pitt&sherry

CopperString 2032

Road Use Management Plan – TMR

Prepared for

CPB Contractors Pty Ltd

Client representative

Nick Poon

Date

15 September 2023

Rev00

Table of Contents

List of figures

List of tables

Appendices

Prepared by — Catherine Ryan		**Date** — 15 September 2023
Reviewed by — Stephen Masters (RPEQ No. 13621)		**Date —** 15 September 2023
Authorised by — Stephen Masters (RPEQ No. 13621)		**Date —** 15 September 2023

Revision History					
Rev No.	Description	Prepared by	Reviewed by	Authorised by	Date
A	Draft for JV Comment	CR	SM		01/09/23
00	Final	CR	SM	SM	15/09/23

1. Overview

1.1 Purpose and Scope

The purpose of the Road Use Management Plan (RUMP), applicable to State Controlled Roads, is to outline measures that will be implemented to appropriately manage road impacts, particularly associated with construction heavy vehicles, during the life of the CopperString 2032 Project. The RUMP outlines measures which aim to “avoid”, “manage” and “mitigate” project generated impacts and monitoring and reporting processes associated with the implementation strategies.

The RUMP includes a review of the existing road network, constraints, intersection assessment, speed limits, construction vehicle management plan, haulage of major plant/equipment, site vehicle movements, heavy/over dimensional vehicle movements, maintenance, safety and environment, detailed traffic design and all changes to the road network.

The RUMP is based on the findings of the CopperString 2032 Traffic Impact Assessment (TIA) - TMR (CU2-PW00-REP-PAS-100-0003).

1.2 Project Description

The CopperString 2032 Project will connect the North West Minerals Province (NWMP) of Queensland to the National Electricity Market (NEM) to reduce the cost of power supply and facilitate the large-scale development of the Hughenden wind resource and solar resources within the North Queensland Clean Energy Hub (NQCEH).

The project will traverse a region of significant potential renewable energy resources that are currently constrained by the lack of access to the state electricity grid. The project is expected to unlock potential areas for renewable energy generation in the Northern Queensland Renewable Energy Zone between Townsville and Hughenden, particularly wind resources, and in the NWMP.

The scope of work, traversing east to west, consists of the following sections:

- Mulgrave Substation and 275kV line augmentation as the CopperString 275kV connection point to the NEM
- Woodstock Substation as the CopperString 2032 500kV connection point to the Queensland SuperGrid
- Pentland Substation to support the NQCEH expansion and as the core for future load connections in the area
- Flinders Substation (Hughenden) as the core for the NQCEH
- Dajarra Road Substation (Cloncurry) as the core for distributions to larger load centres
- The primary CopperString 2032 transmission backbone; and
- Termination via the Mount Isa augmentation.

The NWMP is one the world’s richest producing mineral regions and is emerging as an exploration area for new economy minerals and metals, such as vanadium, that are critical to the production of renewable energy technologies such as solar panels, wind turbines and large scale batteries. The project is predicted to reduce electricity prices in the North West Power System and has the potential to stimulate investment in the NWMP.

1.3 Objectives

The key objectives of the RUMP are as follows:

- To promote safe operation of vehicles
- To avoid and manage impacts to the safety and operation of the State (and Local Authority) Controlled Road Network
- To minimise traffic incidents that could be related to the project
- To avoid and manage impacts on transport infrastructure (e.g. pavements, intersections, vulnerable structures); and
- To avoid and manage traffic impacts on community amenity (e.g. vehicle dust and noise).

1.4 Project Location

The project is to be undertaken in stages, generally running east to west between Townsville and Mount Isa. The transmission line will run approximately parallel to the Flinders Highway at an average of 15km south of the Highway for its length.

The project traverses 7 local government areas:

- City of Townsville
- Charters Towers Regional Council
- Flinders Shire
- Richmond Shire
- McKinlay Shire
- Shire of Cloncurry; and
- City of Mount Isa.

The main towns within proximity to the project are Townsville, Charters Towers, Hughenden, Richmond, Julia Creek, Cloncurry and Mount Isa.

The project traverses the traditional lands of the Birriah, Jangga, Yirendali, Wanamara, Mitakoodi, Kalkadoon and Yulluna Peoples, Traditional Custodians of the land.

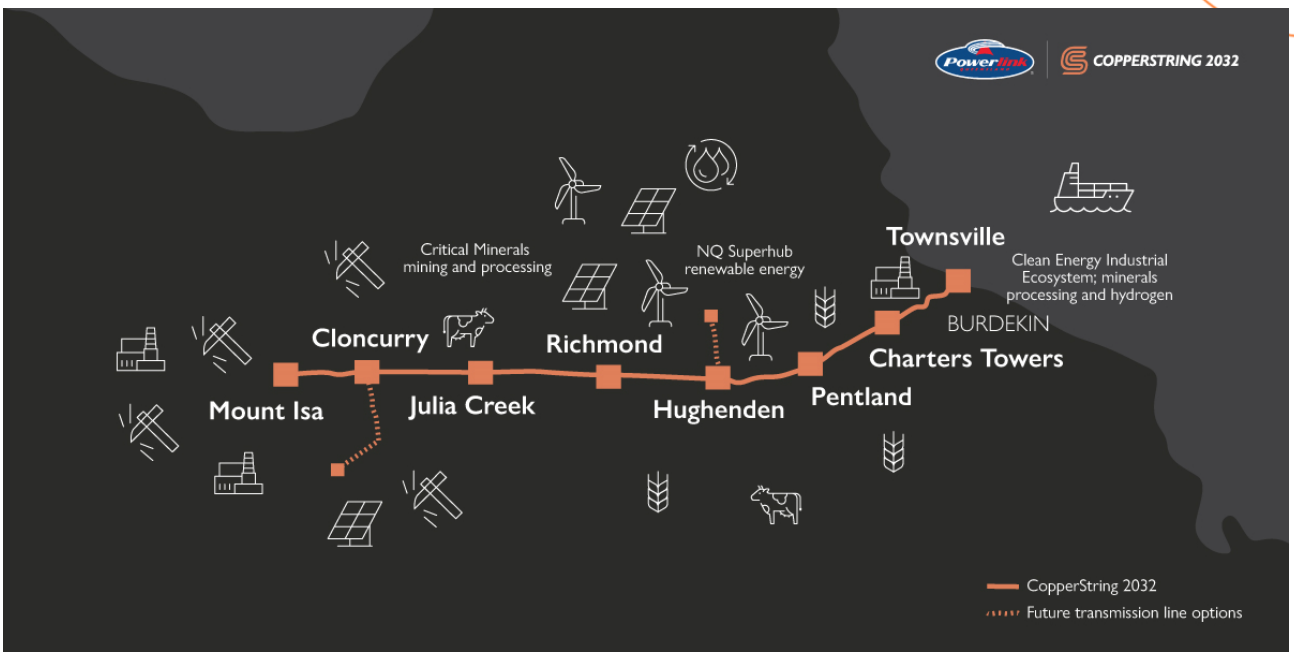


Figure 1 - Project Map Geographic Location (source document https://www.powerlink.com.au/projects/copperstring-2032)

For the list of impacted roads see Appendix A.

The CopperString 2032 project is divided into Work Zones, essentially creating Sub-Projects which have a defined scope based on the elements within their defined geographical area. Each Work Zone has a central Logistics Hub defined by the limiting the travel time from the Hub to the Tower Location to no more than 90 minutes.

At some Hub sites a construction camp is co-located. Table 1 outlines for each hub if it has a construction camp and what substation and which sections of the transmission line are being constructed from the Hub.

Table 1 – Logistic Hubs

#	Hub	Camp	Substation	Towers – cross check other reports
1	Mt Isa	Local accommodation	Mt Isa Substation	Mt Isa Sub to Cloncurry & Mt Isa midpoint
2	Cloncurry	Camp	Dajarra Rd Substation	Darjarra Sub to Cloncurry River Dajarra Sub to Cloncurry & Mt Isa midpoint Dajarra Sub to Cloncurry & Julia Creek Midpoint
3	Julia Creek	Camp		Cloncurry & Julia Creek midpoint to Julia Creek & Richmond midpoint
4	Richmond	Camp		Julia Creek & Richmond midpoint to Richmond & Hughenden midpoint
5	Hughenden	Camp	Flinders Substation (330 and 500 KV)	Flinders Sub to Richmond & Hughenden midpoint Finders Sub to Mt James Flinders Sub to Hughenden & Pentland midpoint
6	Penland	Camp	Pentland Substation	Hughenden & Pentland midpoint to Pentland & Charters Towers midpoint

#	Hub	Camp	Substation	Towers – cross check other reports
7	Charters Towers	Camp	Nil	Pentland & Charters Towers midpoint to Burdekin River
8	Woodstock	Local accommodation	Woodstock Substation Mulgrave Substation	Burdekin River to Woodstock Sub

Table 2 – Camp Locations

Location	Council	Distance from Nearest Town
Charters Towers	Charters Towers Regional Council	3 Km
Pentland	Charters Towers Regional Council	2 Km
Hughenden	Flinders Shire	2 Km
Richmond	Richmond Shire	1 Km
Julia Creek	McKinlay Shire	1 Km
Cloncurry	Cloncurry Shire	4 Km

1.5 Project Program

A detailed project program for the CopperString 2032 project, as supplied by the JV is included in Appendix C.

The peak of construction around each Logistics Hub to the CopperString 2032 transmission line is expected to be as follows:

- Woodstock Apr 2025 – Feb 2027
- Charters Towers Nov 2024 – Sep 2026
- Pentland Aug 2024 – Jan 2026
- Hughenden Sept 2024 – Jul 2026
- Richmond May 2025 – Oct 2026
- Julia Creek Sept 2025 – May 2027
- Cloncurry Jun 2026 – Oct 2027
- Mount Isa Sep 2026 – Jan 2028.

The construction timing for each substation is expected to be as follows:

- Mulgrave May 2024 – Aug 2025
- Woodstock May 2024 – Oct 2025
- Flinders June 2024 – Mar 2026
- Dajarra June 2024 – May 2026
- Mount Isa Oct 2024 – Jul 2026.

It is noted that the construction program is still fluid at the time of publishing this report due to the ongoing changes to the permanent design scope.

1.6 Materials Supply and Delivery

Many different components of the CopperString 2032 project generate traffic onto the public road network including

- Construction, operation and demobilisation of the logistics hubs / worker camps
- Construction and operational maintenance of the transmission lines; and
- Construction and operational maintenance of the substations.

The item that results in the highest traffic generational on the road network and has been assessed as shown in Table 3

Table 3 – Traffic Generation Project Phases

Construction item	Construction phase traffic	Operational phase traffic
Construction Logistics Hubs / Camps		X
Transmission line	X	
Substations	X	

There are 6 camps located along the CopperString 2032 project length. Each camp is proposed to house a maximum number of workers with those numbers differing from camp-to-camp dependent on the location of the next nearby camp and the number of transmission towers and substations in its designated area.

The maximum workforce for each camp is as follows:

- Charters Towers 210
- Pentland 300
- Hughenden 410
- Richmond 210
- Julia Creek 210
- Cloncurry 230.

It is noted that existing local accommodation will also be utilised at Townsville and Mt Isa.

All movements in and out of the camps will take the most direct route to the nearest major highway (generally either the Flinders Highway or Barkly Highway) and travel to their destination.

Generally, all workers will depart the camp in the morning peak hour (6:30 am to 7:30 am) and head to their worksite on the CopperString 2032 corridor, in the afternoon peak hour (6:30 pm to 7:30 pm) they will return to the camp. Deliveries will occur periodically throughout the day.

More detailed information regarding the operation and traffic routes used by the camps can be found in the CopperString 2032 Camps TIAs

Based on the construction program, roads and access routes which access a large number of towers may carry traffic for multiple construction stages.

Generally, the site establishment works occur well before other construction stages. For roads and access points that access few towers, this stage is likely to generate the highest traffic volumes.

2. Stakeholder and Communications Management

2.1 Consultation with Stakeholders and Communities

Engagement with project stakeholders and the community will continue for the life of the project and be delivered through the JV prepared Community Liaison Management Plan (CLMP) (0643-JV-PLN-CLM-0004). The CLMP will be designed to inform the community and stakeholders and build up two-way communication mechanisms. The CLMP will remain a live document and will be updated as required during pre-construction and construction periods to support CETC's implementation of the project's Stakeholder Engagement Strategy.

The outcomes and required actions arising from ongoing stakeholder consultation will be documented and reviewed to ensure completion.

2.2 Sensitive Sites Consultation

Standard construction hours will be Monday to Sunday 7 am to 7 pm with construction traffic expected to be evident between 6:30 am and 7:30 pm. There is potential for works to be undertaken outside of standard working hours work to undertake critical activities which may not be possible during standard hours due to other restrictions, and which will be subject to permitting requirements.

Where works are contemplated outside of normal working hours and may impact nearby sensitive sites such as school, hospitals, religious sites, and other key stakeholders, these parties will be notified of the impending works and provided details of the scope and duration of these activities and relevant contact details to lodge enquiries or complaints in accordance with the key stakeholder requirements and engagement activities outlined in the project CLMP.

The area in which CopperString 2032 will be delivered is of cultural significance to local Aboriginal communities. It has been identified in the Construction Methodology Management Plan that the project does not disturb areas of cultural heritage without authorisation. The JV will ensure that cultural heritage surveying is completed, and areas of significance are demarcated off in conjunction with cultural heritage monitors and onsite supervision, as required, for any works within road reserves, as per requirements of the Construction Environmental Management Plan (CEMP) and detailed Cultural Heritage Management Plans (CHMPs).

CETC has long been consulting with Traditional Owner groups for the CopperString 2032 project. The project has agreed CHMPs for the following entities.

- Kalkadoon Native Title Aboriginal Corporation RNTBC
- Mitakoodi People #5
- Wanamarra People Core Country Claim
- Yirendali People Core Country Claim
- Yulluna Aboriginal Corporation RNTBC ICN 7112
- Birriah People
- Jangga People #2.

CETC has partnered with a specialist consultancy to ensure cultural heritage (both Aboriginal and European) has been addressed.

2.3 Identify Key Stakeholders

Table 4 - Key Stakeholders

Stakeholder	Stakeholder Representative	Contact Details	Stakeholder Category
Department of Transport and Main Roads	The Honourable Mark Bailey MP Minister for Transport & Main Roads A/Director General TMR: Sally Stannard Deputy Director General Infrastructure Management & Delivery: Julie Mitchell GM Statewide Network Operations: Vincent Doran	Phone: (07) 4421 8700 Email: engagement.northern@tmr.qld.gov.au	Government Organisation
Queensland Rail	CEO: Katarzyna Stapleton	Phone: 13 16 17 Email:	Key Stakeholder Organisation
City of Townsville	CEO: Prins Ralston Communications & Marketing: Katrina Appleton GM Community Engagement: Sarah Sullivan	Phone: 13 48 10 Email: enquiries@townsville.qld.gov.au	Local Government
Charters Towers Regional Council	CEO: Martin Drydale	Phone: 07 4761 5300 Email: mail@charterstowers.qld.gov.au	Local Government
Flinders Shire	CEO: Hari Boppdui Director of Community Services & Wellbeing: Barbra Smith	Phone: (07) 4741 2900 Email: flinders@flinders.qld.gov.au	Local Government
Richmond Shire	CEO: ????	Phone: (07) 4719 3377 Email: enquiries@richmond.qld.gov.au	Local Government

Stakeholder	Stakeholder Representative	Contact Details	Stakeholder Category
McKinlay Shire	CEO: Trevor Williams Directory of Corporate & Community Services: Tennell Cody	Phone: (07) 4746 7166 Email: reception@mckinlay.qld.gov.au	Local Government
Shire of Cloncurry	CEO: Philip Keirle Director of Community Services: Jessica Greenaway	Phone: (07) 4742 4100 Email: council@cloncurry.qld.gov.au	Local Government
City of Mount Isa	CEO: Tim Rose Director Corporate & Community Services: Chileya Luangala	Phone: (07) 4747 3200 Email: city@mountisa.qld.gov.au	Local Government
Port of Townsville Limited	CEO: Ranee Crosby COO: Drew Penny	Phone: 07 4781 1500 Email: info@townvillleport.com.au	Adjacent
Emergency Services	Queensland Police Service Queensland Fire and Rescue Services Queensland Ambulance Service State Emergency Services	Police Phone: 131 444 Fire & Rescue Phone: 13 QGOV (13 7468) Ambulance Phone: 13 QGOV (13 7468) SES Phone: 132 500	Emergency Services
Northern Stevedoring Services Port Logistics	General Manager: David King	Phone: 07 4722 4800 Email: info@nsspl.com.au	Freight Services
NQ Freighters		Phone: 07 4772 6118 Email: admin@nqfreighters.com.au	Freight Services
TransLink		Phone: 07 4771 9800 Email: townsville@tagroup.net.au	Transport Operator
Greyhound Australia		Phone: 1300 473 946	Transport Operator

The CLMP will identify any further interested parties for consideration as to the road use impact. Other key stakeholder groups identified may include but not be limited to:

- Schools
- Hospitals
- Public transport operators
- Freight companies
- Adjacent residents and landowners
- Road owners; and
- All road users.

2.4 Complaints/Enquiries/Media Interest

The official spokesperson for Powerlink is the Chief Executive. Contractors, subcontractors, or consultants will not make comments to the media, or say ‘no comment’.

All CopperString 2032 media enquiries will be managed by Powerlink’s 24/7 media hotline on 07 3860 2654 or email: projects@powerlink.com.au.

For community complaints/enquiries, these will be managed by the Powerlink CopperString 2032 project team via 1800 635 369, email: copperstring2032@powerlink.com.au, or via community notices or public updates available on the project webpage: www.powerlink.com.au/copperstring2032.

3. Road Network and Traffic Management

Both State controlled and local roads will be utilised for the haulage of construction materials and equipment for the CopperString 2032 project. The construction of the transmission line and associated infrastructure will require significant movements of materials, equipment, and personnel. The transportation of the workforce and required materials will result in a significant number of vehicle movements along state-controlled roads and numerous local council operated roads.

The principal road is the Flinders Highway, which becomes the Barkly Highway west of Cloncurry. This Highway forms the east-west backbone of the project. Other major roads provide links to the north and south from the Flinders Highway. The most notable of these roads are Gregory Development Road, Kennedy Development Road, Landsborough Highway and Burke Development Road.

3.1 Road Mitigation Measures

To maintain road condition and safety the following may be implemented as a minimum to aid in risk mitigation measures.

- Investigate car and bus pooling arrangement for workforce mobilisation to reduce volume and likelihood of fatigue, animal interactions and congestion
- Procedures (and technology) to make project personnel aware of road conditions and road safety concerns in daily toolbox meetings and reinforce the need to obey road speed restrictions, drive to conditions, including reducing speed as dictated by the conditions and road surface, and that sight distances are often limited due to topography
- Driver assessment and training, if required
- Mechanism for project personnel to submit road condition and safety concerns, including:
    - Sight distance obstructions
    - Potholes
    - Loss of road traction
    - Corrugations in road surface
    - Faded linemarking
    - Missing or damaged road signs
    - Missing or damaged delineators/reflectors
    - Impacted safety barriers/fences
    - Deterioration of road surfaces
- Maintaining or improving sight distances by:
    - Clearing obstructing vegetation in the road zone by mowing grass, removing tree branches and/or clearing re-sprouting vegetation
    - Install advance warning signage notifying of the presence of an intersection where it obscures sight distance
    - Contacting relevant road authorities to have signs or other road furniture relocated where it obscures sight distance
- Scheduling heavy vehicle movements in the vicinity of schools, outside of school start and finish times and bus commute times (7:00 am to 9:00 am and 3:00 pm and 5:00 pm) as far as practicable
- Inspecting the condition of the road networks being used for the works prior to construction to establish a

baseline road standard, and regularly during construction activities to identify any road deterioration that may require repair (i.e. dilapidation survey)

- Maintaining the roads, repairing and rectifying issues as soon as practicable and in consultation with relevant Road Authorities (i.e. in accordance with a road user agreement)
- Manage traffic on narrow roads by using:
    - Shuttle flow or similar where the road width is less than standard for predicted traffic volumes following consultation with the relevant Road Authorities
    - Use of relevant traffic control devices where heavy vehicles are required to cross the centreline following consultation with the relevant Road Authority
    - Vehicles suitable for the road geometry and/or carrying out minor road/shoulder works in agreement with the relevant Road Authority or using alternative routes
- Plan heavy, oversize and overmass (OSOM) vehicle routes considering:
    - Vehicle and load specifications
    - Bridge load limits and carriageway dimensions and geometry
    - Detail route assessments undertaken in accordance with National Heavy Vehicle Regulator (NHVR) requirements.

3.2 Road Network Capacity

3.2.1 Road Width

The Department of Transport and Main Roads (TMR) roads in the study area and the width of each of these roads is shown in Table 5.

Table 5 - TMR Roads

Road ID	Road Name	Road Width	Shoulder Width
4	Townsville Port Road	7.0m	2.0-2.5m
5	Bruce Highway	7.2m	0.5m
6	Ayr Dalbeg Road	6.0-7.0m	0.0-0.2m
7	Flinders Highway	7.0m	1.0m
8	Ayr Ravenswood Road	4.2-7.0m	0.0-0.3m
11	Burdekin Falls Dam Road	5.5-6.0m	No shoulder provided
15	Gregory Developmental Road (north)	7.0m	0.6m minimum, significantly wider in some sections
26	Gregory Developmental Road (south)	6.7-7.0m	0-1.3m

37	Aramac Torrens Creek Road	7.8-8.1m	No shoulder provided
45	Kennedy Developmental Road (south)	6.4-7.6m	No shoulder provided
54	Richmond Winton Road	2.9-4.7m wide	No shoulder provided
61	Julia Creek Kynuna Road	4.1-5.4m wide	No shoulder provided
68	Landsborough Highway	7.0-7.2m	0.2-0.5m
73	Barkly Highway	Awaiting survey data	Awaiting survey data
76	Burke Developmental Road	7.0-7.2m	0.3m
78	Cloncurry Duchess Road	6.0 to 6.5m	No shoulder provided
81	Mount Isa Duchess Road	Typically 6.2m 8.8m south of Mount Isa CBD	No shoulder provided south of Mount Isa CBD
83	Diamantina Developmental Road	6.0 to 7.0m	No shoulder provided
87	Boulia Mount Isa Road	8.0m	No shoulder provided

3.2.2 Intersections

The TMR intersections in the study area, their control type and current approval is shown in Table 6.

Table 6 - TMR Intersections

Intersection ID	Intersection			HV approval	Intersection Type
	Road 1	Road 2	Road 3		
4.1	Townsville Port Road	Archer Street		Type 2 road train approved	Unsignalised T-intersection
5.1	Bruce Highway	Ayr Dalbeg Road		HML approved	Unsignalised T-intersection
6.1	Ayr Dalbeg Road	Ayr Ravenswood Road		Not approved	Unsignalised T-intersection
8.1	Ayr Ravenswood Road	Downing Street	Murray Street	Not approved	Unsignalised 4-way intersection
8.3	Ayr Ravenswood Road*	Deighton Street		Not approved	Unsignalised T-intersection

Intersection ID	Intersection			HV approval	Intersection Type
	Road 1	Road 2	Road 3		
	(Macrossan Street)				
11.1	Burdekin Falls Dam Road	Ayr Ravenswood Road		Not approved	Unsignalised T-intersection
11.2	Burdekin Falls Dam Road	Silver Valley Road		Not approved	Unsignalised T-intersection
11.3	Burdekin Falls Dam Road* (Hervey Street)	Burdekin Falls Dam Road		Type 2 road train approved	Unsignalised T-intersection
7.1	Flinders Highway	Burdekin Falls Dam Road		Type 2 road train approved	Unsignalised T-intersection
7.2	Flinders Highway	Amity Road		Not approved	Unsignalised T-intersection
7.3	Flinders Highway	Gregory Developmental Road (north)		Type 2 road train approved	Unsignalised T-intersection
7.4	Flinders Highway	Millchester Road		Type 1 road train approved	Unsignalised 4-way intersection
15.1	Gregory Developmental Road (north)* (Dalrymple Road)	Bridge Street	Hackett Terrace	Type 2 road train approved	Unsignalised 4-way intersection
15.2	Gregory Developmental Road (north)	Hewett Street		Not approved	Unsignalised 4-way intersection
7.5	Flinders Highway	Phillipson Road		Not approved	Unsignalised T-intersection
7.6	Flinders Highway	Gregory Developmental Road (south)		Type 2 road train approved	Unsignalised T-intersection
7.7	Flinders Highway	Braceborough Road (west)		Not approved	Unsignalised T-intersection
7.8	Flinders Highway	Red Road		Not approved	Unsignalised T-intersection
7.9	Flinders Highway	Lauderdale Road (east)		Not approved	Unsignalised T-intersection

Intersection ID	Intersection			HV approval	Intersection Type
	Road 1	Road 2	Road 3		
7.10	Flinders Highway	Lyons Creek Road		Not approved	Unsignalised T-intersection
7.11	Flinders Highway	Aramac Torrens Creek Road		Type 2 road train approved	Unsignalised T-intersection
7.12	Flinders Highway	Prairie Road		Not approved	Unsignalised 4-way intersection
7.14	Flinders Highway	Redcliffe Road		Not approved	Unsignalised T-intersection
7.15	Flinders Highway	Unnamed Local Road (off Flinders Highway at Hughenden – south of Mount Isa Line)		Not approved	Unsignalised T-intersection
7.16	Flinders Highway	Unnamed Road (off Flinders Highway at Hughenden – to Hughenden Camp)		Not approved	Unsignalised T-intersection
7.17	Flinders Highway	Kennedy Developmental Road (south)		Type 2 road train approved	Unsignalised 4-way intersection
45.1	Resolution Street	Kennedy Developmental Road (south)		Type 2 road train approved	Unsignalised 4-way intersection
45.2	Kennedy Developmental Road (south)	Mclaren Street		Type 2 road train approved	Unsignalised T-intersection
7.18	Flinders Highway* (Gray Street)	Stansfield Street		Type 2 road train approved	Unsignalised 4-way intersection
7.19	Flinders Highway	Unnamed Road (off Flinders Highway – to PTL-FLR_284 to FLR-DJR_82)		Not approved	Unsignalised T-intersection
7.20	Flinders Highway	Marathon Stamford Road		Not approved	Unsignalised 4-way intersection

Intersection ID	Intersection			HV approval	Intersection Type
	Road 1	Road 2	Road 3		
7.21	Flinders Highway	Barabon Terranburby Road		Not approved	Unsignalised 4-way intersection
7.22	Flinders Highway	Benean Road		Not approved	Unsignalised T-intersection
7.23	Flinders Highway* (Goldring Street – Richmond)	Larsen Street		Type 2 road train approved	Unsignalised 4-way intersection
7.24	Flinders Highway	Crawford Street		Type 2 road train approved	Unsignalised 4-way intersection
7.25	Flinders Highway	Pattel Drive		Not approved	Unsignalised T-intersection
7.26	Flinders Highway	Richmond Winton Road		Type 2 road train approved	Unsignalised T-intersection
7.27	Flinders Highway	Maxwelton Kynuna Road		Not approved	Unsignalised 4-way intersection
7.28	Flinders Highway	Minamere Nelia Road		Not approved	Unsignalised 4-way intersection
7.29	Flinders Highway	Yorkshire Nelia Road		Not approved	Unsignalised T-intersection
7.30	Flinders Highway	Yorkshire Road		Not approved	Unsignalised T-intersection
7.31	Flinders Highway	Burke Street (eastern intersection)		Not approved	Unsignalised T-intersection
7.32	Flinders Highway	Burke Street (western intersection)		Not approved	Unsignalised T-intersection
7.33	Flinders Highway	Julia Creek Kynuna Road		Type 2 road train approved	Unsignalised 4-way intersection
7.34	Flinders Highway	Allison Street		Not approved	Unsignalised 4-way intersection
7.35	Flinders Highway	Mckinlay Gilliat Road		HML approved	Unsignalised T-intersection

Intersection ID	Intersection			HV approval	Intersection Type
	Road 1	Road 2	Road 3		
7.36	Flinders Highway	Ivellen Road		Not approved	Unsignalised T-intersection
7.37	Flinders Highway	Oorindi Mckinlay Road		Not approved	Unsignalised T-intersection
7.38	Flinders Highway	Landsborough Highway		Type 2 road train approved	Unsignalised T-intersection
7.39	Flinders Highway	Andrew Daniels Drive		Type 2 road train approved	Unsignalised T-intersection
7.40	Flinders Highway	Round Oak Road		Type 2 road train approved	Unsignalised T-intersection
76.1	Burke Developmental Road	Hensley Drive		Type 2 road train approved	Unsignalised T-intersection
73.1	Barkly Highway	Powerhouse Road (Cloncurry)		Type 2 road train approved	Unsignalised T-intersection
73.2	Barkly Highway	Burke Developmental Road		Type 2 road train approved	Unsignalised T-intersection
73.3	Barkly Highway	Chinaman Creek Dam Road		Not approved	Unsignalised T-intersection
73.4	Barkly Highway	Cloncurry Duchess Road		Type 2 road train approved	Unsignalised T-intersection
73.5	Barkly Highway	Mount Frosty Road		Not approved	Unsignalised T-intersection
73.6	Barkly Highway	East Leichardt Road		Not approved	Unsignalised T-intersection
73.7	Barkly Highway	Mount Isa Duchess Road		Type 2 road train approved	Signalised 4-way intersection
81.1	Mount Isa Duchess Road	Rodeo Drive		Type 2 road train approved	Roundabout
81.2	Mount Isa Duchess Road	Twenty Third Avenue		Type 2 road train approved	Unsignalised T-intersection
73.8	Barkly Highway	Diamantina Developmental Road		Type 2 road train approved	Signalised T-intersection

Intersection ID	Intersection			HV approval	Intersection Type
	Road 1	Road 2	Road 3		
83.1	Diamantina Developmental Road	Twenty Third Avenue		Type 2 road train approved	Unsignalised Y-intersection
83.2	Diamantina Developmental Road	Diamantina Developmental Road (Council owned)		Type 2 road train approved	Unsignalised Y-intersection
87.1	Boulia Mount Isa Road	Moran Road		Not approved	Unsignalised T-intersection

3.2.3 Road Width Suitability and Level of Service

All intersections and new driveways in the study area for the project will be upgraded to accommodate B-double vehicles if they do not currently have the capacity to do so. In addition, right and left turn lanes will be added, if required to ensure efficient and safe movements at intersections.

The Project's expectation is that all existing TMR roads are suitable for two-way movements of B-double trucks.

3.3 Pavement/Road Surfaces

The impact of the increase in traffic and the number of heavy vehicles will accelerate the deterioration of the road pavement resulting in an increase in surface defects. If water enters the pavement layers through the surface defects this will impact the long-term strength and performance of the pavement.

The TIA identifies that the roads listed in Table 7 are expected to see an increase of more 5% in pavement traffic volumes (Standard Axle Repetitions or SAR) in at least one year of the project.

To provide a continuous safe and efficient movement of vehicles and safe environment for the construction workforce, regular scheduled inspections of pavement surface will be conducted.

The Queensland Department of Transport and Main Roads Guide to the Visual Assessment of Pavements will be used as a resource to assist in the identification of pavement performance issues and possible causes and modes of pavement distress or failures.

If a notable deterioration of the pavement surface is identified this may implement an agreed series of routine maintenance to repair and rectify issues as soon as practicable in consultation with relevant authorities and/or road owners.

Table 7 - TMR Identified Roads with an Increase of 5% of Traffic Volume

Road ID	Road	Road owner	Expected busiest period	Activity/ies resulting in highest traffic generation
4	Townsville Port Road	TMR	Jun 2024-Sep 2028 (construction duration)	Transport of large items from Townsville Port to camps and transmission line

Road ID	Road	Road owner	Expected busiest period	Activity/ies resulting in highest traffic generation
5	Bruce Highway	TMR	Jun 2024-Sep 2028 (construction duration)	Transport of large items from Townsville Port to camps and transmission line
6	Ayr Dalbeg Road	TMR	Jun 2024-Sep 2028 (construction duration)	Transport of large items from Townsville Port to camps and transmission line
7	Flinders Highway	TMR	Jun 2024-Sep 2028 (construction duration)	Overlap of: • Transport of large items from Townsville Port to camps and transmission line • Transmission line construction • Substation construction • Movements to/ from camps
8	Ayr Ravenswood Road	TMR	Nov 2025-Jun 2026	Overlap of: • Foundation works • Tower Assembly and Erection • Line stringing
11	Burdekin Falls Dam Road	TMR	Nov 2025-Jun 2026	Overlap of: • Foundation works • Tower Assembly and Erection
15	Gregory Developmental Road (north)	TMR	Nov 2025-Jun 2026	Charters Towers camp operational traffic
26	Gregory Developmental Road (south)	TMR	Nov 2025-Jun 2026	Overlap of: • Foundation works • Tower Assembly and Erection; and • Line stringing.
37	Aramac Torrens Creek Road	TMR	Jun-Oct 2025	Overlap of: • Foundation works • Tower Assembly and Erection; and • Line stringing.
45	Kennedy Developmental Road (south)	TMR	Apr-Jun 2026	Overlap of: • Foundation works; and • Tower Assembly and Erection.
54	Richmond Winton Road	TMR	May-Aug 2026	Overlap of: • Tower Assembly and Erection; and • Line stringing.
61	Julia Creek Kynuna Road	TMR	Oct 2026	Tower Assembly and Erection

Road ID	Road	Road owner	Expected busiest period	Activity/ies resulting in highest traffic generation
68	Landsborough Highway	TMR	Jun-Jul 2026	Site establishment, civil and earthworks
73	Barkly Highway	TMR	Jun 2024-Sep 2028 (construction duration)	Overlap of: • Transport of large items from Townsville Port to camps and transmission line • Transmission line construction • Substation construction; and • Movements to/ from camps.
76	Burke Developmental Road	TMR	Jul 2026-Oct 2027	Cloncurry camp operational traffic
78	Cloncurry Duchess Road	TMR	Mar-Apr 2027	Tower Assembly and Erection
81	Mount Isa Duchess Road	TMR	Oct 2026	Site establishment, civil and earthworks
83	Diamantina Developmental Road	TMR	Oct 2026	Site establishment, civil and earthworks
87	Boulia Mount Isa Road	TMR	Oct 2026	Site establishment, civil and earthworks

3.4 Floodwater

Drivers shall be required to drive to the conditions of the road. They will not be permitted to drive through flooded floodways and roads.

When the road is either closed or a limitation is placed on the road due to e.g. wet weather or flooding, temporary road restrictions will be in place and the appropriate signage will be displayed.

If flooding is likely, plans will be made, and alternative routes may be investigated. Drivers will obey all road closure signs. If flooding occurs drivers will not drive on roads until the road is open again, and access approved by the relevant authorities and/or road owners.

3.5 Rail

All drivers shall be required to obey all level crossing signs and signals to avoid incidents. The following safety precautions will be conveyed to drivers at level crossings;

- Slow down to a speed which allows drivers to stop quickly
- Drivers will stop at a crossing if:
    - There is a stop sign
    - Red lights are flashing
    - The boom arm is in the lowered position

- A traffic controller or emergency services personnel signals to stop; and

- Be aware of the surroundings and avoid distractions.

The TIA and separate rail crossing assessments have reviewed the risks associated with the increased volume of traffic crossing the rail corridor, and have proposed controls, upgrades or modifications as required. This will be in consultation with Queensland Rail.

3.6 Bridges

The JV Logistics Management Plan (draft 0643-JV-PLN-LMP-0016) for CopperString 2032 had identified a number of over-size over-mass (OSOM) loads will be required to be transported from their point to origin to their final position at the various substations along the alignment during the construction schedule. Permits for these loads will be managed by the Project through the heavy haulage logistics suppliers who are responsible for the delivery of this heavy equipment.

The path for heavy vehicle haulage from the Port of Townsville to Woodstock substation via Ayr has identified a restricted structure “Do Not Cross” exists on one of the bridge structures on Burdekin Falls Dam Road, the bridge is 6.3km northwest of Ravenswood.

The heavy haulage path from the Port of Townsville to the Mt Isa, Dajarra Road, Flinders, and Pentlands substations is via the Flinders Highway initially and then the Barkly Highway west of Cloncurry. A number of structures exist along this route which are designated as “Conditional Structures (Single Trip)”

- 13.8km Northeast of Pentland
- 20km West of Hughenden
- 48km East of Richmond
- 33km East of Richmond; and
- 41km East of Cloncurry.

This information has been obtained from the National Heavy Vehicle Regulator Route Planner Tool (nhvr.gov.au). The path of the heavy vehicles shall be mapped out by heavy haulage experts to determine if any infrastructure amendments shall be made along the way.

Based on the outcome of the assessment it is expected that the freight haulers and contractors will be required to implement appropriate controls to protect bridge integrity including;

- Reducing speed and travelling at a uniform speed across the bridge; and
- Restricting other traffic and using the full width to distribute the load.

For bridges where the proposed vehicle types and configuration exceeds the load limits or dimensions the following is proposed to be implemented:

- Conduct an engineering assessment of the bridge structure and seek permission for travel over the bridge from the relevant owner or authority if deemed safe to do so
- Use an alternative vehicle configuration; and
- Adopt an alternative route to avoid the bridge and undertake bridge assessment if the new routes are outside project travel routes.

3.7 Signage

To provide a continuous safe and efficient movement of vehicles and safe environment for the construction workforce regularly scheduled visual inspections of signage will be conducted, to identify damaged and/or missing road signs.

If a notable deterioration of the signage is identified or signs are missing this may implement an agreed series of routine maintenance and replacements as agreed with relevant authorities and road owners.

3.8 Speed

Travel on the open road will be in accordance with the legal posted speed limits or as otherwise advised depending upon the condition of the road. If required additional project specific speed limits maybe applied as agreed with the road asset owner.

Except where a lower speed limit applies all heavy vehicles are limited to a maximum speed of 100 kilometres per hour.

3.9 Traffic Control

A duty of care will be undertaken when planning and implementing traffic control, all works will be carried out in a manner that ensures it is at all times safe for road and track users, members of the public and workers. The JV Traffic Management Procedure will be used as a guideline for the development, review, and implementation of Construction Traffic Management Plans (CTMPs) and interfacing with live vehicle traffic.

TMP's which are required for submission to Roads or other authorises for approval will be prepared by suitably experienced, licensed persons in accordance with local (state) requirements including Transport Operations (Road Use Management) Act 1995 and Transport Operations (Road Use Management – Accreditation and Other Provisions) Regulation 2015.

3.10 Vehicle Management Plan

Prior to the project's on-ground presence, approvals will be obtained for road usage, and the following management plans will be prepared as part of the project's response to ministerial conditions of approval:

- CTMP (having regard to the logistics management plan); and
- Heavy Vehicle Management Plan (subplan to the Health and Safety Management Plan 0643-JV-PLN-HSE-0002).

This will describe in detail the project's approach to vehicle management. The below information provides a high level summary of the approach. It is noted that wherever possible, sustainability initiatives will consider traffic impacts and opportunities to avoid long term effects from road use.

3.10.1 Prestart

The JV implements a pre-start process for all plant and equipment in accordance with the JV's Principal Contractor's Management System known as UGLMS. This system requires:

- Pre-authorisations of key plant prior to site arrival by an authorised inspector (i.e., plant inductions)
- General vehicle inspections on site arrival for all balance of equipment, including meeting all biosecurity requirements
- Daily pre-starts, maintained in vehicle log books, for each plant and equipment including:
    - Operating conditions are in accordance with manufacturer specifications (including fuel usage to minimise Scope 1 greenhouse gas emissions)
    - No weeps/leaks/damaged parts, and all safety equipment is present
- Verification of competency inspections by Supervisors of plant and equipment operators; and
- Mandatory daily blood alcohol concentration testing and random drug testing.

Should the plant or vehicle be found to not be conforming it will be stopped from working on site until the deficiency is rectified.

3.10.2 Maintenance and Inspections

Prior to commencing activity all equipment, plant and vehicles must be inspected daily for any damage and to ensure it is in good operational conditions. Equipment identified as damaged or faulty will be tagged out of service and quarantined.

The JV has designed each accommodation hub with a maintenance facility for light plant and equipment maintenance in accordance with manufacturer specifications. There may be occasions where plant and equipment may require offsite servicing due to failures or specialised parts however it is preferred that specialist support is engaged to attend site to avoid unplanned demobilisation.

All heavy vehicles must be maintained to meet the minimum requirements for vehicle road worthiness according to the applicable Heavy Vehicle (Vehicle Standards) Regulations.

All vehicles must:

- Be appropriately registered
- Be roadworthy and in good working order
- Have comprehensive insurances; and
- Be suitable for the work task for which it is to be used.

Prior to work commencing on site all trucks, vehicles and equipment must be washed down and declared as weed free. All plant will undergo a hazard assessment and inspection prior to commencing on site.

All heavy vehicles may be required to be fitted with In-Vehicle Monitoring Systems (IVMS). Vehicles fitted with IVMS must be monitored to provide prompt feedback to drivers not conforming with road regulations and safe driving practices.

3.10.3 Refuelling

Refuelling of plant and equipment on site will be facilitated by an onsite fuel storage facility and refuelling bay set up. This will be accessed primarily by light and medium rigid vehicles and freely issued to staff and contractors.

Refuelling of plant and equipment at work fronts will be via dedicated refuelling trucks.

Refuelling of the fuel storage facility is likely to be weekly by an external supplier depending on the size of storage tanks and peak demand.

Use of existing refuelling facilities in the region will be required to support peak demand and ad hoc requirements.

3.10.4 Parking

All parking will be at camp sites or work areas in designated areas.

Roadside parking is not envisaged to be required; it will be by exception only.

3.10.5 Loading and Unloading

All vehicle loads must be restrained to prevent load movement during transit.

Loading/unloading exclusion zones will be clearly delineated with controls to prevent unauthorised access.

In order to ensure the offloading of materials operates efficiently the use of the correct equipment will ensure all tasks on site are managed safely and efficiently. The plant requirements for the offloading will be detailed in the relevant Safe Work Method Statements. Project employees completing the loading and unloading activities must complete training in loading/unloading or be verified as competent through a VoC process.

Heavy specialist loads may be transported by freight companies arranged by the supplier. Where justified, suppliers and contractors will be required to provide transportation and heavy lift plans. These plans will be reviewed by the JV or a specialist heavy lift consultant will be engaged as necessary to facilitate the review.

3.10.6 Washdown Bays

Washdown bays to meet biosecurity requirements will be implemented at each accommodation hub.

Use of the existing truck wash facilities in Charters Towers, Hughenden, Richmond, Julia Creek and Cloncurry will be required to support site movement and larger sized plant and equipment. In this case the facilities are maintained by Avdata.

The project will implement the requirement for all plant and equipment being sourced outside the region to washdown at the point of origin and be third party certified before entering the region in order to mitigate risk of introducing new weeds, pests and diseases locally.

3.10.7 IVMS

An in vehicle monitoring system may be proposed for use on this project by staff and contractors, excluding delivery drivers who operate in accordance with Heavy Vehicle National Laws, and ad hoc personnel.

This system would be set up to monitor speed and safe driving behaviour with alarm triggers inbuilt. The JV would monitor individual driving performance and in the event of any notifications exceeding general driving standards, a report would be issued, and action taken accordingly.

For any other unsafe practices on roads not captured by the IVMS, this will be recorded as an incident. All general complaints will be actioned upon receipt.

4. Safety

4.1 Staff Onboarding

4.1.1 Site Inductions

All employees and contractors working on the CopperString 2032 project will be required to complete a full induction on arrival to the project and be provided with a position description confirming role, responsibilities, accountabilities and authorities. The site induction will include (but is not limited to):

- Safety
- Driving and Road Use (applies to delivery drivers and onsite personnel)
- Environment
- Land Access
- Cultural Heritage, and
- Community.

Inductions are developed by suitably qualified persons that will translate approval requirements and commitments in plans in a way which targets the blue and white collar workers onsite for compliance.

The site induction process will capture all required (third party) qualification records to support each job description and verify competency as part of site authorisations. The system will identify any expiry/renewal dates for qualifications to ensure no lapse in records and skill sets emerge when operating plant and equipment on roads.

Verification of all tickets, competencies, and licences for all plant and tasks will be obtained and copies kept for record management purposes.

4.1.2 Toolbox Meetings

Toolboxes will be prepared by suitably qualified persons on a range of planned topics relevant to traffic management (refer to 0643-JV-PLN-TMP-0005), health and safety (refer to 0643-JV-PLN-HSE-0002) and road use safety management (as per this plan), amongst other requirements. Toolboxes will also be unplanned in the event of an incident or lessons learnt to ensure transparent communication internally and continuous improvement.

Toolboxes at minimum in relation to road use will include (but are not limited to):

- Operation of plant and equipment (inclusive of emissions, speed, safety etc.)
- Driver fatigue
- Journey management
- Queuing limitations
- Emergency exit plans
- Reporting road damage and driver hazards
- Securing loads
- Dust
- Vehicle fauna strikes
- Loading and unloading; and
- Additional topics identified in the traffic impact assessments are relevant to mitigate impacts on roads and external Stakeholders.

At the end of all Toolbox Meetings all attendees will sign a record of staff toolbox meeting to record their attendance.

4.1.3 HSE Alerts

The JV HSE Risk Management Procedure is the process for the identification, assessment, control and management of occupational health, safety, psychosocial and environmental (HSE) hazards and risk associated with all JV controlled activities. This procedure will be the tool that will be used to manage risk.

The HSE Risk Register will be developed prior to the project commencement. This shall be developed, maintained, monitored and review by conducting Project/Site HSE Risk Workshops for all project employees, contractors, visitors, and other key stakeholders, and then updated regularly throughout the project life.

Records relating to the risk management process shall be maintained and retained in accordance with the document control and records management requirements of the applicable WHS Management Plan.

HSE Alerts will be used to communicate and raise awareness to JV personnel and subcontractors regarding any significant HSE issue which may pose a risk to personnel, plant and equipment, environment, or the company.

4.1.4 Fitness for Work

All personnel directly employed on the project must undertake a pre-employment health assessment.

Contractors and subcontractors are directly responsible for ensuring their workers are fit and medically capable to undertake the work they are engaged to perform and are drug and alcohol free.

4.1.5 Fatigue

Fatigue will be managed for all employees, contractors, and visitors in association with the JV Fatigue Management Procedure which defines the requirements for managing the risk associated with fatigue in JV workplaces. The risks associated with fatigue will be assessed and controls identified as part of the Hazard identification and Risk Management Process.

Supervisors will be trained to identify if a worker is showing symptoms of fatigue prior to and during their shift, by visually assessing workers behaviour and indicators including:

- Tiredness
- Giddiness
- Irritability
- Loss of appetite; and
- Sleepiness, including falling asleep against ones will.

Supervisors and Project Leaders will plan and monitor working activities to minimise work factors that may lead to fatigue including, however, not limited to:

- Prolonged or intense mental or physical activity
- Sleep loss and/or disruption of an individual's internal body clock
- Organisational change
- Exceptionally hot or cold working environments
- Irregular work scheduling
- Excessively long shifts
- Not enough time to recover between shifts

- Strenuous jobs; and
- Long commuting times.

The JV has performed an extensive analysis on the access of site from the various logistics hubs during the ECI phase. This is to verify the total travel times required to be undertaken by staff and workforce to access the alignment and comply with fatigue management.

For operators for heavy vehicles the UGL Heavy Vehicle Management – Chain of Responsibility Procedure will be used as a guideline.

- Drivers of heavy vehicles or combinations that exceed 12T must not operate the vehicle outside of the prescribed standard hours and must comply with rest requirements
- Drivers must not be permitted to exceed the Standard Hours for Solo Drivers as detailed in Appendix 3 – Standard Hours for Solo Drivers Fatigue-Regulated Heavy Vehicle or their journey plan (if applicable); and
- Heavy Vehicles Drivers must complete a work diary, the work diary must be completed and maintained in accordance with Appendix 5 – Work Diary Requirements.

4.1.6 Drugs and Alcohol

All employees, contractors, and visitors will be provided with information regarding the requirements regarding the use, possession, consumption, and distribution of alcohol and drugs and related procedures to ensure understanding and awareness of the processes as part of the induction process.

Possession, consumption, and distribution of illegal drugs is prohibited. All employees, contractors or visitors must be fit for work and not impaired by alcohol or illicit/prescription drugs whilst at site.

Regular monitoring of drivers to verify that they are fit to drive, both physically and mentally and not affected by fatigue, drugs and/or alcohol testing will be undertaken.

4.1.7 Training

The training requirements will be identified in a project detailed Training Needs Analysis and will include at minimum:

- Risk based driver training including 4-wheel drive (4WD) training for high risk users
- Operators of plant and equipment having the required competencies and relevant licenses for the plant item
- AHCBIO203 Inspect and clean machinery, tools and equipment to preserve biosecurity; and
- Emergency drill scenarios relevant to vehicle incidents.

Verification of Competencies will be completed by a JV representative and records will be maintained for project staff and contractors of all qualifications and competencies.

All heavy vehicles drivers will hold the appropriate licence to the class of heavy vehicle that is being driven. The driver will always have their licence with them when operating the vehicle.

Project employees who are working as part of the supply chain must as a minimum receive base level Chain of Responsibility training.

The JV will ensure that monitoring activities are implemented for all activities that apply to their site and that non-conformances are tracked and managed. Division audit programs may be undertaken and include assessments of activities that is consistent with operations being completed.

4.2 Incident Management

4.2.1 Reporting and Managing Incidents

The JV will implement and maintain a documented process that ensures workers can report all hazards and incidents. The JV Management System 'Synergy' will be utilised to record all hazards, incidents and resulting actions including journey and non-work related travel.

4.2.2 Notifiable Incidents

The JV will implement and maintain a process for reporting notifiable incidents on roads relating to work travel to the Regulator 'WorkSafe Queensland'. The Project will ensure all regulatory requirements around reporting are maintained including ensuring that notifiable incidents are reported within the nominated timeframes.

4.2.3 Emergency Response Management

The JV will put in place a process to identify and respond to emergencies on public roads, with trained personnel available. The JV will coordinate with local responders in such events.

4.2.4 Investigations

For all incidents, the JV will determine the level of investigation required and investigate accordingly. The investigation will be undertaken in a timely manner by a nominated competent person. Investigation findings will be documented in Synergy linked to actions. Lessons learnt will be included in a HSE Alert.

4.3 Security

Security services and provisions have been identified via risk analysis. On-site security services are required at all camp and project work sites. Security services will vary between static and roaming services and electronic surveillance sites at the likes of substations and laydown areas.

All emergencies will be managed in line with locally established Emergency Management Plans.

4.4 Hazardous Material

4.4.1 Transportation

Transport of hazardous substances to the project area will be in accordance with the Australian Dangerous Goods Code 7th Edition (National Transport Commission 2014), in accordance with the Queensland Transport Operations (Road Use Management – Dangerous Goods) Regulation 2018 and the Transport Infrastructure Act 1994.

Access to a delivery route for hazardous substances to the project will be dependent on the origin of the material.

This applied to fuel storage deliveries and daily refuelling carried out by fuel carts operating between camps and the transmission line and substation locations.

4.4.2 Storage and Handling

The storage and handling of all flammable and combustible liquids will be in accordance with the requirement of Australian Standard AS1940–2017 which provides requirements for the planning, design, construction, and safe operation of all installations in which flammable or combustible liquids are stored or handled.

All chemicals, gases and hazardous substances shall be assessed for risk prior to purchase and delivery to site. All hazardous materials shall have Safety Data Sheets (SDS) available. An SDS will be supplied by the Supplier for all hazardous materials prior to the material being delivered to site. The safety team and materials team shall maintain copies of all SDS's applicable to the relevant work area and ensure the details of each chemical includes an initial risk assessment. Copies of all SDS's will be made readily available to all employees.

5. Environmental Impact Management

The JV is required to prepare a Construction Environmental Management Plan (CEMP) (0643-JV-PLN-CEM-0003) as part of the final approval to construct two (2) months from scheduled works. This CEMP will provide details of the requirements identified at a high level below in relation to traffic and road use management.

This section has identified environmental aspects relevant to road use management and controls to minimise risk to as low as reasonably practicable and comply with conditions of approval.

5.1 Noise Management

The JV proposes to undertake:

- Noise assessments in relation to the accommodation hub operation as part of design to ensure impacts are mitigated from any external noise sources (e.g. Rail), and JV activities do not cause an unacceptable impact to existing sensitive receptors, including from road traffic noise; and
- Noise assessment of proposed haulage routes and sensitive receptors, based on risk, to identify whether road traffic noise will be increased from background level as a result of the project's construction traffic volumes.

Noise will be mitigated via:

- Dedicated construction hours of 6.30 am to 6.30 pm Monday to Sunday
- Maintaining plant and equipment to manufacturer specifications (through onsite facilities)
- Good driving practices to ensure no excessive noise from revving and braking
- Regular community consultation based on the schedule and any changes that are identified as potentially impacting sensitive receptors
- No queuing near sensitive receptors or idling; and
- Risk-based/complaint triggered noise and vibration monitoring.

5.2 Dust and Air Quality Management

The JV proposes to undertake:

- Air assessments in relation to the accommodation hub operations as part of design to ensure impacts are mitigated from any external sources, and JV activities do not cause an unacceptable impact to existing sensitive receptors, including from dust, particulates and odour.

Dust, particulates and odor will be mitigated via:

- Sealing trafficked areas in close proximity to sensitive receptors, predominantly at accommodation hubs
- Upgrading road infrastructure to enable sealed turn ins at property entrances and B-double de-coupling areas to avoid tracking of soil particles onto sealed bitumen
- Erosion and sediment controls and dust suppression on internal access tracks (on and off easement) to avoid generating dust emissions that may limit visibility on public roads
- Covering (organic material natured) loads
- Driver behaviour monitoring to reduce excessive emissions
- Smokey vehicle monitoring
- Rescheduling construction activities where required during windy conditions; and

- Risk-based/compliant triggered air quality monitoring.

5.3 Vehicle Strikes

Vehicle fauna strikes may occur through increased plant and equipment usage on roads. Vehicle fauna strikes will be mitigated via:

- Minimising traffic movements during dawn and dusk by vehicle sharing/bussing workers to construction sites
- Identifying at risk biodiversity areas, based on ecological surveys associated with the project clearing areas, and establishing site specific controls
- Removing road kill associated with construction traffic from the pavement to ensure birds of prey scavenging are not within the kill zone; and
- Restricting speed in areas of livestock hazard or stock routes.

Detailed control measures during construction will be specified in the CEMP sub plans on biodiversity and threatened species management.

5.4 Waste and Refuse Disposal Management

The JV will rigorously implement measures to ensure no littering from plant and equipment on roads by:

- Working closely with our suppliers to reduce packaging of materials
- Securing loads
- Providing waste containers on vehicles; and
- Ensuring adequate waste facilities at accommodation hubs, with lids as required, collected at a suitable frequency to avoid overtopping.

A detailed Waste Management Plan (0643-JV-PLN-WRD-0017) has been prepared to predict waste streams and volumes and identify relevant controls.

5.5 Hazardous Materials

The JV will maintain stringent controls around the:

- Fuel storage refuelling at accommodation hubs
- Plant and equipment maintenance (as per above prestart requirements) to ensure no unplanned spillages from condensate, oils and fuels; and
- Bulk fuel transfer between accommodation hubs and construction sites by dedicated fuel trucks.

The fuel supplier must comply with the dangerous goods code for the transport of hazardous substances.

In the event of any hazardous materials releases, the JV will manage the response through either incident processes or emergency management depending on the nature and scale of the spill. Clean up measures for the safety of the road users will be a priority in corrective action in accordance with the project's spill response procedures.

5.6 Natural Disasters

The project is located in a region susceptible to natural disasters, specifically severe weather and bushfire. The JV proposes to:

- Prepare a detailed Bushfire Management Plan (0643-JV-PLN-BMP-0012); and
- Prepare a detailed Severe Weather Management Plan (0643-JV-PLN-SWP-0011).

Approval of both plans will involve consultation with local, regional and State emergency response agencies and will seek to promote improvements in the current level of awareness and response for the safety of the project personnel and community we work with and live in.

The approach at minimum will consider:

- Bushfire assessments at accommodation hubs
- Muster locations
- Firefighting facilities being available
- Weather watch process
- Hot works permit to manage any risk from construction sources
- Landholder consultation to identify wet weather affected areas
- Planned wet weather days in scheduling, aligning with known wet seasons
- Bushfire and severe weather preparedness inspections; and
- Emergency response training.

6. Risk Management

The JV HSE Risk Management Procedure describes the process for process for the identification, assessment, control and management of occupations health, safety, psychosocial and environmental hazards and risk associated with JV activities. This document will be used as a guideline for the HSE Risk Management tools to be used in order to document and manage risk.

Key risks identified to date include impacts to road users and road infrastructure which will be managed in accordance with:

- Traffic impact assessments
- Dilapidation surveys (pre and post construction phase)
- Health and Safety Management Plan including:
    - Fatigue Management Plan (yet to be developed)
    - Emergency Response Plan (yet to be developed)
- Construction Traffic Management Plan
- Logistics Management Plan
- Construction Environment Management Plan; and
- This Plan (informed by the TIA).

The following Figure 2 illustrates the HSE Risk Management Methodology to be used in risk assessment.

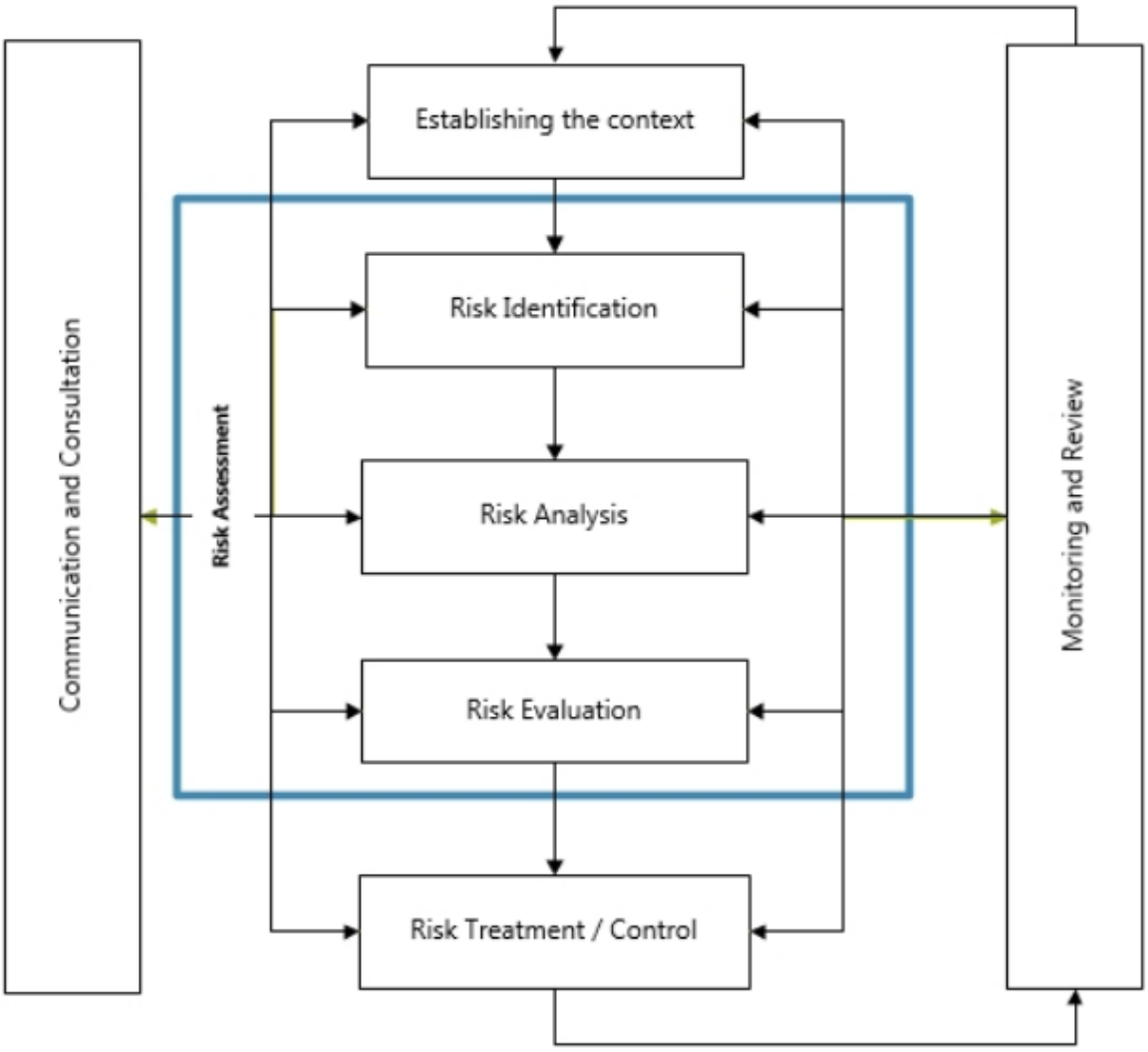


Figure 2 - HSE Risk Management Methodology

7. Key Personnel and Responsibilities

The key person responsible for the management and implementation of this plan is the CopperString 2032 Project Manager. The Project Manager is responsible for:

- Road Use Agreements
- Traffic Management
- Emergency Planning
- Environmental Compliance; and
- Safety Compliance.

Important information about your report

In some circumstances the scope of services may have been limited by a range of factors such as time, budget, access and/or site disturbance constraints. The Report may only be used and relied on by the Client for the purpose set out in the Report. Any use which a third party makes of this document, or any reliance on or decisions to be made based on it, is the responsibility of the Client or such third parties.

The services undertaken by pitt&sherry in connection with preparing the Report were limited to those specifically detailed in the report and are subject to the restrictions, limitations and exclusions set out in the Report. The Report's accuracy is limited to the time period and circumstances existing at the time the Report was prepared. The opinions, conclusions and any recommendations in the Report are based on conditions encountered and information reviewed at the date of preparation of the Report. pitt&sherry has no responsibility or obligation to update the Report to account for events or changes occurring after the date that the report was prepared. If such events or changes occurred after the date that the report was prepared render the Report inaccurate, in whole or in part, pitt&sherry accepts no responsibility, and disclaims any liability whatsoever for any injury, loss or damage suffered by anyone arising from or in connection with their use of, reliance upon, or decisions or actions based on the Report, in whole or in part, for whatever purpose.

Impacted Roads

Appendix A

pitt&sherry

Road Name	ROAD OWNER	COUNCIL	HUB
Downing Street	Council	Charters Towers Regional Council	Townsville/ Ayr
Christie Street	Council	Charters Towers Regional Council	Townsville/ Ayr
Silver Valley Road	Council	Charters Towers Regional Council	Townsville/ Ayr
Amity Road	Council	Charters Towers Regional Council	Townsville/ Ayr
Millchester Road	Council	Charters Towers Regional Council	Charters Towers Hub
Macdonald Street	Council	Charters Towers Regional Council	Charters Towers Hub
Broughton Road	Council	Charters Towers Regional Council	Charters Towers Hub
Lornesleigh Road	Council	Charters Towers Regional Council	Charters Towers Hub
Cameron Downs Road	Council	Charters Towers Regional Council	Charters Towers Hub
Hewett Street	Council	Charters Towers Regional Council	Charters Towers Hub
Macpherson Street	Council	Charters Towers Regional Council	Charters Towers Hub
Corinda Avenue	Council	Charters Towers Regional Council	Charters Towers Hub
Phillipson Road	Council	Charters Towers Regional Council	Charters Towers Hub
Bluff Road	Council	Charters Towers Regional Council	Charters Towers Hub
Braceborough Road (east)	Council	Charters Towers Regional Council	Pentland Hub/ Charters Towers Hub
Red Road	Council	Charters Towers Regional Council	Pentland Hub
Homestead Lascelles Road	Council	Charters Towers Regional Council	Pentland Hub
Helenslee Road	Council	Charters Towers Regional Council	Pentland Hub
Laidlow Crossing	Council	Charters Towers Regional Council	Pentland Hub

Road Name	ROAD OWNER	COUNCIL	HUB
Paterson Street	Council	Charters Towers Regional Council	Pentland Hub
Longton Road	Council	Charters Towers Regional Council	Pentland Hub
Lauderdale Road (east)	Council	Charters Towers Regional Council	Pentland Hub
Lyons Creek Road	Council	Charters Towers Regional Council	Pentland Hub
Archer Street	Council	City of Townsville	Townsville/ Ayr
Hubert Street	Council/ private	City of Townville / private	Townsville/ Ayr
Andrew Daniels Drive	Council	Cloncurry Shire Council	Cloncurry Hub
Hensley Drive	Council	Cloncurry Shire Council	Cloncurry Hub
Round Oak Road	Council	Cloncurry Shire Council	Cloncurry Hub
Unnamed Road (off Round Oak Road)	Council	Cloncurry Shire Council	Cloncurry Hub
Powerhouse Road (Cloncurry)	Council	Cloncurry Shire Council	Cloncurry Hub
Roxmere Road	Council	Cloncurry Shire Council	Cloncurry Hub
Chinaman Creek Dam Road	Council	Cloncurry Shire Council	Cloncurry Hub
Mount Frosty Road	Council	Cloncurry Shire Council	Mount Isa
East Leichardt Road	Council/ private	Cloncurry Shire Council	Mount Isa
Mount Isa Duchess Road (Council-owned section)	Council	Cloncurry Shire Council	Mount Isa
Townsville Port Road	TMR	Department of Transport and Main Roads	Townsville/ Ayr
Bruce Highway	TMR	Department of Transport and Main Roads	Townsville/ Ayr
Ayr Dalbeg Road	TMR	Department of Transport and Main Roads	Townsville/ Ayr
Flinders Highway	TMR	Department of Transport and Main Roads	Townsville/ Ayr
Ayr Ravenswood Road	TMR	Department of Transport and Main Roads	Townsville/ Ayr
Burdekin Falls Dam Road	TMR	Department of Transport and Main Roads	Townsville/ Ayr
Gregory Developmental Road (north)	TMR	Department of Transport and Main Roads	Charters Towers Hub

Road Name	ROAD OWNER	COUNCIL	HUB
Gregory Developmental Road (south)	TMR	Department of Transport and Main Roads	Charters Towers Hub
Aramac Torrens Creek Road	TMR	Department of Transport and Main Roads	Pentland Hub
Kennedy Developmental Road (south)	TMR	Department of Transport and Main Roads	Hughenden Hub
Richmond Winton Road	TMR	Department of Transport and Main Roads	Richmond Hub
Julia Creek Kynuna Road	TMR	Department of Transport and Main Roads	Julia Creek Hub
Landsborough Highway	TMR	Department of Transport and Main Roads	Cloncurry Hub
Barkly Highway	TMR	Department of Transport and Main Roads	Cloncurry Hub
Burke Developmental Road	TMR	Department of Transport and Main Roads	Cloncurry Hub
Cloncurry Duchess Road	TMR	Department of Transport and Main Roads	Cloncurry Hub
Mount Isa Duchess Road	TMR	Department of Transport and Main Roads	Mount Isa
Diamantina Developmental Road	TMR	Department of Transport and Main Roads	Mount Isa
Boulia Mount Isa Road	TMR	Department of Transport and Main Roads	Mount Isa
Prairie Road	Council	Flinders Shire Council	Hughenden Hub
Redcliffe Road	Council	Flinders Shire Council	Hughenden Hub
Unnamed Road (off Flinders Highway at Hughenden - to Hughenden Store)	Council	Flinders Shire Council	Hughenden Hub
Unnamed Road (off Flinders Highway at Hughenden - to Hughenden Camp)	Council	Flinders Shire Council	Hughenden Hub
Unnamed Road (off Flinders Highway - to PTL-FLR_284 to FLR-DJR_82)	Council	Flinders Shire Council	Hughenden Hub
Marathon Stamford Road	Council	Flinders Shire Council	Richmond Hub
Barabon Terranburby Road	Council	Flinders Shire Council	Richmond Hub
Minamere Nelia Road	Council	McKinlay Shire Council	Julia Creek Hub
Yorkshire Nelia Road	Council	McKinlay Shire Council	Julia Creek Hub

Road Name	ROAD OWNER	COUNCIL	HUB
Proa Road	Council	McKinlay Shire Council	Julia Creek Hub
Yorkshire Road	Council	McKinlay Shire Council	Julia Creek Hub
Allison Street	Council	McKinlay Shire Council	Julia Creek Hub
Old Normanton Road	Council	McKinlay Shire Council	Julia Creek Hub
Mckinlay Gilliat Road	Council	McKinlay Shire Council	Julia Creek Hub
Ivellen Road	Council	McKinlay Shire Council	Julia Creek Hub
Oorindi Mckinlay Road	Council	McKinlay Shire Council	Cloncurry Hub
Twenty Third Avenue	Council	Mount Isa City Council	Mount Isa
Diamantina Developmental Road (Council-owned section)	Council	Mount Isa City Council	Mount Isa
Benwell Street	Private	Private	Townsville/ Ayr
Unnamed Road (off Silver Valley Road)	Private	Private	Townsville/ Ayr
Braceborough Road (west)	Private	Private	Pentland Hub
Cotonvale Road	Private	Private	Hughenden Hub
Woodbine Access	Private	Private	Hughenden Hub
Kennedy Energy Park Access Track	Private	Private	Hughenden Hub
Thornhill Tamworth Road	Private	Private	Hughenden Hub
Oorindi Park Access Road	Private	Private	Cloncurry Hub
Powerhouse Road (Mount Isa)	Private	Private	Mount Isa
Benean Road	Council	Richmond Shire Council	Richmond Hub
Crawford Street	Council	Richmond Shire Council	Richmond Hub
Macgoffin Street	Council	Richmond Shire Council	Richmond Hub
Pattel Drive	Council	Richmond Shire Council	Richmond Hub
Maxwelton Kynuna Road	Council	Richmond Shire Council	Richmond Hub
Unnamed Road (off Maxwelton Kynuna Road)	Council	Richmond Shire Council	Richmond Hub

CopperString 2032 Management Plans

Appendix B

pitt&sherry

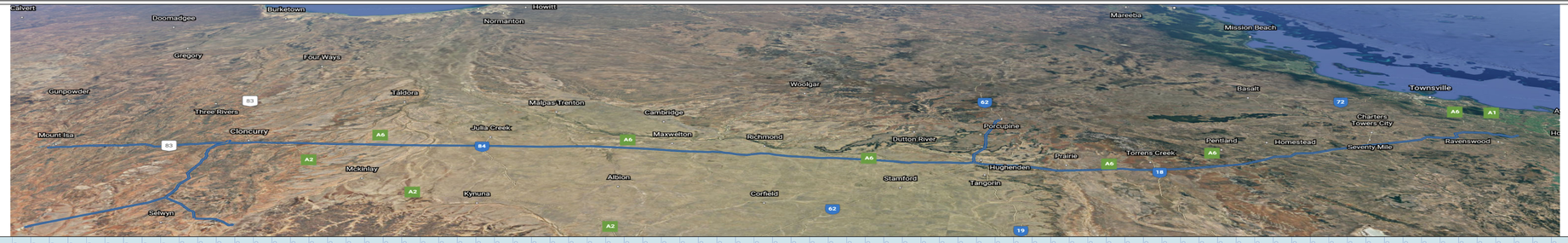
The UGL CPB JV have developed the following project specific management plans to safely and efficiently delivery the CopperString 2032 project.

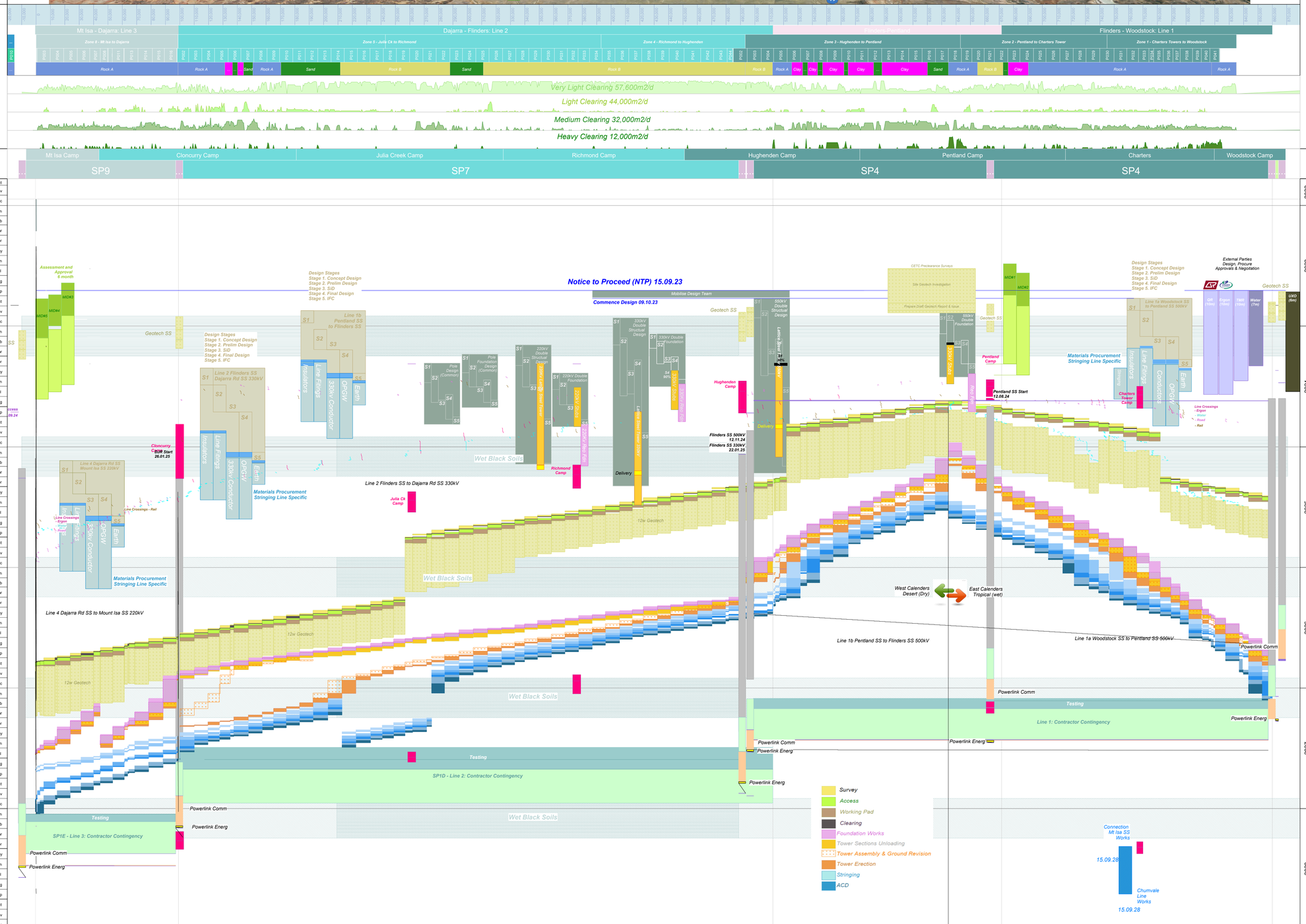
ITEM	DOCUMENT NUMBER	MANAGEMENT PLAN NAME
12.01	0643-JV-PLN-PEP-0001	Project Execution Plan
12.02	0643-JV-PLN-HSE-0002	Health and Safety Implementation Plan
12.03	0643-JV-PLN-CEM-0003	Construction Environmental Management Plan
12.04	0643-JV-PLN-CLM-0004	Community Liaison Management Plan
12.05	0643-JV-PLN-TMP-0005	Traffic Management Plan
12.06	0643-JV-PLN-HR-0006	IR/HR Management Plan
12.07	0643-JV-PLN-QMP-0007	Quality Management Plan
12.08	0643-JV-PLN-LIP-0008	Local Industry Participation Plan
12.09	0643-JV-PLN-IET-0009	Local and Indigenous Employment Engagement and Training Plan
12.10	0643-JV-PLN-IMP-0010	Interface Management Plan
12.11	0643-JV-PLN-SWP-0011	Severe Weather Management Plan
12.12	0643-JV-PLN-BMP-0012	Bushfire Management Plan
12.13	0643-JV-PLN-DMP-0013	Design Management Plan
12.14	0643-JV-PLN-TWD-0014	Temporary Works Design Management Plan
12.15	0643-JV-PLN-TFM-0015	Temporary Facilities Management Plan
12.16	0643-JV-PLN-LMP-0016	Logistics Management Plan
12.17	0643-JV-PLN-WRD-0017	Waste and Refuse Disposal Management Plan
12.18	0643-JV-PLN-ESP-0018	Existing Services Identification, Relocations, Protection Management Plan
12.19	0643-JV-PLN-AMP-0019	Accommodation Management Plan
12.20	0643-JV-PLN-PLM-0020	Procurement Management Plan
12.21	0643-JV-PLN-CON-0021	Construction Methodology Management Plan
12.22	0643-JV-PLN-PCP-0022	Project Controls and Progress Measurement Plan
12.23	0643-JV-PLN-SMP-0023	Sustainability Plan
12.24	0643-JV-PLN-RMP-0024	Risk Management Plan
12.25	0643-JV-PLN-SEC-0030	Security Management Plan
12.26	0643-JV-PLN-DOC-0031	Document Control Management Plan
12.27	0643-JV-PLN-HSP-0032	Helicopter Stringing Plan
12.28	0643-JV-PLN-CHP-0033	Commissioning and Handover Plan

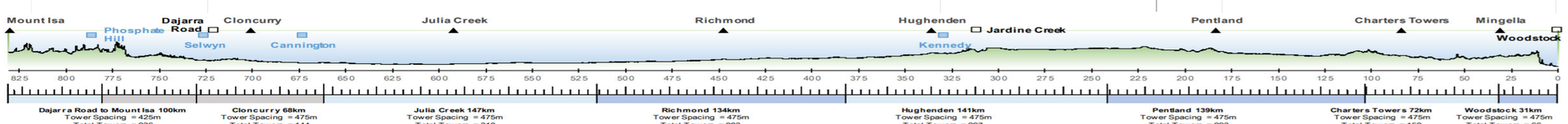
CopperString 2032 Detailed Project Program

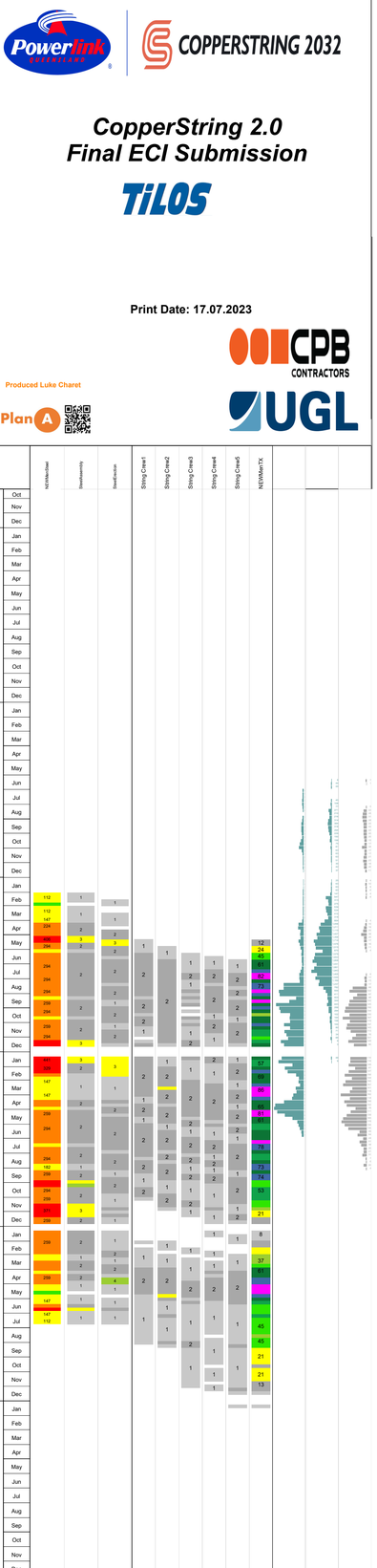
Appendix C

pitt&sherry









CopperString 2.0
Final ECI Submission

TiLOS

Print Date: 17.07.2023

Produced Luke Charet

CPB CONTRACTORS

UGL

pitt&sherry

Road Use Management Plan – TMR

CopperString 2032

Pitt & Sherry
(Operations) Pty Ltd
ABN 67 140 184 309

Phone 1300 748 874
info@pittsh.com.au
pittsh.com.au

Located nationally —
Melbourne
Sydney
Brisbane
Hobart
Launceston
Newcastle
Devonport