustainability Manager (or delegate) and the implementation of its pre and post-clearing conditions. ▪ Native Vegetation Retention Zones (NVRZ's) and Tree Protection Zones (TPZ's) to [TK28]be demarcated at Tom Bateman Reserve and Canning River Precincts and inspected daily during clearing activities.	Environmental Team Interface Manager
ii	Avoid, minimise and reduce the impacts and extent of clearing. Determine the amount of native vegetation to be cleared, set out in order of preference: (a) avoid the clearing of native vegetation; (b) minimise the amount of native vegetation to be cleared; and (c) reduce the impact of clearing on any environmental value.	Design Manager Construction Manager Environment & Sustainability Manager[TK29]
iii	All project personnel to complete a site induction that will include training with regards to land clearing procedures and permits, and the obligations to follow.	Construction Manager Environment & Sustainability Manager
iv	GPS co-ordinates of areas to be cleared are to be provided to the environmental team prior to clearing works approval which also identifies trees to be kept where applicable. Clearing area co-ordinates provided to the clearing contractor once authorised by the environmental team.	Construction Manager Environmental Team GIS[TK30] Coordinator Survey Manager
v	Daily inspection during clearing activities of the condition of boundary demarcation and the location of the vegetation cleared to ensure no clearing outside of the PDE.	Environmental Team Site Supervisor
vi	Boundaries of allowable disturbance areas on the project are surveyed and clearly marked and delineated using temporary fencing or survey pegs at a minimum.	Construction Manager Surveyor Environment & Sustainability Manager

Ref no.	Control	Accountability
vii	The use of PTA provided spatial data of areas approved to be cleared, to prevent unapproved clearing.	Environment & Sustainability Manager Environmental Team GIS Coordinator Surveyor
viii	Tracking and recording of spatial data detailing clearing works and regular review against clearing limits.	Environment & Sustainability Manager Environmental Team GIS Coordinator
ix	Demarcation of dieback infested or weed infested areas and separation of stockpiles identified for storage if dieback or weeds are present.	Environment & Sustainability Manager Construction Manager Environmental Team
x	Prior to clearing activities, the required fauna trapping and relocation programs and requirements as detailed in Section 12.3 are to be implemented.	Environment & Sustainability Manager Environmental Team Construction Manager
xi	No clearing permitted within a 10m radius of trees identified as active Black Cockatoo nesting trees.	Environmental Team Construction Manager
xii	Native Vegetation Retention Zones and Tree Protection zones must be demarcated at all times. Any damage to NVRZ demarcation or signage must be reported to your supervisor and Environment Team immediately. No vegetation disturbance to occur within NRVZ.	Construction Manager Supervisor
xiii	Areas of specific sensitivity are identified on the Site Environmental Plan. This information will be conveyed to the workforce through the work pack, toolbox talks and pre-start meetings.	Construction Manager Supervisor

Ref no.	Control	Accountability
xiv	All plant to remain on haul roads, constructed, disturbed/cleared areas to minimise damage to vegetation.	All Personnel
xv	Equipment storage and stockpiling of resources are to be restricted to designated areas in cleared land to avoid potential vegetation damage.	Construction Manager Supervisor
xvi	Cleared/removed vegetation will be beneficially used either on or off the project where possible (e.g. for habitat, chipped for mulch and reused).	Construction Manager Environment & Sustainability Manager
xvii	Where possible revegetation activities will preferentially use only species that are indigenous to the area.	Landscape Design Manager
xviii	Where possible topsoil and mulch sourced from "Very Good to Excellent"[TK31][TK32][TT33] vegetation condition (as defined by the Vegetation condition survey or by The Environmental Protection authority (2016)) areas will be stockpiled as "Priority Material" for future landscaping and revegetation areas. Declared weeds found in "Priority Material Areas" to be removed or buried.	Environment & Sustainability Manager Construction Manager Supervisor
xix	Topsoil and mulch from the following categories will be stockpiled and delineated: <u>Priority Material</u> ▪ Dieback uninfested <u>Low Quality Material</u> - (where possible this material will be removed from site and disposed at landfill or buried at least 1.5m below fill materials) ▪ Dieback infested disposed ▪ Dieback excluded and uninterpretable reused (Not to be used in uninfested areas)	Landscape Design Manager Environment & Sustainability Manager Construction Manager Supervisor
xx	A process of scheduled progressive rehabilitation will be determined and commenced as soon as possible after clearing and grading is completed on disturbed areas.	Landscape Design Manager Construction Manager Environment & Sustainability Manager
xxi	Dust suppression to avoid indirect impacts on surrounding native vegetation.	Construction Manager Environment & Sustainability Manager

Ref no.	Control	Accountability
xxii	All works resulting in permeant infrastructure must remain within the delineated Project Development Envelope.	Engineers Survey Environmental Team Supervisor
xxiii	Any proposed disturbance outside the Project Development Envelope must be escalated through Design Manager to the NEWest Environment & Sustainability Manager for approval by the Project Manager. [TK34].	Design Manager Project Manager Construction Manager Environment & Sustainability Manager
10.3.2	*Biosecurity Management*[TK35][TT36]	
i	Soil and mulch movement from infested or excluded areas into uninfested areas is to be prevented. Inspection / clean down points should be implemented where vehicles and machinery will be required to enter uninfested areas from infested, uninterpretable or excluded areas.	Environment & Sustainability Manager Construction Manager Supervisor
ii	Stockpiled soil and mulch material to remain in Dieback occurrence categories. Material sourced from “Infested” and “Excluded” and “Uninterpretable” areas to remain inside this boundary or where possible this material will be removed from site and disposed at landfill or buried at least 1.5m below fill materials.	Construction Manager Environment & Sustainability Manager
iii	All project personnel to complete a site induction that will include training with regards to weed and dieback hygiene and the environmental implications of the introduction and spread of dieback and the obligations to follow.	Construction Manager Environment & Sustainability Manager
iv	Conduct operations under dry soil conditions where possible and avoid soil movement from infested, excluded, or uninterpretable areas.	Construction Manager
v	Dieback and weed risk management adjacent PDE boundary required to protect offsite sensitive receptors, including Ken Hurst Park and Tom Bateman Reserve.	Environment & Sustainability Manager Construction Manager

Ref no.	Control	Accountability
vi	Demarcation of dieback infested or weed infested areas and separate stockpiles identified for storage if dieback or weeds are present.	Environment & Sustainability Manager Construction Manager
vii	Dieback infested material will not be utilised in landscape or revegetation works, where possible.	Environment & Sustainability Manager
viii	Maps and details of dieback assessments and clean down points to be communicated to all site personnel.	Environment & Sustainability Manager
ix	Vehicles and other equipment to be used in clearing and general construction equipment (such as excavators, graders etc.) are to be received completely free of soil, seeds and plant material before entering the site to prevent the introduction of exotic plant species and pathogens (including *Phytophthora cinnamomi*). A completed Plant and Equipment Clean Down Declaration must be provided.	Construction Manager Supervisor Environment & Sustainability Manager
x	Restrict the movement of machines and other vehicles to the limits of the area to be cleared. Inspect vehicles entering and exiting key areas of the PDE and implementation of clean down, as required.	Construction Manager
xi	Restrict unauthorised access to and from the PDE by installing temporary fencing or barriers and signage as required. Vehicles and machinery shall only use designated tracks / roads.	Construction Manager Supervisor
xii	Undertake regular weed spraying in areas of weed infestation along the edge of the PDE, within cleared areas and of topsoil stockpiles.	Construction Manager Environmental Team
xiii	Source clean fill, limestone, gravel and topsoil or other materials from suppliers with appropriate weed and dieback control measures.	Construction Manager
xiv	Inspect imported fill, limestone, gravel and topsoil or other materials for visible evidence of weeds.	Supervisor Environmental Team
xv	For fill, limestone, gravel and topsoil or other materials infested with weed or weed seed, either treat prior to use, reuse at least 1.5m under fill or dispose of appropriately offsite in accordance with regulatory requirements.	Construction Manager
xvi	Manage declared weeds and WONS within the PDE in accordance with the *Biosecurity and Agriculture Management Act 2007* and subsidiary regulations. Weeds include:	Environment & Sustainability Manager

Ref no.	Control	Accountability
	▪ Zantedeschia aethiopica (Arum Lilly) – Declared Pest ▪ Moraea flaccida (One-leaf CapeTulip) – Declared Pest ▪ Echium plantagineum (Paterson's Curse) – Declared Pest ▪ Rubus laudatus (Blackberry) – Declared Pest ▪ Lantana camara (Lantana) – Declared Pest and WONS ▪ Asparagus asparagoides (Bridal Creeper) – Declared Pest and WONS.	
xvii	Dieback management practices to be consistent with DBCA Corporate Policy Statement No. 3 Management of Phytophthora Disease (Department of Parks and Wildlife, 2015) and Management Guidelines – Phytophthora cinnamomi and Disease Caused by It (Department of Conservation and Land Management, 2003).	Environment & Sustainability Manager
xviii	Install a temporary fence or appropriate buffer to infested or uninterpretable areas to prevent contamination spread.	Construction Manager
xix	Maintain records of actions taken to minimise the introduction and spread of weeds and dieback.	Environment & Sustainability Manager
xx	Ensure any materials to be used in uninfested areas of the PDE are certified dieback free (if area is deemed protectable and source is certifiable).	Construction Manager Environment Team
10.3.3	*Fire Management*	
i	Undertake fire prevention and management measures during construction including: ▪ Designated smoking areas; ▪ No fires in the work place; ▪ Working fire extinguishers to be fitted to all mobile plant equipment; ▪ All fuel stored on site to be in a secure bund with fuel storage to be minimised where possible; ▪ Refuelling of equipment and machinery to be completed in the early morning where possible; ▪ Machinery (chainsaws etc.) not to be placed on the ground where long grass exists following use; and ▪ Approved Hot works permit ▪ The area immediately surrounding 'hot work' (e.g. welding) to be dampened with water if vegetated and vegetation is not already naturally damp	Construction Manager
10.3.4	*BP Kewdale White Oil Pipeline Relocation*	
i	Trees to be retained or protected as required by LGA or other Stakeholder approvals.	Supervisor Environmental Team

Ref no.	Control	Accountability
ii	Clearing and grading shall be minimised to only the extent necessary for construction of the pipeline and shall in any event not exceed the width of the Right of Way, except where additional working areas are defined and agreed by the PTA after all approvals have been obtained.	Construction Manager Environment & Sustainability Manager PTA
iii	Clearing of the Right of Way shall include the removal to ground level as required of trees, brush, stumps and other obstacles and the grubbing, or removal otherwise, of stumps in the way of the trench line and across the full Right of Way as directed by the PTA.	Construction Manager Environment & Sustainability Manager PTA
iv	Cleared materials shall be stockpiled and preserved for use during restoration, final clean-up and brush spreading in the area from which they were cleared. Stacks of cleared vegetation shall not exceed 5m in width or 1.5m in height with breaks at least every 50m.	Construction Manager Environment & Sustainability Manager Supervisor
v	Safeguards shall be put in place to ensure that there is no damage to growing trees, shrubs and vegetation outside the designated areas. Selected trees to be left standing in areas designated for clearing. These trees will be clearly marked by the Environmental Team prior to commencement of clearing work. Priority species shall be transplanted as directed by the PTA.	Construction Manager Environment & Sustainability Manager PTA Environmental Team
vi	Timber, brush and other flammable debris shall be dispersed by spreading over the Right of Way prior to completion of rehabilitation.	Construction Manager Environment Team
vii	Timber, brush and debris shall not be burned, or removed from the area of origin unless directed otherwise by the PTA.	Construction Manager Environmental Team PTA
viii	Grading of the Right of Way shall be kept to a minimum in order to preserve as much of the rootstock as possible.	Construction Manager Supervisor

Ref no.	Control	Accountability
	[TT37]	
xi	Tree trunks and large limbs are to be laid on the Right of Way so that they lie in a random fashion across the natural slope of the ground. Continuous straight lines shall be avoided.	Construction Manager Environment Team Supervisor
xii	Tree trunks, limbs and stumps shall not be placed in watercourses or gullies. A 3m wide area free of debris shall be left on the non-working side of the Right of Way for future vehicle access.	Construction Manager Environment Team Supervisor
xiii	Borrow areas and associated haul roads shall be prepared and subsequently restored in accordance with the CEMP, Statutory Requirements and approval by the PTA.	Construction Manager Environment Team Supervisor Landscape Architect PTA
xiv	Seed shall be in accordance with Worley Parsons Doc No. 170023-P-PL-LI-007 "Installation Methodology List" (as further amended by the Alliance) and the CEMP.	Construction Manager Environment Team Supervisor Landscape Architect
xv	Soil/seed bags shall be installed as a restoration and/or erosion control measure or for such other purpose as the PTA deems appropriate. Soil/seed bags shall consist of first quality new hessian bags containing not less than 0.015m³ topsoil sourced from outside the Right of Way thoroughly mixed with seed at a minimum ratio of 5% by volume.	Construction Manager Environment Team Supervisor Landscape Architect

10.4 MONITORING

Flora & vegetation monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur. The proposed flora and vegetation monitoring and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred the PTA escalation process will be followed, including an incident report and corrective actions are raised in Synergy.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environmental and Sustainability Manager to ensure all monitoring is performed according to these requirements.

10.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental, August 2019)*
- Thornlie-Cockburn Link, Ministerial Statement No.1114 (Environmental Protection Authority 23 September 2019)
- Thornlie-Cockburn Link, Attachment 3 to Ministerial Statement No.1114 (Environmental Protection Authority 9 October 2020)
- Thornlie-Cockburn Link EPBC 2018/8188 (Department of the Environment and Energy 20 January 2020)
- Thornlie-Cockburn Link EPBC 2018/8188 Section 143 (Department of the Environment and Energy 21 November 2020)
- Phytophthora Dieback occurrence assessment – Glevan Consulting, Version 2.0, December 2019
- Thornlie-Cockburn Link Additional Areas Phytophthora Dieback occurrence assessment – Glevan Consulting, Version 1.2, October 2020
- E O'Gara, K Howard, B Wilson and GEStJ Hardy (2005) Management of Phytophthora cinnamomi for Biodiversity Conservation in Australia: Part 2 – National Best Practice Guidelines. A report funded by the Commonwealth Government Department of the Environment and Heritage by the Centre for Phytophthora Science and Management, Murdoch University, Western Australia.

11. FAUNA MANAGEMENT SUB PLAN

11.1 SCOPE

This Plan addresses Fauna management on the project and the management of impacts to the environment and/or community.

The project will involve large scale clearing of native vegetation that provides fauna habitat.

The table below summarises the potential fauna habitat that has the potential to be impacted as part of the project.

Table 11: Fauna Habitat Details

Activity	Details
Clearing of Fauna habitat as	▪ [TK39]30.2 ha of native vegetation, which includes no more than: [TK40][TK41]

Activity	Details
under – MS1114/ Section 45C Attachment 5 May 2022 Variation	▪ Clearing of up to 3.57 ha of native vegetation within Bush Forever site 388 ▪ Clearing of up to 3.3 ha of Priority 3 PEC - Low lying *Banksia attenuata* woodlands or shrublands (Floristic Community Type 21c) ▪ Clearing 23.7 ha of Carnaby's Black Cockatoo Foraging Habitat ▪ 17.1 ha of Forest Red Tailed and Baudins Black Cockatoo Foraging Habitat ▪ 51 potential Black Cockatoo Breeding Trees ▪ 3.13 ha Conservation Category Wetlands (including UFI 13332, UFI 7446, UFI 14900, UFI 6911)

Activities conducted on the project that has the potential to impact fauna are provided below. These have been extracted from project risk assessments.

Table 12: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Clearing and grubbing	Unauthorised clearing	Uncontrolled impacts to fauna
Vehicle and machinery movement	Vehicles traversing of designated access tracks	Uncontrolled impacts to fauna

11.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 13: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Number of native fauna injured	Zero	At all times	Alliance Manager
Number of avoidable deaths of fauna during vegetation clearing.	Zero	At all times	Alliance Manager
Number of actions taken by regulators	Zero	At all times	Alliance Manager
Disturbance of active Black Cockatoo nests (if found)	Zero	At all times	Alliance Manager

11.3 CONTROLS USED TO MANAGE FAUNA

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and

the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 14: Fauna controls

Ref no.	Control	Accountability
11.3.1	*Terrestrial Fauna*	
i	Site induction to address fauna values within and adjacent to the PDE.	Environment & Sustainability Manager Construction Manager
ii	Disturbing, removing wildlife will require a permit; State requirements will be checked and observed.	Environment & Sustainability Manager
iii	No feeding, harassing or capturing of animals to occur.	All Personnel
iv	Report any injured or accidental harm to animals to your supervisor and Environment Team immediately.	All Personnel
v	If a threat to an animal is evident onsite the Environment Team or site supervisor must be contacted immediately. Works may need to cease if the animal is in danger or harmed until it has been relocated.	All Personnel
vi	If endangered species of fauna are encountered, a management strategy for their relocation will be implemented and the area cordoned off to protect them. All wildlife will be managed via a licensed wildlife handler.	Environment & Sustainability Manager
vii	The following Wildlife Care Groups can assist with sick or orphaned animals as well as the rehabilitation of native animals: ▪ Wildcare Helpline (Servicing the whole of WA) - (08) 9474 9055 ▪ WA Wildlife (a.k.a. Native Arc) (Bibra Lake) - (08) 9417 7105 ▪ Om Shani Marsupial Hospital (Wellard) - (08) 9524 1127	Ecologist / Licensed Wildlife Handler Environment Team
viii	Vegetation clearing works will be managed as per Section 12.3.	Environment & Sustainability Manager
ix	Fauna spotters to be present during clearing of native vegetation to supervise dispersal/relocation of any fauna, and identification of any potential injured fauna. Any injured fauna to be taken to a wildlife carer for treatment.	Construction Manager Environment & Sustainability Manager

Ref no.	Control	Accountability
x	Fauna trapping and relocation shall be conducted in accordance with DBCA's Standard Operating Procedures (SOPs) or permit conditions.	Environment & Sustainability Manager Ecologist / Licensed Wildlife Handler
xi	Contact DBCA prior to the trapping and relocation program to assist with the identifying suitable relocation sites.	Environment & Sustainability Manager
xii	Regular inspection of fencing and open trenches to occur.	Construction Team Environment Team
xiii	During trenching activities inspection for, and clearing of, fauna from open trenches by appropriately qualified and licensed fauna rescue personnel occurs at least twice daily and not more than one hour prior to backfilling of trenches, with the first daily inspection and clearing to be undertaken directly after prestart. , and the second inspection and clearing to be undertaken during the afternoon shift.	Environment & Sustainability Manager
xiv	Ensure that open trench lengths do not exceed a length capable of being inspected and cleared by appropriately qualified and licensed fauna rescue personnel within 3hrs.	Construction Manager Environment Team
xv	Provide egress points, ramps and/or fauna refuges that provide suitable shelter from the sun and predators for trapped fauna in open trenches at intervals not exceeding 50 metres.	Construction Manager Environment Team
xvi	Where practical, following clearing activities, fences should be installed between cleared areas and adjacent native vegetation to limit opportunities for fauna to return to the cleared area.	Construction Manager
xvii	The 40km speed limits must be obeyed at all times, especially areas where vehicle/fauna interactions are identified as high risk.	All Personnel
xviii	Boundaries of allowable disturbance areas on the project are clearly marked and delineated.	Environment & Sustainability Manager Construction Manager Surveyor Project Engineer

Ref no.	Control	Accountability
xix	Undertake progressive clearing to allow fauna to move away from clearing activities. Where possible, undertake vegetation clearing commencing from a disturbed edge to encourage remaining mobile fauna to naturally relocate to areas of adjacent vegetation.	Construction Manager Environment & Sustainability Manager
xx	Replacement of fencing along TCL corridor to exclude fauna from the Rail Reserve to minimise train strike.	Construction Manager Environment & Sustainability Manager
xxi	An appropriately qualified person to inspect potential Black Cockatoo breeding trees no more than seven days prior to vegetation clearing during the Black Cockatoo breeding season (July to December). If breeding activity is identified; ▪ Demarcate trees with active nests (eggs, chicks or fledglings) and apply a 10 m buffer around the tree using temporary fencing	Environment & Sustainability Manager Ecologist / Licensed Wildlife Handler
xxii	No clearing within 10 m of active nests until DBCA advises it is suitable to continue.	Construction Manager Environment & Sustainability Manager
xxiii	If Black Cockatoos are present feeding on site, work in the immediate vicinity shall cease until they have flown away, and a qualified terrestrial fauna spotter has verified that the hollow(s) are no longer being used by the black cockatoos.	Construction Manager Environment & Sustainability Manager
xxiv	No pets to be brought onto the site.	All personnel
xxv	Food waste to be disposed of in closed lid bins to prevent attracting fauna and pests to the construction site.	All personnel
xxvi	Site facilities shall be managed to prevent the increase in introduced pest species to the site.	Construction Manager Environment & Sustainability Manager
xxvii	Install fences between cleared areas and adjacent native vegetation to limit opportunities for fauna to return to the cleared area. Where practicable, install fences at time of trapping or within 7 days of clearing activities.	Construction Manager Environment & Sustainability Manager

11.4 MONITORING

Fauna monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur. The proposed fauna monitoring and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in PTA escalation process.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environmental and Sustainability Manager to ensure all monitoring is performed according to these requirements.

11.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan (Aurora Environmental August 2019)
- Thornlie-Cockburn Link, Ministerial Statement No.1114 (Environmental Protection Authority 23 September 2019)
- Thornlie-Cockburn Link, Attachment 3 to Ministerial Statement No.1114 (Environmental Protection Authority 9 October 2020)
- Thornlie-Cockburn Link EPBC 2018/8188 (Department of the Environment and Energy 20 January 2020) tal
- Thornlie-Cockburn Link EPBC 2018/8188 Section 143 (Department of the Environment and Energy 21 November 2020)

12. SOIL AND WATER MANAGEMENT SUB PLAN

12.1 SCOPE

This Plan addresses water use and discharge, soil handling, erosion and sediment control and the management of their respective impacts to soil and water quality and/or quantity that may be caused by Project activities.

Due to the scale of the Project, interactions with a number of terrestrial environmental qualities are expected. Surface and ground water areas, wetlands and existing landforms are all located within or adjacent to the PDE. Interactions between project activities and these areas have the potential to directly and indirectly impact the quality and quantity of soil and water of these areas and surrounding environments.

Activities conducted on the project that has the potential to impact soil and water quality and/or quantity is provided below. These have been extracted from project risk assessments.

Table 15: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Clearing and grubbing	Increased sediment load in run-off waters	Impacts to aquatic fauna and flora

	Stockpiling of vegetation and soil Direct and indirect impacts on wetlands and wetland vegetation	Alteration to hydrological regimes of groundwater and wetlands. Obstruction/alteration of surface water flows and water quality Changes to soil quality through loss of soil organic matter Contamination of underlying soils from stockpiling activities or stockpiled waste materials
Excavation	Damage to watercourse/waterway Stockpiling of vegetation and soil Direct and indirect impacts on wetlands and wetland vegetation Exposure of potentially contaminated material	Impacts to aquatic fauna and flora Obstruction/alteration of surface water flows and water quality Oxidisation of Acid Sulfate Soils Contamination of underlying soils from stockpiling activities or stockpiled waste materials Changes to soil quality through loss of soil organic matter Impacts to receptors through contact with potentially contaminated material, leachate generation and contaminant migration.
Operation of plant and equipment and chemical storage	Spills	Contamination (soil and water) resulting from spills or leakage from during the construction works.
Dust suppression	Use of water	Unnecessary load on water resources contributing to water quality, and resource availability Poor water quality negatively impacting native vegetation
Groundwater Extraction	Use of water Potential contaminated groundwater (superficial aquifer)	Drawdown of groundwater which may affect Conservation Category Wetlands, groundwater dependent vegetation communities private and public groundwater users. Impacts to receptors through contact with potentially contaminated groundwater, overland flows/runoff and contaminant migration.
Discharging of water	Increased sediment load in run-off waters	Negative impacts to receiving environment

	Potential contaminated groundwater (superficial aquifer) or wastewater	Impacts to receptors through contact with potentially contaminated groundwater, overland flows/runoff and contaminant migration.
Dewatering excavations	Discharge of contaminated groundwater and surface water Potential contaminated groundwater (superficial aquifer) or wastewater	Impacts to receptors through contact with potentially contaminated groundwater, overland flows/runoff and contaminant migration Oxidisation of Acid Sulfate Soils
Site Rehabilitation, demolition and remediation	Erosion and runoff	Water quality negatively impacted Contaminant migration

12.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 16: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Number of non-compliant monitoring results at authorised discharge points and external compliance points [TK42]	Zero	At all times	Alliance Manager
Number of enforcement notices / penalties issued by regulators and/or client	Zero	At all times	Alliance Manager
Stockpiling of material outside of designated area	Zero	At all times	Alliance Manager
Water use monitored	100% of water use activities metered	At all times	Alliance Manager
Unauthorised offsite discharges	Zero	At all times	Alliance Manager
Breaches of licence conditions under RIWI Act	Zero	At all times	Alliance Manager

12.3 CONTROLS USED TO MANAGE SOIL AND WATER IMPACTS

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 17: Soil and Water management controls

Ref no.	Control	Accountability
12.3.1	*Water Management*	
i	Footings, pylons and rail bridge piers for the new passenger rail bridge over the Canning River shall be located outside the river waterway channel as per the existing passenger rail bridge.	Alliance General Manager Design Manager
ii	Implement restrictions on activities within the floodway to meet the DWER and DBCA requirements and ensure no obstruction to major flows of the Canning River during flood events.	Construction Manager Environment and Sustainability Manager
iii	A Permit under Regulation 29 of the Swan and Canning Rivers Management Regulations 2007 will be obtained prior to the commencement of site activities in the Development Control Area.	Environment and Sustainability Manager
iv	Unless otherwise approved by PTA, the construction laydown area and site offices are to be located outside of the area impacted by the 100-year flood level.	Construction Manager
v	Stormwater and surface water management measures and controls will be implemented during construction to ensure that no unauthorised offsite discharges occur. These measures will incorporate best practice water management practices, such as: ▪ Diversion of storm water around laydown or chemical / hazardous material storage areas. ▪ Facilitation of infiltration at-source. ▪ Prevention of erosion using sediment trapping devices and structures to slow water velocity. ▪ Management of offsite sedimentation from runoff. ▪ Implement drainage controls to prevent offsite discharge of runoff.	Construction Manager Supervisor Environment and Sustainability Manager
vi	Diversions for upstream run-off outside the works area must be installed prior to the commencement of work.	Construction Manager

Ref no.	Control	Accountability
		Supervisor
vii	Cleared areas must be kept to a minimum and be progressively rehabilitated/revegetated as they become available.	Construction Manager Environment & Sustainability Manager
viii	All materials must be stockpiled away from water flow paths. Leachate systems to be set up as required.	Construction Manager Supervisor Environment Team
ix	Sediment laden water (dirty water) captured onsite must be preferentially reused pending water quality assessment e.g. dust control.	Construction Manager Supervisor Environment Team
x	Unauthorised discharges [TK43](including but not limited to construction/commissioning test water and groundwater dewatering) must not occur. Water actively discharged is in strict accordance with the site's dewatering procedure and permits which must be approved by the Environment and Sustainability Manager.	Construction Manager Supervisor Environment & Sustainability Manager
xi	An adequate number of concrete washout facilities must be maintained at all times. The washout facilities will be isolated from surface water flows using plastic lined bunds to prevent contamination of surface and ground waters. The wash out areas will be contained within the construction site (hardstand or equivalent[TK44][TK45][TT46]).	Construction Manager Environment & Sustainability Manager
xii	All non-mobile bulk refuelling points will be as a minimum on compacted limestone, with drainage controls and spill containment, designated spill trays and spill kits. Refuelling/lube trucks, will carry hydrocarbon spill kits and utilise spill trays during refuelling.	Construction Manager Supervisor Environment Team
xiii	A water budget appropriate to the type and scale of the project will be maintained by monthly flow meter readings.	Environment and Sustainability Manager
xiv	Opportunities to minimise the use of high-quality water will be continually sought and adopted as appropriate.	Environment and Sustainability Manager

Ref no.	Control	Accountability
xv	Groundwater abstraction will be regulated under the *Rights in Water and Irrigation Act 1914* and comply with the Groundwater Abstraction Environmental Management Plan (W81032-TCL-NEW-EN-PLN-0009 Rev1) and Thornlie-Cockburn Link Condition Environmental Management Plan - Nicholson Station Abstraction Bore (7301-702-001, Rev 2).	Environment and Sustainability Manager
xvi	Dewatering must comply with DWER's Dewatering Management Plan requirements and EPA's Environmental Management Plan conditions.	Environment and Sustainability Manager
xvii	All groundwater abstraction and/or groundwater dewatering activities require a Dewatering Management Plan (that complies with the EPA's Environmental Management Plan requirements) with the objective of minimising impacts to the hydrological regimes that support the following environmental values: ▪ Threatened Ecological Community Claypans of the Swan Coastal Plain identified by UFI 13365 (Brixton Street Wetlands). ▪ Priority 3(i) Ecological Community Low lying Banksia attenuata woodlands or shrublands ('floristic community type 21c') outside the PDE. ▪ Conservation Category and Resource Enhancement Wetlands (UFI 6912, UFI 6910, UFI 7446, UFI 14900, UFI 15925, UFI 6776, UFI 13332, UFI 7499, UFI 7447 and UFI 15926) outside the PDE. Where relevant, prepare and submit the plan(s) in a staged approach for each station and areas subject to dewatering and groundwater abstraction.	Construction Manager Environment and Sustainability Manager
xviii	Groundwater is tested, classified and managed in accordance with the Groundwater Abstraction Environmental Management Plan (W81032-TCL-NEW-EN-PLN-0009 Rev1) and the applicable Dewatering Management Plans.	Construction Manager Environment and Sustainability Manager
xix	Where hydrogeological assessment or monitoring suggests a risk of drawing contaminated water into the PDE, management measures will be incorporated to minimise the dewatering cone of depression to avoid drawing down contaminated groundwater from these sites and avoid the requirement to manage potentially contaminated dewatering effluent.	Construction Manager Environment and Sustainability Manager Environment Team
xx	Dewatering management measures and remedial actions will be implemented as per the applicable ASS and Dewatering Management Plans.	Environment and Sustainability Manager

Ref no.	Control	Accountability
		Environment Team
xxi	Prevent dewatering for basin construction in UWPCA and WHPZs through appropriate design.	Design Manager Environment Team
xxii	Avoid groundwater abstraction in the Jandakot UWPCA or within the WHPZ.	Construction Manager
xxiii	No construction of laydown areas or stockpiles within the wellhead protection zones in the Jandakot Underground Water Pollution Control Area. Refuelling and fuel or chemical storage are prohibited within the RAZ, wellhead protection zones and Priority 1 drinking water source protection area in the Jandakot UWPCA.[TK47][TK48][TK49]	Construction Manager
xxiv	On-site wastewater treatment systems should be located outside of the wellhead protection zone.	Construction Manager
xxv	No storage of landscaping materials including organic matter rich soils and mulches in the Priority 1 source protection area of the Jandakot UWPCA and within fifty (50) metres of wetlands or the Canning River[TK50].	Construction Manager Environment Team
xxvi	Dewatered effluent shall not be discharged directly to wetlands or the Canning River.	Construction Manager
xxvii	No infiltration/drainage basins, including bio-retention basins within 100 metres of drinking water production wells within the Jandakot UWPCA and direct overflow away from wellhead protection zones.	Design Manager Construction Manager
xxviii	All basins, including bio-retention basins must direct overflow away from wetlands and the Canning River.	Design Manager Construction Manager
xxix	Water Corporation and DWER shall be consulted with during construction of the realignment of the railway in the UWPCA and wellhead protection zone for Production Bore J400 with subsequent implementation of agreed approach (based on hydrological study, if required).	Interface Manager Environment and Sustainability Manager
xxx	Groundwater monitoring will be undertaken in accordance with the following regulatory guidelines and standards: ▪ National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013), Schedule B2: Guideline on Data Collection, Sample Design and Reporting. ▪ Australian Standard AS 5667.11:1998 Water Quality-Sampling – Guidance on Sampling of Groundwater	Environment and Sustainability Manager Environment Team
12.3.2	*Soil Management*	

Ref no.	Control	Accountability
i	Erosion and sediment controls must be designed, developed, implemented and maintained in consultation with the project environmental representative.	Construction Manager Environment Team
ii	Where erosion and sediment risks exist, controls must be installed prior to or immediately upon any disturbance to vegetation or soil. These controls must remain in place until revegetation, stabilisation or hard scaping has occurred.	Construction Manager Supervisor
iii	All vehicles entering and exiting site will do so through designated approved access points to prevent mud tracking onto roads and prevent sediment from leaving the site.	Construction Manager Supervisor
iv	Controls to reduce and remove sediment tracking shall be implemented, such as rumble grids or street sweepers.	Construction Manager
v	Following vegetation clearing, topsoil will be salvaged from weed free and dieback free areas. Topsoil will be stripped to a suitable depth to prevent dilution of the topsoil seed bank. Generally between 50mm and 150mm depending on the specific area conditions.	Construction Manager Supervisor Environment Team
vi	Salvaged topsoil will be directly transferred to an identified receiving site if there are such sites available at time of stripping. If direct transfer is not possible, topsoil will be stockpiled in a dieback free area to a height of 1.5m where practical or as recommended by the Environmental team. Signage to identify the stockpile condition must be placed.	Construction Manager Supervisor Environment Team[TK51]
viii	Reused topsoil must be sourced from locations consistent with dieback and weed conditions in the area it will be placed.	Construction Manager Landscape Architect[TK52][TK53]
ix	Prior to topsoil spreading in areas intended for revegetation, the site will be prepared to ease compaction.	Construction Manager Supervisor
x	Topsoil for use in revegetation works will be spread to a maximum depth of 100mm, with a desired depth of 20mm to 50mm where achievable. Topsoil and mulch mixing rates to be advised by Landscape Architect and approved by PTA.	Construction Manager Landscape Architect
xi	Soil stabilisers may be applied to revegetation areas following spreading of topsoil and planting to improve revegetation success.	Construction Manager
xii	Where possible, revegetate basins with appropriate plant species to improve water quality through biofiltration.	Landscape Architect
12.3.3	*BP Kewdale White Oil Pipeline Relocation*	

Ref no.	Control	Accountability
i	Topsoil conservation shall be carried out in all areas where excavation or levelling is necessary, including the trench line, graded sections of Right of Way (RoW), [TK54]borrow pits and temporary stockpiles.	Construction Manager Supervisor
ii	Topsoil lost due to erosion or contamination shall be replaced with topsoil, which is environmentally compatible with the area and approved by the PTA.	Construction Manager Environment Team
iii	All water in the bottom of the trench shall be removed prior to lowering the pipeline into the trench. Water disposal shall comply with the Dewatering Management Plan (DMP) and disease (dieback) control requirements of the CEMP.	Construction Manager Supervisor
iv	Banks of watercourses shall be restored in a manner that will resist erosion while settlement of the fill occurs. The methods to be used for bank restoration shall be subject to the approval of the PTA.	Design Manager Environment and Sustainability Manager
v	The banks of all watercourses, soil stockpile areas and all areas where topsoil has been stripped and re-spread shall be uniformly seeded and fertilised.	Construction Manager Landscape Architect
vi	Seed shall be in accordance with Worley Parsons Doc No. 170023-P-PL-LI-007 "Installation Methodology List" (as further amended by the Alliance) and the CEMP.	Landscape Architect
viii	Surplus rock produced during screening or other operations shall be dispersed uniformly across the RoW [TK55][TK56]during clean-up and restoration. The method of dispersal shall be compatible with the environment and shall not cause an obstruction to normal land use.	Construction Manager Supervisor
ix	The method of water disposal shall be subject to the approval of the landowner and the applicable LGA and/or Government Agency.	Construction Manager Environment and Sustainability Manager
x	Water shall not be allowed to flow into wetlands, running streams, rivers or bores which are used for domestic water supplies, nor shall it be allowed to score drainage channels in the terrain.	Construction Manager Environment Team

12.4 MONITORING

The quantity of water used from potable supplies or water obtained under an extraction licence or other regulatory authority or agreement, including recycled water obtained from outside the

Project, will be captured and reported in financial operations software (JD Edwards). Where the information is not available from an invoice, other processes will be put in place to obtain the data and the information entered manually into spreadsheets, (e.g. groundwater water abstraction bores will need a flow meter and will require monthly readings

Water quality monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur. The proposed soil and water monitoring and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in PTA escalation process.

Monitoring and analysis of data will be carried out by personnel with previous experience in monitoring these aspects. Evidence of competence must be retained.

It is the accountability of the Environment and Sustainability Manager to ensure all monitoring is performed according to these requirements.

12.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
  METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*
- Thornlie-Cockburn Link, Ministerial Statement No.1114 (Environmental Protection Authority 23 September 2019)
- Thornlie-Cockburn Link, Attachment 3 to Ministerial Statement No.1114 (Environmental Protection Authority 9 October 2020)
- Thornlie-Cockburn Link EPBC 2018/8188 (Department of the Environment and Energy 20 January 2020)
- Thornlie-Cockburn Link EPBC 2018/8188 Section 143 (Department of the Environment and Energy 21 November 2020)
- Groundwater Abstraction Environmental Management Plan Thornlie – Cockburn Link (*NEWest Nov 2020)*
- Thornlie-Cockburn Link Condition Environmental Management Plan - Nicholson Station Abstraction Bore 7301-702-001 Rev 2 (Public Transport Authority of Western Australia August 2020)

13. CONTAMINATED LAND SUB PLAN

13.1 SCOPE

This Plan addresses Contaminated Land management on the Project and the management of impacts to the environment and/or community. Health and safety risks will be addressed in the NEWest Safety Management Plan.

Due to the large-scale earthworks required for this project, there is a significant risk to encounter contaminated land and to cause contamination from project activities. Activities conducted on the project that have the potential to encounter contaminated land and create soil contamination are listed below.

The Ranford Road Site is classified as '*possibly contaminated – investigation required*' under the *Contaminated Sites Act 2003*. In accordance with MS 1114 construction works will be managed under two site management plans; Thornlie-Cockburn Link: Site Management Plan

Ranford Road Bridge Modifications (GHD March 2020), and Thornlie-Cockburn Link: Site Management Plan Ranford Road Station Development (GHD September 2020) These plans include:

(a) details of the management of contamination during construction
(b) details of remediation works and the proposed approach to validation of remediation
(c) requirements that the plans are endorsed by an accredited contaminated sites auditor and accompanied by a mandatory auditor's report

Table 18: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Civil Works (excavation)	Exposing of contaminated land Stockpiling contaminated spoil	Spread of contamination and exposure to contaminated material Contamination of soil and/or groundwater
Clearing & Grubbing	Exposing of contaminated land, asbestos and waste materials Stockpiling contaminated spoil	Spread of contamination and exposure to contaminated material Contamination of soil and/or groundwater
Demolition of redundant facilities;	Asbestos, lead paint and hydrocarbons	Spread of contamination and exposure to contaminated material

13.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 19: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
At risk soil types to be separately stockpiled and sign posted for inspection and verification of contamination	All types	At all times	Alliance Manager
Minimise contamination / degradation to the soil environment within the project area	All contaminated soil is managed and disposed in accordance with the *Contaminated Sites Act 2003* and regulatory guidance documents.	At all times	Alliance Manager

Metric/Measure	Objective	Timeframe	Accountability
Breaches of the *Contaminated Sites Act 2003*	Zero	At all times	Alliance Manager
All contaminated soils with contamination levels in excess of the relevant environmental/ health investigation level criteria will be treated and/or disposed of at a licensed facility.	All	At all times	Alliance Manager
Ensure all spills are reported and cleaned up immediately	Zero unreported spills	At all times	Alliance Manager
Exposure to ground gas at Ranford Road	No unacceptable risk to relevant receptors (i.e. public or onsite personnel) from hazardous atmospheres within the subsurface.	At all times	Alliance Manager

13.3 CONTROLS USED TO MANAGE CONTAMINATION

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 20: Controls used to manage Contamination

Ref no.	Control	Accountability
13.3.1	*Contamination Management*	
i	Remove illegally dumped material in the PDE prior to the commencement of vegetation clearing or topsoil stripping activities. Secure site to ensure no further illegal dumping/fly tipping.	Construction Manager Supervisor
ii	Implement the management and monitoring conditions of the Site Management Plan/s (SMP)s for works impacting the Ranford Road landfill site.	Environment & Sustainability Manager Construction Manager

Ref no.	Control	Accountability
iii	Whenever unknown contaminated materials are discovered or suspected, works must cease and the supervisor and Environment Team notified immediately. Testing by a trained and competent person must be conducted and a management strategy developed.	Supervisor Environment Team Soil Testing Consultant
iv	Contaminated material will need to be handled, stockpiled, reused and/or disposed of as per the Contaminated Sites Act 2003.	Environment & Sustainability Manager
v	Ensure all relevant employees and contractors dealing with contaminated material are trained for safe handling procedures, incident response and good environmental practice.	Construction Manager
vi	All vehicles, plant and other machinery operating in contact with contaminated soil must be decontaminated prior to leaving site, or moving between contaminated to non-contaminated areas.	Construction Manager Supervisor
vii	Temporary water management works will be put in place to capture contaminated runoff from stockpiles and disturbed contaminated areas. Water and sediment will be monitored for quality and managed in accordance with regulatory requirements.	Environment Team Construction Manager Supervisor
viii	Water runoff from disturbed contaminated land and stockpiles must be contained, treated or disposed to ensure there is no contamination of ground or water resources.	Environment Team Construction Manager Supervisor
ix	Management controls to prevent contamination from hazardous substances used for construction works are detailed in Section 16.3.	All Personnel
x	Unexpected finds protocol, to be implemented if contaminated material/sites are identified, including consultation with DWER, local government and DBCA (if within Swan River Trust Development Control Area) and the parties responsible for contamination (if identified).	Construction Manager Supervisor Environment Team
xi	Where hydrogeological assessment or monitoring suggests a risk of drawing contaminated water into the PDE, site works will review the available technical reports (including any pre-existing SMPs) for those sites and consider how the construction may be affected by existing sources of contamination. Where appropriate management measures to minimise the dewatering cone of depression to avoid drawing down contaminated groundwater from these sites (and avoid the requirement to manage potentially contaminated dewatering effluent).	Environment & Sustainability Manager

Ref no.	Control	Accountability
xii	All groundwater extraction/dewatering shall be managed as detailed in Section 13 and in accordance with the DMP.	Construction Manager
xiii	Reuse options shall be investigated for contaminated rail ballast material, following testing and determination of levels of contamination.	Environment & Sustainability Manager
xiv	Ensure that the proposal does not pose a risk to either human health or environmental values during construction, remediation works if required.	Environment & Sustainability Manager
xv	Any liquids including rainwater captured within a tank containment compound should be professionally tested for the presence of petroleum hydrocarbons. If no petroleum hydrocarbons (or other toxic materials) are present, then the stormwater may be discharged to soakage. If petroleum hydrocarbons or other potentially harmful fluids are detected, all liquid within the compound should be transferred by a licensed waste disposal contractor.	Construction Manager Supervisor Environmental Team
xvi	Implement a spill response procedure, which may include groundwater or surface water monitoring or soil testing as required.	Environment & Sustainability Manager
xvii	Prior to ground disturbance works commencing, adequate protection measures shall be implemented (where not already in place) to preserve the integrity of existing monitoring infrastructure within the existing rail corridor in the vicinity of the Site.	Construction Manager Supervisor Environmental Team
xviii	Fill sand and gravel will be reused on site or disposed of to a suitably licensed landfill facility. Testing (in general accordance with DWER's waste classification guidelines (DWER, 2018) for reuse purposes) will be required prior to disposal in order to determine the waste classification or if material is to be reused off-site as uncontaminated fill.	Supervisor Environment Team

13.4 MONITORING

Contaminated land monitoring is performed to comply with legal and contract requirements, and which is sufficient to identify potential non-compliances before they occur. The proposed contaminated land monitoring and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in PTA escalation process.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained. Monitoring to be included in the monthly report to PTA.

It is the accountability of the Environment and Sustainability Manager to ensure all monitoring is performed according to these requirements.

13.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan (Aurora Environmental August 2019)
- Thornlie-Cockburn Link: Site Management Plan Ranford Road Bridge Modifications (GHD March 2020)
- Thornlie-Cockburn Link: Site Management Plan Ranford Road Station Development (GHD September 2020)

14. HAZARDOUS SUBSTANCES SUB PLAN

14.1 SCOPE

This Plan addresses hazardous substances management on the project and the management of impacts to the environment and/or community.

The project may require storage and handling of a wide variety of hazardous substances. Activities conducted on the project that has the potential to create risks associated with hazardous substances are provided below. These have been extracted from project risk assessments.

Table 21: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Storage and handling of hazardous substance	Escape of hazardous materials	Damage to environment from contamination
Delivery of materials to site	Escape of hazardous materials	Damage to environment from contamination
Demolition and construction activities (including civil works)	Known (asbestos, chromates, etc.) and unknown hazardous substances buried or in structures	Damage to environment from contamination Uncontrolled spread or disposal of hazardous material

14.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 22: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Environmental Spills reported	All	At all times	Alliance Manager Environment & Sustainability Manager
No Class 1 or 2 incidents in relation to hazardous materials or chemicals	Zero	At all times	Alliance Manager
No noticeable impact in water quality as identified through water quality monitoring	Zero impact to water quality	At all times	Alliance Manager
All Class 1 and 2 spills are to be reported to the PTA	All Class 1 and 2 spills	Immediately	Environment & Sustainability Manager
All Class 3 spills are to be reported to the PTA	All Class 3 spills	Within 48 hrs	Environment & Sustainability Manager
All spills reported in Synergy within 48 hrs of occurring, and all actions closed out in a timely manner	All spills	Entered within 48 hrs	Environment & Sustainability Manager

14.3 CONTROLS USED TO MANAGE HAZARDOUS SUBSTANCES

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 23: Controls used to manage hazardous substances

Ref no.	Control	Accountability
14.3.1	*Hazardous Substances Management*	
i	Remove illegally dumped material in the PDE prior to the commencement of vegetation clearing or topsoil stripping activities.	Construction Manager
ii	Refuelling must not occur within 30m of a waterway.	Supervisor Construction Manager
iii	Construction of laydown areas, stockpiles, fuel or chemical storage are prohibited within the RAZ, wellhead protection zones and Priority 1 drinking water source protection area in the	Construction Manager

Ref no.	Control	Accountability
	Jandakot UWPCA. Where a generator can only be stored in these protection zones, the following must be adhered to: – Less than 250L capacity – Bunding (self-bunding is acceptable) – Spill kit in vicinity – More than 100m away from the well head [TK57][TK58] No fuel or chemicals to be stored within the wellhead protection zones in the Jandakot Underground Water Pollution Control Area; Any fuel or chemicals within the Jandakot Underground Water Pollution Control Area to be stored in accordance with the following: – not to be stored above or below ground in a Priority 1 source protection area; – to be contained within double-lined fuel storage tanks; – not to exceed an individual storage tank capacity of 5,000 L; and – to be placed in bunds capable of storing 125% of the capacity of the largest storage tank. – Not construct infiltration/drainage basins, including bio-retention basins within 100 metres of drinking water production wells within the Jandakot Underground Water Pollution Control Area and direct overflow away from wellhead protection zones	
iv	Only store fuel or chemicals within the Jandakot Underground Water Pollution Control Area in accordance with the following: ▪ to be contained within double-lined fuel storage tanks; ▪ not to exceed an individual storage tank capacity of 5,000 L; and to be placed in bunds capable of storing 125% of the capacity of the largest storage tank.	Construction Manager Environment and Sustainability Manager
v	Outside of the areas identified above, fuel and other hazardous substances must be stored in a bunded area with a minimum holding capacity of 110% of the largest container within the bund or 25% of the total capacity of all containers within it, whichever is the greatest.	Construction Manager Supervisor
vi	Prior to bringing new chemicals to site, the Project must be provided with the current Safety Data Sheet (SDS).	Health& Safety Manager Construction Manager
vii	Hazardous Substances and Dangerous Goods storage areas shall be adequately ventilated.	Health& Safety Manager Construction Manager

Ref no.	Control	Accountability
viii	All containers and storage facilities used to store Hazardous Substances and Dangerous Goods shall be labelled and placarded in accordance with the National Code of Practice for the Labelling of Workplace Substances, the National Standard for the Storage and Handling of Workplace Dangerous Goods, Dangerous Goods Regulations and relevant Standards.	Health& Safety Manager Construction Manager
ix	Storage and handling of hazardous substances must be in strict accordance with the applicable Standards and SDS.	Health& Safety Manager Construction Manager
x	Unless otherwise approved, all fuel or chemical supply lines shall be above ground, so leaks are detectable.	Construction Manager Supervisor
xi	Secondary spill containment around tanks (with a perimeter bund) should have sufficient freeboard capacity to contain all captured rainwater from a 20-year average return interval, 72-hour storm.	Supervisor Environment Team Construction Manager
xii	Spill kits must be located adjacent to all hazardous substance storage units, in refuelling and maintenance areas and at designated locations as per the SEP.	Supervisor Environment Team
xiii	Type and size of spill kits must be selected based on the type and volume of materials stored. Aquatic spill kits shall be available at worksites in close proximity to waterways.	Supervisor Environment Team
xiv	Training/awareness in the use of spill kits must be provided.	Environment Team
xv	Spills to be reported to area Supervisor and Environmental advisor immediately.	All Personnel
xvi	Containment devices including bunds, separators and catch trays will be used wherever there is a risk of spillage.	Supervisor Environment Team
xvii	Undertake routine maintenance of plant and equipment for prevention of fuel leaks, visible exhaust emissions or other maintenance issues.	Construction Manager Supervisor
xviii	The site operator will inspect spill containment compounds as soon as practicable after any rainfall and following tank refuelling. Any liquids including rainwater captured within the tank containment compound should be professionally tested for the presence of petroleum hydrocarbons. If no petroleum hydrocarbons (or other toxic materials) are present, then the stormwater may be discharged to soakage. If petroleum	Construction Manager Supervisor Environment & Sustainability Manager

Ref no.	Control	Accountability
	hydrocarbons or other potentially harmful fluids are detected, all liquid within the compound should be transferred by a licensed waste disposal contractor.	
xix	An Emergency Response Plan which incorporates a spill response procedure shall be maintained for the project. This is to align with the procedure from PTA's EMS manual.	Health& Safety Manager Environment & Sustainability Manager
xx	Any significant fuel or other chemical spill to the environment should be reported to DWER within 24 hours.	PTA Environment & Sustainability Manager
xxi	Reporting of Class 1 or 2 fuel or other chemical spills to the PTA immediately to facilitate DWER reporting compliance.	Environment & Sustainability Manager
xxii	Notification of the relevant agencies in the event of a HAZMAT incident to occur – DFES, DWER Pollution Response Hotline - 1300 784 782 (24 hours), DBCA Swan Canning Riverpark.[TK59]	Environment & Sustainability Manager
xxiii	All unused or excess chemicals and materials will be removed and disposed of in accordance with the SDS and waste disposal guidelines. Disposal of containers as well as any residual contents will be tracked via the waste disposal processes outlined in the process for waste management.	Environment & Sustainability Manager Environment Team
14.3.2	*BP Kewdale White Oil Pipeline Relocation*	
i	All materials such as drilling muds and other consumables shall be environmentally benign and shall have no adverse effects on the environment if leakage or spillage occurs.	Design Manager Construction manager

14.4 MONITORING

Hazardous substances monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur. The proposed hazardous substance monitoring and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in the PTA escalation process.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environment and Sustainability Manager to ensure all monitoring is performed according to these requirements.

14.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*
- Thornlie-Cockburn Link, Ministerial Statement No.1114 (Environmental Protection Authority 23 September 2019)
- Thornlie-Cockburn Link, Attachment 3 to Ministerial Statement No.1114 (Environmental Protection Authority 9 October 2020)

15. ACID SULFATE SOIL SUB PLAN

15.1 SCOPE

This Plan addresses Acid Sulfate Soil (ASS) or Potential Acid Sulfate Soil (PASS) management on the project and the management of impacts to the environment and/or community.

Preliminary investigations into the potential to encounter ASS during the project show predominately low to moderate risk areas with the exception of several pockets of high-risk areas associated with the Canning River sediments, mapped wetlands and the Ranford Road site in TCL. These areas will be investigated to ensure the appropriate controls are in place and that construction activities are managed in accordance with any subsequently developed Acid Sulfate Soil Management Plan.

Activities conducted on the project that have the potential to create acid sulfate soil issues are provided below. These have been extracted from project risk assessments.

Table 24: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Excavation, Stockpiling & Piling	Disturbance of Soil – Acid Sulfate	Oxidisation of ASS Delivery of acidic leachate to receiving waters.
Dewatering of Ground water	Disturbance of PASS – generation of acidic runoff	Oxidisation of ASS Delivery of acidic leachate to receiving waters.

15.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 25: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Any soil identified as exceeding the ASS soil trigger values that is disturbed is treated in accordance with the requirements in the Acid Sulfate Soil Management Plan	All disturbed ASS is controlled or treated All leachate controlled and treated	At all times	Alliance Manager
Develop and implement adequate measures to prevent impact to the surrounding environment resulting from the disturbance of ASS and release of acidified leachate to the atmosphere, groundwater and surface runoff	Zero leachate generated Zero harm to the surrounding environment Water quality monitoring result are below the nominated trigger levels	At all times	Alliance Manager
Number of ASS incidents resulting in environmental harm	Zero	At all times	Alliance Manager

15.3 CONTROLS USED TO MANAGE ACID SULFATE SOIL

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 26: Controls used to manage acid sulfate soil

Ref no.	Control	Accountability
15.3.1	*Acid Sulfate Soil Management*	
i	Undertake targeted ASS investigations in accordance with the DWER ASS Identification Guidelines: Identification and Investigation of Acid Soil Soils and Acidic Landscapes (DER, 2015) following design progression when likely soil disturbance or dewatering requirements are better defined.	Design Manager Environment & Sustainability Manager
ii	Investigations shall be used to facilitate the development of an ASS and Dewatering Management Plan/s as applicable under the DWER regulations.	Environment & Sustainability Manager
iii	The ASS Management Plan will outline the management soil and groundwater disturbing activities in accordance with the Acid Sulfate Soil Guideline Series Identification and investigation of	Environment & Sustainability Manager

Ref no.	Control	Accountability
	acid sulfate soils and acidic landscapes (DER, 2015a) and Treatment and management of soils and water in acid sulfate soil landscapes (DER 2015b).	
iv	Design and construction methodologies to comply with the ASS and Dewatering Management Plans to minimise disturbance to ASS/PASS risk areas where practicable.	Design Manager Construction Manager
v	Whenever ASS/PASS material is discovered or suspected, works must cease, and the site supervisor and Environment Team notified immediately.	Supervisor Environment Team
vi	Should ASS/PASS material be suspected or discovered, testing by a trained and competent person must be conducted and an ASSMP developed as per the DWER requirements.	Environment & Sustainability Manager Environment Team
vii	All known or discovered areas of ASS/PASS will be communicated to those involved via the induction, toolbox talks, pre-starts and SEP's.	Environment Team Supervisor
viii	All equipment operators, supervisors and subcontractors engaged in excavation works shall participate in induction training for ASS prior to the commencement of excavation works. This training will include basic recognition and identification of ASS[TK60], plus an outline of the requirements of the ASSMP.	Environment & Sustainability Manager Environment Team
ix	ASS/PASS will need to be handled, stockpiled, tracked, treated, validated and reused and/or disposed of as per the relevant ASS/PASS management plan.	Construction Manager Environment Team
x	The movement of ASS/PASS materials must be tracked via a Materials Tracking Form Validation to be undertaken below all treatment pads.	Construction Manager
xi	Water runoff from ASS/PASS stockpiles must be contained, treated or disposed to ensure there is no pollution of land or waterways.	Construction Manager Environment Team
xii	All vehicles, plant and other machinery operating in contact with ASS/PASS must be decontaminated prior to leaving site.	Supervisor Environment Team
xiii	A spill of ASS/PASS material outside the ASS/PASS storage and/or treatment areas or evidence of impacts on waterways must be reported to the supervisor and Environment Team immediately.	Supervisor Environment Team

Ref no.	Control	Accountability
xiv	When ASS is encountered or suspected, materials must be excavated and stockpiled separately from non-ASS materials on a limestone pad, if sufficient space is available. Accurate records of materials movement shall be kept with respect to volumes excavated, material description, origin and destination, and date excavated.	Supervisor Environment Team
xv	Where possible, confirmed ASS materials should not be disturbed and trenchless technologies should be adopted. Where this cannot be avoided, the material can be excavated through open trench techniques using conventional earthmoving equipment (i.e. excavators) and shall be managed by the addition of fine ground agricultural lime (or another approved neutralising agent) to the excavated soil.	Supervisor Environment Team
xvi	Excavations that extend below the water table in this area will require control measures to restrict the period and extent of dewatering induced drawdown outside of the excavation area as is outlined in the DMP.	Supervisor Environment Team
xvii	ASS and non-ASS material will need to be removed from site and disposed of to a suitably licensed waste disposal facility in accordance with the waste classification guidelines (DWER, 2018). The ASS material will need to be taken to a facility which is licensed to accept untreated ASS.	Supervisor Environment Team
15.3.2	*BP Kewdale White Oil Pipeline Relocation*	
i	The presence of ASS is expected along certain sections of the pipeline route. Appropriate management of soil as per the ASSMP to be implemented along the alignment.	Construction Manager

15.4 MONITORING

Acid Sulfate Soil monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur. The proposed acid sulfate soil monitoring and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in PTA escalation process.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environment and Sustainability Manager to ensure all monitoring is performed according to these requirements.

15.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*

- Department of Environment Regulation (DER) Acid Sulfate Soil Guideline Series Identification and investigation of acid sulfate soils and acidic landscapes (2015a) and Treatment and management of soils and water in acid sulfate soil landscapes (2015b).
- Golder (2021) Thornlie to Cockburn Link Acid Sulfate Soil Management Plan.

16. HERITAGE SUB PLAN

16.1 SCOPE

This Plan addresses European and Aboriginal Heritage Management on the project and the management of impacts to the environment and/or community. The plan is aligned with and links to the Aboriginal Engagement and Participation Plan's Engagement Stream Five: Land Access and Sites Management.

The project will involve the disturbance of known existing places of Aboriginal cultural heritage and the potential to encounter other unknown places and/or artefacts during earthwork activities. TCL's proposal is within the Whadjuk Indigenous Land Use Agreement area with surveys identifying two registered sites – Canning River and Swan River, both of which are areas of mythological significance to the Whadjuk people.

Activities conducted on the Project that have the potential to impact heritage values are listed below. These have been extracted from project risk assessments:

Table 27: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Clearing and grubbing	All clearing activities	Damage to cultural heritage artefacts
Civil works (excavation)	Uncontrolled excavation of heritage	Damage to cultural heritage artefacts
Passenger rail duplication over the Canning River	Bridge piling, excavation and construction works disturbing an Aboriginal site (Swan River and Canning River)	Soil impacts to river banks and water quality Damage to culturally significant site (Mythological, Named Place, Ochre, Water Source)
BP line crossing the Canning River	Excavation and construction work disturbing an Aboriginal site (Swan River and Canning River)	Soil impacts to river banks and water quality Damage to culturally significant site (Mythological, Named Place, Ochre, Water Source)

16.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 28: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Incidents of damage to heritage items, places or values	Zero	At all times	Alliance Manager
No complaints from the Regulators or traditional owners as a result of the works undertaken	Zero complaints	At all times	Alliance Manager
Avoidable disturbance to Aboriginal objects identified or unearthed during construction activities	Zero	At all times	Alliance Manager
Disturbance to registered or potential heritage site beyond approved limits	Zero	At all times	Alliance Manager

16.3 CONTROLS USED TO MANAGE HERITAGE

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 29: Controls used manage Heritage

Ref no.	Control	Accountability
16.3.1	*Heritage Management*	
i	The Alliance must comply with the requirements of the Section 18 Notices under the Aboriginal Heritage Act 1972 at all times.	Environment & Sustainability Manager
ii	All necessary approvals will be obtained prior to commencing any works in areas of known or potential heritage items.	Environment & Sustainability Manager
iii	All Personnel will undertake a Site Induction which includes Aboriginal Heritage. Specific training will be provided to persons likely to impact on heritage items or values such as construction staff and contractors to ensure they are aware of the known Aboriginal sites and their obligations under the Aboriginal Heritage Act 1972.	Construction Manager
iv	No ground disturbance works to occur without an approved SEP, which will identify the relevant area heritage controls.	Environment Team

Ref no.	Control	Accountability
v	Clearing and topsoil stripping works shall only occur under an approved NEWest Permit to Clear Land or Vegetation that will define any specific heritage controls.	Construction Manager Environment Team
vi	All cultural heritage items and places to be preserved will be fenced/flagged and clearly sign posted as designated No-go zones and shown on relevant site plans and communicate to relevant workforce. These No-go zones must be observed at all times until a Permit to Enter No-go Zone has been authorised.	Construction Manager Environment & Sustainability Manager Aboriginal Participation Manager
vii	Footings or pylons for the new passenger rail bridge over the Canning River cannot be constructed within the Canning River waterway channel. This was a commitment given during consultations with Aboriginal representatives regarding disturbance to the registered site. New footings to be located in line with the existing passenger rail bridge.	Alliance Manager Design Manager
viii	Invite in writing, two nominated members from the Whadjuk People native title claim group representatives consulted for ground disturbing works to be engaged to monitor all excavations including augured piles, sheet pile removal, monitoring[TK61] bores and wells installed within the vicinity of the Canning River and excavations on the Land where it intersects with the boundaries of Aboriginal sites ID 3536 (Swan River) and Aboriginal site ID 3538 (Canning River).	Construction Manager Environment & Sustainability Manager Aboriginal Participation Manager Aboriginal Monitors
ix	The extent of excavation works requiring Aboriginal monitors will be agreed with the PTA's Representative and the Native Title Claimant Group [Whadjuk Native Title claimants (WAD242/11)] prior to the commencement of work.	PTA Native Title Claimant
x	The Aboriginal monitors who are engaged by the Alliance must have recognised cultural heritage knowledge of the area and include members of the Native Title Claimant Group (Whadjuk Native Title claimants (WAD242/11)).	Native Title Claimant Aboriginal Monitors
xi	If cultural heritage material is found, disturbance works in the vicinity must cease and the PTA contacted for further direction. No disturbance works will recommence until approval is obtained from the PTA's Representative.	All Personnel Environment & Sustainability Manager

Ref no.	Control	Accountability
		Aboriginal Participation Manager
xii	The PTA's Representative, Western Australian Police Service and the Western Australian Museum will be informed immediately if suspected human skeletal material is found. Works in the area will cease immediately and will not recommence until approval from the relevant Government Agency is obtained. All Site Personnel will be informed of this requirement and of the requirement for work to cease in the area if such material is uncovered. If the remains are determined to be of Aboriginal origin, the Department of Planning, Lands and Heritage, Whadjuk Working Group and relevant Stakeholders will be consulted on the management of the remains.	Construction Manager Environment & Sustainability Manager Aboriginal Participation Manager
xiii	Any suspected new Aboriginal site identified during the construction phase will be reported to PTA's Representative immediately, and any such site identified will not be further disturbed until all necessary approvals are obtained and a written copy of the approval is provided to the PTA's Representative.	Aboriginal Participation Manager
xiv	Formal documented engagement will be maintained with the Native Title Claimant Group [Whadjuk Native Title claimants (WAD242/11)] and relevant European heritage groups throughout the project	Aboriginal Participation Manager Environment Team
xv	Prepare and implement an unexpected finds protocol outlining procedures to be implemented if, during works, potential Aboriginal sites/artefacts are identified.	Environment & Sustainability Manager
16.3.2	*BP Kewdale White Oil Pipeline Relocation*	
i	Cultural sites and all such obstructions (unexpected heritage finds) shall be recorded by: ▪ Station ▪ Angle of intersection ▪ Offset distance ▪ Size ▪ Depth of cover ▪ A descriptive note detailing this information shall be supplied to the PTA	Environment & Sustainability Manager Aboriginal Participation Manager Environment Team[TK62]

16.4 MONITORING

Heritage monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur. The proposed heritage monitoring and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in the PTA escalation process.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environment and Sustainability Manager to ensure all monitoring is performed according to these requirements.

16.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*
- Aboriginal Engagement and Participation Plan's Engagement Stream Five: Land Access and Sites Management W1662-NEW-000-AH-PLN-0001.
- *Aboriginal Heritage Act 1972* Section 18 Consent granted to Public Transport Authority of Western Australia on behalf of City of Gosnells for Construction of Canning River Railway Bridge Ref 69-06480 (Department of Planning, Lands and Heritage February 2018).

17. NOISE AND VIBRATION SUB PLAN

17.1 SCOPE

This Plan addresses noise and vibration management on the project and the management of construction impacts to the environment and/or community.

The construction phase of the project will bring significant changes in noise and vibration levels with the potential to impact a number of sensitive receivers and infrastructure along the PDE.

Activities conducted on the project that have the potential to create construction noise and vibration impacts are detailed below. These have been extracted from project risk assessments and the project construction noise and vibration impact assessment.

Table 30: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Operation of earthmoving equipment	Excessive noise and vibration	Adverse impact on sensitive receivers and infrastructure
Truck movements and civil works	Out of hours noise	Adverse impact on sensitive receivers
Demolition works	Out of hours noise and/or high impact noise	Adverse impact on sensitive receivers
Vehicle reversing alarms	Out of hours noise	Adverse impact on sensitive receivers
Operation of piling equipment	Excessive vibration and high impact noise	Adverse impact on sensitive receivers and infrastructure

17.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 31: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Number of non-compliant monitoring results	Zero	At all times	Alliance Manager
Exceedance of construction noise limits in accordance with *Environmental Protection (Noise) Regulations 1997*	Zero	At all times	Alliance Manager
Unauthorised out of hours noise associated with construction	Zero	At all times	Alliance Manager
Number of incidents of damage caused by vibration	Zero	At all times	Alliance Manager
Infringement notices from DWER	Zero	At all times	Alliance Manager
Minimise operational noise and vibration impacts on existing sensitive receptors as far as practical	Zero complaints received or respond to and manage noise and vibration complaints immediately	At all times	Alliance Manager

17.3 CONTROLS USED TO MANAGE NOISE AND VIBRATION

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 32: Controls used to manage noise

Ref no.	Control	Accountability
17.3.1	*Noise Management*	

Ref no.	Control	Accountability
i	Unless otherwise approved by the LGAs, undertake all construction works during standard construction hours only, defined as 7 a.m. to 7 p.m. on days other than Sundays and public holidays.	Construction Manager
ii	Any works that need to occur outside of 7 a.m. to 7 p.m. or Sundays and public holidays must be approved by the relevant LGA and where relevant PTA/ARC. All equipment must be serviced and maintained according to manufacturer's recommendations, or more frequently if required to minimise noise generated.	Construction Manager[TK63] Plant Manager Environment & Sustainability Manager
iii	All Out of Hours Noise and Vibration Management Plans (OHNVMP) including W801032-TCL-NEW-EN-PLN-0003 have been prepared in accordance with AS24360 2010 (R2016) Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites. The OHNVMPs shall be approved by the relevant Local Government Authorities (LGAs) and will include information on: ▪ equipment choices based on noise and vibrations levels and noise reduction devices that can be fitted to equipment; ▪ if and when acoustic screens may be used; ▪ low vibration work practices; ▪ time restrictions on processes involving exposure to potentially hazardous vibration; ▪ signposting of vibration hazard areas; ▪ mobile equipment to be inspected and maintained regularly to ensure noise levels are minimised; ▪ out of hours noise management if works are required outside of standard construction hours including: ▪ the need and reasons for the construction work to be done; ▪ types and durations of activity likely to result in noise emissions above assigned noise levels; ▪ predictions of noise emissions; ▪ control measures for noise emissions, including vibration; and ▪ a protocol for receiving, handling and resolving complaints ▪ notification process for all out of hours works[TK64]	Environment & Sustainability Manager Stakeholder & Community Manager
iv	Implement noise and vibration controls in accordance with AS 2436-2010 (R2016) Guide to noise and vibration control on construction, demolition and maintenance sites where practicable.	Construction Manager
v	Reduce high noise generating works adjacent to sensitive receptors where practicable.	Construction Manager
vi	Where practicable the least noise-intrusive reversing alarms must be used (croakers).	Construction Manager
vii	In accordance with contractual requirements early consultation must be conducted with community stakeholders on the likely impacts of activities likely to cause disruption.	Stakeholder & Community Manager

Ref no.	Control	Accountability
viii	Limiting the hours of work in response to community concerns where practicable.	Construction Manager
ix	Noise attenuation devices shall be fitted as per the manufacture's specification for fixed and mobile plant.	Construction Manager Plant Manager
x	Construct and maintain noise barriers to shield significant noise generating activities or plant where practicable in order to comply with relevant guidelines, permits and approvals.	Construction Manager
xi	Adjust the Project Traffic Management Plan/Plans to minimise noise impacts as required.	Construction Manager
xii	Activities will be altered, or additional controls implemented where predictive modelling indicates potential impacts that exceed compliance limits.	Construction Manager Supervisor Environmental Team Stakeholder & Community Team
xiii	In the event that implementation of all other controls is insufficient to achieve compliance with the relevant Out of Hours Noise and Vibration Management Plan [TK65]then mitigation measures are to be considered at sensitive receptors.	Construction Manager Supervisor
xiv	Noise monitoring conducted at a frequency and at locations to confirm compliance with the regulatory limits will be conducted as required.	Environment Team
xv	All equipment is serviced and maintained according to, as a minimum, the original equipment manufacturers recommendations, or more frequently if required to minimise noise generated. Where the OEM requirements are not available then industry best practice maintenance is applied.	Plant Manager Supervisor
xvi	No unnecessary idling of plant or vehicles.	Supervisor
xvii	No music to be played between the hours of 7pm and 7am.	Supervisor
17.3.2	*Vibration Management*	
i	Work practices predicted to generate non-compliant [TK66]vibration must be amended prior to commencing works to the extent required to comply with applicable limits.	Construction Manager
ii	In accordance with contractual requirements early consultation must be conducted with community stakeholders on the likely impacts of vibration, in particular any high-risk activities likely to cause disruption.	Stakeholder & Community Manager

Ref no.	Control	Accountability
iii	All equipment is serviced and maintained according to, as a minimum, the original equipment manufacturers recommendations, or more frequently if required to minimise vibration generated. Where the OEM requirements are not available then industry best practice maintenance is applied.	Construction Manager Supervisor
iv	Where required dilapidation surveys will be completed for properties located up to 50m from construction activities.	Stakeholder & Community Manager
v	Vibration monitoring conducted in accordance with the relevant codes, standards, guidelines, etc. and at a frequency and at locations to confirm compliance with the relevant limits will be conducted.	Construction Team Environment Team Environmental Consultant
17.3.3	*BP Kewdale White Oil Pipeline Relocation*	
i	Conduct a Noise and Vibration Assessment for the noise impact associated with the Site work being carried out.	Design Manager

17.4 MONITORING

Noise and vibration monitoring are performed to comply with legal and contract requirements, and which is sufficient to identify potential non-compliances before they occur. The proposed noise and vibration monitoring, and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in PTA escalation process.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environment and Sustainability Manager to ensure all monitoring is performed according to these requirements.

17.5 REFERENCES

References used in the development of this sub plan:

- *Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)*
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*
- Thornlie to Cockburn Link Out of Hours Noise and Vibration Management Plan (*NEWest January 2021)*

18. AIR QUALITY MANAGEMENT SUB PLAN

18.1 SCOPE

This Plan addresses air quality management on the project and the management of impacts to the environment and/or community. Project activities may also have an impact on the local air quality. Activities conducted on the project that have the potential to impact air quality are provided below. These have been extracted from the project work flow, including activities and materials used.

Table 33: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Excavation (Earthworks)	Dust emissions Gas emissions	Reduction in local air quality Irritate public Health hazards Climate change due to increased greenhouse gas emissions Reduce visibility Impact to flora and fauna
Remediation	Hazardous chemicals	Reduction in local air quality Irritate public Health hazards Reduce visibility
Operation of Plant/Equipment	Exhaust emissions Dust emissions Smoke emissions	Irritate public Health hazards Climate change due to increased greenhouse gas emissions Reduce visibility Impact to flora and fauna

18.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 34: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Number of non-compliant dust monitoring results	Zero	At all times	Alliance Manager
Fugitive dust emissions outside of the PDE	Zero	At all times	Alliance Manager

18.3 CONTROLS USED TO MANAGE AIR QUALITY

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 35: Controls used to manage air quality

Ref no.	Control	Accountability
18.3.1	*Air Quality Management*	
i	Disturbed areas and haul roads must be treated with dust suppressants (e.g., water trucks and/or chemical suppressants) especially in high-risk areas and/or during high risk days.	Construction Manager Supervisor
ii	Implement the use of water-assisted sweeper(s) on access and local roads to remove material, as necessary.	Construction Manager Supervisor
iii	Daily weather forecast to be reviewed and if practicable, construction activities scheduled according to favourable wind conditions.	Supervisor Construction Manager
iv	The area in which vegetation will be removed or disturbed will be minimised, with staging of the works to minimise the time between clearing and construction.	Construction Manager Supervisor
v	Rehabilitation, seeding or grassing should occur as soon as areas become available to limit dust generation.	Construction Manager
vi	Stabilised access, rumble grids, wash bays or similar must be established as required to minimise mud on public roads.	Construction Manager
vii	Traffic speed limit(s) shall be obeyed at all times and may be reduced to minimise dust generation on high-risk days.	Construction Manager Supervisor
viii	All construction plant and equipment must be maintained so they do not emit visible smoke for any period greater than:	Construction Manager

Ref no.	Control	Accountability
	▪ 15 consecutive seconds for plant not being registered for use on public roads; and ▪ 10 consecutive seconds for plant registered for use on public roads	Supervisor
ix	Burning of any materials is prohibited onsite.	Construction Manager
x	Air quality monitoring conducted in accordance with the relevant code, standards, guidelines, etc. and at a frequency and at locations to confirm compliance with the regulatory limits will be conducted as required.	Environment Team
xi	Appropriate landfill gas monitoring devices are deployed to provide continuous monitoring of any works in which hazardous atmospheres could form for the duration of the relevant works at Ranford Road landfill site in accordance with the landfill gas/vapour monitoring requirements in the Site Management Plans.	Environment Team
xii	Wind break fencing to be installed to prevent dust spreading in high-risk areas, where necessary.	Construction Manager
xiii	Stockpiles to be stabilised or covered if they are to remain for extended periods.	Construction Manager
xiv	Disturbed surfaces that are left for extended periods of time shall be stabilised using chemical suppressants, mulch or other stabilisation methods.	Construction Manager

18.4 MONITORING

Air quality monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur. The proposed air quality monitoring and inspections are documented in Appendix D.

Where monitoring determines non-compliance to be a risk or to have occurred, an incident report and corrective actions are raised in PTA escalation process.

Monitoring and analysis of data will be carried out by a competent person. Evidence of competence must be retained.

It is the accountability of the Environment and Sustainability Manager to ensure all monitoring is performed according to these requirements.

18.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*
- Thornlie-Cockburn Link: Site Management Plan Ranford Road Bridge Modifications (GHD March 2020)

- Thornlie-Cockburn Link: Site Management Plan Ranford Road Station Development (GHD September 2020)

19. WASTE MANAGEMENT SUB PLAN

19.1 SCOPE

This Plan addresses the management and reporting of waste streams generated on the project.

Large amounts of waste and types of waste from a number of different sources and activities are expected to be generated as part of the Project. Activities conducted on the Project that have the potential to generate waste are provided below. These have been extracted from the project workflow, including activities and materials used.

Table 36: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Construction and operational processes	Storage and stockpiling of waste products	Soil and water contamination
Plant maintenance	Generation of waste oil, filters and other components	Soil and water contamination
Operation and maintenance of offices, crib huts and camp facilities	Generation of general wastes	Unnecessary load on landfill availability
General construction activities	Generation of construction waste (i.e. steel, cabling, metals, packaging, concrete/asphalt etc.)	Unnecessary load on landfill Incorrect disposal resulting in soil / water contamination / pollution Impacts to fauna and flora

19.2 WASTE STREAMS

The following waste streams and waste classifications have been identified on the Project.

Table 37: Waste streams

Waste Stream	Waste Classification
Contaminated soil	Regulated
General construction / demolition waste (concrete, asphalt)	Inert and regulated
General construction waste (metals, conduits/pipes, concrete, packaging materials, tyres)	Inert waste Type 2 – tyres

Waste Stream	Waste Classification
Hazardous and special wastes (oils, chemicals, asbestos, batteries)	Type 1 Special Waste (asbestos wastes) Hazardous waste
Office waste (food, general recyclables)	Inert / putrescible waste (food, sewage, paper)

19.3 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 38: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Percent of waste quantified in waste management reports	100%	At all times	Alliance Manager
Percent of regulated/hazardous wastes for which transfer certificates are retained	100%	At all times	Alliance Manager
Number of enforcement notices and penalties received from regulators and/or client	Zero	At all times	Alliance Manager
Percent increase in proportion of waste recycled or reused	10%	Annually	Alliance Manager[MA67]
Percent of waste budget saved through waste management initiatives	25%	Annually	Alliance Manager[MA68]

19.4 CONTROLS USED TO MANAGE WASTE

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. Elimination of the waste is the first preference of control, followed by reuse and recycling. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 39: Controls used to manage waste

Ref no.	Control	Accountability
19.4.1	*Waste Management*	
i	All wastes need to be classified, stored, tracked, transported and treated in accordance with contractual and regulatory requirements, including the use of licensed transporters and treatment facilities.	Construction Manager
ii	The relevant licences of waste facilities utilised for the disposal or handling of waste will be obtained to ensure they are legally compliant.	Environment & Sustainability Manager
iii	Waste hierarchy principles (Avoid, Reduce, Reuse and Recycle) shall be implemented for all project phases.	Alliance Manager
iv	Storage containers (bins, skips, tanks, etc.) are provided at each work area in sufficient numbers to facilitate segregation of waste at the source of generation, wherever possible. The correct bin type must be used to avoid contamination.	Construction Manager Supervisor
v	Waste receptacles are clearly sign posted to inform all project personnel of the correct material to be placed within each bin type. Receptacles are emptied at a frequency that is sufficient to ensure their correct use.	Construction Manager Supervisor
vi	All bins used for putrescible waste need to have secure lids and be emptied regularly.	Construction Manager
vii	Burial or burning of waste is not permitted.	Construction Manager
viii	Excess concrete must be returned to the batch plant and concrete washout is not to be discharged to land or stormwater. A concrete washout facility must always be used.	Construction Manager All Personnel
ix	All waste data must be collated, tracked and reported monthly.	Construction Manager Environment and Sustainability Manager
x	Prior to any proposed maintenance, refurbishment, upgrade, or demolition works the following shall occur (as per PTA's EMS Manual): ▪ resources/specialists to be consulted for guidance on the identification and management of buildings containing Asbestos material; ▪ PTA's Contaminated Site and Asbestos Register to be checked; ▪ risk assessment and treatment plans to be developed; ▪ engagement of suitable Asbestos removal contractor to perform any encapsulation, enclosure of removal; and ▪ reviewing of safety plans and licence of removal contractor	Construction Manager Environment and Sustainability Manager[TK69]

Ref no.	Control	Accountability
19.4.1	*BP KWOL*	
xi	Drill cutting spoil will be sampled and laboratory tested at a NATA accredited laboratory facility and disposed of at an appropriate facility, in accordance with the Landfill Waste Classification and Waste Definitions (DWER 2019)	Construction Manager

19.5 MONITORING

Waste data is collected on the project to allow monthly reporting of the following:

- The quantity of each type of waste sent to landfill
- The quantity of each type of waste recycled
- The quantity of each type of waste reused
- The quantity of each type of hazardous/regulated waste generated on the project and:
  - Its method of treatment and disposal
  - The location of treatment and disposal
  - Copies of records confirming the legal transport, treatment and disposal

Measurement of any reduction in waste generation that has been achieved

The quantity of waste in each solid waste stream is measured by weight and liquid waste stream by volume, with records provided by the waste transport contractor. Alternative measures may only be used when an economical alternative is not available.

All relevant information is included in the project environmental monthly report.

The proposed waste monitoring and inspections are documented in Appendix D.

19.6 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*

20. LIGHT SUB PLAN

20.1 SCOPE

This Plan addresses light management on the project and the management of impacts to the environment and/or community.

The construction phase will require the placement of a number of lighting facilities with the ability to cause unwanted light spillage on nearby sensitive receivers. Activities conducted on the project that have the potential to cause light impacts are provided below.

Table 40: Activities, Hazards and Risks

Project Activity	Environmental Hazard	Environmental Risk
Out of hours works	Light spillage into residential areas and fauna habitat	Impacts to community Impacts to fauna

20.2 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 41: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Number of light spill complaints during construction	Zero complaints received	At all times	Construction Manager
	Respond to and manage light spill complaints immediately	At all times	Construction Manager

20.3 CONTROLS USED TO MANAGE LIGHT

Controls that are adequate to manage the Alliance's risks and to reduce risk to the lowest acceptable rating achievable are to be implemented before any relevant works commence. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 42: Controls used to manage light issues and risks

Ref no.	Control	Accountability
20.3.1	*Light Management*	
i	Education on the importance and management of light spill during construction shall be communicated to the workforce.	Environmental Team
ii	Construction lighting will be directed at works and away from private property and vegetation wherever possible and switched off where not required.	Supervisor
iii	Lighting equipment with automatic timers shall be utilised where possible.	Construction Manager
iv	Out of hours works will only be undertaken when necessary, and with the appropriate approvals in place.	Construction Manager

Ref no.	Control	Accountability
v	Any complaints received in relation to light spill will be addressed in accordance with the project complaints management procedure and any complaints relating to light will be responded to in a timely manner.	Stakeholder Relations Manager

20.4 MONITORING

Light monitoring is performed that complies with legal and contract requirements and which is sufficient to identify potential non-compliances before they occur. The proposed light monitoring and inspections are documented in Appendix D.

20.5 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*

21. ENERGY SUB PLAN

21.1 SCOPE

This Plan addresses the potential and actual use of energy sources and the emission of greenhouse gases (GHG) by Project activities. In particular, it requires:

- The identification of sources
- Measurement and reporting of use and emissions
- Identification, assessment and implementation of opportunities to improve energy efficiency and reduce GHG emissions

Activities conducted on the Project that have the potential to use significant amounts of energy or emit significant quantities of GHG are:

Table 43: Activities, Hazards and Risks

Project Activity	Type of Fuel/Emission
Excavation of cut materials	Diesel / GHG
On-site generation of power	Diesel / GHG
Lighting	Electricity / GHG
Use of materials during construction (embodied energy of materials used)	Greenhouse Gases
Vegetation clearing	Diesel / Greenhouse Gases

21.2 ENERGY REPORTING

NEWest Alliance requires all projects to report on energy consumption monthly, regardless of which company has operational control. All energy (fuels, oils, greases, gases, electricity, solvents) purchased by CPB Contractors and processed through JDE are captured centrally at the Group level.

NEWest Alliance's subcontractors will provide a monthly fuel consumption report to the project commercial team. This data will be entered into the JDE.

Reporting under the National Greenhouse and Energy Reporting Act 2007 will be undertaken by the respective Corporate (or Group) Environment Teams using data supplied by the Alliance.

21.3 PROJECT OBJECTIVES

Based on the scope of work and its respective risks to the environment and surrounding community, the table below details the objectives and targets, timeframes to be met by the Alliance. The objectives provide achievable metrics for ensuring compliance. Deviation from these targets will immediately trigger an investigation and corrective action process by the Alliance Management team.

Table 44: Project Objectives

Metric/Measure	Objective	Timeframe	Accountability
Project to identify, assess and implement operational and behavioural energy efficiency initiative(s) to minimise energy use and reduce greenhouse gas emissions	Minimum of one (1) initiative implemented per year	Annually	Alliance Manager
100% of all subcontractor fuel use by the project is captured and entered into JDE	All subcontractor fuel use entered into JDE System	Annually	Alliance Manager
Project to report on energy efficiency initiatives implemented	Minimum of one (1) energy efficiency case study per annum	Annually	Alliance Manager

21.4 PROCESSES / CONTROLS USED TO MANAGE ENERGY AND GHG EMISSIONS

Processes adequate to ensure compliance with all requirements and to ensure energy is used efficiently and GHG emissions are minimised shall be implemented. The management measures used on this project are designed to align with PTA's EMS Manual and the PTA's CEMP and are aimed at ensuring the project achieves legal compliance, control risks and encourages continuous improvement in its environmental performance. Elimination of the hazard is the first preference of control, followed by engineering, then administrative controls. The table below summarises the controls to be implemented throughout the project, their applicability to TCL and the respective personnel accountable for their implementation.

Table 45: Processes / Controls used to manage energy

Ref no.	Control	Accountability
21.4.1	*Energy Management*	
i	Tracking and recording of energy savings initiatives and outcomes.	Senior Sustainability Advisor
ii	Fuel reporting will be tracked by the Project commercial team.	Commercial Manager
iii	Energy efficiency principles will be communicated through tool box talks and other site communication forums and tools. The workforce will be trained to minimise energy use, including switching off machines and equipment when not in use and purchasing energy efficient plant and equipment.	Environment & Sustainability Manager Senior Sustainability Advisor
iv	Where relevant, procurement decisions will include energy efficiency and GHG considerations of the product or service.	Alliance Manager Procurement Manager

21.5 MONITORING

Monitoring of energy use complies with legal and contractual requirements and which is sufficient to identify sources of use and emissions, and opportunities for improved energy efficiency.

Energy and GHG monitoring are conducted in line with the NEWest reporting approach outlined above. It is the accountability of the Project Manager to ensure all data is captured and reported according to these requirements.

Monitoring and analysis of data will be carried out by a competent person. The proposed energy monitoring and inspections are documented in Appendix D.

21.6 REFERENCES

References used in the development of this sub plan:

- Environmental Management System Manual 7300-000-001 RevA.00 (Public Transport Authority of Western Australia July 2019)
- METRONET Thornlie – Cockburn Link Construction Environmental Management Plan *(Aurora Environmental August 2019)*

22. NON-CONFORMANCE CORRECTION PERIOD SUB PLAN

The SWTC requires the Alliance to provide an environmental sub-plan for the Non-conformance Correction Period (24 months post practical completion) which includes:

- ongoing environmental management requirements;
- timing for key management actions;

- monitoring, performance and completion criteria;
- reporting requirements; and
- contingency actions in the event performance criteria are not being met.

The SWTC also requires the Alliance to conduct its maintenance activities in accordance with the approved environmental sub-plan for the Non-conformance Correction Period.

Detail to comply with this SWTC requirement will be developed closer to practical completion and included in the Maintenance Management Plan for the Non-conformance Correction Period.

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Part D: Appendices

Table 46: Appendix List

Appendix Reference	Appendix Title
Appendix A:	Compliance Table
Appendix B:	NEWest Alliance Environment Policy
Appendix C:	Environmental Roles and Responsibilities
Appendix D:	Monitoring, Inspections, Reporting, Review and Audit Schedule
Appendix E:	Baseline Construction Program Summary

Appendix A: Compliance Table

Clause no.		Doors ref no.	Where addressed
9.1.1	The CEMP must comply with PTA Doc No. 9302-000-001 "Environment Policy", the relevant measures contained within the PTA's "Environmental Management System Manual" and the principles of ISO 14001 – Environmental Management Systems. The Alliance must plan, establish, implement and maintain a documented environmental management system to be compliant with and accredited to AS/NZS ISO 14001 until two years after Practical Completion	31853	Part A: Plan Overview / 1 Purpose of this Plan / 5 Environmental Management system
9.1.2	The Project is subject to environmental review by the EPA	31854	
9.1.3	The TCL was referred to the EPA as a single referral.	31855	
9.1.4	Each project referral received the following level of assessment:	31856	
9.1.4 iii	TCL – Referral information with additional information. Four week public review.	31857	
9.1.5	CEMP's have been prepared for each referral area as part of the EPA assessment process. The Alliance must comply with the following CEMP's.	31858	
9.1.5 iii	TCL CEMP, Aurora 2019 (Draft)	31859	
9.1.6	The CEMP to be prepared by the Alliance must meet the requirements of their AS/NZS ISO 14001 certified environmental management system, the PTA's Environmental Management System Manual, "Instructions on how to prepare EP Act Part IV environmental management plans" (EPA, April 2018) and the CEMP's prepared by the PTA required by the EPA assessment process.	31861	
9.1.7	The CEMP must include the following:	31862	Part D: Appendices / Appendix B: NEWest Alliance Environment Policy
9.1.7 i	Alliance environmental policy	31863	
9.1.7 ii	with regards to planning:	31863	Part B: Implementation / 9 Elements and Expectations / Element 2: Planning
9.1.7 ii A)	aspects and impacts;	31864	Part C: Environmental Aspects and Impacts

Clause no.		Doors ref no.	Where addressed
9.1.7 ii B)	legal and other requirements;	31864	Part B: Implementation / 9 Elements and Expectations / Element 3: Legal and Other Requirements
9.1.7 ii C)	timing of construction activities; and	31864	Part D: Appendices / Appendix E: Baseline Construction Program Summary
9.1.7 ii D)	Alliance's environmental and heritage risk assessment	31864	Part B: Implementation / 9. Elements and Expectations / Element 4: Risk and Opportunity Management
9.1.7 iii	implementation and operation including:	31865	Part B: Implementation / 9. Elements and Expectations
9.1.7 iii A)	roles and responsibilities of relevant Alliance Personnel;	31866	Part B: Implementation / 9. Elements and Expectations / Element 1: Policy, Leadership, Accountability and Culture
9.1.7 iii B)	competence, Training and awareness (including inductions);	31866	Part B: Implementation / 9. Elements and Expectations / Element 7: Training and Competence
9.1.7 iii C)	Alliance's environmental management of Subcontractors;	31866	Part B: Implementation / 9. Elements and Expectations / Element 8: Subcontractor Relationships
9.1.7 iii D)	Project communication - internal and external (pre-start meetings, toolbox meetings, post-shift debrief meetings, posting of Project specific environmental information on noticeboards and environment and heritage progress meetings between the Alliance and the PTA's Representative);	31866	Part B: Implementation / 9. Elements and Expectations / Element 6: Communication and Consultation
9.1.7 iii E)	control of documents; and	31866	Part B: Implementation / 9. Elements and Expectations / Element 11: Document and Records Management
9.1.7 iii F)	detailed maps of proposed construction zones; for any work and exclusion zones (eg. high conservation areas, Aboriginal heritage sites)	31866	Part C: Heritage

Clause no.		Doors ref no.	Where addressed
9.1.7 iv	environmental management operational controls including:	31867	Part C: Environmental Aspects and Impacts / 10. FLORA AND VEGETATION MANAGEMENT SUB PLAN
9.1.7 iv A)	ground disturbance management (including vegetation clearing and flora management);	31868	
9.1.7 iv B)	weed management (including hygiene management program to minimise the spread of weeds and dieback);	31868	
9.1.7 iv C)	Aboriginal heritage management (including the extent of excavation requiring Aboriginal monitors);	31868	Part C: Environmental Aspects and Impacts / 16. HERITAGE SUB PLAN
9.1.7 iv D)	soils management (including stockpiles, topsoil, contaminated land and spoil management) and the prevention of mud and spoil displacement on public roads and access ways;	31868	Part C: Environmental Aspects and Impacts / 12. SOIL AND WATER MANAGEMENT SUB PLAN
9.1.7 iv E)	ASS management;	31868	Part C: Environmental Aspects and Impacts / 15. ACID SULFATE SOIL SUB PLAN
9.1.7 iv F)	air quality management (including monitoring and dust suppression).	31868	Part C: Environmental Aspects and Impacts / 18. AIR QUALITY MANAGEMENT SUB PLAN
9.1.7 iv G)	construction noise and vibration management;	31868	Part C: Environmental Aspects and Impacts / 17. NOISE AND VIBRATION SUB PLAN
9.1.7 iv H)	hazardous materials and hydrocarbon management;	31868	Part C: Environmental Aspects and Impacts / 14. HAZARDOUS SUBSTANCES SUB PLAN
9.1.7 iv I)	waste management;	31868	Part C: Environmental Aspects and Impacts / 19. HAZARDOUS SUBSTANCES SUB PLAN
9.1.7 iv J)	water management (including groundwater and storm water management measures, prevention of offsite discharges and management of surface water to ensure contaminated run off from the Construction Site does not leave the site);	31868	Part C: Environmental Aspects and Impacts / 12. SOIL AND WATER MANAGEMENT SUB PLAN
9.1.7 iv K)	fauna management;	31868	Part C: Environmental Aspects and Impacts / 11. FAUNA MANAGEMENT SUB PLAN
9.1.7 iv L)	Construction Site access and travel routes for construction traffic;	31868	Part C: Environmental Aspects and Impacts
9.1.7 iv M)	variation in seasonal weather conditions management;	31868	

Clause no.		Doors ref no.	Where addressed
9.1.7 iv N)	light emissions management;	31868	Part C: Environmental Aspects and Impacts / 20. LIGHT SUB PLAN
9.1.7 iv O)	demobilisation and rehabilitation management; and	31868	Part C: Environmental Aspects and Impacts / 22. NON-CONFORMANCE CORRECTION PERIOD SUB PLAN
9.1.7 iv P)	greenhouse emissions management.	31868	Part C: Environmental Aspects and Impacts / 21. ENERGY SUB PLAN
9.1.7 v	preparedness and response to environmental emergencies.	31869	Part B: Implementation / 9. Elements and Expectations / Element 15. ACID SULFATE SOIL SUB PLAN
9.1.7 vi	monitoring and measurement (including Project environmental Reporting and national greenhouse and energy reporting):	31869	Part B: Implementation / 9. Elements and Expectations / Element 3: Legal and Other Requirements Part D: Appendices / Appendix D: Monitoring, Inspections, Reporting, Review and Audit Schedule
9.1.7 vi A)	as a minimum the Alliance must provide detail how they intend to measure and collect environmental data required as part of the Project. Calibrated or verified monitoring and measurement equipment must be used and maintained. Calibration records must be kept for auditing purposes and be made available to the PTA's Representative upon request	31870	
9.1.7 vii	environmental incident management:	31871	Part B: Implementation / 9. Elements and Expectations / Element 9: Incident Management
9.1.7 vii A)	as a minimum environmental incidents must include events that can directly or indirectly cause environmental impacts or harm as well as events involving non-compliance with Project procedures and “near-miss” events which may or may not result in an environmental impact. The Alliance must develop an environmental incident reporting and management procedure which must include; criteria for the classification of environmental incidents and incident investigation requirements.	31872	
9.1.7 viii	Non-conformance and corrective actions:	31873	
9.1.7 viii A)	sources of corrective actions may include hazard Reports, incident investigations, audits, inspections, observations and management reviews. As a minimum, corrective actions must be systematically implemented and reviewed by the Alliance to ensure they	31874	

Clause no.		Doors ref no.	Where addressed
	adequately resolve the issue and minimise the risk of reoccurrence of the incident or hazard.		
9.1.7 ix	control of environmental records:	31875	Part B: Implementation / 9. Elements and Expectations / Element 11: Document and Records Management
9.1.7 ix A)	as a minimum the Alliance must develop a process which outlines all relevant environmental records required to be provided to the PTA's Representative including induction attendances, Training matrices, Training records, audit and inspection Reports, minutes of meetings, incident Reports, approvals, permits, certificates and licenses. These environmental records must be available for checking and auditing by the PTA's Representative. Environmental records must be safeguarded against accidental destruction or deterioration to ensure that they remain legible, identifiable and traceable. At the completion of the Works, all environmental records must be provided to the PTA's Representative in the Project Environmental Close out Report.	31876	
9.1.7 x	environmental audits and inspections.	31877	Part B: Implementation / 9. Elements and Expectations / Element 12: Auditing, Review and Improvement Part D: Appendices / Appendix D: Monitoring, Inspections, Reporting, Review and Audit Schedule
9.1.7 xi	management review:	31877	
9.1.7 xi A)	the CEMP must be reviewed and updated periodically. The CEMP must be amended to reflect changes in contractual or Project requirements, to correct disparities identified during Project auditing and to ensure it is consistent with the commitments outlined within the Environmental and Heritage Obligations Register.	31878	
9.2.1	Within three months of the Date of this Agreement and prior to mobilisation, unless otherwise approved by the PTA's Representative, the Alliance must conduct an environment and heritage specific risk workshop and provide to the PTA a Project environmental and heritage risk assessment ensuring all approvals and environmental and heritage management requirements are in place prior to commencing ground disturbance or any Temporary Works or Works. The Alliance must invite the PTA's Representative to the workshop as active participants. The Alliance must pre-populate its own environmental and heritage risk assessment template prior to conducting the workshop.	31880	Part B: Implementation / 9. Elements and Expectations / Element 4: Risk and Opportunity Management
9.2.2	The Alliance's Project environmental and heritage risk assessment must be reviewed quarterly by the Alliance as well as in response to any high or extreme environmental incidents, changes in legal requirements or following approvals obtained by the Alliance, changes in Project scope, and any inspection, audit and management review findings.	31881	

Clause no.		Doors ref no.	Where addressed
	Any updates to the Alliance's Project environmental and heritage risk assessment throughout the course of the construction activities must be provided to the PTA's Representative within the monthly environmental Report.		
9.3.1	Within three months of the Date of this Agreement, unless otherwise approved by the PTA's Representative, the Alliance must submit an environmental and heritage site induction package for review and comment by the PTA's Representative. Unless otherwise approved by the PTA's Representative, work must not commence until the PTA's Representative issues written confirmation that the induction meets the PTA's requirements.	31883	Part B: Implementation / 9. Elements and Expectations / Element 7: Training and Competence
9.3.2	The Alliance must maintain an environmental Training / induction matrix to ensure that relevant Personnel receive the necessary Training / inductions to implement the Project environmental and heritage requirements. Environmental and heritage induction records must be maintained by the Alliance in readily available auditable files and be made available to the PTA's Representative upon request.	31884	
9.3.3	As a minimum, the environmental and heritage site induction package must cover the requirements of the CEMP, including:	31885	
9.3.3 i	ground disturbance work requirements;	31886	
9.3.3 ii	threatened ecological communities, declared rare flora, black cockatoo habitat and quenda habitat (ie. trapping and translocation);	31886	
9.3.3 iii	environmental monitoring and data reporting requirements;	31886	
9.3.3 iv	ASS, groundwater and contaminated land management requirements;	31886	
9.3.3 v	noise and dust management requirements;	31886	
9.3.3 vi	Aboriginal heritage management requirements;	31886	
9.3.3 vii	inspection and audit requirements (ie. audit schedule and protocols); and	31886	
9.3.3 viii	environmental emergency / spill response and incident management and reporting.	31886	
9.4.1	The Alliance must manage and keep updated the Project Environmental and Heritage Obligations Register (refer Book 5 - Environmental and Heritage Obligations Register) throughout the Project. The Alliance will be responsible for keeping the Environmental	31888	Part B: Implementation / 9. Elements and Expectations / Element 3: Legal and Other Requirements

Clause no.		Doors ref no.	Where addressed
	and Heritage Obligations Register up-to-date throughout the entire duration of the Project and must provide a current electronic copy of the Project Environmental and Heritage Obligations Register within the Alliance's monthly environmental Report		
9.4.2	The Project Environmental and Heritage Obligations Register must be maintained as a live document by the Alliance and be updated regularly throughout the Project and upon the Alliance and/or its Subcontractors obtaining any required approvals outside those of the statutory approvals obtained by the PTA.	31889	
9.4.3	The Alliance must ensure that its CEMP and associated environmental management sub-plans and procedures incorporate commitments as currently detailed within the Project Environmental and Heritage Obligations Register and must be updated should the Project Environmental and Heritage Obligations Register or legal requirements change	31890	
9.4.4	The Alliance must keep copies of licences, approvals and permits relevant to the Works on site with files available for audit and inspection purposes and provide these to the PTA's Representative upon request. A copy of all Alliance, and where applicable, Subcontractor, approvals, permits, licenses etc. obtained during the Project must be provided to the PTA within the Alliance's monthly environmental Report.	31891	
9.5.1	The PTA has undertaken review of the Project areas and obtained section 18 approval under the Aboriginal Heritage Act 1972 (WA) for the construction of the passenger rail bridge duplication over the Canning River (Refer to Book 5 for the approval and associated conditions A further potential site "Romeo Road pinnacles" is under consideration by the Aboriginal Cultural Materials Committee. The Alliance must comply with the requirements of this approval. The Alliance must obtain any further approvals it deems necessary, in consultation with the PTA, to undertake the Works.	31893	Part B: Implementation / 9. Elements and Expectations / Element 3: Legal and Other Requirements Part C: Environmental Aspects and Impacts / 16. HERITAGE SUB PLAN
9.5.2	The Alliance must implement measures to prevent disturbance of identified sites which may include fencing of the site. Significant heritage areas must be clearly marked prior to the commencement of construction activities in the area.	31894	Part C: Environmental Aspects and Impacts / 16. HERITAGE SUB PLAN
9.5.3	The Alliance must engage Aboriginal monitors to monitor all excavations including monitoring bores and wells installed within the vicinity of the Canning River for the presence of cultural heritage. A minimum of two Aboriginal monitors must be engaged at each excavation location.	31895	

Clause no.		Doors ref no.	Where addressed
9.5.4	The Aboriginal monitors who are engaged by the Alliance must have recognised cultural heritage knowledge of the area and include members of the Native Title Claimant Group (Whadjuk Native Title claimants (WAD242/11)).	31896	
9.5.5	The Alliance must agree the extent of excavation works requiring Aboriginal monitors with the PTA's Representative and the Native Title Claimant Group (Whadjuk Native Title claimants (WAD242/11)) prior to the commencement of work. The Alliance must inform the PTA's Representative immediately if cultural heritage material is found. The Alliance must cease excavation works if directed to do so by the PTA's Representative. The Alliance must then not recommence excavation works until Approval from the PTA's Representative is obtained.	31897	
9.5.6	The Alliance must inform the PTA's Representative, Western Australian Police Service and the Western Australian Museum immediately if suspected human skeletal material is found. The Alliance must cease works in the area immediately. The Alliance must then not recommence works in the area until approval from the relevant Government Agency is obtained. All Site Personnel must be informed of this requirement and of the requirement for work to cease in the area if such material is uncovered. If the remains are determined to be of Aboriginal origin, the Department of Planning, Lands and Heritage, Whadjuk Working Group and relevant Stakeholders must be consulted on management of the remains.	31898	
9.5.7	Any suspected new Aboriginal site identified during the construction phase must be reported to PTA's Representative immediately, and any such site identified must not be further disturbed until the Alliance obtains all necessary approvals and provides a written copy of the approval to the PTA's Representative.	31899	
9.5.8	The Alliance must comply with the conditions of the section 18 consent under the Aboriginal Heritage Act 1972(WA).	31900	Part B: Implementation / 9. Elements and Expectations / Element 3: Legal and Other Requirements
9.5.9	Footings or pylons for the new passenger rail bridge over the Canning River cannot be constructed within the Canning River waterway channel. This was a commitment given during consultations with Aboriginal representatives regarding disturbance to this registered site. Footings may be located outside the river channel for example as per the existing passenger rail bridge.	NEW	Part C: Environmental Aspects and Impacts / 16. Soil and Water Management Sub Plan HERITAGE SUB PLAN

Clause no.		Doors ref no.	Where addressed
9.6.1	Environmental Auditing and Inspections	31902	Part B: Implementation / 9. Elements and Expectations / Element 12: Auditing, Review and Improvement
9.6.1 i	The Alliance must detail a schedule of environmental audits in the CEMP. As a minimum the Alliance must undertake and allow for:	31903	
9.6.1 i A)	regular (i.e. at least monthly) Subcontractor environmental audit / inspection assessing conformance with the CEMP;	31904	
9.6.1 i B)	an internal environmental systems audit within three months of commencement of the Works or Temporary Works;	31904	
9.6.1 i C)	six monthly internal environmental compliance and sustainability management system audits;	31904	
9.6.1 i D)	internal environmental compliance audits within one week of the commencement of environmentally significant construction activities (ie. clearing, excavation and dewatering);	31904	
9.6.1 i E)	annual third party environmental compliance and sustainability management system audits commissioned by the PTA's Representative;	31904	
9.6.1 i F)	a post-mobilisation audit within three months of the date agreed for the finalisation of Alliance mobilisation;	31904	
9.6.1 i G)	two demobilisation audits; one three months prior to demobilisation completion and one on the planned last day of demobilisation by the Alliance (demobilisation pre-audits may be arranged between the PTA's Representative and the Alliance before and during demobilisation to assist the Alliance to meet its demobilisation date); and	31904	
9.6.1 i H)	fortnightly environmental site inspections to be undertaken by the PTA's Representative	31904	
9.6.1 ii	The Environment and Sustainability Manager must accompany the PTA's Representative during any PTA audit along with their Subcontractors' environmental representative (if applicable). The Alliance must allow a minimum of two days to assist the PTA in undertaking any of the audits outlined above and provide any required information within one week of it being requested by the PTA's Representative (unless otherwise agreed). All Alliance audit Reports / inspections etc must be made available to the PTA's Representative within two weeks of completing the audit / inspections.	31905	

Clause no.		Doors ref no.	Where addressed
9.6.1 iii	The Alliance must provide the PTA's Representative with electronic access to the Alliance's environmental incident reporting and audit systems upon request.	31905	
9.6.1 iv	The Alliance must track and close out all audit / inspection actions to the satisfaction of the PTA's Representative within the agreed timeframe	31905	
9.6.2	Contaminated Sites Auditor	31906	Part B: Implementation / 9. Elements and Expectations / Element 12: Auditing, Review and Improvement
9.6.2 i	The PTA has engaged a CSA in a voluntary capacity for auditing of investigations and activities at the City of Canning former landfill site at Ranford Road. The voluntary audit will become a mandatory audit under the Contaminated Sites Act 2003(WA) should a development approval condition for the management of contaminated sites be received for Ranford Road Station. The Alliance is required to undertake all investigations and manage construction activities for the Ranford Road Station site in accordance with the Contaminated Sites Act 2003(WA), DWER contaminated sites management guidelines and CSA requirements	31907	
9.7.1	The Alliance must submit a monthly environmental Report for TCL as a component of its monthly Project reporting. The monthly environment Report must include as a minimum:	31909	Part B: Implementation / 9. Elements and Expectations /12: Auditing, Review and Improvement
9.7.1 i	a brief description of construction activities undertaken for the month including a summary of current key environmental issues and risks.	31910	
9.7.1 ii	an updated version of the Environmental and Heritage Obligations Register including status and copies of any obtained environmental approvals.	31910	
9.7.1 iii	a summary of spoil type and classification, spoil quantity and disposal locations for the month, ASS treatment and Validation, analytical result, any unexpected finds and associated management actions (all spoil disposal documentation must be retained by the Alliance and made available to the PTA's Representative upon request).	31910	
9.7.1 iv	A summary of dewatering status including:	31910	
9.7.1 iv A)	areas being dewatered;	31911	
9.7.1 iv B)	water quality parameters pre and post treatment;	31911	
9.7.1 iv C)	dewatering flow rates (instantaneous and cumulative);	31911	

Clause no.		Doors ref no.	Where addressed
9.7.1 iv D)	Groundwater Levels; and	31911	
9.7.1 iv E)	daily discharges from the dewatering system. Separate metering for each discharge point (eg. each recharge well, sewer etc.).	31911	Part B: Implementation / 9. Elements and Expectations / Element 12: Auditing, Review and Improvement
9.7.1 v	Records of:	31912	
9.7.1 v A)	water usage (potable vs non-potable);	31913	
9.7.1 v B)	fuel usage (in litres);	31913	
9.7.1 v C)	waste including waste to landfill (in tonnes and m3), types of Wastes, (in tonnes and m3) and hazardous wastes such as fibrous materials, oily water, waste oil etc. (tonnes and m3);	31913	
9.7.1 v D)	chemical usage (in litres);	31913	
9.7.1 v E)	water usage (in litres); and	31913	
9.7.1 v F)	land cleared (ha).	31913	
9.7.1 vi	a summary of environmental incidents and corrective actions	31914	
9.7.1 vii	a summary of audit / inspection findings and corrective actions undertaken	31914	
9.7.1 viii	a summary of community and Stakeholder complaints	31914	
9.7.1 ix	a summary of key environmental risks for the next period and proposed mitigation measures.	31914	
9.7.1 x	dewatering system records of construction progress (wells drilled, pipe installed etc.), a summary of system performance, any configuration changes (pumps on, pumps off, pipe work changes, maintenance performed) and records of issues identified and agreed solutions	31914	
9.7.1 xi	a summary of environmental monitoring undertaken for the month and a copy of any environmental Reports or data undertaken by the Alliance or its Subcontractors.	31914	
9.7.1 xii	a summary of any environmental inductions, Training or awareness sessions.	31914	

Clause no.		Doors ref no.	Where addressed
9.7.1 xiii	all spatial data (eg. monitoring wells, recharge wells, noise monitoring locations) in a format compatible with ArcGIS and AutoCAD	31914	
9.7.1 xiv	an update on sustainability performance, including progress against the Sustainability Management Plan	31914	
9.7.2	The Alliance must prepare and submit the monthly environmental Reports to comply with all relevant conditions of approval and regulatory requirements	31915	Part B: Implementation / 9. Elements and Expectations / Element 12: Auditing, Review and Improvement
9.7.3	The Alliance is responsible for national greenhouse and energy reporting for the Works	31916	Part B: Implementation / 9. Elements and Expectations / Element 3: Legal and Other Requirements
9.8.1	The Alliance must submit an environmental incident Report to the PTA's Representative for all significant and high risk (as defined in the Alliance's incident reporting and management procedure) environmental incidents immediately.	31918	Part B: Implementation / 9. Elements and Expectations / Element 9: Incident Management
9.8.2	The Alliance must submit an environmental incident Report to the PTA's Representative for all other environmental incidents within 48 hours of the environmental incident occurring.	31919	
9.8.3	The Alliance must report all environmental incidents through the Alliance's management system. The Alliance's management system is to be an online system linked to the environmental management system to which the PTA's Representative has access	31920	
9.8.4	The environmental incident Report must include as a minimum:	31921	
9.8.4 i	description of incident (date, time, location, GPS co-ordinates, factual description of the incident);	31922	
9.8.4 ii	incident type (environmental impact, environmental non-compliance, potential incident, community complaint);	31922	
9.8.4 iii	incident classification;	31922	
9.8.4 iv	incident investigation findings; and	31922	
9.8.4 v	actions.	31922	

Clause no.		Doors ref no.	Where addressed
9.9.1	The Alliance must complete the following close out reporting requirements as required	31924	Part B: Implementation / 9. Elements and Expectations / t 12: Auditing, Review and Improvement
9.9.1 i	ASSDMP close-out report (part of the DWER reporting guideline process)	31925	
9.9.2	The Alliance must satisfy DWER requirements for close out reporting associated with the completion dewatering in accordance with "Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes" (DER, 2015). The Alliance must gain endorsement of the close out report from the DWER within six months of the Date of Practical Completion.	31926	
9.9.2 i	Detailed Site Investigation close-out report	31927	Part B: Implementation / 9. Elements and Expectations / t 12: Auditing, Review and Improvement
9.9.2 i A)	The Alliance may be required to produce a DSI close-out report of the Ranford Road Construction Site in accordance with the Contaminated Sites Act 2003(WA), the "Assessment and Management of Contaminated Sites – Contaminated Sites Guidelines" (DER, 2014), the "National Environment Protection (Assessment of Site Contamination) Measure" (NEPC, 2013), the "Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia" (Department of Health, 2009), the "Landfill Waste Classification and Waste Definitions 1996" (a s amended 2018) (DWER, 2018), the "Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes" (DER, 2015), and the Project Environmental and Heritage Obligations Register. Key items that must be included as a minimum are:	31928	
9.9.2 i A) a)	conceptual site model and risk assessment based on the end land use;	31929	
9.9.2 i A) b)	management and disposal of spoil generated by the Works;	31929	
9.9.2 i A) c)	groundwater monitoring and management;	31929	
9.9.2 i A) d)	management and disposal of hazardous substances;	31929	
9.9.2 i A) e)	remediation and Validation of contamination, either pre-existing or resulting from Works;	31929	

Clause no.		Doors ref no.	Where addressed
9.9.2 i A) f)	Validation sampling (including from base of excavations prior to concrete pours); and	31929	
9.9.2 i A) g)	contamination status of the Construction Site upon the Date of Practical Completion. The Construction Site must be delivered suitable for the intended end use.	31929	
9.9.2 B)	The DSI close-out report must be prepared by a suitably experienced and qualified environmental professional with experience in the preparation of similar reports	31930	
9.9.2 C)	The Alliance must submit the DSI close-out report to the PTA's Representative within six months of the Date of Practical Completion. The PTA's Representative will provide the DSI close-out report to the CSA for review and endorsement. All CSA review comments must be incorporated into the final DSI close-out document by the Alliance. Any additional investigations or reports required by the CSA must be undertaken by the Alliance.	31930	
9.9.3	Project Environmental Close out Report	31931	Part B: Implementation / 9. Elements and Expectations / 12: Auditing, Review and Improvement
9.9.3 i	The Alliance must prepare a Project Environmental Close-out Report at the completion of the Works and prior to the completion of demobilisation which provides a detailed and collective summary of the information and data collected throughout the Project and through the monthly environmental Reports (as outlined in environmental Reporting section 9.7). The Project Environmental Close-out Report is also to include an electronic copy of all environmental data obtained throughout the Works (e.g. electronic shapefiles in a format compatible with ArcGIS and AutoCAD (DWG format in GDA2020), environmental monitoring data etc.)	31932	
9.10.1	The Alliance must provide an environmental sub-plan for the Non-conformance Correction Period which includes:	31934	Part C: Environmental Aspects and Impacts / 22. NON-CONFORMANCE CORRECTION PERIOD SUB PLAN
9.10.1 i	ongoing environmental management requirements	31935	
9.10.1 ii	timing for key management actions	31935	
9.10.1 iii	monitoring, performance and completion criteria	31935	
9.10.1 iv	reporting requirements	31935	
9.10.1 v	contingency actions in the event performance criteria are not being met	31935	

Clause no.		Doors ref no.	Where addressed
9.10.2	The Alliance must conduct its maintenance activities in accordance with the approved environmental sub-plan for the Non-conformance Correction Period	31936	
10.19.1	The Construction Site, including the exterior of all perimeter fences/hoardings must be maintained in a clean and tidy manner throughout the Works. Rubbish or loose items must not be stored on the Construction Site. Use of the Construction Site must meet the environmental sensitivity requirements of the SWTC. The Alliance must take measures to prevent littering of the Construction Site by its Personnel. In addition, the Alliance must clean up any rubbish and dirt generated by the Works in the surrounding area	101094	Part C: Environmental Aspects and Impacts /20. Waste Management Sub Plan
10.20.1	All water including groundwater seepage captured within the Construction Site must be treated and disposed of in accordance with the requirements of the PAA, SWTC and the relevant Government Agencies.	101102	Part C: Environmental Aspects and Impacts /13. Soil and Water Management Sub Plan
10.20.2	The Alliance must monitor the quality of water discharged from the Construction Site	101103	Part C: Environmental Aspects and Impacts /13. Soil and Water Management Sub Plan
10.21.1	The Alliance must, during the performance of the Works, comply with the noise and vibration requirements in the CEMP.	101105	Part C: Environmental Aspects and Impacts /18. Noise and Vibration Sub Plan
10.21.2	The Alliance must select methods of construction and plant to minimise adverse vibrational impacts.	101106	Part C: Environmental Aspects and Impacts /18. Noise and Vibration Sub Plan
10.21.3	The Alliance must carry out a detailed vibration impact assessment based on the methods of construction, plant selected and prevailing site conditions.	101107	Part C: Environmental Aspects and Impacts /18. Noise and Vibration Sub Plan
10.21.4	Based on the vibration impact assessment, the Alliance must implement vibration control measures and vibration monitoring where required.	101108	Part C: Environmental Aspects and Impacts /18. Noise and Vibration Sub Plan
BP Kewdale White Oil Pipeline Relocation			
6.1.2.1 ii	Prepare an Alliance Management Plan and other Project Plans detailing the methods, procedures and processes which will be adopted, including but not limited to environmental and heritage management	255091	Part A: Plan Overview / 1 Purpose of this Plan / 5 Environmental Management system
6.1.2.1 xi	Obtain all Statutory Approvals and other approvals as may be required by Statutory Requirements or necessary for delivering the BP Kewdale White Oil Pipeline works in accordance with the project approval and permit arrangements entered into by the PTA;	255744	Element 3: Legal and other Requirements

Clause no.		Doors ref no.	Where addressed
6.1.3.1 ii	key responsibilities	255299	Part C: Contaminated Land Sub Plan/ Appendix C: Environmental Roles and Responsibilities/Appendix D Monitoring, Inspections, Reporting, Review and Audit Schedule
6.1.3.1 vii	restricted operations	255299	
6.1.3.1 ix	permit to work	255299	
6.1.3.1 xiii	planned site workplace inspections	255299	
6.1.3.1 xvii	environmental protection	255299	
6.1.5.1	The Alliance shall develop a project specific Construction Environmental Management Plan (CEMP) in accordance with Book 2 and related risk assessment, procedures, forms and systems which outline control methods for significant environmental risks including	255183	Thornlie Cockburn Line Construction Management Plan W801032-TCL-NEW-EN-PLN-0001
6.1.5.1 i	vegetation clearing and pioneering works	255749	Part C: Flora and Vegetation Management Sub Plan
6.1.5.1 ii	hydrocarbon and chemical management	255749	Part C: Hazardous Substances Sub Plan
6.1.5.1 iii	waste management	255749	Part C: Waste Management Plan
6.1.6.1	The Alliance shall comply with all legal and environmental requirements in relation to vegetation clearing.	255413	Part C: Flora and Vegetation Management Sub Plan/Fauna Management Sub Plan
6.1.7.1	Information relating to management of heritage sites is addressed within the CEMP.	255832/ 254598	Part C: Heritage Sub Plan
6.1.8.1	The Alliance shall keep all Site locations clean and tidy at all times. The Alliance shall ensure that all waste materials generated and/or stored on-Site do not have any adverse impacts on the Environment and shall be disposed of at an appropriately licensed off-Site facility or as directed by the PTA.	255755	Part C: Waste Management Plan
6.1.10.4 xviii	The Alliance shall carry out detailed design of the following for the replacement section of the BP Kewdale White Oil Pipeline and associated facilities which shall include as a minimum: noise and vibration assessment study	254772	Part C: Noise and Vibration Sub Plan

Clause no.		Doors ref no.	Where addressed
6.1.10.6 ii	Noise impact associated with the Site work being carried out and how it will be Minimised	254678	
6.1.10.6 iv	dust management	254678	Part C: Air Quality Management Sub Plan
6.1.10.6 v	stormwater management	254678	Part C: Soil and Water Management Sub Plan
6.1.10.6 vii	removal of hazardous and dangerous materials from Site	254678	Part C: Hazardous Substances Sub Plan
6.1.10.6 viii	removal of asbestos from Site	254678	Part C: Contaminated Land Sub Plan
6.1.10.6 xi	waste management on Site	254678	
6.1.10.6 xii	waste management on LGA land (streets, footpaths, laneways and reserves)	254678	
6.1.10.6 xiii	Soils to be removed from Site and disposal thereof (includes out of specification materials and acid sulfate soils (ASS))	254678	
6.1.10.6 xiv	Measures to mitigate the effect of Site construction waste to ensure local amenity is protected	254678	
6.1.10.6 xxii	Permit conditions relating to the retention and protection of vegetation on Site or neighbouring properties	254678	Part C: Flora and Vegetation Management Sub Plan
6.1.10.6 xxiii	Trees to be retained or protected under the LGA requirements	254678	
7.4.2.1 ix	Construction Environmental Management Plan A) The CEMP shall be prepared in compliance with Book 2, the Statutory Approvals and to provide an ongoing monitoring and reporting framework for compliance. B) The CEMP shall be in accordance with AS/NZS ISO 14000.	254655	Part A: Plan Overview / 1 Purpose of this Plan / 5 Environmental Management system /Element 3: Legal and other Requirements
7.9.6.1	The Alliance shall provide assistance to the PTA in submission of Statutory Approvals and other approvals and associated studies/reports required for the pipeline and associated facilities as set out in Schedule 12 of the PAA.	255407	
8.3.1.1	Dust control measures shall be carried out throughout all phases of construction operations, including watering, speed restrictions etc., to ensure that dust does not affect	254956	Part C: Air Quality Management Sub Plan

Clause no.		Doors ref no.	Where addressed
	the work or the health and safety of Personnel working and travelling on the RoW and does not cause any detrimental effects to the RoW property or the general public or properties, plant, equipment facilities and Personnel in proximity to the RoW.		
8.3.1.2	Proposals for dust suppression shall be in accordance with the requirements of the CEMP and shall be subject to approval by the PTA	254785	
8.4.1.1	Prior to commencing work, every vehicle entering the construction Site shall be given a wash down for weed and disease control in accordance with the requirements of the CEMP and again on completion of work prior to demobilisation from Site.	254521	Part C: Flora and Vegetation Management Sub Plan
8.5.1.1	Clearing and grading shall be carried out in accordance with the CEMP and shall be minimised to only the extent necessary for construction of the pipeline and shall in any event not exceed the width of the RoW, except where additional working areas are defined and agreed by the PTA after all approvals have been obtained. All appropriate weed and disease control measures shall comply with the requirements of the CEMP.	255641	
8.5.1.3	Clearing of the RoW shall include the removal to ground level as required of trees, brush, stumps and other obstacles and the grubbing, or removal otherwise, of stumps in the way of the trench line and across the full RoW as directed by the PTA.	255491	
8.5.1.4	Cleared materials shall be stockpiled and preserved for use during restoration, final clean-up and brush spreading in the area from which they were cleared. Stacks of cleared vegetation shall not exceed 5m in width or 1.5m in height with breaks at least every 50m	255321	
8.5.1.7	Safeguards shall be put in place to ensure that there is no damage to growing trees, shrubs and vegetation outside the designated areas and to selected trees to be left standing in areas designated for clearing. These trees will be clearly marked by the PTA prior to commencement of clearing work. Priority species shall be transplanted as directed by the PTA.	254841	
8.5.2.1	Timber, brush and other flammable debris shall be dispersed by spreading over the RoW prior to completion of rehabilitation.	255439	
8.5.2.2	Timber, brush and debris shall not be burned, or removed from the area of origin unless directed otherwise by the PTA.	255743	

Clause no.		Doors ref no.	Where addressed
8.5.6.1	Grading of the RoW shall be kept to a minimum in order to preserve as much of the rootstock as possible.	255792	
8.5.7.1	Topsoil conservation shall be carried out in all areas where excavation or levelling is necessary, including the trench line, graded sections of RoW, borrow pits, refuse pits and temporary stockpiles	255026	Part C: Soil and Water Management Sub Plan
8.5.7.2	Topsoil shall be conserved by removing one layer of topsoil to a depth as required by the CEMP. Removed topsoil shall be stockpiled in a location that will minimise any loss due to erosion or mixing with other material. Operations shall be planned to ensure that topsoil is not stockpiled for a period greater than two months	255821	Part C: Soil and Water Management Sub Plan
8.5.7.3	Topsoil lost due to erosion or contamination shall be replaced with topsoil, which is environmentally compatible with the area and approved by the PTA.	254597	
8.6.1.6	Cultural sites and all such obstructions shall be recorded by	254989	Part C: Heritage Sub Plan
8.6.1.6 i	Station	255531	
8.6.1.6 ii	angle of intersection	255531	
8.6.1.6 iii	offset distance	255531	
8.6.1.6 iv	Size	255531	
8.6.1.6 v	depth of cover	255531	
8.6.1.7	A descriptive note detailing this information shall be supplied to the PTA	255345	
8.6.1.10	The Alliance shall note that the presence of ASS is expected along certain sections of the pipeline route. Appropriate measures to remove such soil and replace with clean fill shall be implemented.	255825	Part C: Acid Sulfate Soil Sub Plan
8.12.1.7	All soil transportation shall comply with the weed and disease control requirements of the CEMP.	255263	Part C: Flora and Vegetation Management Sub Plan
8.12.4.1	All water in the bottom of the trench shall be removed prior to lowering the pipeline into the trench. Water disposal shall comply with the disease control requirements of the CEMP	255703	Part C: Flora and Vegetation Management Sub Plan/ Soil and Water Management Sub plan

Clause no.		Doors ref no.	Where addressed
8.12.8.7	Surplus excavated material shall be disposed of to the satisfaction of the PTA and in accordance with the CEMP	254698	
8.12.10.1	In sloping terrain, at water courses, or elsewhere, hessian sandbags in accordance with Book 3 – Part D – section 8.20.3 shall be placed to act as a trench barrier.	255389	
8.13.2.1	The trench and RoW shall be restored to the natural contours of the ground, except for the trench camber and shall allow normal surface drainage. Water courses, terraces and levees disturbed by construction of the pipeline shall be restored to their original contours and former condition. Banks of watercourses shall be restored in a manner that will resist erosion while settlement of the fill occurs. The methods to be used for bank restoration shall be subject to the approval of the PTA.	255179	
8.13.2.3	Erosion control banks shall be constructed in accordance with the CEMP and as nominated by the PTA.	254915	
8.13.2.6	The banks of all watercourses, soil stockpile areas and all areas where topsoil has been stripped and re-spread shall be uniformly seeded and fertilised.	254662	
8.13.2.7	Seed shall be in accordance with Worley Parsons Doc No. 170023-P-PL-LI-007 "Installation Methodology List" (as further amended by the Alliance) and the CEMP.	255041	
8.13.5.1	Surplus rock produced during screening or other operations shall be dispersed uniformly across the RoW during clean-up and restoration. The method of dispersal shall be compatible with the environment and shall not cause an obstruction to normal land use.	254917	Part C: Soil and Water Management Sub Plan
8.13.6.1	Brush and tree limbs shall be spread over the RoW for the purpose of preserving and regenerating natural vegetation, erosion control and providing animal habitation. Brush spreading shall be in accordance with the following:	255402	Part C: Flora and Vegetation Management Sub Plan
8.13.6.1 i	brush and tree limbs and timber fragments shall be retained along the RoW and spread evenly across the RoW during the clean-up operation;	254962	
8.13.6.1 ii	tree trunks and large limbs are to be laid on the RoW so that they lie in a random fashion across the natural slope of the ground. Continuous straight lines shall be avoided	254962	
8.13.6.1 iii	tree trunks, limbs and stumps shall not be placed in watercourses or gullies. A 3m wide area free of debris shall be left on the non-working side of the RoW for future vehicle access.	254962	

Clause no.		Doors ref no.	Where addressed
8.13.7.1	Borrow areas and associated haul roads shall be prepared and subsequently restored in accordance with the CEMP, Statutory Requirements and approval of the PTA.	255369	
8.14.4.3	All materials such as drilling muds and other consumables shall be environmentally benign and shall have no adverse effects on the environment if leakage or spillage occurs.	255065	Part C: Contaminated Land Sub Plan
8.15.3.5	The method of water disposal shall be subject to the approval of the landowner and the applicable LGA and/or Government Agency and in accordance with the CEMP.	254574	Part C: Soil and Water Management Sub Plan
8.15.3.8	Water shall not be allowed to flow into running streams, rivers or bores which are used for domestic water supplies, nor shall it be allowed to score drainage channels in the terrain.	254523	Part C: Soil and Water Management Sub Plan
8.20.4.1	Soil/seed bags shall be installed as a restoration and/or erosion control measure or for such other purpose as the PTA deems appropriate. Soil/seed bags shall consist of first quality new hessian bags containing not less than 0.015m³ topsoil sourced from outside the RoW thoroughly mixed with seed by the Alliance in a minimum ratio of 5% by volume.	255095	Part C: Soil and Water Management Sub Plan/Flora and Vegetation Management Sub Plan
8.20.4.2	Seed shall be in accordance with Worley Parsons Doc No. 170023-P-PL-LI-007 "Installation Methodology List" (as further amended by the Alliance) and the CEMP	255624	Part C: Flora and Vegetation Management Sub Plan

Appendix B: NEWest Alliance Environment Policy[TK70]

NEWest Alliance

Environment Policy

The Network Expansion West (NEWest) Alliance is an Alliance between the Public Transport Authority of Western Australian (PTA) and a joint venture partnership between CPB Contractors and Downer EDI Works, bringing together these businesses as Non-Owner Participants to leverage their major Australian infrastructure collaborative contracting resources, processes and experience, to deliver the Yanchep Rail Extension and Thornlie Cockburn Link Project in accordance with the PTA and Metronet stated objectives.

Reflective of the commitment of the Alliance entities,

This Policy sets out the minimum mandatory requirements for the management of environmental risks and impacts from our construction activities.

MINIMUM REQUIREMENTS

- Senior leaders must demonstrate a personal visible commitment to our SH&E Cultural Framework and ensure all workers understand the requirements of the Management System as it applies to the work they are undertaking, so that work is undertaken to minimise our environmental impact.
- Environment Management Plans (EMP) must be developed and implemented for each Project to outline how the project environmental risk will be managed and controlled.
- Environmental objectives, targets and key performance indicators must be established at all levels of the organisation, with performance against these monitored and analysed to provide a baseline for continual improvement.
- The Environment Procedures must be used to eliminate or minimise environmental risk from construction activities.
- Construction Area Plans and Work Packs must be developed and include an assessment of environmental risk and associated controls.
- Site Environment Plans must be developed for Work Packs where environmental risk dictates; these must be used to inform as content of Daily Pre-Starts.
- As part of the risk management process, personnel and teams at the Project, Business Unit and Corporate level should seek to identify opportunities for improving efficiency in the use of natural resources, enhancing positive environmental impacts and driving innovation.
- All environmental incidents must be reported in accordance with the incident notification requirements. They must be thoroughly investigated, and appropriate corrective action undertaken with the aim of preventing recurrence of the incident.
- Reporting of energy consumption, water use and waste generation, as well as reporting on initiatives and environmental achievements must be completed by projects and business units as requested.
- All levels of the organisation must be prepared to respond to an emergency and in the event of an emergency, plans and capabilities are in place to eliminate or minimise damage to the environment, preserve ongoing operations and our reputation.
- Effective communication, cooperation and consultation channels must be in place to consult with workers who may impact upon the environment.
- All project personnel responsible for environmental risk shall be appropriately trained and competent and understand their legal obligations with regard to environment management.

Greg Locke
Alliance Manager

Environment Policy
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Appendix C: Environmental Roles and Responsibilities

	Alliance Manager	Environment and Sustainability Manager	Senior Sustainability Advisor	Safety and Systems Compliance Manager	Design & Engineering Manager	Engineers	Construction Manager	Supervisors	HR/IR Manager	Stakeholder & Community Manager	Line Managers	Commercial Manager	P & C Manager	Subcontractors	Other Positions
Element 1: Element 1: Leadership, Accountability and Culture															
1.1. Environmental accountabilities, roles and responsibilities for managers, staff, employees and subcontractors are clearly defined, documented and communicated		R							C		C				
1.2. Environmental leadership and commitment are demonstrated through measurable participation in environmental management	R	C	C	C	C	C	C	C	C	C	C	C	C		C
1.3. Environmental expectations are clearly defined with appropriate reward and disciplinary processes in place.	R	C		C	C	C	C	C	C	C	C	C	C		C
Element 2: Planning															
2.1. Adequate resources are provided to effectively implement the EMP	R	C										C	C		
2.2. Business systems are defined and established		R		C											
2.3. Environmental Sub-Plans are prepared and maintained for Significant Environmental Hazards		R		C											
Element 3: Legal and Other Requirements															
3.1. Relevant legal, contractual and other requirements are identified and maintained in a legal and other obligations register	C	R													
3.2. All necessary environmental approvals are obtained prior to commencing relevant works and surrendered on completion	C	R				C									
3.3. Work is planned and executed to ensure compliance		C			C	C	R	C							
3.4. Inspections, observations and monitoring are performed to ensure compliance is maintained		R		C		C		C							
3.5. All non-compliances are reported as incidents		R		C	C	C	C	C	C	C	C	C	C	C	C
3.6. All energy and greenhouse data are collected and entered into JDE	C	R	C									C			
3.7. Personnel on the site have access to current versions of relevant legislation, standards and codes of practice		R		C											
Element 4: Risk and Opportunity Management															

	Alliance Manager	Environment and Sustainability Manager	Senior Sustainability Advisor	Safety and Systems Compliance Manager	Design & Engineering Manager	Engineers	Construction Manager	Supervisors	HR/IR Manager	Stakeholder & Community Manager	Line Managers	Commercial Manager	P & C Manager	Subcontractors	Other Positions
4.1. Systematic processes are defined and implemented for identifying environmental risks and opportunities at all stages of the Project	R	C			C	C		C							
4.2. Identified risks and opportunities are analysed and evaluated according to agreed criteria and recorded in a risk register	R	C				C	C								C
4.3. Environmental controls appropriate to the level of risk are identified, documented and implemented	C	R				C	C								C
4.4. Feasible opportunities are implemented	R	C	C												C
4.5. Identified environmental risks and controls are communicated to all relevant personnel	R	C		C		C		C	C						
4.6. Regular inspections and monitoring are conducted to check effectiveness of controls	C	R				C		C							
4.7. Environmental risks and controls are regularly reviewed.	C	R				C									
Element 5: Change Management															
5.1. Changes to planned operations that have potential environmental consequences are identified	R	C			C	C		C							
5.2. Risks associated with identified changes are assessed and controlled before changes are implemented	R	C						C							
5.3. All changes with environmental consequences are authorised before they are implemented	R	C			C		C								
5.4. Controls associated with change are communicated to all affected personnel						C									
Element 6: Communication and Consultation															
6.1. External environmental stakeholders are identified		C								R					
6.2. Relationships with external stakeholders are effectively managed	C	C								R					
6.3. Internal consultative forums are established with regular meetings scheduled, conducted, documented and communicated	R	C		C						C					
6.4. Environmental complaints and enquiries are recorded and responded to appropriately	C	C								R					
6.5. The effectiveness of internal and external stakeholder engagement is evaluated and improved.	C	C		C						R					

	Alliance Manager	Environment and Sustainability Manager	Senior Sustainability Advisor	Safety and Systems Compliance Manager	Design & Engineering Manager	Engineers	Construction Manager	Supervisors	HR/IR Manager	Stakeholder & Community Manager	Line Managers	Commercial Manager	P & C Manager	Subcontractors	Other Positions
Element 7: Training and Competency															
7.1. All personnel have completed an induction containing relevant environmental information before they are authorised to work on the Project		C		C					R						
7.2. A training plan is developed and documented		C							R						
7.3. Personnel are trained and assessed according to the training plan	C	C							R						
7.4. Training records are maintained and accessible to relevant personnel.		C							R						
Element 8: Subcontractor Relationships															
8.1. Selection processes ensure that subcontractors meet CPB Contractors' minimum environmental requirements		C				C						R			
8.2. Planning requirements of all subcontractor work scopes are completed and communicated prior to commencing work		C				R						C			
8.3. Compliance requirements for high risk environmental activities are identified and enforced		R				C						C			
8.4. Subcontractor documentation is submitted and reviewed to meet Project requirements		C										R			
8.5. Changes to the scope of work are managed as a Project change						C						R			
8.6. Subcontractors actively participate in environmental management and training on the Project		C				R						C		C	
8.7. Subcontractors are reviewed to assess their performance and compliance with our minimum environmental requirements.		R		C		C		C							
Element 9: Incident Management															
9.1. All incidents are followed by appropriate response and notification	C	R				C		C		C					
9.2. All incidents are entered and managed in Synergy	C	R													
9.3. Incident investigations are conducted appropriate to the type of incident	R	C				C		C							
9.4. All personnel conducting incident investigations are trained to competently perform the task	R														
9.5. Corrective and preventive actions are taken after incidents and lessons are shared with other projects	R	C													
9.6. High potential and repeat incidents are regularly reviewed by the project management team	C	R													

	Alliance Manager	Environment and Sustainability Manager	Senior Sustainability Advisor	Safety and Systems Compliance Manager	Design & Engineering Manager	Engineers	Construction Manager	Supervisors	HR/IR Manager	Stakeholder & Community Manager	Line Managers	Commercial Manager	P & C Manager	Subcontractors	Other Positions
Element 10: Emergency Planning and Response															
10.1. Potential emergencies are identified using a formal risk assessment process	R	C													
10.2. Emergency response plans and procedures are developed and regularly reviewed	R	C		C											
10.3. Adequate resources are provided to effectively implement emergency response plans and procedures	R	C		C											
10.4. Environmental emergency response drills are conducted	R	C		C											
10.5. Employees, contractors and visitors are given appropriate emergency response training.		C		R					C						
Element 11: Document and Record Management															
11.1. Current versions of all relevant documents and records are available and controlled.	C	R													
11.2. Relevant documents and records will be maintained using corporate business applications and systems	R														
Element 12: Auditing, Review and Improvement															
12.1. Environmental performance trends are identified, and corrective actions are implemented as required	R	C													
12.2. A monthly environmental report is produced and distributed	C	R	C												
12.3. Regular management reviews are conducted to determine the continuing suitability, adequacy and effectiveness of the Environmental Management System	R	C													
12.4. Audits are undertaken to ensure compliance with the requirements of the EMP	R	C													C
12.5. All audits are undertaken by suitably qualified and experienced personnel	C	R													
12.6. Audit non-conformance and corrective actions	R														C
12.7. All audits are undertaken by suitably qualified and experienced personnel		R													

R = Responsible, C = Key Contributor

Appendix D: Monitoring, Inspections, Reporting, Review and Audit Schedule

Activity		Parameters	Source	Frequency	Responsibility
	ID	MONITORING AND INSPECTIONS			
Flora & Vegetation Management	MON-1.1	Inspection of clearing front/extents to confirm no clearing outside of the approved PDE or in excess of identified clearing targets	PTA CEMP (Aurora) Aug 2019	Daily	Environment Advisor
	MON-1.2	During clearing activities inspect the condition of the Native Vegetation Retention Area demarcation and the location of the vegetation cleared.	PTA CEMP (Aurora) Aug 2019	Weekly	Environment Advisor
	MON-1.3	Visual inspection for evidence of unauthorised access attributable to construction, to areas of native vegetation surrounding the PDE	PTA CEMP (Aurora) Aug 2019	Weekly	Environment Advisor
	MON-1.4	Visual inspections for weeds along the clearing edge adjacent to native vegetation (including retained native vegetation at Ken Hurst Park)	PTA CEMP (Aurora) Aug 2019	Monthly	Environment Advisor
	MON-1.5	Spot checks of vehicle and machinery compliance with clean on entry/exit procedures throughout the duration of construction activities at each entry and exit point	PTA CEMP (Aurora) AUG 2019	Weekly	Environment Advisor
	MON-1.6	During the construction period monitor dieback and weeds 50m from the boundary of the defined areas as per MS1114	MS1114	Annually	Qualified Botanist / Ecologist
	MON-1.7	Post construction period monitor dieback and weeds 50m from the boundary of the defined areas as per MS1114	MS1114	Annually 24 months post practical completion	Qualified Botanist / Ecologist
	MON-1.8	During construction ensure there are no project attributable indirect impacts to native vegetation outside and within 50m of the PDE	MS1114	Weekly	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
	MON-1.9	Ensure no project attributable indirect impacts to native vegetation outside and within 50m of the PDE	MS1114	Annually 24 months post practical completion	Qualified Botanist / Ecologist
	MON-1.10	Weed monitoring to occur within the entirety of each indirect impact zone	GHD Work Method Statement	Annually	Qualified Botanist / Ecologist
	MON-1.11	Visually monitor and document revegetation success and survival rates, during construction	Internal	Quarterly	Qualified Botanist / Ecologist
	MON-1.12	Spring dieback assessments in identified uninfested areas of native vegetation adjacent to the PDE and in established vegetation monitoring quadrats with interpretable remnant vegetation of the PDE prior to the commencement of clearing and construction to enable assessment of baseline	PTA CEMP (Aurora) AUG 2019	Annually	Qualified Botanist / Ecologist
	MON-1.13	Conduct post-construction assessment of areas previously uninfested by *Phytophthora* dieback	PTA CEMP (Aurora) AUG 2019	12 months post construction	Qualified Botanist / Ecologist
	MON-1.14	Monitoring of revegetation works against the completion criteria	PAA	Annually 24 months post practical completion	Landscape Architect
Wetland Management	MON-2.1	Visual inspection of construction activities to check that no prohibited activities are being conducted in the Wetlands (CCWs and REWs), UWPCA, well head protection zones and Restricted Activity Zones	PTA CEMP (Aurora) AUG 2019	Weekly	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
	MON-2.2	Undertake monitoring of hydrological regimes for significant wetlands immediately adjacent to the development envelope during construction and for a period of 12 months after the completion of groundwater abstraction or dewatering. Details of the monitoring are to be outlined in an Environmental Management Plan prepared in consultation with DWER and DBCA.	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
Fauna Management	MON-3.1	Walkover inspection for native fauna ahead of and during vegetation clearing activities	PTA CEMP (Aurora) AUG 2019	Daily	Environment Advisor
	MON-3.2	Inspections (morning and afternoon) of trenches to identify trapped fauna	PTA CEMP (Aurora) AUG 2019	Twice Daily	Environment Advisor/ Qualified Fauna Specialist/DBCA
	MON-3.3	Visual inspection of active Black Cockatoo breeding trees until fledglings leave the nest (if required)	Internal	Weekly	Environment Advisor/ Fauna Spotter
	MON-3.4	Visual observations of marked breeding tree hollows for signs of disturbance and breeding activity	Internal	Monthly	Environment Advisor
	MON-3.5	Walkover inspection of applied 10 m buffers around marked breeding trees for signs of disturbance, such as temporary fence moved, prematurely vacated nests, broken eggs, and injured or dead fledglings	Internal	Monthly	Environment Advisor
	MON-3.6	Regular inspection of the development envelope for trapped fauna (in excavations or equipment) during construction works.	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	MON-4.1	Dewatering effluent water quality parameters including pH, EC, temperature and turbidity	PTA CEMP (Aurora) AUG 2019	Daily	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
Water Management	MON-4.2	Monitoring of groundwater and/or surface water monitoring following a major spill, in consultation with relevant agencies	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	MON-4.3	Monitoring of dewatering activities including dewatering effluent and groundwater in line Dewatering Management Plans	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	MON-4.4	Ranford Road station site: Monitoring for dewatering cone of depression in relation to potential contaminated groundwater (to reduce risk of treating contaminated dewatering effluent), if required. Monitoring groundwater for potential offsite plume migration.	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	MON-4.5	Monitoring to ensure prohibited activities are not carried out in CCW, REW, UWPCA and wellhead protection zones.	PTA CEMP (Aurora) AUG 2019	Weekly	Environment Advisor
	MON-4.6	Production Wells water meter inspections and reading of abstracted volume	NEWest Ground water Abstraction EMP Nov 2020	Monthly	Environment Advisor
	MON-4.7	Manual groundwater level measurement of Monitoring Wells (PBMW03, PBMW05, PBMW06)	NEWest Ground water Abstraction EMP Nov 2020	Monthly	Environment Advisor
	MON-4.8	Condition monitoring of the Banksia woodland and wetlands will be undertaken at the same time (monthly), to coincide with the monitoring event.	NEWest Ground water Abstraction EMP Nov 2020	Monthly	Environment Advisor
	MON-4.9	A set of three (3) photographs, established from various directions from the photo monitoring points, will be taken of the Banksia woodlands, and UFI 7499 to allow progressive visual condition monitoring. The photographs are to be compared on a monthly basis	NEWest Ground water Abstraction EMP Nov 2020	Monthly	Environment Advisor
	MON-4.10	Monitoring prior to the commencement of the groundwater abstraction activities and for a period of twelve (12) months following the completion of groundwater abstraction, or until the CEO of DWER has	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
		confirmed by notice in writing that the proponent has demonstrated the objective has been met.			
	MON-4.11	Bore 3, Bore 5 and Bore 6Initial groundwater level will be recorded a minimum 7 days following installation to allow the aquifer to recharge and settle following construction	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor
	MON-4.12	Both the trigger and threshold criteria will be reviewed following every monitoring event undertaken until a baseline can be established (at least 4 monitoring events) and ongoing monitoring data becomes available.	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor
Soil Management	MON-5.1	Visual monitoring of topsoil salvage and handling to confirm compliance with the topsoil salvage procedures	SWTC Book 4 Part A	Weekly	Environment Advisor
	MON-5.2	Visual inspection for evidence of erosion	PTA CEMP (Aurora) AUG 2019	Monthly	Environment Advisor
	MON-5.3	Visual inspection of offsite discharges following rainfall events	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
Contaminated Land	MON-6.1	Visual monitoring during construction to identify any potentially disturbed contamination	PTA CEMP (Aurora) AUG 2019	Daily	Environment Advisor
	MON-6.2	Visual inspection to ensure contaminated stockpiled material is managed correctly in segregated areas and stored on limestone bunded pads	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	MON-6.3	Inspect spill containment compounds as soon as practicable after any rainfall and following tank refuelling.	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	MON-6.4	Visual inspections of hazardous materials storage, handling, and disposal to ensure compliance with safe use practices.	PTA CEMP (Aurora) AUG 2019	Monthly	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
	MON-6.5	In the event that a major spill occurs, undertake groundwater and/or surface water monitoring in consultation with the relevant agencies	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	MON-6.6	Air quality monitoring of ground gases as per SMP requirements	Ranford Road Bridge SMP (GHD) 2020	As required	Environment Advisor
	MON-6.7	Monitoring of excavation activities during construction in line with the SMP's	Ranford Road Bridge SMP (GHD March 2020 Ranford Road Station SMP (GHD September 2020)	As required	Environment Advisor
Acid Sulfate Soils	MON-7.1	Monitoring of dewatering and excavation activities including dewatering effluent, groundwater and soil in line with ASS Management Plans	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
Heritage	MON-8.1	Visual inspection of any identified heritage sites to confirm no disturbance by contractor outside of the approved development footprint	PTA CEMP (Aurora) AUG 2019	Weekly	Environment Advisor
	MON-8.2	Visual monitoring during construction to identify and manage any heritage objects.	PTA CEMP (Aurora) AUG 2019	As required	Aboriginal Monitors
	MON-8.3	Monitoring during vegetation clearing and initial groundworks of the PDE to identify any potential objects of Aboriginal cultural significance	PTA CEMP (Aurora) AUG 2019	Daily	Environment Advisor
	MON-8.4	Aboriginal monitors will be present when initial ground disturbance is undertaken at registered or potential aboriginal sites, as per Section 18 approval.	Section 18 (3) Consent to Disturb an Aboriginal Site	As required	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
Noise	MON-9.1	Observe noise volumes (and recordings, where necessary) during approved out-of-hours work, to confirm compliance with the NMP	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	MON-9.2	Noise monitoring for works outside of standard construction hours, in accordance with the NMP	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
Vibration	MON-10.1	Monitoring of vibration emissions	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
Air Quality	MON-11.1	Visual monitoring of airborne dust	PTA CEMP (Aurora) AUG 2019	Daily	Environment Advisor
Fire	MON-12.1	Monitoring of DFES Fire Danger Ratings to minimise risk of bushfire from construction activities	Internal	Daily	Environment Advisor
	MON-12.2	Monitoring of compliance with agreed fire management and mitigation measures	Internal	Monthly	Environment Advisor
Energy / GHG Emissions	MON-13.1	Monitoring of energy use and GHG in line with legal and contractual obligations sufficient to identify sources of use and emissions, and opportunities for improved energy efficiency	Internal	As required	Environment Advisor
Waste Management	MON-14.1	Visual inspection of site and onsite waste disposal facilities looking for: Tidy work site with no litter and all waste contained in appropriate containers Recycling where possible Containers to be emptied and disposed of at appropriate intervals	Internal	Spot checks Weekly	Environment Advisor
Hazardous Substances	MON-15.1	Visual inspection of hazardous material, storage use and disposal	PTA CEMP (Aurora) AUG 2019	Weekly	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
Site Inspection	MON-16.1	Environmental inspections of the project area and boundaries for potential off-site impacts	PTA CEMP (Aurora) AUG 2019	Weekly	Environment Advisor
		REPORTING			
Environmental Report	REP-1.1	Detail on Environmental achievements, monitoring results, incidents, audit outcomes and monthly report	SWTC Book2	Monthly	Environment Advisor
ASS Management Plan	REP-1.2	Within three days of a non-conformance having been reported, written notification of the time, date, and nature of the non-conformance, plus the corrective action (if required), shall be forwarded to the Site/Zone Superintendent and DWER.	NEWest ASS Management Jan 2021	As required	Environment Advisor
	REP-1.3	A summary report of all inspections shall be compiled each month and be submitted to the Site/Zone Superintendent.	NEWest ASS Management Jan 2021	Monthly	Environment Advisor
ASSDMP Close out Report	REP-2.1	Satisfying CSA reporting requirements for endorsement associated with completion dewatering	SWTC Book2	As required	Contaminated Sites Auditor Environmental Advisor
DSI Close out Report	REP-3.1	Detailed Site Investigation close-out report of the Ranford Road construction site	SWTC Book2	Within six monthly of practical completion	Contaminated Sites Auditor Environmental Advisor

Activity		Parameters	Source	Frequency	Responsibility
Project Environmental Close Out Report	REP-4.1	Detailed and collective summary of environmental information collected throughout the project and through the monthly environmental reports	SWTC Book2	Completion of construction works	Environment Advisor
Potential non-compliance or events	REP-5.1	Non-compliant reporting requirements	Internal	As required	Environment Advisor
	REP-5.2	Report any unauthorised clearing to PTA/DWER as soon as practicable after it is identified.	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	REP-5.3	Any significant fuel or other chemical spill to the environment should be reported to DWER within 24 hours.	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
Waste management	REP-6.1	Waste data is collected on the project to allow monthly reporting of the following: The quantity of each type of waste sent to landfill The quantity of each type of waste recycled The quantity of each type of waste reused The quantity of each type of hazardous/regulated waste generated on the project and: the method of treatment and disposal the location of treatment and disposal copies of records confirming the legal transport, treatment and disposal Measurement of any reduction in waste generation that has been achieved The quantity of waste in each solid waste stream is measured by weight and liquid waste stream by volume, with records provided by the waste transport subcontractor. Alternative measures may only be used when an economical alternative is not available.	SWTC Book2	As required	Environmental Advisor

Activity		Parameters	Source	Frequency	Responsibility
	REP-6.2	The following wastes are subject to specific monitoring and reporting requirements under the waste tracking system (where these waste streams are generated, they will be tracked from as per the relevant Act requirements): Hazardous non-liquid waste (e.g. batteries); Industrial non-liquid waste; and Liquid wastes including non-recyclable oils, fuels, chemicals and paint. All results of waste control inspections will be recorded on the Weekly Environmental Inspection Checklist. Actions arising from the inspections will be recorded in Synergy and each action will be allocated to the site supervisor for the work area. Details of waste removed off-site are to be recorded in Synergy and all relevant information is included in the project environmental monthly report.	SWTC Book2	As required	Environmental Advisor
Energy / GHG Emissions	REP-7.1	Report of energy use and GHG in line with legal and contractual obligations	SWTC Book2	As required	Environmental Advisor
Heritage	REP-8.1	Report and record number and description of any Aboriginal objects identified during construction activities to the DPLH	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
Dewatering and Groundwater abstraction	REP-9.1	Groundwater abstraction volumes and locations to be documented and reported in the Contractors Monthly Reporting.	PTA CEMP (Aurora) AUG 2019	Monthly	Environmental Advisor
	REP-9.2	A monthly environmental monitoring report will be prepared to summarise the results of monitoring during the reporting period (1st to 31st of each calendar month). These results will be provided in the annual Compliance Assessment Report.	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
	REP-9.3	Annual reporting of the management targets against the management objectives for Inland Waters will be detailed in an annual Compliance Assessment Report submitted the Proponent for each calendar year (1st January to 31st December), as required by condition 4-6 of MS 1114.	NEWest Ground water Abstraction EMP Nov 2020	Annually	PTA
	REP-9.4	A missed monitoring event will be treated as a potential non-compliance. The Proponent will be required to report the missed event to the CEO within seven (7) days of identification. The CEO will ultimately determine the outcome of the missed event.	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor
	REP-9.5	In the event that monitoring indicates that management targets (trigger and/or threshold criteria) have been exceeded, the Proponent will report the exceedance to the CEO within seven (7) days of identification. Following the investigation, the Proponent will provide a report to the CEO within twenty-one (21) days of the initial report.	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor
Contamination	REP-10.1	Maintain an inventory of hazardous materials storage including type of material, volume stored, and Material Safety Data Sheets	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	REP-10.2	Maintain a register of spills and leaks including location, date, nature of material spilt, and remedial action taken.	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	REP-10.3	A summary of spills and leaks to be reported monthly in the Contractors Monthly Reporting.	PTA CEMP (Aurora) AUG 2019	Monthly	Environmental Advisor
	REP-10.4	Reporting of any monitoring undertaken in line with Contractor's CEMP, SMPs, RAPs and/or ASS and Dewatering Management Plans.	PTA CEMP (Aurora) AUG 2019	As required	Environmental Advisor

Activity		Parameters	Source	Frequency	Responsibility
Weeds	REP-11.1	Report increase and subsequent control in declared or WONS weed species, density and/or numbers from pre-construction monitoring observations within the development envelope and surrounding native vegetation/wetlands to be reported in the Contractors Monthly Reporting.	PTA CEMP (Aurora) AUG 2019	Monthly	Environmental Advisor
Fauna	REP-12.1	Record any known injuries to, or deaths of fauna in a Fauna Interaction Register as soon as possible as the injury or death is identified (when attributable to construction) preferably on the same day.	PTA CEMP (Aurora) AUG 2019	As required	Environment Advisor
	REP-12.2	A report on the trapping program is to be prepared, providing details of the methods used, number of animals caught and relocated, and location of where they were released.	PTA CEMP (Aurora) AUG 2019	Annually	Environment Advisor
	REP-12.3	Reporting on the number of fauna relocated, injured or killed, and the adaptive management measures implemented	PTA CEMP (Aurora) AUG 2019	Monthly	Environment Advisor
		REVIEW			
Environmental and Heritage Obligations Register	REV-1.1	Review compliance with and status of all environment and heritage obligations and licences, permits and approvals, and provide to the PTA.	SWTC Book2	Monthly	Environment Advisor
EMP Review	REV-2.1	Review of sub plans and Appendices	Internal	Quarterly	Environment Advisor
Risk Register Review	REV-3.1	Review risks in relation to changes to work activity onsite	Internal	Monthly	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
Site Environmental Plan	REV-4.1	Review site environmental controls in relation to work activity onsite to ensure reflective of site conditions	Internal	Fortnightly	Environment Advisor
Groundwater and Dewatering Environmental Plan	REV-5.1	Review and revise the Groundwater and /or Dewatering Environmental Management Plan; or Review and revise the Groundwater and /or Dewatering Environmental Management Plan as and when directed by the CEO.	MS1114	As required	Environment & Sustainability Manager
	REV-5.2	Following completion of successive groundwater monitoring events – to evaluate trigger and threshold criterion with regards to seasonal variation.	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor
	REV-5.3	Following completion of abstraction activities – to evaluate the acceptability of the monitoring provisions for operation.	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor
	REV-5.4	In the event a project-attributable exceedance of a threshold criterion is recorded – to review and revise the plan, if required, by the findings of the monitoring report.	NEWest Ground water Abstraction EMP Nov 2020	As required	Environment Advisor

Activity		Parameters	Source	Frequency	Responsibility
Noise and Vibration Management Plan	REV-6.1	Revise the Noise and Vibration Management Plan Thornlie-Cockburn Link Transport Corridor Rail Operations (RN 675.10409.00100-R02, Version 4, 1 November 2018) to include: (1) an update to Section 5 Mitigation Measures, to show the final locations and minimum heights of noise walls as set out in Table 2 of Schedule 1; and (2) any updates to the design and construction of noise mitigation measures that will meet the noise and vibration management targets set out in Section 3 Noise and Vibration Criteria.	MS1114	3 months prior to operation	PTA
		AUDIT			
Internal SHEQ Audit	AUD-1.1	Review of CEMP compliance to CPB Contractors EMS/ ISO14001	Internal	As required	SHEQ Team
ASS Management Plan	AUD-1.2	During earthworks, a suitably-qualified person to conduct regular auditing of activities and ASS management measures along the Alignment. The audit shall take the form of a visual inspection of the alignment and associated control measures and a review of monitoring data.	NEWest ASS Management Jan 2021	Weekly/ or as required	Environment Advisor

Appendix E: Baseline Construction Program Summary

Project ID: BSTCL03A
Print Date: 11-Nov-21
Layout: TCL Full Program

METRONET - TCL
Overall Program
Data Date: 25-Aug-21

Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float
Metronet-TCL Baseline 03A		1259	25-Nov-19 A	16-Oct-26	0
PROJECT KEY DATES		1258	25-Nov-19 A	16-Oct-26	0
General		1255	25-Nov-19 A	16-Oct-26	0
TCL0101	KM-GE-Project Start (Preferred Proponent)	0	25-Nov-19 A		
TCL0102	KM-GE-PAA Signed	0		17-Dec-19 A	
TMDCF110	KM-GE-DES-REF-Reference design-Commencement	0	06-Jan-20 A		
TCL0103	KM-GE-Federal Approval By PTA	0	23-Jan-20 A		
TCL0104	KM-GE-PMF-Gate 3-Reference Design Complete	0		01-Sep-21	575
TCL0137	KM-GE-METRONET-Gate 1-Detail Design Complete / Issue for Construction	0		28-Jul-22	282
TCL1178	KM-GE-Civil Works Completion-ARC Line (Thornlie to Glen Iris)	0	15-Oct-22		176
TCL1138	KM-GE-Bridges Completion	0		04-Oct-23	246
TCL1188	KM-GE-Civil Works Completion-PTA Line (Thornlie to Glen Iris)	0	07-Dec-23		162
TCL1198	KM-GE-Station Commissioning Completion	0		12-Apr-24	891
TCL0139	KM-GE-Rail Works Completion	0		11-May-24	8
TCL0156	KM-GE-Stations Construction Completion	0		13-May-24	24
TCL00136	KM-GE-Commissioning Completion	0		29-May-24	64
TCL0140	KM-GE-METRONET-Gate 2-Construction Complete / Ready for Commissioning	0		03-Jun-24	3
T.K.FG.050	KM-GE-PMF-Gate 4-Infrastructure Conformance Certificate	0		17-Jul-24	1
TCL0105	KM-GE-Entry in to Service	0		17-Jul-24	821
TCL00137	KM-GE-Practical Completion (Excluding Contingency)	0		31-Jul-24	1
TCL0158	KM-GE-Practical Completion (Including Contingency)	0		10-Aug-24	1
T.K.FG.060	KM-GE-PMF-Gate 5-Certificate of final Asset Acceptance	0		04-Oct-24	2
TMZF0027	KM-GE-Handover to PTA for Maintenance	0		04-Oct-24	2
T.K.FG.070	KM-GE-PMF-Gate 6-Final Completion Certificate	0		16-Oct-26	0
Construction Completion		707	27-Jun-22	03-Jun-24	3
TCL0113	KM-CON-Zone 6 Construction Complete	0		27-Jun-22	682
TCL0109	KM-CON-BP Line Construction Complete	0		23-Sep-22	622
TCL1238	KM-CON-ARC Freight Line UM Completion	0		01-Oct-22	76
TCL1248	KM-CON-ARC Freight Line First Shift	0		08-Nov-22*	0
TCL0111	KM-CON-ARC Freight Line UM Completion	0		08-Apr-23	18
TCL0110	KM-CON-ARC Freight Line Second Shift	0		08-Apr-23*	0
TCL791	KM-CON-Sector 3 Construction Complete	0		05-Apr-24	34
TCL0116	KM-CON-Zone 5 Construction Complete	0		05-Apr-24	34
TCL781	KM-CON-Sector 2 Construction Complete	0		15-Apr-24	49
TCL0115	KM-CON-Zone 4 Construction Complete	0		15-Apr-24	49
TCL0112	KM-CON-Zone 2 Construction Complete	0		13-May-24	3
TCL0117	KM-CON-Zone 1 Construction Complete	0		28-May-24	9
TCL771	KM-CON-Sector 1 Construction Complete	0		03-Jun-24	3
TCL0114	KM-CON-Zone 3 Construction Complete	0		03-Jun-24	3
Traction Power		510	01-Sep-22	24-Jan-24	134
TCL0118	KM-TPO-WPC 132kV CSE Terminations	0		01-Sep-22	273
TCL0119	KM-TPO-Beckenham TF6 Feeding	0		01-Dec-23	188
TCL0120	KM-TPO-Beckenham TF5 Ready for Service	0		24-Jan-24	51
Bridges		614	20-Jul-20 A	04-Oct-23	246
TMMCV11S	KM-BDG-Ranford Rd Bridge-Site Works Commencement	0	20-Jul-20 A		
TMMCJ20	KM-BDG-Canning River Rail Bridge-Site Works Commencement	0	29-Jan-22		129
TMMCB909	KM-BDG-Ranford Rd Bridge-Bridge ready for Freight line DM rail works	0	26-Feb-22		172
TMMCB124	KM-BDG-Cameron/Elliott Pedestrian Bridge-Site Works Commencement	0	24-Mar-22		405
TMMCV10S	KM-BDG-Ranford Rd Bridge-Construction Complete	0		08-Mar-23	379
TMMCB114	KM-BDG-Cameron/Elliott Pedestrian Bridge-Construction Complete	0		01-Jun-23	284
TMMCB12S	KM-BDG-Canning River Rail Bridge-Construction Complete	0		04-Oct-23	246
Stations		468	26-Feb-21 A	13-May-24	18
Thornlie Station		429	12-Mar-23	13-May-24	3
TMEBB135	KM-STN-Thornlie Stn-Site Works Commencement	0	12-Mar-23		3
TMEBB715	KM-STN-Thornlie Stn-Stage 1 Recieve BCA Compliance Certificate	0		05-Mar-24	72
TMEBB725	KM-STN-Thornlie Stn-Stage 2 Recieve BCA Compliance Certificate	0		01-Apr-24	45
TMEBB001	KM-STN-Thornlie Stn-Commissioning Completion	0		13-May-24	3
Cockburn Station		45	10-Aug-21 A	27-Jun-22	682
TMEBB225	KM-STN-Cockburn Stn-Site Works Commencement	0	10-Aug-21 A		
TMEBB735	KM-STN-Cockburn Stn-Recieve BCA Compliance Certificate	0		13-May-22	727

Actual Work | Critical Remaining Work | Key Milestone
Remaining Work | Milestone | Remaining Level of Effort

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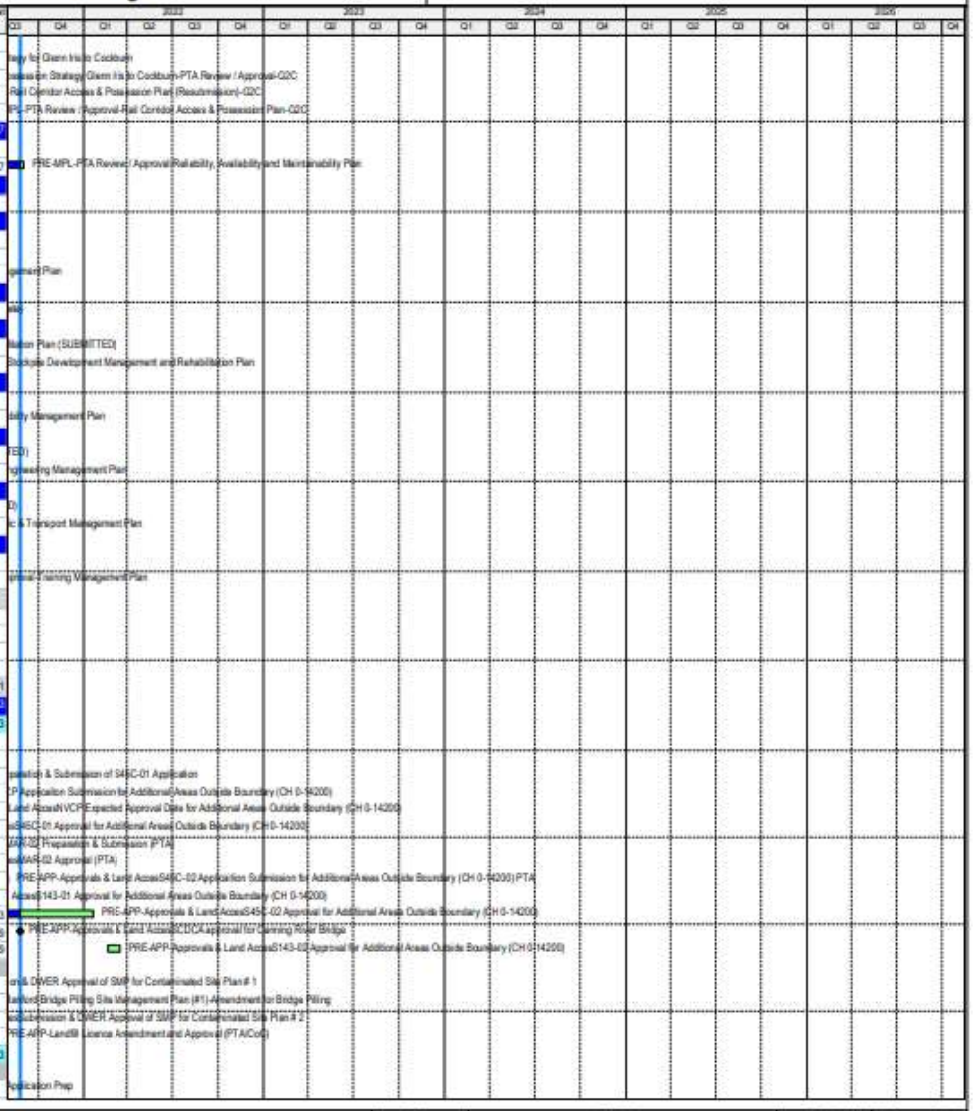
Date	Revision	Checked	Approved

Project ID: BSTCL03A
Print Date: 11-Nov-21
Layout: TCL Full Program

METRONET - TCL
Overall Program
Data Date: 25-Aug-21

Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float
TMAPF021	PRE-MPL-Rail Corridor Access & Possession Plan (FI)	0	06-Jan-20 A	03-Mar-20 A	
TMAPF251	PRE-MPL-Finalise Possession Strategy for Glenn Iris to Cockburn	0	04-Mar-20 A	25-Sep-20 A	
TMAPF261	PRE-MPL-Possession Strategy Glenn Iris to Cockburn-PTA Review / Approval-G2C	0	21-Oct-20 A	31-Mar-21 A	
TMAPF271	PRE-MPL-Rail Corridor Access & Possession Plan (Resubmission)-G2C	0	01-Apr-21 A	22-Apr-21 A	
TMAPF022	PRE-MPL-PTA Review / Approval-Rail Corridor Access & Possession Plan-G2C	0	22-Apr-21 A	21-May-21 A	
20. Reliability, Availability and Maintainability Plan		5	06-Jan-20 A	01-Sep-21	367
TMAPF047	PRE-MPL-Reliability, Availability and Maintainability Plan	0	06-Jan-20 A	19-Mar-20 A	
TMAPF048	PRE-MPL-PTA Review / Approval-Reliability, Availability and Maintainability Plan	5	20-Mar-20 A	01-Sep-21	367
21. Risk Management Plan		0	06-Jan-20 A	31-Jan-20 A	
TMAPF023	PRE-MPL-Risk Management Plan (Complete)	0	06-Jan-20 A	31-Jan-20 A	
22. Safety Management Plan		0	06-Jan-20 A	22-Jun-20 A	
TMAPF025	PRE-MPL-Safety Management Plan	0	06-Jan-20 A	16-Jan-20 A	
TMAPF211	PRE-MPL-Safety Management Plan Finalise	0	17-Jan-20 A	06-Mar-20 A	
TMAPF026	PRE-MPL-PTA Review / Comment Safety Management Plan	0	09-Mar-20 A	23-Jun-20 A	
23. Site Access & Stakeholder Management Plan		0	06-Jan-20 A	31-Jan-20 A	
TMAPF027	PRE-MPL-Site Access & Stakeholder Management Plan (Complete)	0	06-Jan-20 A	31-Jan-20 A	
24. Stockpile Development Management and Rehabilitation Plan		0	06-Jan-20 A	29-Sep-20 A	
TMAPF049	PRE-MPL-Stockpile Development Management and Rehabilitation Plan (SUBMITTED)	0	06-Jan-20 A	06-Mar-20 A	
TMAPF050	PRE-MPL-PTA Review / Approval-Stockpile Development Management and Rehabilitation Plan	0	09-Mar-20 A	29-Sep-20 A	
25. Sustainability Management Plan		0	06-Jan-20 A	24-Jul-20 A	
TMAPF051	PRE-MPL-Sustainability Management Plan Finalise	0	06-Jan-20 A	03-Apr-20 A	
TMAPF052	PRE-MPL-PTA Review / Approval-Sustainability Management Plan	0	06-Apr-20 A	24-Jul-20 A	
26. Systems Engineering Management Plan		0	06-Jan-20 A	03-Jul-20 A	
TMAPF029	PRE-MPL-Systems Engineering Management Plan (SUBMITTED)	0	06-Jan-20 A	25-Feb-20 A	
TMAPF030	PRE-MPL-PTA Review / Approval-Systems Engineering Management Plan	0	26-Feb-20 A	03-Jul-20 A	
27. Traffic & Transport Management Plan		0	06-Jan-20 A	25-Aug-20 A	
TMAPF053	PRE-MPL-Traffic & Transport Management Plan (SUBMITTED)	0	06-Jan-20 A	24-Feb-20 A	
TMAPF054	PRE-MPL-PTA Review / Approval-Traffic & Transport Management Plan	0	25-Feb-20 A	26-Aug-20 A	
28. Training Management Plan		0	06-Jan-20 A	30-Nov-20 A	
TMAPF055	PRE-MPL-Training Management Plan	0	06-Jan-20 A	03-Mar-20 A	
TMAPF056	PRE-MPL-PTA Review / Approval-Training Management Plan	0	04-Mar-20 A	30-Nov-20 A	
CONTRACTS & SERVICE AGREEMENTS		0	25-Nov-19 A	13-Jan-20 A	
TMZ0002	PRE-AGR-NEWest Mobilisation	0	25-Nov-19 A	29-Dec-19 A	
TMZ0001	PRE-AGR-PAA Commercial Closure	0	25-Nov-19 A	06-Dec-19 A	
TMZ0003	PRE-AGR-PAA Review & Acceptance	0	09-Dec-19 A	17-Dec-19 A	
TMZ0004	PRE-AGR-Finalise JV Agreements	0	18-Dec-19 A	13-Jan-20 A	
APPROVALS & PERMITS		136	18-Dec-19 A	17-Mar-22	491
Environmental Approvals / License / Permits		136	18-Dec-19 A	17-Mar-22	253
EPA / Federal Approvals		136	18-Dec-19 A	17-Mar-22	253
TMZ0593	PRE-APP-Approvals & Land Access\Receive EPA Approval	0	18-Dec-19 A	18-Dec-19 A	
TMZ0@001	PRE-APP-Approvals & Land Access\Receive EPBC Approval	0	19-Dec-19 A	23-Jan-20 A	
TMZ01373	PRE-APP-Approvals & Land Access\Preparation & Submission of S45C-01 Application	0	14-Feb-20 A	01-Sep-20 A	
TMZ01918	PRE-APP-Approvals & Land Access\NVCP Application Submission for Additional Areas Outside Bout	0	26-Aug-20 A	26-Aug-20 A	
TMZ05568	PRE-APP-Approvals & Land Access\NVCP Expected Approval Date for Additional Areas Outside Bou	0	27-Aug-20 A	04-Jan-21 A	
TMZ01898	PRE-APP-Approvals & Land Access\S45C-01 Approval for Additional Areas Outside Boundary (CH 0-	0	02-Sep-20 A	12-Oct-20 A	
TMZ01908	PRE-APP-Approvals & Land Access\MAR-02 Preparation & Submission (PTA)	0	07-Sep-20 A	23-Sep-20 A	
TMZ05078	PRE-APP-Approvals & Land Access\MAR-02 Approval (PTA)	0	23-Sep-20 A	20-Oct-20 A	
TMZ01948	PRE-APP-Approvals & Land Access\S45C-02 Application Submission for Additional Areas Outside B	0	13-Oct-20 A	02-Aug-21 A	
TMZ05048	PRE-APP-Approvals & Land Access\S143-01 Approval for Additional Areas Outside Boundary (CH 0-	0	13-Oct-20 A	23-Nov-20 A	
TMZ01958	PRE-APP-Approvals & Land Access\S45C-02 Approval for Additional Areas Outside Boundary (CH 0-	97	19-Jul-21 A	19-Jan-22	13
TAE-PG-PSW-LF-700	PRE-APP-Approvals & Land Access\SCDCA approval for Canning River Bridge	0		25-Aug-21	189
TMZ01899	PRE-APP-Approvals & Land Access\S143-02 Approval for Additional Areas Outside Boundary (CH 0-	19	18-Feb-22	17-Mar-22	249
Contaminated Site Permits (Ranford Rd Station Precinct)		0	14-Feb-20 A	12-Jul-21 A	
TMZ0233	PRE-APP-Approvals & Land Access\Submission & DWER Approval of SMP for Contaminated Site Plu	0	14-Feb-20 A	16-Jul-20 A	
TAE-PG-PSW-LF-1(	PRE-APP-Approvals & Land Access\Ranford Bridge Piling Site Management Plan (#1)-Amendment fo	0		21-Sep-20 A	
TAE-PG-PSW-LF-8(	PRE-APP-Approvals & Land Access\Submission & DWER Approval of SMP for Contaminated Site Plu	0		20-Oct-20 A	
TAE-PG-PSW-LF-1(	PRE-APP-Landfill Licence Amendment and Approval (PTA/CoC)	0		12-Jul-21 A	
Whole of TCL		12	20-Feb-20 A	10-Sep-21	273
Fauna		0	25-Mar-20 A	10-Jul-20 A	
TMZ01123	PRE-APP-Approvals & Land Access\Fauna Take License-Application Prep	0	25-Mar-20 A	31-Mar-20 A	



Actual Work | Remaining Work | Critical Remaining Work | Milestone | Key Milestone | Remaining Level of Effort

Date	Revision	Checked	Approved

Project ID: BSTCL03A
Print Date: 11-Nov-21
Layout: TCL Full Program

METRONET - TCL
Overall Program
Data Date: 25-Aug-21

Activity ID	Activity Name	Remaining Duration	Start	Finish	Total Float
TMZG1133	PRE-APP-Approvals & Land Access\Fauna Take License-Process DBCA	0	01-Apr-20 A	10-Jul-20 A	
TEC		0	20-Feb-20 A	05-Jun-20 A	
TMZG1143	PRE-APP-Approvals & Land Access\License to Modify TEC-Application Prep (PDE Approved Areas)	0	20-Feb-20 A	12-May-20 A	
TMZG1153	PRE-APP-Approvals & Land Access\License to Modify TEC-Process DBCA (Not Required at this Stag	0	01-Jun-20 A	05-Jun-20 A	
Threatened Flora Authorization		0	15-Jun-20 A	15-Jan-21 A	
TMZG1103	PRE-APP-Approvals & Land Access\Threatened Flora Authorisation-Application Prep	0	15-Jun-20 A	15-Jan-21 A	
TMZG1113	PRE-APP-Approvals & Land Access\Threatened Flora Authorisation-Process DBCA	0	15-Jun-21 A	15-Jan-21 A	
Out of Hours Work		0	18-Mar-20 A	09-Jul-20 A	
TMZG1553	PRE-APP-Approvals & Land Access\Out of Hrs Plan-Consultation with City of Melville	0	18-Mar-20 A	12-Jun-20 A	
TMZG1543	PRE-APP-Approvals & Land Access\Out of Hrs Plan-Consultation with City of Goanellla	0	18-Mar-20 A	12-Jun-20 A	
TMZG1533	PRE-APP-Approvals & Land Access\Out of Hrs Plan-Consultation with City of Cockburn	0	18-Mar-20 A	12-Jun-20 A	
TMZG1523	PRE-APP-Approvals & Land Access\Out of Hrs Plan-Consultation with City of Canning	0	18-Mar-20 A	12-Jun-20 A	
TMZG1583	PRE-APP-Approvals & Land Access\Out of Hrs Plan-Consultation with City of Vic Park	0	18-Mar-20 A	12-Jun-20 A	
TMZG0118	PRE-APP-Approvals & Land Access\Out of Hrs Plan-Application Prep	0	15-Jun-20 A	18-Jun-20 A	
TMZG0119	PRE-APP-Approvals & Land Access\Out of Hrs Plan-Process LGA	0	19-Jun-20 A	09-Jul-20 A	
Trade Waste Permit		12	08-Jun-20 A	10-Sep-21	152
TMZG1163	PRE-APP-Approvals & Land Access\Trade Waste Permit Water Corp-Application Prep	5	08-Jun-20 A	01-Sep-21	152
TMZG1173	PRE-APP-Approvals & Land Access\Trade Waste Permit-Process LGA	7	02-Sep-21	10-Sep-21	152
Environmental & Heritage Induction Package		0	06-Jan-20 A	17-Mar-20 A	
TMAPF231	PRE-APP-Approvals & Land Access\Preparation & Submission of Environmental & Heritage Induction	0	06-Jan-20 A	17-Mar-20 A	
TMAPF241	PRE-APP-Approvals & Land Access\Environmental & Heritage Risk Assessment Workshop	0	17-Mar-20 A	17-Mar-20 A	
Groundwater		27	06-Jan-20 A	04-Oct-21	162
Zone-01 & 02 Beckenham to Thornlie Station - Bore # 05 (CH 0 - 3500)		17	06-Jan-20 A	17-Sep-21	172
TMZG1233	PRE-APP-Approvals & Land Access\Canning River Works DCA-Application Prep-Zone-02	0	06-Jan-20 A	16-Mar-20 A	
TMZG0108	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Application Prep-Zone-02	0	16-Feb-20 A	24-Jul-20 A	
TMZG0107	PRE-APP-Approvals & Land Access\Licence for Bores (26D)-Application Prep-Zone-02	0	18-Feb-20 A	24-Jul-20 A	
TMZG1243	PRE-APP-Approvals & Land Access\Canning River Works DCA-Approval-Zone-02	0	17-Mar-20 A	03-Feb-21 A	
TMZG0116	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Process DWER-Zone-02	0	24-Jul-20 A	21-Aug-20 A	
TMZG0109	PRE-APP-Approvals & Land Access\Licence for Bores (26D)-Process DWER-Zone-02	0	25-Jul-20 A	21-Aug-20 A	
TMZG1253	PRE-APP-Approvals & Land Access\Canning River Permit to Interfere with Bed & BankApplication Pre	0	03-Aug-20 A	17-Aug-20 A	
TMZG1263	PRE-APP-Approvals & Land Access\Canning River Permit to Interfere with Bed & BankApproval-Zone	11	18-Aug-20 A	09-Sep-21	178
TMZG1013	PRE-APP-Approvals & Land Access\Preparation & Submission of Dewatering Management Plan-Zon	7	26-Aug-21	03-Sep-21	50
TMZG1503	PRE-APP-Approvals & Land Access\Approval of Dewatering Management Plan-Zone-02	10	06-Sep-21	17-Sep-21	50
Zone-03 Thornlie Station to Ranford Rd Bridge Bore # 04 (CH 3500 - 8000)		6	28-Jan-20 A	02-Sep-21	61
TMZG1023	PRE-APP-Approvals & Land Access\Preparation & Submission of Dewatering Management Plan-Zon	0	28-Jan-20 A	22-May-20 A	
TMZG693	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Application Prep-Zone-03	0	28-Jan-20 A	30-Apr-20 A	
TMZG713	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Process DWER-Zone-03	0	01-May-20 A	15-May-20 A	
TMZG1603	PRE-APP-Approvals & Land Access\Approval of Dewatering Management Plan-Zone-03	6	26-Aug-21	02-Sep-21	61
Zone-04 Ranford Bridge & Station Area Bore # 03 (CH 8000 - 9500)		0	06-Jan-20 A	14-Aug-20 A	
TMZG773	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Application Prep-Zone-04	0	06-Jan-20 A	21-May-20 A	
TMZG763	PRE-APP-Approvals & Land Access\Licence for Bores (26D)-Application Prep-Zone-04	0	13-Jan-20 A	21-May-20 A	
TMZG793	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Process DWER-Zone-04	0	22-May-20 A	05-Jun-20 A	
TMZG783	PRE-APP-Approvals & Land Access\Licence for Bores (26D)-Process DWER-Zone-04	0	22-May-20 A	05-Jun-20 A	
TMZG1033	PRE-APP-Approvals & Land Access\Preparation & Submission of Dewatering Management Plan-Zon	0	13-Aug-20 A	13-Aug-20 A	
TMZG1613	PRE-APP-Approvals & Land Access\Approval of Dewatering Management Plan-Zone-04	0	14-Aug-20 A	14-Aug-20 A	
Zone-05 Ranford Station to Glen Iris Tunnel Bore # 01 & 02 (CH 9500 - 14500)		27	20-Feb-20 A	04-Oct-21	40
TMZG853	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Application Prep-Zone-05 (Transfer fr	0	20-Feb-20 A	31-Jul-20 A	
TMZG873	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Process DWER-Zone-05	0	31-Jul-20 A	17-Aug-20 A	
TMZG18280	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-02-Application Prep-Zone-05	4	11-Aug-20 A	31-Aug-21	46
TMZG18281	PRE-APP-Approvals & Land Access\Licence to take Water (26D)-Application Prep-Zone-05	4	11-Aug-20 A	31-Aug-21	46
TMZG1043	PRE-APP-Approvals & Land Access\Preparation & Submission of Dewatering Management Plan-Zon	7	26-Aug-21	03-Sep-21	38
TMZG18186	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-03-Approval-Zone-05	17	01-Sep-21	23-Sep-21	46
TMZG18371	PRE-APP-Approvals & Land Access\Licence to take Water (26D)-Approval-Zone-05	17	01-Sep-21	23-Sep-21	46
TMZG1623	PRE-APP-Approvals & Land Access\Approval of Dewatering Management Plan-Zone-05	20	06-Sep-21	04-Oct-21	38
Zone-06 Glen Iris Tunnel to Cockburn Station Bore # 1A (CH 14500 - 18600)		0	09-Mar-20 A	23-Jul-21 A	
TMZG933	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Application Prep-Zone-06	0	09-Mar-20 A	16-Jun-21 A	
TMZG953	PRE-APP-Approvals & Land Access\Licence to take Water (SC)-Process DWER-Zone-06	0	16-Jul-21 A	23-Jul-21 A	
Aboriginal Heritage		0	01-Jun-20 A	19-Jun-20 A	
TMZG0121	PRE-APP-Approvals & Land Access\Section 18 (Canning River)-Application Prep	0	01-Jun-20 A	19-Jun-20 A	
Clearing Permit		46	14-Feb-20 A	29-Oct-21	271
TMZG1005	PRE-APP-Approvals & Land Access\DWER & NVCP Application Submission for Clearing Permits (Re	0	14-Feb-20 A	24-Aug-20 A	

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