Plan

Emergency Management Plan – Sub Plan – Flood Risk Management Plan

P810060-EN-PL-TL-ALL-001

Project Name: Mount Piper to Wallerawang Transmission Line Upgrade

Project Location: Central West region of NSW within the Lithgow City Council Local Government Area (LGA).

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Document Approval

	Position Title	Name	Date
Approved	Project Director	Karl Littlemore	30/09/2026

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Bringing our Reconciliation Action Plan to life

"We recognise Aboriginal and Torres Strait Islander peoples as the Traditional Owners and Custodians of this land, and we pay our respects to Elders past, present and emerging."



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Glossary

Term	Definition
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AWS	Australian Warning System
BoM	Bureau of Meteorology
CEMP	Construction Environmental Management Plan
CWO	Central West Orana
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority (NSW)
FRMP	Flood Risk Management Plan
kV	Kilovolt
LGA	Local Government Area
MTP	Mount Piper
OOHW	Out of Hours Works
R&R	Rest and Recover
RCD	Residual Current Device
SCA	State Conservation Area
SES	State Emergency Service
UHF	Ultra High Frequency
WHSMP	Work, Health and Safety Management Plan
WW	Wallerawang

1. INTRODUCTION

1.1 Purpose/Scope

The purpose of this Flood Risk Management Plan (FRMP) is to document the systems and procedures established to prepare for and respond to foreseeable flood events associated with the Project, with the aim of minimising the risks to life, health and safety, the environment, property, plant, and equipment. This FRMP forms a supporting sub-plan within the Emergency Management Plan.

The FRMP applies during the construction period of the project. The construction period ends when the Project reaches practical completion and is handed over to Transgrid. This is expected to occur in late 2027 or early 2028. The existing and new transmission lines will be energised during much of this period.

Following completion of construction, control of the relevant land will return to the landowners in conjunction with Transgrid. This FRMP does not apply to the post-construction operational phase of the Project.

All personnel with emergency response or emergency management responsibilities under this FRMP must have access to the FRMP and receive a level of training appropriate to their responsibilities. The training must enable an effective, coordinated and integrated response to the potential emergency events identified in this document.

The contents of this FRMP must be read and understood by relevant project personnel, including employees, team leaders, field crews, contractors and subcontractors engaged on the transmission line project. Where applicable, visitors, delivery personnel and other parties entering project work areas must be made aware of critical emergency information through site inductions, pre-start briefings or other relevant training or communication processes.

The FRMP will be readily available to all relevant stakeholders including Zinfra employees, subcontractors, regulatory agencies and visitors. All relevant personnel must comply with the FRMP throughout the construction phase of the Project.

1.2 Aims/Objectives

The aims of this FRMP are to:

- provide a structured system, clear responsibilities and appropriate resources to prepare for and respond to flood events and protect personnel, the public, property, plant, equipment and the environment.
- minimise the actual and potential impacts of flood events associated with the project; and
- manage flood risk effectively while maintaining natural floodplain functions and avoiding unnecessary interference with flood behaviour.

The objectives of this FRMP are to:

- define governance arrangements, responsibilities, resources and communication protocols for flood-risk management;
- maintain preparedness across Project work areas and ensure flood events are identified, reported and responded to promptly;
- apply current information about flood behaviour, site constraints, changing conditions and uncertainty to risk-based planning and decision-making;
- make relevant flood information available to personnel and provide appropriate training and opportunities for consultation;
- minimise interference with natural flood-flow paths, flood-storage areas and waterway functions;
- manage flood events in accordance with the Emergency Management Plan in consultation with emergency services and local authorities, where required;
- support emergency services and relevant authorities by providing accurate information, site-access details, local knowledge, personnel and available equipment; and

- monitor, review and continually improve flood controls using inspections, exercises, consultation, incident reviews and lessons learned.

1.3 Plan Interfaces

Table 1 - Plan interface with other Management Plans

Plan	Interface
Construction Environmental Management Plan	• Provides the overall environmental management framework for construction of the project. • Provides details on overall staging, interactions between sub-plans of the CEMP and management of cumulative impacts. • Identifies procedures, processes and management systems that apply in relation to construction activities • Provides environmental planning and controls during construction.
Emergency Management Plan	• Provides overall response and systems for emergencies. • Provides the roles and responsibilities for emergencies and how they are to be managed. • Provides different scenarios and their responses.
Work Health and Safety Management Plan	• Provides overall health and safety framework for the lifecycle of the project. • Provides details on the health and safety systems and how they are implemented on the project. • Identifies the roles and responsibilities for health and safety.
Soil and Water Management Plan (inc Erosion Sediment Control Plan)	• Provides guidance on flood management during construction.

1.4 Approval Conditions

The project approval (SSI-70279722) conditioned the project to include assessment of flood risk under its Emergency Management Plan as shown in Table 2. The FRMP forms a subplan of the Emergency Management Plan. In accordance with Condition B46, the Emergency Management Plan will be prepared in consultation with Fire and Rescue NSW, the NSW Rural Fire Service and the NSW National Parks and Wildlife Service. Summary of the consultation process includes:

- RFS Reviewed the plan and confirmed they had no comment on the plan; and
- FRNSW Reviewed the plan confirmed they had no comment on the plan.

Through the EIS process, the project identified risks that required mitigation measures. Table 3 summarises the commitments made in the EIS and how they have been addressed in the FRMP. The outcome of these actions is documented in Appendix A.

Table 2 - Conditions of Approval (SSI-70279722)

ID	Condition	Applicable Section	How addressed
B35	(i) a flood response plan detailing procedures and options for safe access to and from the site in the event of flooding	Sections 4.5 to 4.8, particularly Sections 4.5, 4.6 and 4.7; Table 9; Figures 12 to 15	The Flood Trigger Action Response Plan establishes rainfall, river-level and warning triggers for ceasing work, preparing to evacuate and evacuating flood-prone work sites. Sections 4.6 and 4.7 identify the staged evacuation process and primary and secondary access and egress routes. Figures 12 to 15 show the nominated routes and evacuation locations.
B46	An emergency plan must be prepared for the development. The plan must:		
	(h)(iv) detail specific response measures in the case of flood to ensure site safety;	Sections 4.1 to 4.8; Table 9	Sections 4.1 to 4.4 establish rainfall, river-level, severe-weather and warning monitoring arrangements. Table 9 specifies trigger-based actions, including cessation of work, relocation of plant and materials, preparation for evacuation, evacuation of work sites and evacuation of the Site Office Compound. Sections 4.6 to 4.8 provide the associated evacuation, access and off-site response procedures.
	(i) include emergency management and evacuation procedures and identification of specific emergency exit routes to be used in the case of flood and include evidence of access agreements with relevant landowners (e.g. right of carriageway)	Section 3.5 - Flooding of Access and Evacuation locations Fig 12 and Fig 13. These routes are normal construction routes for which the project has approval to use. Section 4.8 for the use of Lithgow Workers Club carpark for a 5% AEP and above. This location is often used by Council as an emergency evacuation centre.	Sections 3.5 and 3.5.1 assess the flood immunity and timing of inundation affecting work sites and access routes. Sections 4.5 to 4.8 establish staged evacuation procedures, personnel-accountability requirements and the use of primary and secondary routes. Figures 12 to 15 identify the specific evacuation routes and evacuation locations. The routes follow approved construction access routes and public roads. Evidence of any required landowner access agreements is maintained in the Project's land-access records.

Table 3 - EIS Commitments - Revised Environmental Mitigation Measures (REMMs)

ID	Environmental Mitigation Measures	Applicable Section	How addressed
W2	An Emergency Management Plan will include a Flood Risk Management Plan (FRMP), which will be prepared in consultation with the SES	Section 1.1 and Appendix A	This FRMP forms a supporting subplan to the Emergency Management Plan. Appendix A documents consultation with the NSW SES, the comments received and the corresponding updates made to the FRMP.
	The FRMP will include a Trigger Action Response Plan to detail how and when actions will be taken. The plan will also outline the following: • workers and visitors will be inducted onto the Plan • works will not commence or continue in construction areas that are at risk of flooding • people, machinery and materials will be removed from construction areas prior to any flood event that is predicted to impact the construction area. The construction program will schedule and carry works in flood-risk areas in periods of dry, stable weather as far as possible. To further manage risk, resources will be made available to reduce the duration of works within flood-risk areas.	Sections 2.5, 3.5.1, 4.1 to 4.3, 4.5 and 4.6; Table 9	Section 2.5 requires site-specific induction and ongoing flood-response training. Sections 4.1 to 4.3 establish rainfall, river-level and severe-weather monitoring. Section 4.5 and Table 9 define triggers for ceasing work, preparing for evacuation, removing or securing plant, equipment, chemicals and loose materials, and evacuating flood-prone work sites. Section 3.5.1 provides for work to cease during rainfall, supporting the scheduling and conduct of flood-risk work during suitable weather.
W3	Structures within flood liable areas will be designed and constructed to withstand a 1 in 100 AEP event.	Section 3.4 and relevant design packages	Section 3.4 identifies the structures potentially affected by flooding and confirms that structures in flood-prone areas will be designed and constructed to withstand a 1% AEP event. Compliance is demonstrated through the relevant detailed-design packages and design verification records.
W4	No maintenance activities will be undertaken where flood risk exists. Rainfall and catchment conditions will be monitored during maintenance activities to ensure safety of people and environment.	Not applicable to this construction-stage FRMP, as documented in the approved Staging Report	This requirement relates to maintenance activities and is outside the construction-stage scope of this FRMP in accordance with the approved Staging Report. Operational maintenance flood-risk controls will be addressed through the applicable operational or maintenance arrangements.
	As soon as it is safe and practicable after flood events, structures will be checked for damage. Remediation work will be undertaken if required.	Section 5.1	Section 5.1 requires flood-affected work sites to be inspected before reopening, including inspection of structures, footings, foundations, excavations, plant, electrical equipment, access routes and environmental controls. Identified hazards must be controlled and damaged areas remediated before work recommences.

1.5 Relevant Legislation, standards and documentation

Legislation, Regulator Guidelines and Plans

- Work Health and Safety Act 2011(NSW)
- Work Health and Safety Regulations 2017 (NSW)
- Environmental Planning and Assessment Act 1979 (NSW)
- Protection of the Environment Operations Act 1997 (NSW)
- Flood Risk Management Manual (NSW)
- Flood Impact and Risk Assessment (NSW)
- Support for Emergency Management Planning, Flood Risk Management Guideline EM01 (NSW)
- Lithgow City Flood Emergency Sub Plan (SES, 2024)

Australian Standards

- AS 3745 — Planning for emergencies in facilities
- AS 1940:2017- Storage and Handling of Flammable and Combustible Liquids
- AS/NZS 3012:2019 Electrical Installations – Construction and Demolition Sites
- AS 4576:1995 - Guidelines for Scaffolding

Other

- GHD. (2025). Mount Piper to Wallerawang Transmission Line Upgrade EIS Technical Report 01 – Water Impact Assessment.
- Aurecon (2026) Central West Orana Renewable Energy Zone – CWO REZ Hydrology and Hydraulic Assessment

2. Project Description

2.1 Project Overview

The Project involves the construction of approximately 8 km of new 330 kV transmission line between the Mount Piper and Wallerawang 330 kV substations. Over half of the proposed transmission line would use an existing 132 kV transmission line easement which is to be widened to accommodate both the new and existing transmission lines. The remaining sections would involve either a new transmission line easement or adjusting an existing easement where it overlaps with other transmission lines. It also includes the replacement of existing transmission structures, adjustments to existing transmission lines, and the establishment of permanent and temporary access tracks, construction compounds, and laydown areas.

The upgrade is required to enhance the reliability and capacity of the transmission network, ensuring the secure supply of electricity from the Central-West Orana region to the Greater Sydney region.

2.2 Site Location

The Project is located approximately 14 kilometres (km) west of Lithgow in the City of Lithgow Local Government Area (LGA) in the central west of NSW as shown in Figure 1. The Project footprint covers approximately 90.4 hectares.

The main site office is located at 140 Main Street, at the location of the old Wallerawang Social Club.

The Project footprint is generally bounded by the following:

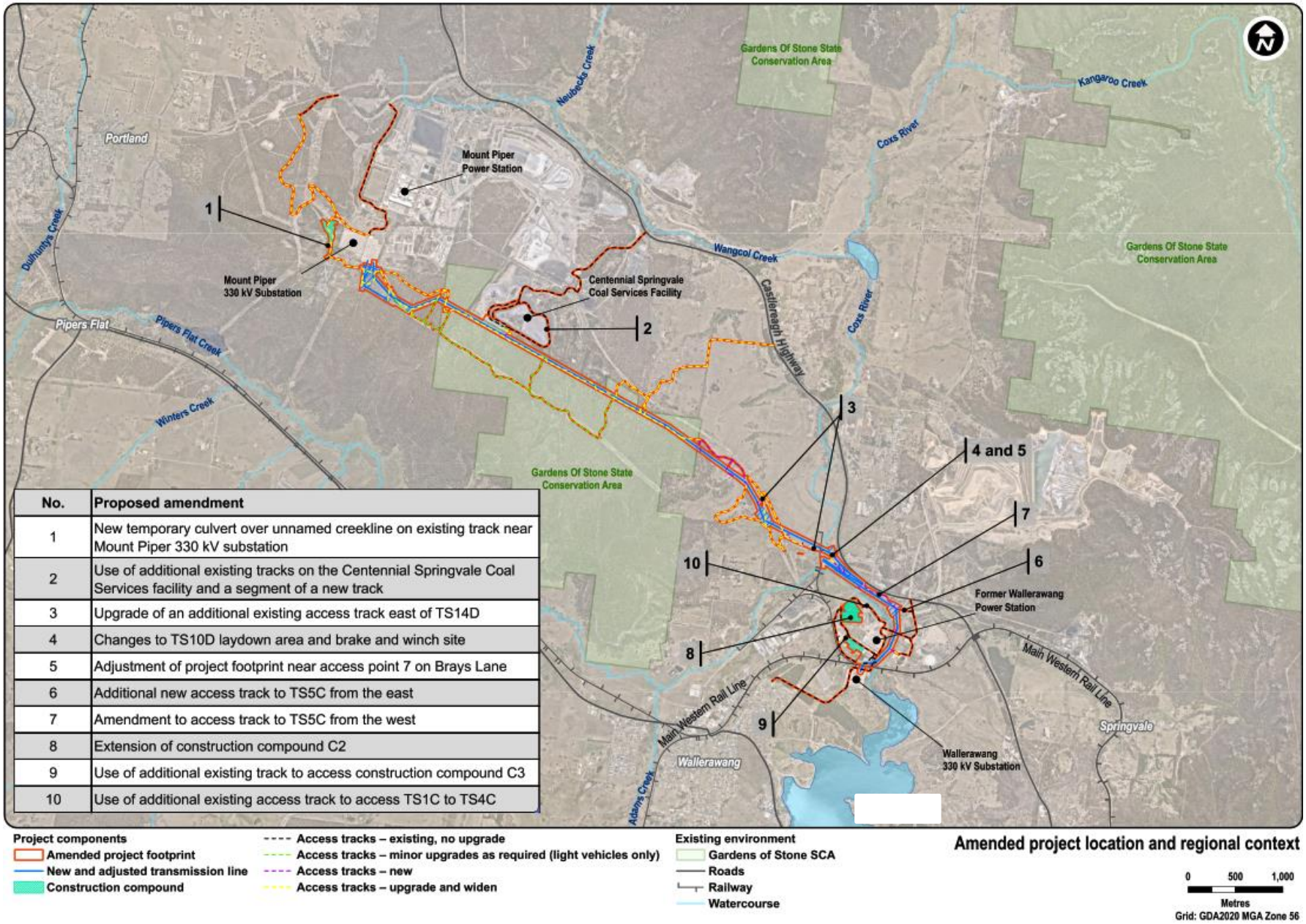
- Castlereagh Highway to the north
- Former Wallerawang Power Station site to the east
- Gardens of Stone State Conservation Area (SCA) to the south
- Mount Piper Power Station to the north-west.

Land uses within and adjacent to the Project footprint include:

- electricity generation at Mount Piper Power Station
- electricity transmission, including the Mount Piper and Wallerawang 330 kV substations, and associated transmission lines
- mining activities, with several Centennial Coal operations including the former Ivanhoe Coal Mine and Springvale Coal Services overlapping the Project footprint
- agriculture, primarily livestock grazing
- conservation, notably the Gardens of Stone SCA
- state and local road reserves including the Castlereagh Highway, Boulder Road and Brays Lane
- rail corridors including the Main Western Rail Line and a disused railway line near Brays Lane.
- Mixed land uses are proposed at the former Wallerawang Power Station site. This may include commercial and industrial land use.

Table 4 - Project Details

Component	Description
Client / Customer	Transgrid
Location	**Work Locations** New Transmission Line between Mt. Piper Substation and Wallerawang Substation.
Project operating hours	The planned working hours are 7 am to 6pm Monday to Friday and 8 am to 1 pm on Saturday. Noting these hours are subject to change with approval of the Planning Secretary under an out of hours works (OOHW) permit. Construction activities are planned around a roster with a period of approximately 20 consecutive working days followed by 8 consecutive non workdays (including travel days) with a commitment to avoid work every second Sunday. The period of 8 days will be an opportunity for the team to rest and recover off site (R&R).. The site will be left in a safe and stable condition during the R&R period. The contact details provided in this plan can be used at any time, including during R&R periods.
Phone Coverage	The site has been shown to have coverage over the 4G phone network.
Project Duration	20 Months
Project Commencement	Expected November 2026



No.	Proposed amendment
1	New temporary culvert over unnamed creekline on existing track near Mount Piper 330 kV substation
2	Use of additional existing tracks on the Centennial Springvale Coal Services facility and a segment of a new track
3	Upgrade of an additional existing access track east of TS14D
4	Changes to TS10D laydown area and brake and winch site
5	Adjustment of project footprint near access point 7 on Brays Lane
6	Additional new access track to TS5C from the east
7	Amendment to access track to TS5C from the west
8	Extension of construction compound C2
9	Use of additional existing track to access construction compound C3
10	Use of additional existing access track to access TS1C to TS4C

Figure 1 - Project location and regional context

2.3 Scope of Works

The Project involves the construction and operation of approximately 8 km of new 330 kV transmission line between the Mount Piper and Wallerawang 330 kV substations. It also includes the replacement of transmission structures, partial adjustment of existing transmission lines, and the establishment of permanent and temporary access tracks, construction compounds, and laydown areas.

The key features of the Project include:

- Widening approximately 0.5 km of existing easements near the Mount Piper 330 kV substation by up to 40 m to accommodate the new 330 kV transmission line and adjustments to existing 132 kV and 330 kV transmission lines.
- Widening the existing 132 kV easement from 45 m to 60 m over 4.8 km to accommodate double-circuit transmission structures for both the existing 132 kV line and the new 330 kV line.
- Installation of two 132 kV pole structures where the existing 132 kV line will be restrung onto the new double-circuit transmission structures.
- Construction of 1.2 km of new 330 kV transmission line from the existing 132 kV line southeast to the intersection of Main Street and the Castlereagh Highway on a 60 m easement.
- Construction of 1.5 km of new 330 kV transmission line on a 40 m easement running parallel to existing 330 kV lines for approximately 1.1 km, then diverging and widening to 60 m for the remaining 0.4 km to the Wallerawang 330 kV substation.

2.4 Roles and Responsibilities

Table 5 - Roles and Responsibilities

Role	Responsibility
Zinfra Project Director	• Prepare, annually review, maintain and implement the Emergency Management Plan, including this FRMP, particularly following an emergency, response exercise or change to the Plan. • Assign the Construction Manager role. • Notify the Transgrid Project Manager of a flood emergency within one hour. • Ensure the FRMP is available to relevant stakeholders and updated where roles, responsibilities or mitigation measures change. • Participate in post-emergency, post-exercise and continual-improvement reviews.
Zinfra Project Manager	• Ensure incidents are reported immediately to the Transgrid Project Manager and entered into OMNIA within 24 hours. • Initiate incident investigations promptly following a reported incident. • Determine the investigation scope and depth having regard to the actual and potential severity of the incident. • Ensure investigations address causes, impacts, responsibilities, monitoring, corrective actions, control improvements and stakeholder notifications. • Ensure investigations follow ICAM and align with Transgrid investigation requirements.
Construction Manager (Incident Manager)	• Hold overall responsibility for implementation of the FRMP and management of the flood response. • Monitor forecast and recorded rainfall, Coxs River levels, weather conditions, warnings and relevant local conditions. • Interpret monitoring information and determine the applicable TARP alarm level. • Decide whether work should commence, continue, cease or not proceed due to forecast or actual flood risk. • Direct the site supervisory team to shut down work sites and prepare for or undertake evacuation. • Disseminate flood alerts and instructions to Team Leaders and site personnel. • Communicate weather conditions to work groups during daily pre-start meetings. • Inspect the site and confirm emergency preparedness when flood risk increases. • Enact the FRMP and coordinate movement or securing of plant, equipment, chemicals and loose materials. • Prepare evacuation transport and direct personnel to muster and evacuation points. • Monitor gauge levels hourly when required by the TARP. • Liaise with NSW SES, emergency services, councils, local authorities and other relevant agencies as required.

Role	Responsibility
	• Select the safest available evacuation route having regard to current conditions, official warnings and road-closure information. • Direct personnel to primary or alternative muster and evacuation locations. • Coordinate evacuation of flood-prone work sites and, where required, evacuation of the Site Office Compound to Lithgow. • Engage with local authorities before directing personnel to leave the off-site evacuation location. • Control return to the Site Office Compound in accordance with the TARP re-entry criteria. • Assist with reopening flood-affected work sites only after they have been assessed as safe. • Ensure the FRMP, emergency contact information, induction arrangements and relevant flood-response records are maintained.
Site Manager	• Decide whether further evacuation from the Site Office Compound to Lithgow is required, having regard to the severity of the flood. • Authorise access to a closed site during a flood emergency, where access is required for emergency response and is safe. • Participate in decisions concerning site closure, evacuation and re-entry.
Team Leader / Site Supervisor	• Implement the measures identified in the FRMP at the work site. • Assist the Construction Manager to monitor weather and flood conditions. • Assist with shutting down work sites and implementing site evacuations. • Disseminate flood alerts, route information and directions to site-based personnel and contractors. • Follow AWS advice with the Construction Manager and assist in determining when the FRMP must be enacted. • Direct vehicles regarding access routes where local roads are closed or affected by flooding. • Confirm that work sites are prepared for evacuation at the Orange TARP level. • Confirm that all work sites have been evacuated at the Red TARP level. • Confirm that all personnel have evacuated the Site Office Compound at the Critical TARP level. • Nominate semi-essential personnel who may remain temporarily to undertake flood-preparation activities. • Assist with site shutdown, movement of plant and materials, roll calls, communication and safe evacuation.
Site Management Team	• Communicate revised evacuation directions where an alternative route is required. • Monitor official warnings and traffic information to determine the status of surrounding roads. • Contact emergency services where required. • Assess flood-affected work sites and determine when they are safe to reopen. • Consult emergency services and relevant local authorities where required before reopening affected sites. • Ensure post-flood inspections are completed and identified hazards are controlled and damaged areas remediated before work recommences.
Emergency Response Team	• Assist in implementing the Emergency Management Plan where personnel are at risk of inundation or another life-threatening emergency. • Contact emergency services immediately by calling 000 where required. • Support the coordinated management of concurrent emergency events.
Zinfra Environmental Business Partner	• Notify the Department and NPWS through Transgrid within 24 hours of becoming aware of an incident, in accordance with Condition C16. • Prepare and provide the subsequent incident report through Transgrid within seven days, or as otherwise agreed by the Planning Secretary. • Submit further incident reports as directed by the Planning Secretary. • Provide information required to support regulatory notifications, incident reporting, investigations and corrective actions. • Assist with environmental monitoring, inspections, incident management and flood-related environmental controls.

Role	Responsibility
Transgrid Environmental Business Partner	• Notify the Department through the Major Projects website within seven days of becoming aware of a non-compliance that is not classified as an incident. • Ensure the notification identifies the Project, relevant approval condition, reasons for the non-compliance where known, and actions taken or proposed to address it.
Zinfra Health and Safety Business Partner	• Support delivery of site-specific flood-response induction, ongoing training, toolbox talks, pre-start information and emergency exercises. • Support management and notification of notifiable WHS incidents arising from flooding. • Support incident investigation, corrective-action management and review of health and safety controls.
Project Team	• Participate in management reviews and continual improvement of the FRMP. • Evaluate environmental management performance against approval requirements, policies, objectives and targets. • Identify improvement opportunities and causes of non-conformances or other issues. • Develop, implement and verify corrective and preventive actions. • Document changes to procedures arising from reviews and improvement processes.
Suitably Qualified Person	• Inspect electrical equipment affected by flooding before it is returned to use, including switchboards, temporary power leads, lighting and lighting towers. • Confirm that residual current devices have been tested and are operational. • Where a substantive revision of the Plan is required, undertake the review where appointed and approved in accordance with the Infrastructure Approval
All personnel, including employees, contractors and subcontractors	• Read, understand and comply with the FRMP. • Attend the required induction, pre-start briefings, toolbox talks, emergency exercises and other flood-response training. • Follow directions issued by the Construction Manager, Team Leaders, Site Supervisors and emergency services. • Assist with shutting down work sites and evacuating before a potential flood event. • Report to the nominated assembly or evacuation point and participate in roll calls. • Use nominated evacuation routes and comply with road closures, traffic controls and directions issued by emergency services or public authorities. • Do not enter, drive through or attempt to cross floodwater. • Follow the most recent safe directions if two-way radio communications fail. • Assist with flood-preparation activities where nominated and safe to do so. • Report incidents, hazards and changed conditions promptly.
Non-essential personnel	• Cease work and relocate to the site office or nominated accommodation when directed during flood preparation or response
Semi-essential personnel	• Remain on site only where nominated by the Site Supervisor and required to assist with flood-preparation tasks, such as moving machinery and materials away from areas at risk. • Evacuate immediately when directed or when the Red TARP level is activated.
Skeleton crew / essential personnel	• Remain on site only where required to complete final flood-preparation activities. • Comply with directions and evacuate immediately when the relevant trigger or instruction is issued
Visitors, delivery personnel and other parties entering Project work areas	• Receive critical emergency information through induction, pre-start briefing or another relevant communication process. • Follow site directions, evacuation procedures and restrictions concerning access and floodwater.

A copy of this plan will be made available on site for all persons to view.

Should any changes to the roles, responsibilities and mitigation measures identified in this plan, this plan will be updated in accordance with Section 6.1.

2.5 Training and Induction

Appendix B documents the positions that are required to review and understand the FRMP and how it is implemented at the project.

Workers shall be trained on the contents of this Flood Risk Management Plan at a site-specific induction in accordance with Section 4.1 of the Emergency Management Plan.

A trial event will be performed within 6 months of mobilisation and repeated yearly.

Workers shall receive ongoing training, consultation and information relating to site-specific flood risks and emergency procedures during daily site pre-starts, toolbox talks, emergency drill scenarios and emergency information available at site compounds.

3. Site Characteristics

This section describes the existing environmental setting in relation to the hydrology and flood aspects within and adjacent to the Project. This information is sourced from a Hydrology and Hydraulic Assessment completed by Aurecon during the design process.

3.1 Topography

As shown in Figure 2, the topography across the project footprint is undulating, varying from approximately 870 m to 1020 m Australian Height Datum (AHD). The project footprint also includes some steep slopes throughout the alignment reaching up to approximately 15 degrees. These slopes are traversed in places by access tracks associated with the electricity infrastructure.

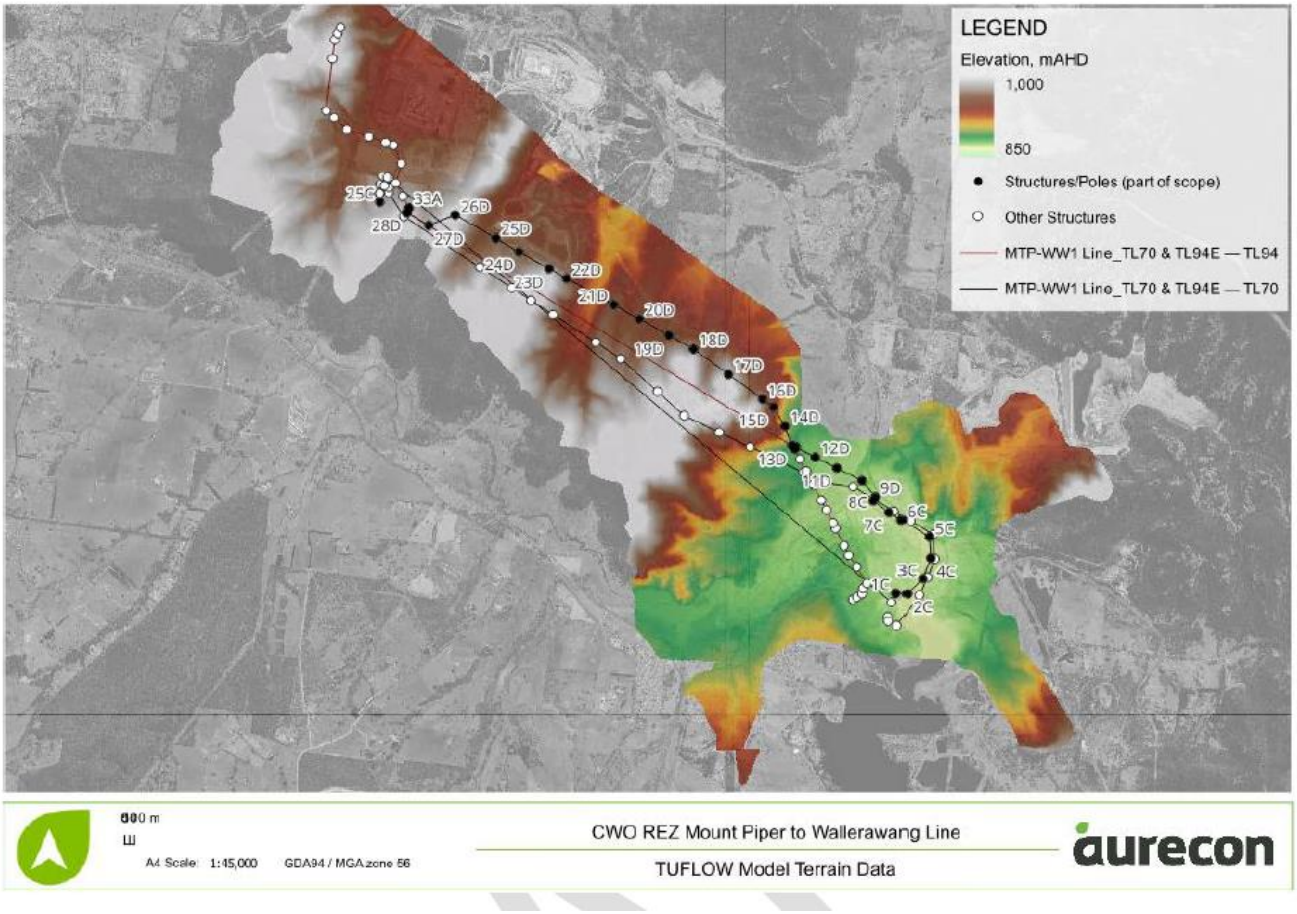


Figure 2 – Topography in and around the project area.

3.2 Waterways

The primary waterways relevant to flooding and flood response for the MTP-WW1 Line are Coxs River and Pipers Flat Creek (shown in Figure 3). The local drainage network also includes a number of smaller waterways and tributaries that cross or occur within the project area, including those associated with bushland areas, commercial and industrial areas, and Greenspot development to the south of the transmission structures.

The total catchment area is 198.5 km^2. Topography varies with steeper sections to the south and flatter grades to the north and east. A floodplain extends from the Coxs River confluence towards the Wallerawang Power Station site. Several rail, road and conveyor bridges cross the waterways with Coxs River eventually discharging into Lake Wallace to the south. Key tributaries of the Coxs River and relevant operations located upstream and outside of the project footprint include:

- Kangaroo Creek, a third order waterway located adjacent Angus Place Colliery
- Pipers Flat Creek, a fifth order waterway located adjacent Lidsdale Siding.
- Wangcol Creek, a fourth order waterway located adjacent Mount Piper 330kV Substation and Centennial's Springvale Coal Services site.
- Neubecks Creek, a fourth order waterway which rises in the Gardens of Stone SCA.

The Coxs River has a real-time monitoring station (https://realtimedata.waternsw.com.au/water.stm) Coxs River at Wallerawang (Station 212054), in the vicinity of Work Sites 6C (see Figure 4). The station records water level and discharge (ML/day) at 15-minute intervals. Data from this gauging station will be used as a reference for the flood-response procedures described in Section 4.

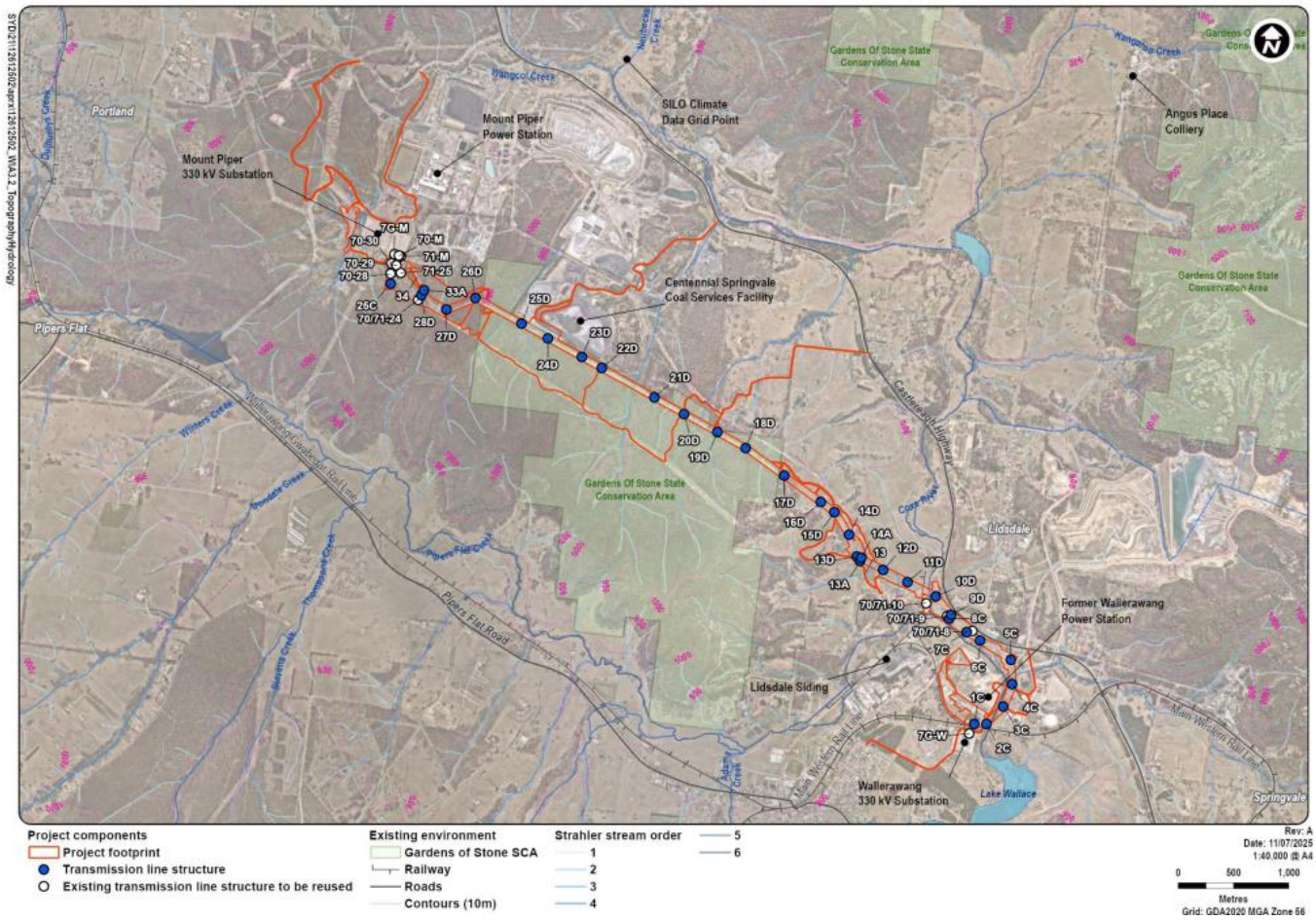


Figure 3 – Hydrology of the project area

3.3 Storm Design Events

Flood response of a watercourse is highly variable and depends on rainfall intensity, temporal and spatial rainfall patterns, and antecedent catchment conditions. To develop suitable flood-response controls, the TARP adopts the design storm events used in the project flood study (Aurecon, 2026). The study identified 12 hours as the critical storm duration for the 1% annual exceedance probability (AEP) event. Table 6 presents the corresponding 12-hour rainfall depths for a range of AEPs. These rainfall depths will inform TARP triggers, allowing work sites to take appropriate action and evacuate before flooding occurs. Historical data for the Coxs River indicate that work-site flooding may occur during events as frequent as 50% AEP.

Table 6 – Design event storms (12 hour duration) for the Coxs River

AEP	Rain (mm)
50%	48
20%	64
10%	76
5%	87
2%	103
1%	115

3.4 Flooding

The majority of the Project area is located in elevated terrain outside of flood prone areas. As shown in Figure 5, work sites 13D to 30 are located wholly outside the 1% AEP flood extent. Potential flood impacts are generally limited to topographic low points around drainage line crossings and areas near Coxs River.

Construction activities could affect flood behaviour in the Coxs River if they intercept or alter overland flow pathways. Any effects are expected to be minor (as per Aurecon, 2026) because construction activities at individual transmission-structure locations will be temporary and relatively few locations are potentially subject to flooding.

Based on the local topography and proximity to waterways, structures 1C to 8C and 9D to 12D including their access tracks, may be impacted by flooding in Coxs River as shown in Figure 4. Flood extents across the rest of the EIS area are shown in Figure 5.

Only minor earthworks are proposed at these locations and are not expected to materially alter the existing topography. The transmission tower foundations will be buried. The towers will comprise slender, bolted steel members above ground. Consequently, they are expected to cause only minor, localised changes to flood flows around the base of the towers. These potential effects have been considered in the tower design.

In accordance with the EIS commitment W3, structures located in flood prone areas will be designed and constructed to withstand a 1% (1 in 100) AEP event. As some work sites are impacted by more frequent flood events, triggers for evacuating works sites will be based on rain events and Coxs River gauge heights, not a specific design event. The FRMP considers the 1% AEP flood event when identifying safe evacuation routes from the work sites, and the timing for when key access roads may be impacted by flooding. Table 7 summarises the work sites located within the 5% and 1% AEP flood extents, together with the expected flood conditions at those locations.

Table 7 - 1% and 5% AEP Flood depths, levels and velocity at structure locations with potential flood risk (Aurecon, 2026)

Structure Name	1% AEP			5% AEP		
	Depth (m)	Flood level (m RL)	Velocity (m/s)	Depth (m)	Flood level (m RL)	Velocity (m/s)
1C	0.25	875.57	0.05	-	-	-
2C	1.35	874.61	1.02	0.91	874.17	0.81
3C	2.17	875.16	1.26	1.63	874.62	1.01
4C	2.82	875.7	0.85	2.3	875.18	0.66
5C	0.35	875.86	0.12	-	-	-
6C	2.2	876.04	0.75	1.69	875.53	0.63
7C	2.67	876.85	0.63	2.04	876.22	0.55
8C	2.06	876.93	0.66	1.45	876.32	0.6
9D	1.85	876.92	0.44	1.23	876.31	0.4
10D	1.1	877.36	0.31	0.9	877.16	0.21
11D	1.42	877.97	0.44	0.93	877.49	0.43
12D	0.12	880.28	0.71	0.06	880.22	0.6

The Coxs River gauging station (station 212054) is located approximately 80 m south of Work Site 6C. Water-level data from the gauging station together with the flood study (Aurecon, 2026) have been used to develop flood-warning triggers for the FRMP response procedures presented in Section 4.

3.5 Flooding of access and evacuation locations

Table 8 summarises the water levels at key locations of the Project in relation to the Coxs River gauging station and their associated flood impacts. The location of access tracks to flood prone work sites is shown in Figure 13, with their corresponding elevation and flood risk shown in Table 8. Based on the flood modelling, work sites flood **before** any access roads flood. Therefore, work sites can safely evacuate even after flooding has commenced at the work site. This means no work site can be isolated by flood waters.

Key water levels and their relevance to the FRMP include:

- 10 works sites are impacted by flood events more frequent than the 5% AEP design flood;

- The flood prone work sites are all within 2 km drive of the Wallerawang site office compound, i.e. they can be accessed within minutes drive time.
- The Coxs River top of bank near the gauging station corresponds to a water depth of about 1.8 m, this means when water levels exceed 1.8 m, flooding may occur.
- To provide sufficient time for sites to evacuate, the primary trigger is forecast or recorded rain. However, if water levels in Coxs River reach 1.3 m sites will prepare to evacuate. If water levels reach 1.6 m, work sites will evacuate immediately.
- Work sites 11D and 12D evacuation via Brays Lane, the primary evacuation routes is elevated 1 m below the 1% AEP and 0.5 m below the 5% AEP. The secondary evacuation route to the north (to Mount Piper) is outside the 1% AEP and is not flood prone.
- The Castlereagh Highway near Work Site 6C is inundated in the 1% AEP to a depth of 0.1 m.
    - Based on the flood duration graphs (Figure 7), the Castlereagh highway would only inundate for about 1-2 hours in a 1% AEP.
- Work sites 3C and 4C has two evacuation routes:
    - The primary route (Crossing 1 shown in Figure 12) is elevated 3.9 m above the 1% AEP event
    - The secondary route (Crossing 2 shown in Figure 12) is elevated 0.3 m above the 1% AEP event
- The Main Street Bridge crossing the Coxs River is not inundated during a 1% AEP event, the bridge is 0.6 m above the 1% AEP.
    - The lowest elevation of Main Street is the Bridge over Coxs River. From the Bridge the elevation rises to the south.
- The site office compound is not inundated during a 1% AEP event, the site office compound is 2 m above the 1% AEP flood event.
- The site office compound can evacuation via Castlereagh Highway. In the event this route is closed, the secondary evacuation route is south through Wallerawang via Main Street. Main Street has an elevation starting at 880 m adjacent to the site office compound (4 m above the 1% AEP), but rises in elevation to the south.
- The offsite emergency evacuation location is the Lithgow Workmen's club which is about 15 min drive from the Wallerawang site office compound.

Based on these findings, if evacuation occurs prior to the 5% AEP flood level, all sites will be able to safely evacuate prior to any access roads flooding.

Table 8 - Coxs River gauge station reference flood levels

Gauge level (mAHD)	Gauge Depth (m)	Reference level
872	0	Gauge Zero
873.3	1.3	Prepare to evacuate work sites
873.6	1.6	Evacuate work sites immediately
873.8	1.8	Site 6C start of inundation
874.5	2.5	Evacuate site office compound
875	3	Brays Lane start of inundation
875.5	3.5	5% AEP flood level
875.9	3.9	Castlereagh Highway start of inundation
876	4	1% AEP flood level
876.3	4.3	Crossing 2 start of inundation
876.6	4.6	Main Street bridge start of inundation
878	6	Site Office Compound start of inundation
879.9	7.9	Crossing 1 start of inundation
>880	8	Secondary Evacuation route south through Wallerawang

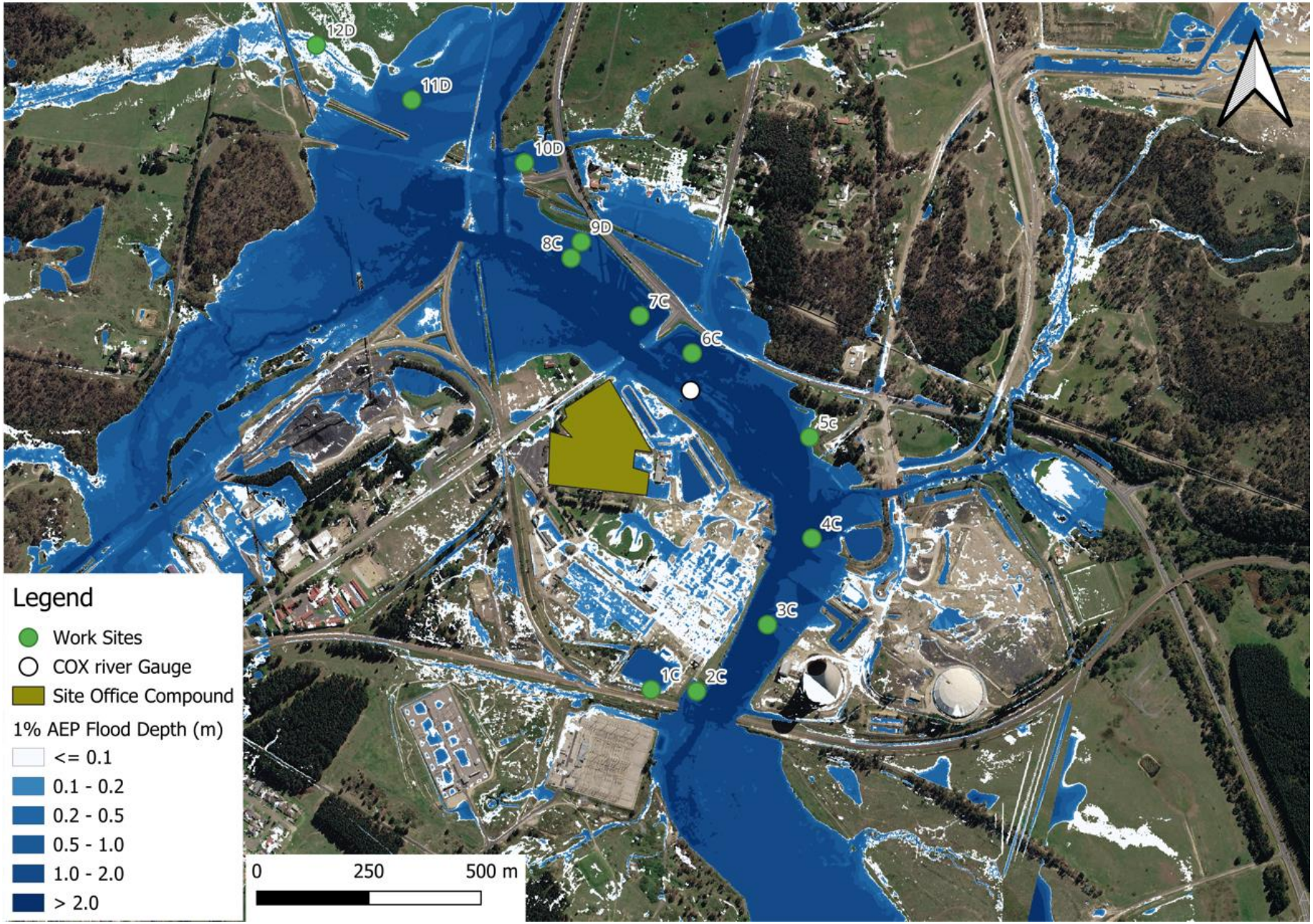


Figure 4 **– Work sites 1C to 12D located within the 1% AEP flood extent of Coxs River**

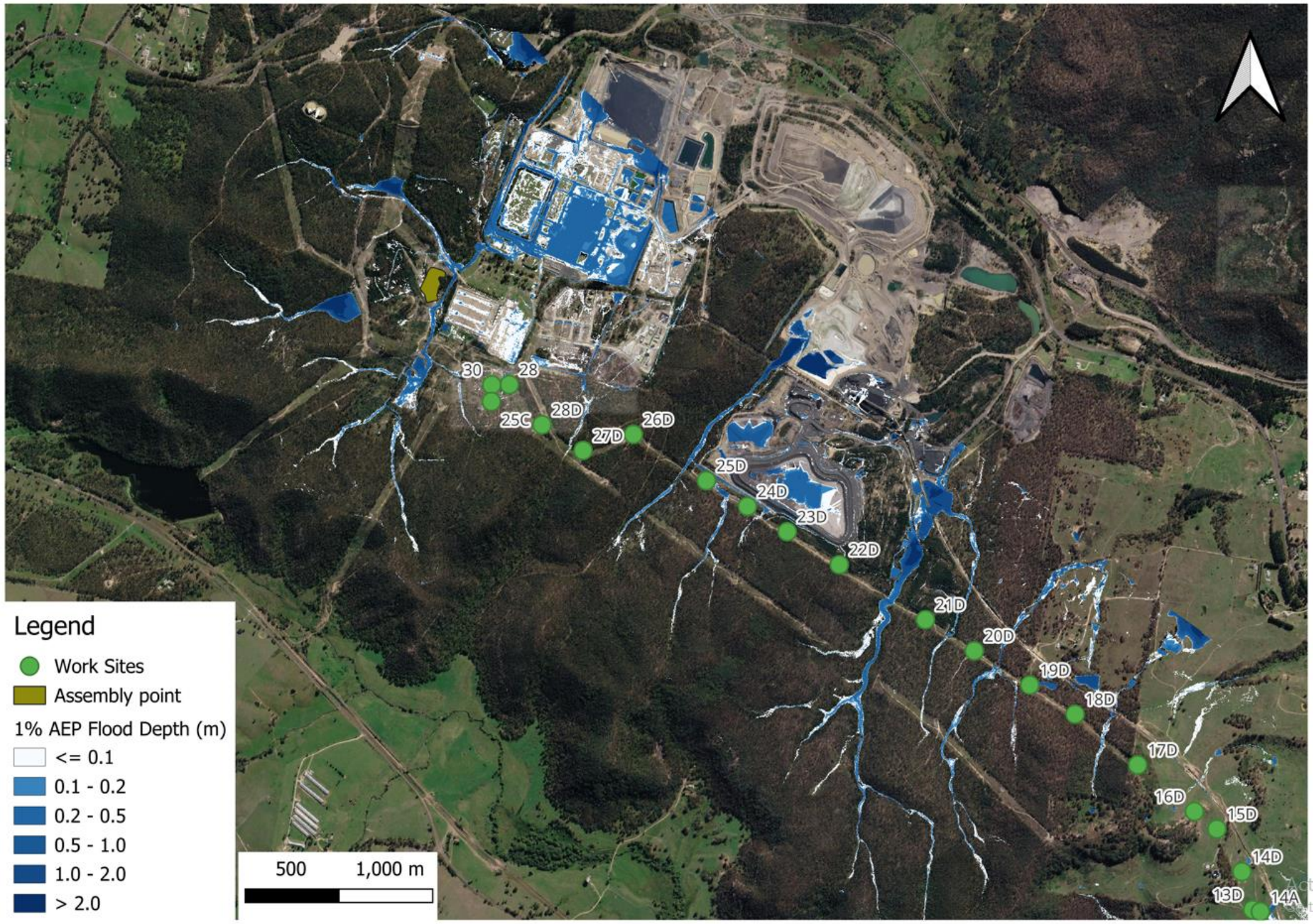


Figure 5 – Works sites located outside the 1% AEP flood extent

3.5.1 Flood timing

The Aurecon flood study (2026) assessed the timing of flooding at the work sites. Two components of flood timing inform the response set out in this FRMP:

- **Catchment response time:** the period between rainfall and the commencement of flooding; and
- **Flood behaviour at the work site:** the rate at which water levels rise and the duration of inundation.

The catchment response time was assessed using historical data from a flood event that occurred between 29 February and 5 March 2012, as shown in Figure 6. This event was used to calibrate the flood model.

The flood event resulted from approximately 70 mm of rainfall over 10 hours. The flood peaked at a depth of 2.2 m, which is well below the 5% AEP flood depth (3.5 m). Figure 6 indicates that flooding commenced approximately five hours after the peak rainfall.

Based on the historical data used to calibrate the flood model, flooding at the work sites is expected to occur several hours after rain. Therefore, if work sites cease work and evacuate due to rain, they will be vacated prior to flooding.

The Aurecon flood study assessed the rate at which floodwaters rise and the duration of inundation at the work sites for the 5% and 1% AEP. As shown in Figure 7, once flooding commences at Work Site 6C, water levels take approximately six to seven hours to reach their peak level.

During a 1% AEP flood event, the following sequence of flooding is considered:

1) Flooding may commence at the work sites within approximately five hours after the peak rainfall. However, **work will have already ceased during the rain event** and the sites vacated in accordance with the wet-weather response procedures and the TARP in section 4.
2) Flooding commences at the work sites prior to any access roads being flooded.
3) It takes about 5 to 7 hours for the peak water level to be reach at the work sites. Access roads are not impacted by flooding for several hours after the work sites have flooded.
4) At the peak 1% AEP flood level, the Castlereagh Highway is expected to experience shallow flooding of approximately 0.1 m for about 1 to 2 hours as shown in Figure 7. Based on the assessed flood timing, peak flooding is expected to occur approximately 10 hours after the peak rainfall and five to seven hours after flooding commences at the works sites.

Based on the assessment of flood timing, access roads are not flooded until hours after the work sites are already flooded. This means work sites cannot be isolated by flooding of access roads.

Work sites will have adequate time to evacuate on the following basis:

- work at the sites will be undertaken during day shifts only;
- the work sites are temporary and are expected to operate for approximately 18 to 20 months;
- all work sites are outdoors and will cease work and prepare for evacuation when the approved wet-weather shutdown trigger is reached. This is expected to allow personnel to vacate the sites before flooding commences.
    - If using a daily rain totals, use the previous day and current day total accumulatively.

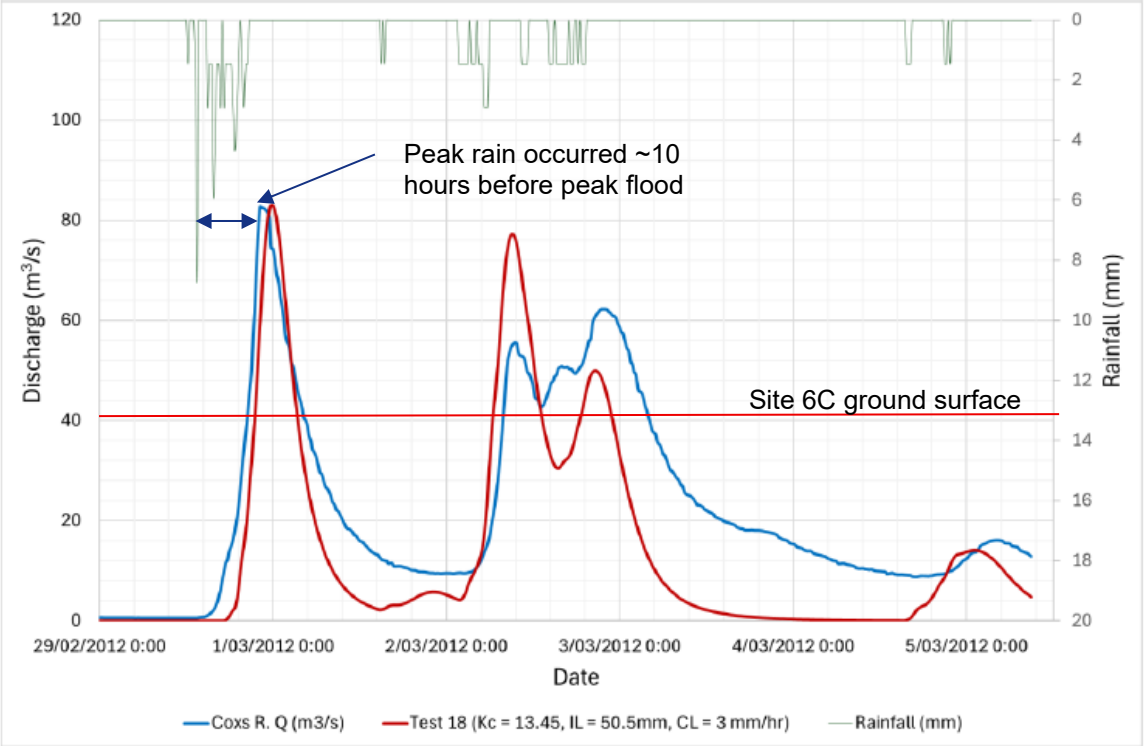


Figure 4-3 Calibration Results at Station 212054 (29 Feb to 5 March 2012)

Figure 6 - Calibration results at the Coxs River gauging station (212054) 29 Feb to 5 March 2012 (Aurecon, 2026)

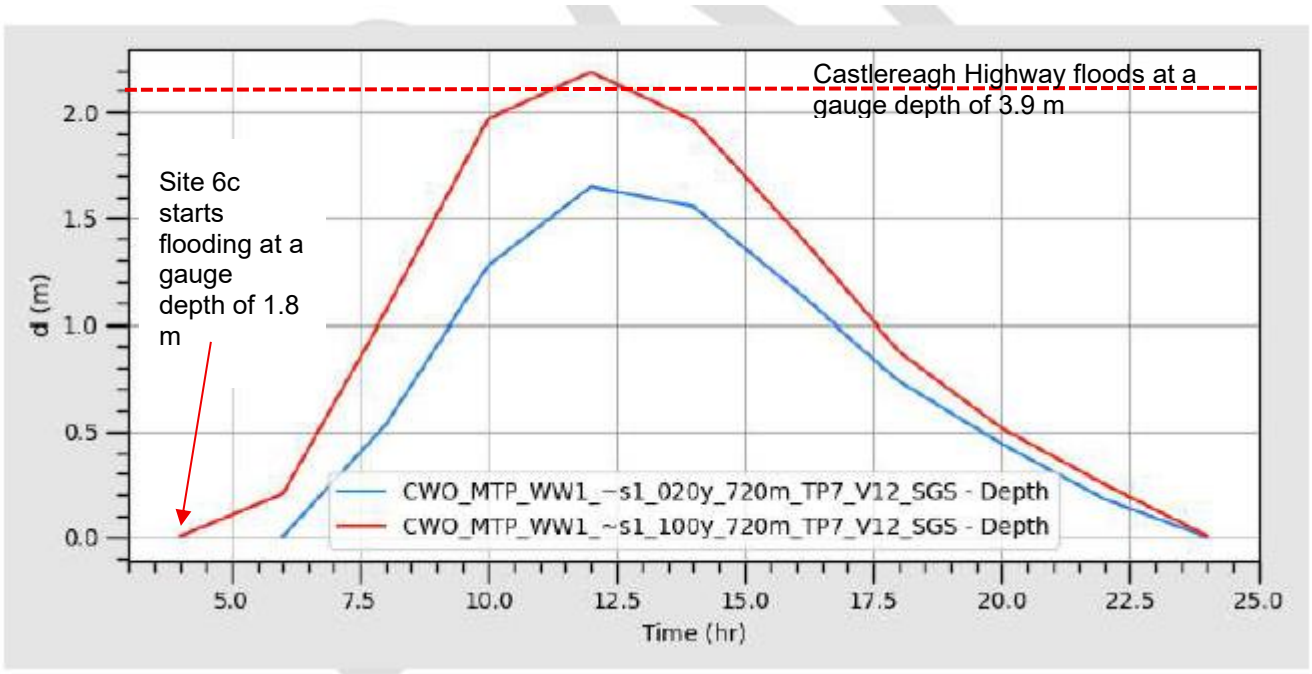


Figure 7 - Flood depth vs timing at site 6C under 5% and 1% AEP events (Aurecon, 2026)

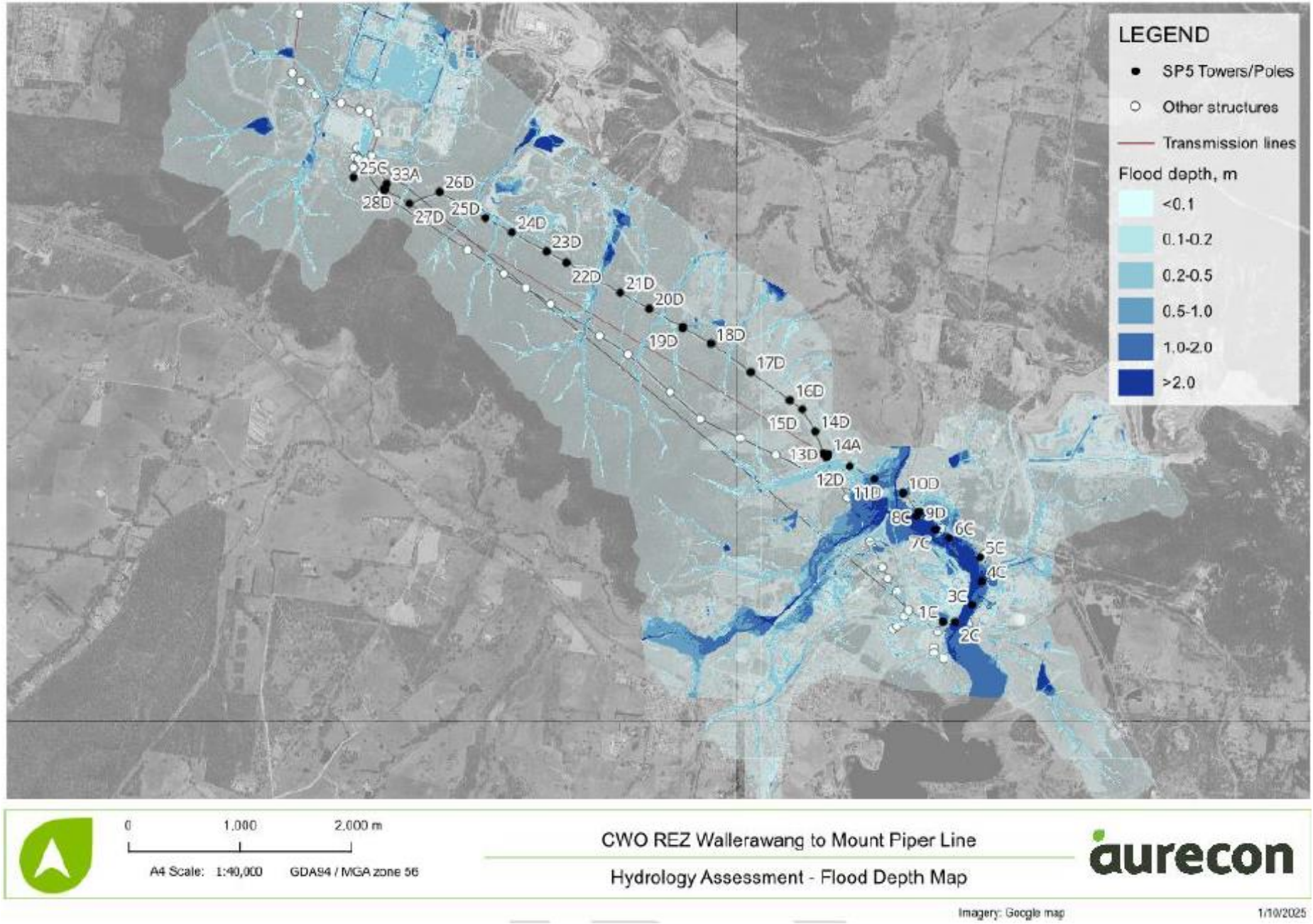


Figure 8 - MTP-WW1 1% AEP Flood Depth Map (Aurecon, 2026)

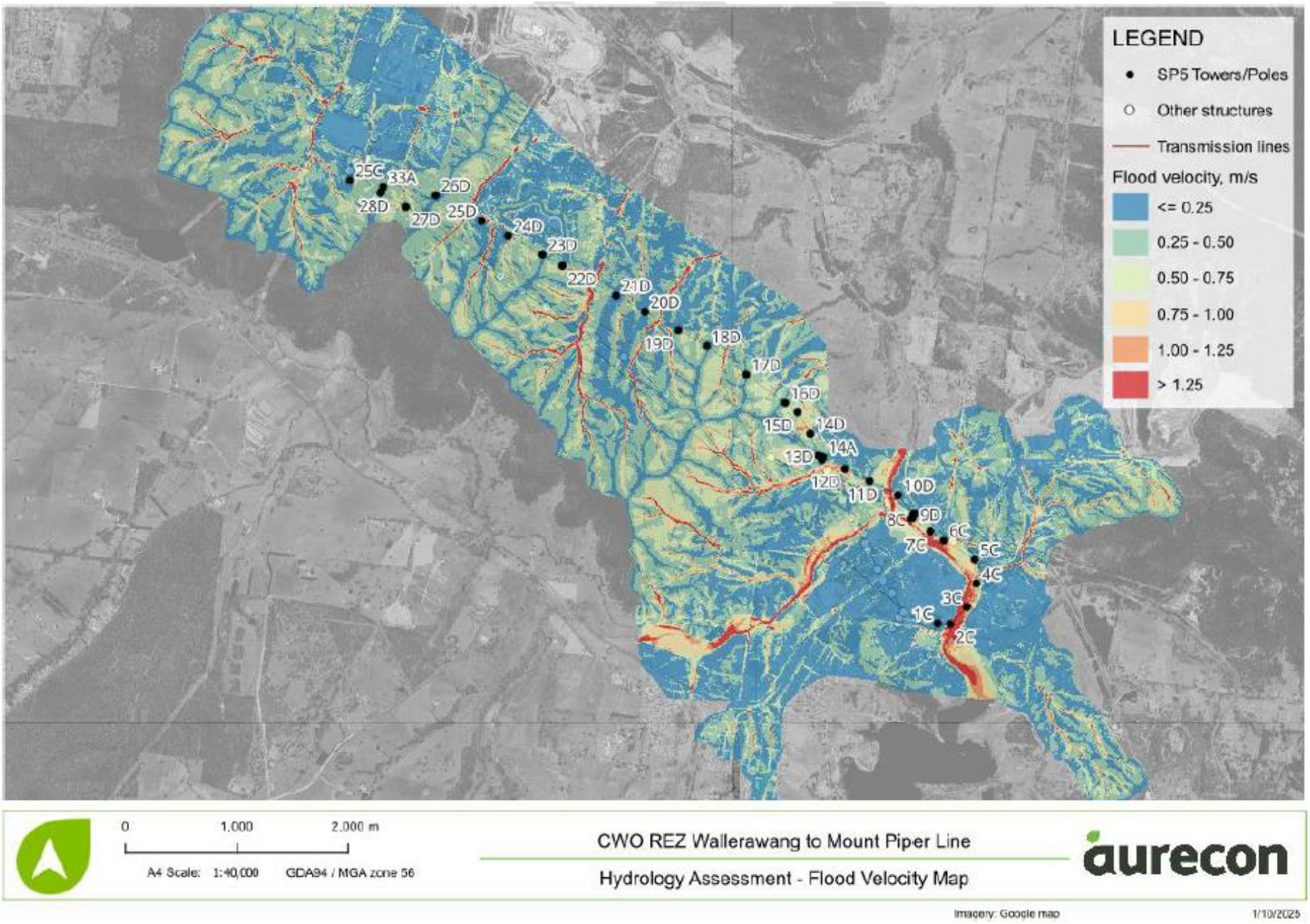


Figure 9 - MTP-WW1 1% AEP Flood Velocity Map (Aurecon, 2026)

4. Flood Preparation and Response

Flood response includes actions taken to reduce the risk to life, property and environment before and following the onset of a flood event. This includes mobilisation of personnel and resources when flooding is forecast or imminent.

This FRMP has been developed to align with the Lithgow City Flood Emergency Sub Plan which was developed by the SES in 2024. In addition to the SES Emergency Sub Plan, the Lithgow Floodplain Risk Management Study And Plan 2023 was reviewed, however this study does not include any flood modelling in the vicinity of Wallerawang.

Due to the absence of any flood modelling in vicinity of Wallerawang in the Lithgow City Flood Emergency Sub Plan, the project flood modelling by Aurecon will be used as the basis for flood responses at the work site and site office. The Lithgow Floodplain Risk Management Study and Plan 2023 mapping is used for the nominated evacuation point in Lithgow outside of the Probable Maximum Flood (PMF).

The *Support for Emergency Management Planning, Flood Risk Management Guideline* (EM01) has been reviewed and considered in preparing this FRMP. EM01 primarily guides councils, agencies and consultants in assessing and managing community flood risk to inform emergency management planning, and is not directly applicable to a temporary, construction-stage plan for a controlled and inducted workforce. Community flood emergency arrangements for Wallerawang are addressed by the Lithgow City Flood Emergency Sub Plan (NSW SES, 2024), with which this FRMP is aligned. Relevant EM01 principles have nevertheless been applied, including prioritising evacuation over shelter-in-place (Section A2.5.1), evacuating to a location outside the PMF, and assessing flood timing and route immunity to ensure personnel cannot be isolated.

As outlined in Section 3.4, most of the project footprint is not considered to be at risk of flooding. However, some transmission-line structure and access tracks are located within the flood prone areas near Coxs River.

The project has identified primary and secondary evacuation routes for access to and egress from work sites during flood events (refer to Section 4.7). The Construction Manager and Team Leaders will determine which nominated route is appropriate for use at the time, having regard to current site and road conditions and advice provided by NSW SES, relevant councils, Local Emergency Management Officers, WaterNSW, other emergency services and reputable media sources.

The following steps will be taken to prepare sites to respond to floods, if forecast rain is predicted to potentially cause flooding:

1. Prior to a forecast flood or storm reaching the site, if safe to do so:
    a. Inspect erosion and sediment controls, waste receptacles, stockpiles and chemical storage areas. Undertake any required maintenance and relocate items above the predicted 1% AEP flood level, where practicable.
    b. Isolate plant and relocate, stow or secure loose materials.
2. If flooding is likely, secure the work area by moving plant, equipment and materials to higher ground and then proceed to the nominated muster point if safe to do so. Personnel must not enter, drive through or attempt to cross floodwater, regardless of its apparent depth.

4.1 Rainfall Monitoring

The are a variety of ways that site can monitor forecast and actual rain conditions in the vicinity of the project by the Construction Manager. Due to the spatial and temporal variability of rain, a variety of sources should be reviewed to consider rain across the Coxs River catchment which is to the North and West of the Wallerawang site office compound, including:

- Forecast rain for Wallerawang via Weather zone
- Rain radar maps (Link)
- BoM Rain and River conditions for NSW (Link), including the following sites:
    - Marrangaroo (063308) which is located about 5 km southeast of the Site Office Compound
    - Ben Bullen (563034) which is located about 20 km North of the site office compound
- BoM Daily rainfall (Link) can be reviewed at the following gauges
    - Lidsdale (Maddox Lane) (063132) is located about 2km north of the site office compound
    - Portland (Jamieson St) (063071) is located about 10km northwest of the site office

4.2 Water level Monitoring

There are a variety of ways that site can monitor water levels in the Coxs River in the vicinity of site by the Construction Manager and watercourses in the vicinity of Lithgow, including:

- Rain and River conditions for NSW including the follow Locations:
    - Latest River Heights for Coxs River at Wallerawang Power Station (563076) (Link)
    - Latest River Heights for Coxs River at Lithgow (563074) (Link)
- Water level data can be viewed in real time at WaterNSW gauging stations (Link) including
    - Coxs River at Wallerawang Power Station (212054)
    - Coxs River at Bathurst Road (212008) which can be used to assess condition near the Great Western Highway
    - Farmers Creek at Mount Walker (212041) which can be used to assess flooding conditions downstream of Lithgow (Famers Creek flows through Lithgow)

4.3 Extreme Weather Monitoring

Local conditions and weather will be monitored daily and interpreted onsite via the Bureau of Meteorology Warning Centre Website (http://www.bom.gov.au/australia/flood) and local radio stations by the Construction Manager.

In the lead up to severe or extreme weather events there may also be warnings of floods or storms through:

- Media reports
- Hazard Near Me App
- NSW State Emergency Service (SES) total flood warning systems (Figure 10)
- NSW SES Dam Failure Alerts
- Water NSW's early warning network.

Monitoring of information via these channels will be used to inform the appropriate planning for work tasks to be undertaken for the day, including consideration of potential flooding to various work zones and access to and from site and whether or not a flood response may be required. Weather conditions will be communicated to the work groups at the daily site prestart meeting.

Vehicles that are operating in the vicinity of the project will follow the direction provided by the site team leaders regarding access routes to be used in the event of local road closures due to flooding.

4.4 SES flood warning levels

The Construction Manager and Team Leaders will monitor the weather daily as outlined in Section 4.1-4.3 and will follow the Australian Warning System (AWS) advice to determine the need to enact the Flood Risk Management Plan. The AWS is used across Australia to help people to identify each type of hazard and warning level.

There are three levels within the AWS - Advice, Watch and Act and Emergency Warning. For each level, there are a series of clear action statements to guide positive action by the community. These include 'stay informed', 'prepare to evacuate' and 'move to higher ground' (See Figure 10). The actions have been incorporated into the FRMP TARP is Section 4.5.

Emergency communications shall be undertaken via UHF radio, or via mobile phone.

Figure 10 - SES Flood Warning Levels



4.5 Flood Trigger Action Response Plan

To mitigate flood risk at work sites, a flood Trigger Actions Response Plan (TARP) has been developed to initiate evacuation before flooding occurs at work sites. The TARP (Table 9) incorporates four triggers, only one of the four triggers needs to be meet to activate an Alarm Level, including:

- **Forecast rainfall**: Forecast rain is reviewed daily as part of normal operation. Forecast rain with the potential to cause flooding will trigger actions based on the design events in Table 6. Forecast rain is indicative and subject to uncertainty, as such other criteria for emergency preparedness and evacuation are incorporated in the TARP. Work won't commence or will cease if forecast rain exceeds trigger levels.
    - The Triggers are based on forecast rain for that day of work, i.e. if it's a Tuesday, use the forecast for Tuesday.
    - If the forecast for future work days indicates a trigger may be exceeded, the construction manager may decide ahead of time work wont occur on that day to prevent people coming to site. i.e. if it's a Tuesday, and the forecast is for rain on Wednesday, workers may be told not to come to site on Wednesday.
- **Recorded rainfall:** Under normal working conditions, rain will cause work at the sites to cease and workers will relocate to the site office compound based on the site wet weather response plan. If rain exceeds 48 mm in a 24 hour period, it will trigger actions. The primary sites to use for recorded rain include:
    - Marrangaroo (063308)
    - Lidsdale (Maddox Lane) (063132);
    - When reviewing daily totals, the prior and current day totals should be combined.
- **Coxs River Depth:** recorded at Wallerawang gauging station (station 212054) (Link), using the reference flood levels presented in Table 8. All trigger levels are less than 5% AEP.
- **AWS warning levels:** as described in Section 4.4.

Where a flood event or significant rainfall event is forecast, site personnel requirements will be reviewed. **Work shall not commence or continue in construction areas identified as being at risk of flooding**.

Below is an example of how the TARP will be implemented in the event of flooding:

- The first trigger for evacuation is forecast rain. If sufficient rain is forecast to potentially cause flooding, work at flood prone sites will be reviewed and when required, stopped or not started prior to the rain occurring.
- However, forecast rain may under predict actual rain. If recorded rain at local gauging stations used by the project exceeds the triggers, actions will be taken prior to flooding of work sites. Noting work ceases and

workers relocate to the site office compound when rain occurs as per the Project's wet weather response plan.

- Rain in a catchment can be spatially variable, it's possible that forecast rain and recorded rain are below trigger levels. The Coxs River Guage will be monitored, and if water levels begin to rise above triggers, actions will be taken prior to flooding of work sites.
- The AWS warning system will be reviewed. In the event of a Watch and Act or Emergency Warning, action will be taken prior to flooding of work sites.

The above process provides redundancy, providing four different mechanisms to trigger actions prior to flooding

Table 9 - Flood Trigger Action Response Plan

Alarm Level	Trigger		Action	Response
Green	**Forecast Rain:**	0 mm	**<u>Continue to work as normal</u>**	**Construction Manager** • Continue to monitor weather conditions
	Recorded Rain in 24 hrs:	0 mm		
	Coxs River Depth:	<1 m		
	AWS level:	No threat		
Yellow	**Forecast Rain:**	>48 mm (50% AEP)	**<u>Work ceases at work sites</u>** **Construction Manager** • Inform team members of potential storm or flood threat via UHF radio/daily prestart • Inspect site and confirm emergency preparedness	**Construction Manager** • Prepare to enact FRMP • Continue to monitor weather conditions • Monitor local gauging stations
	Recorded Rain in 24 hrs:	0.1 - 48 mm		
	Coxs River Depth:	1 - 1.3 m		
	AWS level:	Advice		
Orange	**Forecast Rain:**	> 64 mm (20% AEP)	**<u>Prepare to evacuate work sites</u>** **Construction Manager** • Enact FRMP • Inform team members to prepare to evacuate site – either UHF radio or via daily pre-start meeting. • Move plant, equipment and chemicals to the Site Office Compound, secure loose items, turn off utilities. • Prepare evacuation transport. • Assemble at emergency muster point.	**Team Leaders** • Confirm all sites prepared to be evacuated **Construction Manager** • Monitor gauge water levels every hour • Continue to monitor weather conditions • Liaise with SES/Emergency services as required
	Recorded Rain in 24 hrs: >48 mm (50% AEP)			
	Coxs River Depth:	> 1.3 m and <1.6 m		
	AWS level:	Watch and Act		
Red	**Forecast Rain:**	> 87 mm (5% AEP)	**<u>Evacuate Work Sites</u>** **Construction Manager** • Follow FRMP. • Immediately evacuate to the site office compound. • Flood waters shall not be crossed under any circumstances. • Evacuation via the primary evacuation routes and public roads. Secondary routes used as alternate if flooded.	**Site Supervisors** • Confirm all sites evacuated **Construction Manager** • Monitor gauge water levels every hour • Continue to monitor weather conditions • Liaise with SES/Emergency services as required
	Recorded Rain in 24 hrs:	>64 mm (20% AEP)		
	Coxs River Depth:	>1.6 m		
	AWS level:	Emergency Warning		
Critical	**Forecast Rain:**	> 115 mm (1% AEP)	**<u>Evacuate Site Office Compound</u>** **Construction Manager** • Follow the FRMP.	**Site supervisors**

	Recorded Rain in 24 hrs:	>87 mm (5% AEP)	• Immediately evacuate the Site Office Compound to Lithgow Workmen's Club carpark via public roads.	• confirm all personnel evacuated from site office **Construction Manager** • Monitor gauge water levels every hour • Site Office Compound is not returned to until water levels recede below 2 m and no rain forecast within 24 hours • Liaise with SES/Emergency services as required
	Coxs River Depth:	>2.5 m		
	AWS level:	N/A		

Personnel must follow the directions issued at their work site and report to the nominated assembly point, where a roll call will be conducted. During a flood event, instructions and updates will be communicated to site personnel via two-way radio.

At the appropriate response stage, personnel will be directed to relocate to either the primary evacuation point at the site office compound, or secondary evacuation point which is outside of the PMF in Lithgow, where it is safe to do so. Personnel requirements will be managed as follows:

- **Non-essential personnel** including support personnel must cease work and relocate to the site offices or nominated accommodation.
- **Semi-essential personnel** may be required to remain on site to assist with flood preparedness. This may include the work crews, engineers and other personnel nominated by the Site Supervisor to undertake preparedness tasks, such as moving machinery and materials away from areas at risk of flooding.
- A **Skeleton crew** comprising essential personnel only, may remain onsite to complete final flood-preparation activities.

If the Red TARP level or above is activated, all personnel will evacuate works sites to the site office compound immediately.

Personnel must not enter, drive through or attempt to cross floodwater, including flooded roads. If a life-threatening situation arises the site emergency procedures must be activated, and an alert issued via the two-way radio system. Following an assessment of site conditions and access routes, personnel may be directed to evacuate the area if it is safe to do so.

4.6 Evacuation

Evacuation is a risk management strategy used to reduce risks to life and lessen the effects of an emergency before or during the event. Evacuation involves moving of people away from work sites threatened by a hazard to a safer location and facilitating their safe and timely return when conditions permit.

Due to the outdoor nature of the construction activities and their dependence on suitable weather conditions, daily weather monitoring occurs and wet-weather shutdown procedures are in place. Work will cease at the work sites during rain. Due to the delay between rain and flooding (See section 3.5.1), it is unlikely personnel will be at work sites when flooding commences.

Evacuation will occur in two stages to account for the different risk level for different areas of the project. The stages include:

- **Stage 1:** Evacuate flood prone work sites to the site office compound, this will occur due to rain, prior to flooding.
- **Stage 2:** Evacuate the site office compound prior to the 5% AEP flood event to the Lithgow Workmen’s Club.

The site office compounds at both Wallerawang and Mount Piper are outside of the 1% AEP flood extent of the nearby watercourses. The Construction Manager will direct personnel to gather at the nominated emergency muster point within each site office compound. During an emergency, personnel must cease work and report to the nominated muster point when directed, provided it is safe to do so. In the event that the muster point is not safe, personnel will be directed by two-way radio to an alternative location.

As per Table 9, all work sites and the site office compound at Wallerawang will be evacuated when water levels reach 1 m below the 5% AEP flood level.

As shown in Figure 13 and Figure 14, two evacuation routes for the flood prone work sites are adopted, including:

- **Primary evacuation route:** This route will be used to evacuate personnel to the assembly point at the site office compound when flooding is not affecting the route. Travel distance is less than 2 km for flood prone work sites. It provides safe access to and egress from the work sites during flood events up to and including:
    - Main Street Bridge has 1% AEP flood immunity; and
    - Castlereagh Highway is inundated near Work Site 6C by the 1% AEP to a depth of approximately 0.1 m
- **Secondary Evacuation route:** the secondary route will be used if the primary route, Main Street Bridge or Castlereagh Highway is closed or unsafe due to flooding in the Coxs River. Personnel at works sites will use the alternative routes that are located outside the 1% AEP flood extent, including:
    - Personnel at work sites 3C, 4C and 5C will evacuate south along the Castlereagh Highway to Lithgow. The secondary route road (Crossing 2) is elevated at 0.3 m above the 1% AEP flood level.
    - Personnel at work sites 6C, 7C, 8C, 9D and 10D will evacuate north along the Castlereagh Highway which is not impacted by the 1% AEP flood extent, to the alternative evacuation point at Mount Piper Power Station (shown in Figure 12).
    - Personnel at work sites 11D and 12D will evacuate northwest along the project access road which is not impacted by the 1% AEP flood extent, to the alternative evacuation point at Mount Piper Power Station (shown in Figure 12).
    - Personnel at works sites 13 to 30 are not flood prone. Each work site has multiple evacuation routes that are not flood prone.
- **Site Office Compound Evacuation:** The offsite emergency evacuation point is the Lithgow Workmen's Club which is outside of the PMF level, approximately 15 min drive (15 km) via the Castlereagh Highway as shown in Figure 15. Personnel will remain at this location until directed by the Construction Manager, who will engage with local authorities to ensure it is safe to depart.
    - In the event that Main Street Bridge or Castlereagh highway is flooded, the site office compound can evacuate south through Wallerawang to Lithgow via the Great Western Highway.
    - Prior to a flood event, personnel may be directed to leave the site to return to their accommodation or place of residence.

Weather forecasts, official warnings, site conditions and relevant media reports will be monitored to identify potential flood risks and facilitate the safe and orderly evacuation of site personnel if required. The site will be closed and remain closed for the duration of the flood event except where access is required to respond to an emergency and is authorised by the Site Manager or emergency services.

The following steps will be implemented once the trigger to evacuate is initiated:

- All personnel must report to the Primary evacuation point at the Zinfra Site Office Compound or another secondary point if directed by the Construction Manager.
- Personnel must be accounted for by roll call upon arrival at the muster or evacuation point.
- Depending on the severity of the flood, further evacuation to Lithgow may be required at the decision of the Site Manager. Liaison with emergency services and local authorities will be conducted by the Construction Manager.
- If evacuation by vehicle is required and can be undertaken safely, the Construction Manager will review evacuation routes and consult Live Traffic NSW to help identify and avoid closed or flooded roads. Personnel must also comply with road closures, traffic controls and directions issued by emergency services or other relevant public authorities.
- Where personnel are at risk of inundation or any other life-threatening emergency, the site Emergency Management Plan must be activated, and an alert issued via the two-way radio system. If emergency services are required, the Site Management Team or the Emergency Response Team must contact them immediately by calling 000.

The primary evacuation muster point is the Zinfra Site Office Compound near Wallerawang Power Station (shown in Figure 13). For the work sites that are not flood prone, the alternate muster point is the laydown area at Mount Piper Power Station which is not located near any watercourses (shown in Figure 12), subject to confirmation that the route and location are safe.

If all evacuation routes to Lithgow are closed simultaneously due to non-flood related events, the workforce will shelter in place at the Site Office Compound until evacuation can occur safely.

4.7 Site Access and Egress

In the event of a flood, evacuation from transmission line structures work sites and access tracks areas will be via the evacuation routes described in Section 4.6 and shown in Figure 12 and Figure 13. If an alternate route is required, the Site Management Team will communicate the revised directions to personnel. To determine the safest available route, official warning sources and traffic information channels will be monitored to determine the status of surrounding roads outside of the project areas.

The route assessed as safest based on current information will be used during a flood event**.** Road closures will be continuously monitored with updated directions provided to site personnel by team leaders via two-way radio.

Information about road closures will be communicated by the site management team via the two-way radios. In the event of a two-way radio failure, personnel should follow the most recent safe directions provided and, where other communication methods remain available, obtain updated information about road closures from:

- Transport for NSW – https://www.livetraffic.com/ or 132 701. The Live Traffic App can also be used to provide information on mobile devices.
- NSW SES – https://www.ses.nsw.gov.au/ or 132 500.
- Hazards Near Me app.
- Local Radio broadcasts.

4.8 Offsite Evacuation

Prior to the 5% AEP flood level, the site office compound will evacuate as per the TARP in Table 9. The primary evacuation route is via the Castlereagh Highway. The site office will evacuate to Lithgow, to the carpark across the road from the Lithgow Workmen's Club Carpark. The Lithgow Workmen's Club is often used as an emergency evacuation centre for Lithgow. As shown in Figure 11, the evacuation location is outside of the modelled PMF, as per the Lithgow Council flood mapping.

In the event Main Street Bridge or Castlereagh Highway is closed, the site office will evacuate via the secondary route to Lithgow south via Wallerawang to the Great Western Highway. This evacuation route is accessed via Main Street, which has an elevation of about 880 mAHD to 895 mAHD, which is more than 4 m above the 1% AEP flood level.

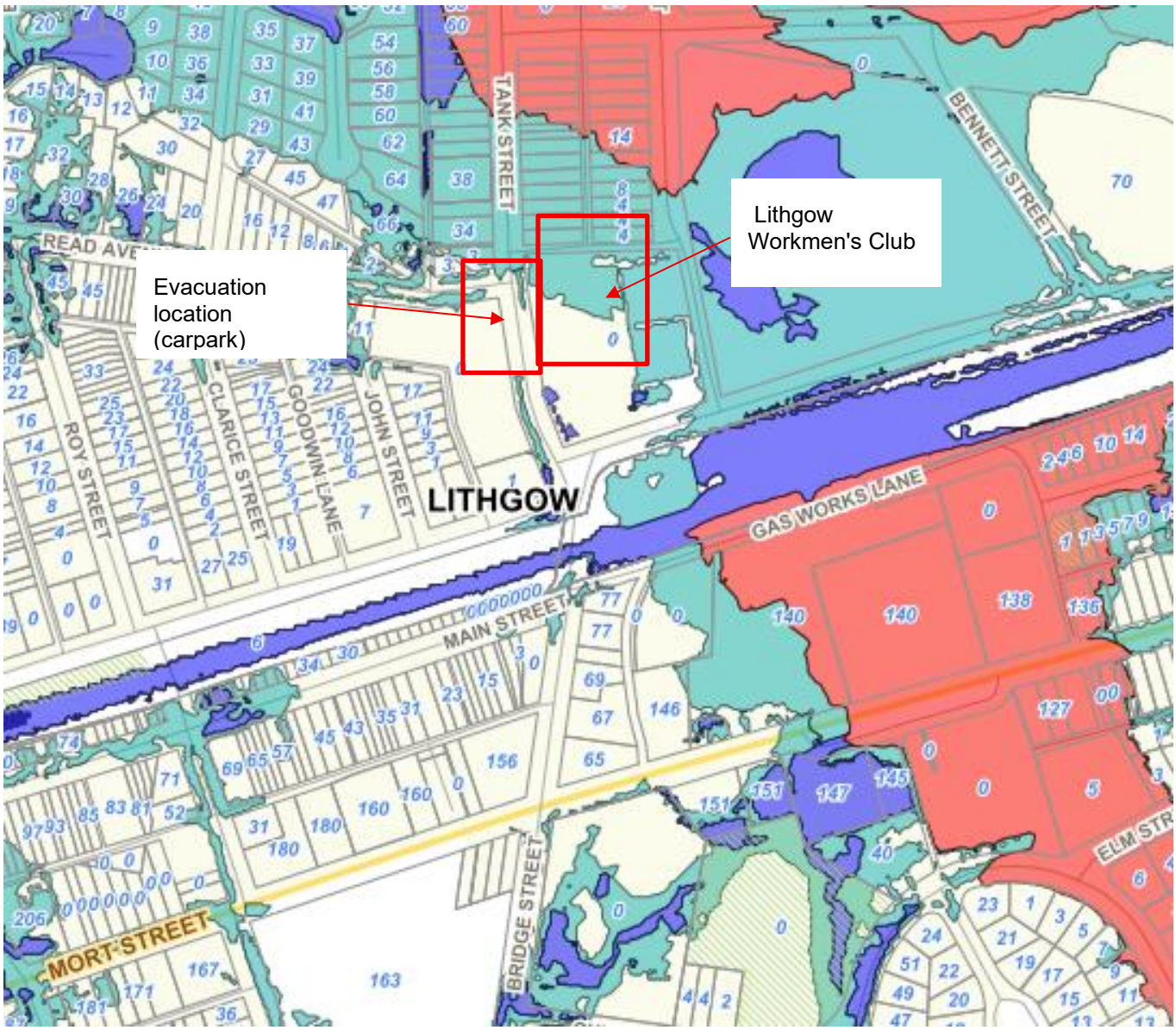


Figure 11 – Emergency evacuation location and the PMF flood extent (Turquoise) for Lithgow

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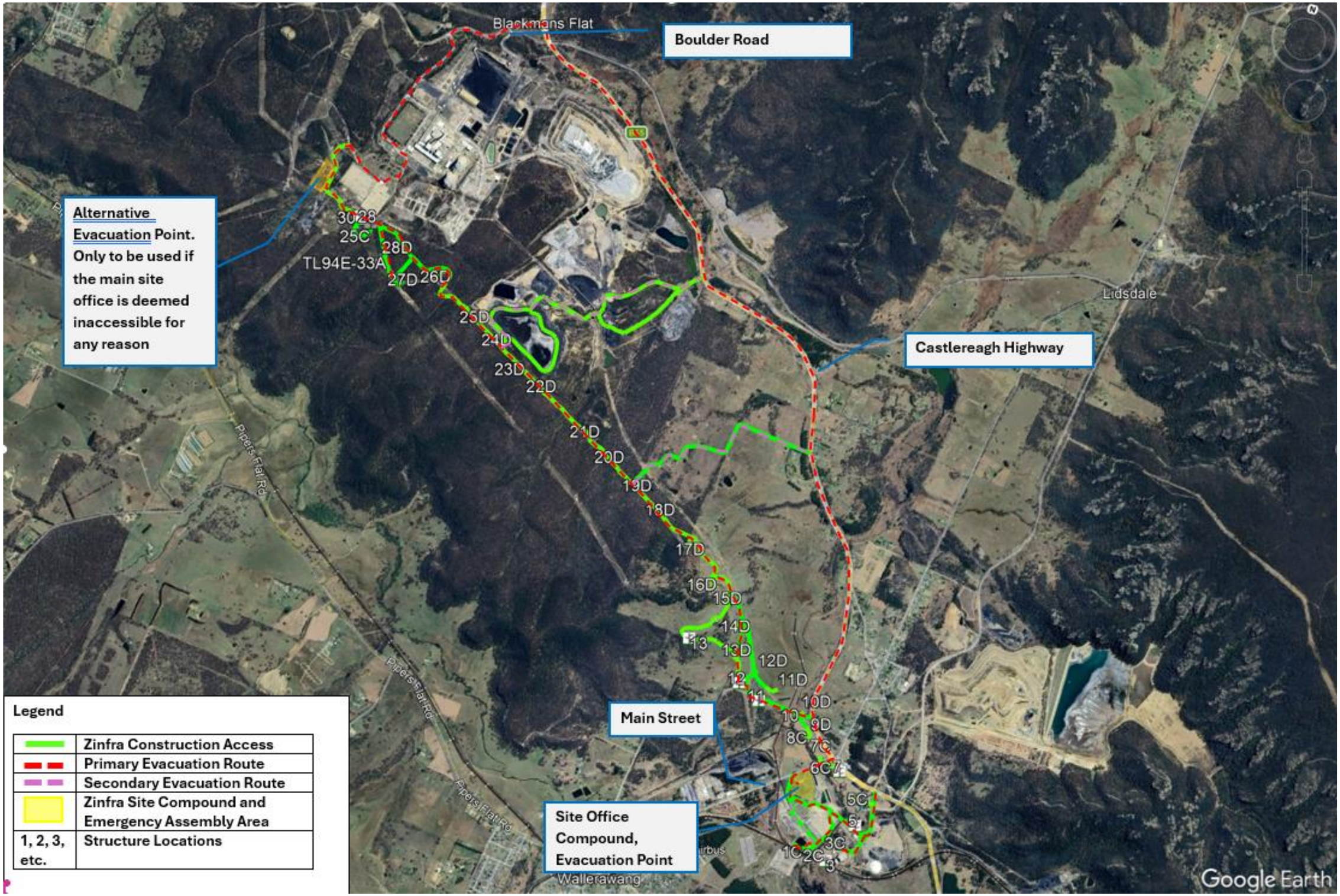


Figure 12 - Flood Management Plan - Site Access and Primary Evacuation Routes

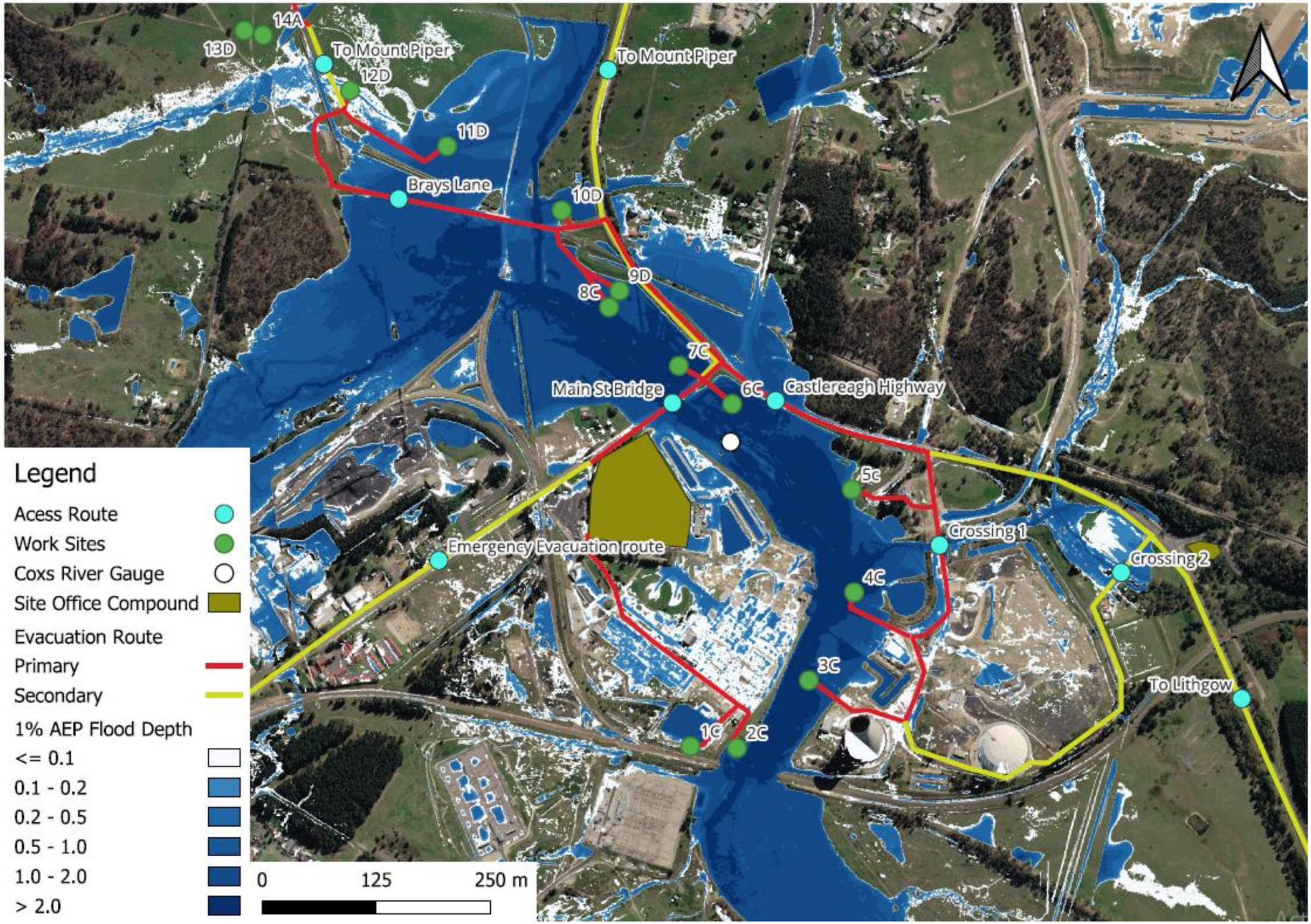


Figure 13 - Flood Management Plan – Evacuation Routes of the Coxs River 1% AEP flood event

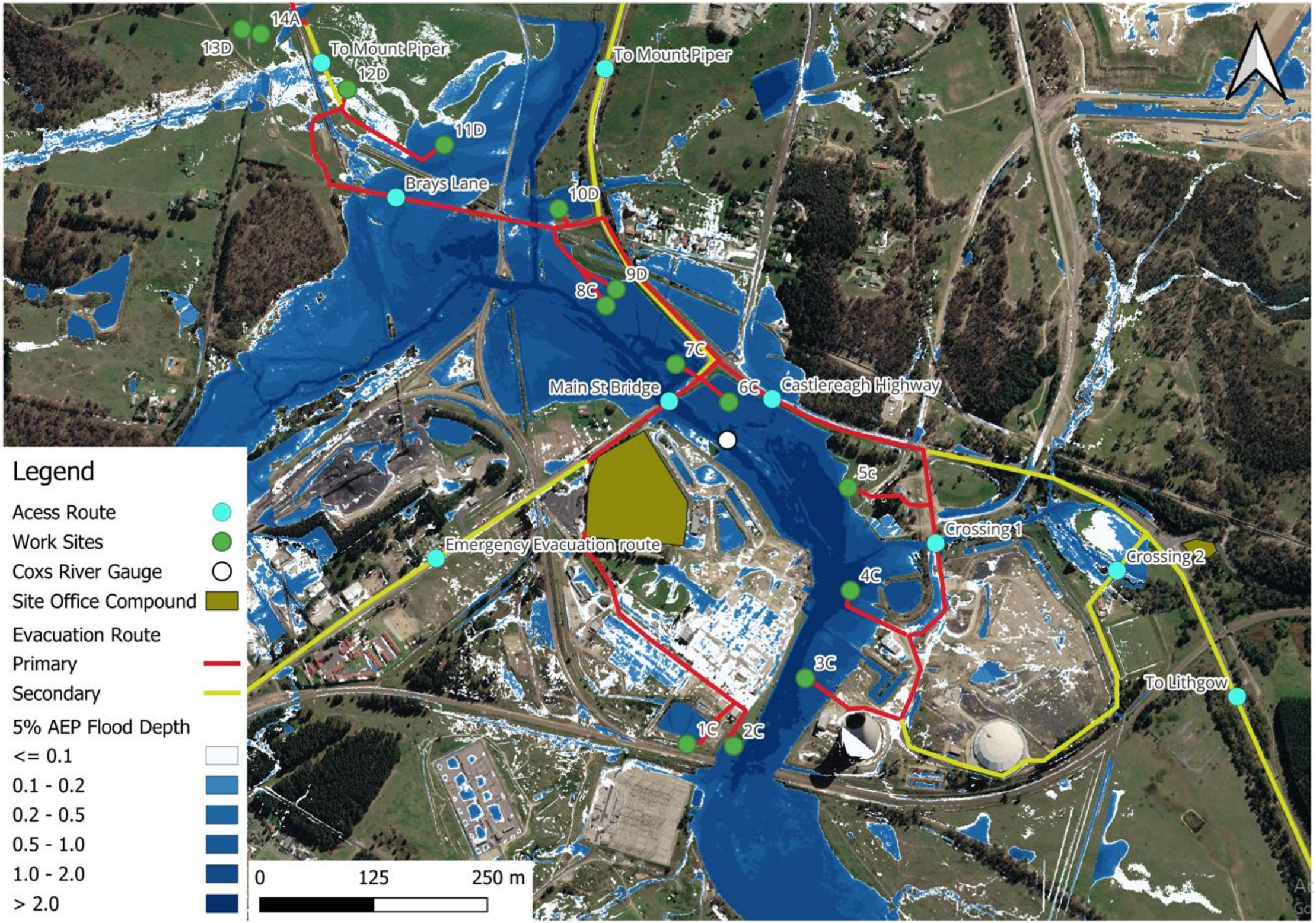


Figure 14 - Flood Management Plan – Evacuation Routes of the Coxs River 5% AEP flood event

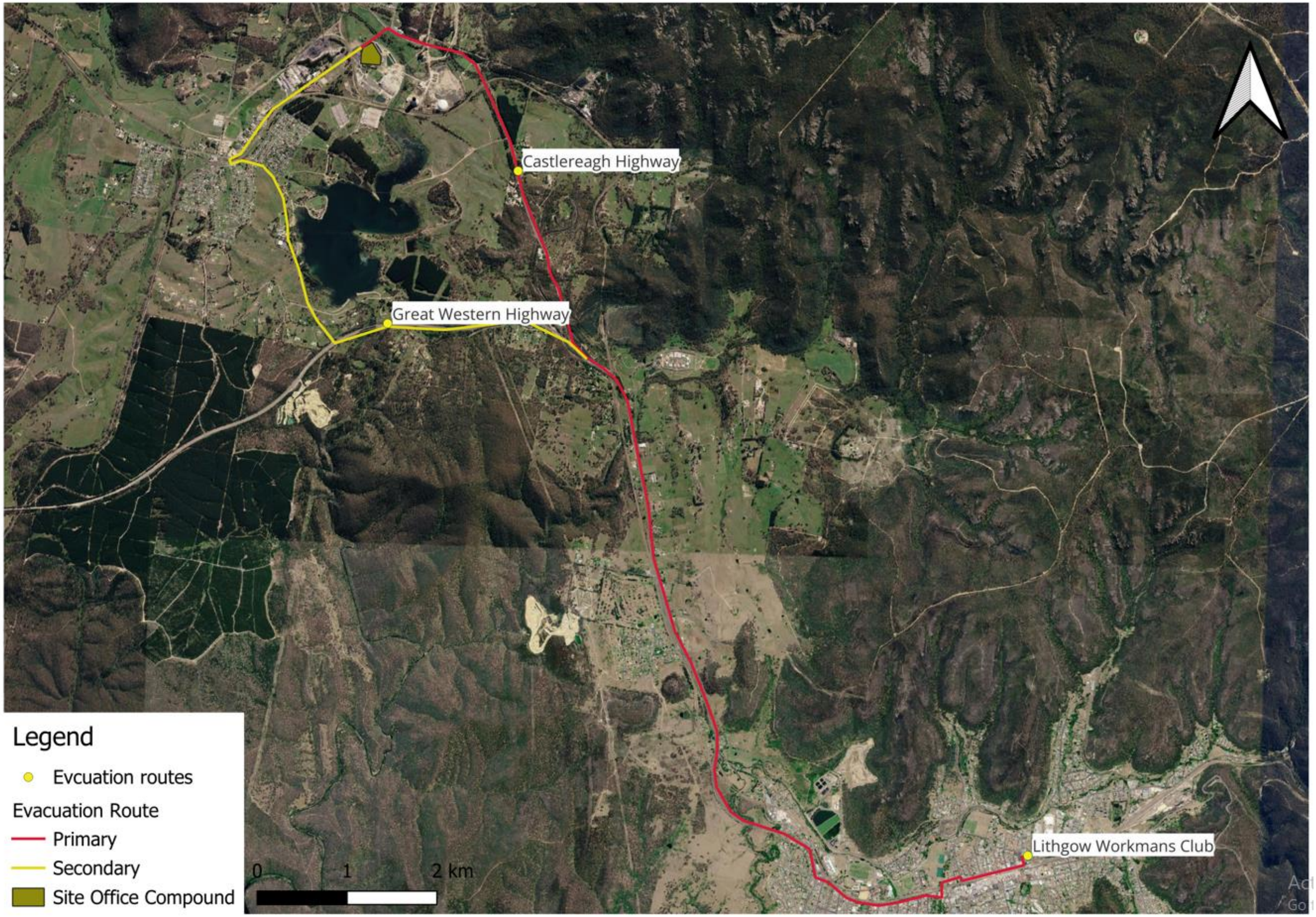


Figure 15 - Flood Management Plan – Evacuation Routes to Lithgow Workman's Club

5. Flood Recovery

5.1 Site Inspections

The flood impacted work sites will be reopened only once it has been deemed safe by the Site Management Team, in consultation with emergency services and relevant local authorities where required (i.e. public road closures). A site inspection will be undertaken to identify safety or environmental hazards requiring corrective action. Identified hazards must be controlled and damaged areas remediated before work recommences.

The inspection will include the following, as applicable:

- confirming that entry points, evacuation routes and access tracks are free from debris, damage and obstructions;
- confirming that perimeter fencing and signage are intact and secure;
- identifying and controlling slip, trip and fall hazards;
- inspecting structures, excavations and trenches, temporary structures and formwork, concrete footings and foundations, cranes, and lifting equipment to confirm that they are secure and free from damage, including visible cracking, subsidence or erosion;
- having electrical equipment inspected by a suitably qualified person before use, including switchboards, temporary power leads, lighting and lighting towers, and confirming that residual current devices (RCDs) have been tested and are operational;
- inspecting plant and equipment before use to confirm that it is operational and safe;
- inspecting hazardous-material storage areas to confirm that containers are secure and no spills have occurred, and ensuring that contaminated materials or water, waste, and debris are safely removed;
- inspecting environmental controls and replacing or repairing them where required, clearing stormwater drains where safe to do so, and confirming that spill kits are fully stocked;
- confirming that site health, hygiene and biosecurity risks are controlled, including ensuring that amenities are clean and operational, potable water is available, mosquito and pest risks are managed, and first-aid kits are available and stocked; and
- reassessing ground-bearing capacity before load-bearing equipment, such as cranes and drill rigs, is returned to operation.

5.2 Non Compliance

An environmental non-compliance occurs when a condition of approval, licence condition, or any other statutory requirement relevant to a Project activity or location is breached.

Non-compliances may include incident-related significant non-compliances, which may result from construction activities.

For any non-compliances that are not classified as incidents and are identified through inspections, audits, or observations, in accordance with Condition C15, Transgrid's Environmental Business Partner will notify the Department via the Major Projects website within seven (7) days of becoming aware of the non-compliance. Zinfra will provide all necessary information to assist Transgrid in preparing this notification.

The written notification will include the following details:

- The development, including the development application number and Project name.
- The specific Condition of Approval that has not been met.
- The reasons for the non-compliance, if known; and
- Actions that have been undertaken, or are planned, to address the non-compliance, including expected timing for completion.

5.3 Incidents

5.3.1 Incident management

In accordance with the Infrastructure Approval, an incident is an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance. Material Harm is harm that

- involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or
- results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $50,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).

This definition excludes “harm” that is authorised under either the Approval or any other statutory approval.

All incidents will be reported immediately to the Transgrid Project Manager and must be entered by Zinfra into OMNIA within 24 hours, Zinfra’s Risk and Compliance Management System, which serves as the project’s incident management database to ensure that actions are tracked and completed within the required timeframes.

OMNIA supports the management of:

- Enterprise- and Business Unit-level risks, including associated controls, causes, and actions
- Compliance obligations and related documentation

Where an incident has occurred, additional monitoring may be required.

5.3.2 Incident Notification

In accordance with Condition C16, the Zinfra Environmental Business Partner (through Transgrid) will notify the Department (DPHI) and NPWS within 24 hours of becoming aware of an incident. The notification to the Department must be made via the NSW planning portal (Major Projects) and address details of the incident, including:

a. date, time and location;
b. a brief description of what occurred and why it has been classified as an incident;
c. a description of what immediate steps were taken in relation to the incident; and
d. identifying a contact person for further communication regarding the incident.

5.3.3 Incident Report

In accordance with Condition C17, the Zinfra Environmental Business Partner (through Transgrid) will provide the Department and NPWS with a subsequent incident report via the NSW planning portal (Major Projects) within 7 days (or as otherwise agreed by the Planning Secretary) of the incident notification (in accordance with condition C16). The incident report shall

a. identify how the incident was detected;
b. identify when the Proponent became aware of the incident;
c. identify any actual or potential non-compliance with conditions of consent;
d. identify further action(s) that will be taken in relation to the incident; and
e. provide a summary of the incident;
f. provide outcomes of an incident investigation, including identification of the cause of the incident;
g. detail corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence, including the period for implementing any corrective and/or preventative actions; and
h. detail any communication with other stakeholders regarding the incident.

Zinfra’s Environmental Business Partner (through Transgrid) shall also submit any further reports as directed by the Planning Secretary.

5.3.4 Incident Investigation

An investigation will be initiated promptly by the Zinfra Project Manager following any reported incident. The scope and depth of the investigation will depend on the severity and potential impact of the incident. Key elements may include:

- Determining the cause, extent, and responsibility of the incident.
- Additional monitoring (where appropriate)
- Identifying and implementing corrective actions to prevent recurrence.
- Assigning responsibility for carrying out corrective measures.
- Reviewing and updating controls and procedures as needed.
- Notifying relevant stakeholders, including regulatory authorities, if flood related impacts have occurred.

Investigations will follow the ICAM (Incident Causation Analysis Method), in alignment with Transgrid's investigation requirements. The level of investigation, team composition, and reporting obligations will be determined based on the actual and potential severity of the incident.

5.3.5 Other Reporting Requirements

Reporting to SafeWork NSW is required under the WHS Act 2011 where a notifiable incident occurs, which includes the death of a person due to drowning, electrocution, structural collapse; a serious injury or illness such as hospital treatment, serious infections from contaminated floodwater, crush injuries; or a dangerous incident such as the collapse of scaffolding/structure, electrical shorting or arcing, an uncontrolled escape of hazardous substances, the failure of temporary structures or plant overturning due to unstable ground.

Reporting to the NSW EPA may be required for a pollution incident caused by flooding, including chemical spills, fuel leaks, contaminated runoff, sewage discharge, pollution entering waterways or stormwater systems.

Utility providers or asset owners may need to be notified where flooding has damaged electrical systems, sewage systems, or telecommunications/water/gas infrastructure.

5.4 Management Measures

Table 10 summarises the flood related management measures required to manage of flooding on the construction of the Project.

Table 10 – Management Measures

ID	Measure/requirement	When to implement	Responsibility	Source	Evidence
FL-01	Make the FRMP readily available to all relevant stakeholders, including Zinfra employees, subcontractors, regulatory agencies and visitors, with a copy available on site for all persons to view. Ensure the FRMP is read and understood by relevant project personnel, including employees, team leaders, field crews, contractors and subcontractors, and that visitors, delivery personnel and other parties entering project work areas are made aware of critical emergency information through site inductions, pre-start briefings or other relevant communication. Ensure all personnel with emergency response or emergency management responsibilities have access to the FRMP and receive training appropriate to their responsibilities to enable an effective, coordinated and integrated response. Update the Plan where roles, responsibilities or mitigation measures change, and maintain the Emergency Contact List (Appendix C).	Pre-construction; Construction	Project Director; Construction Manager	FRMP s1.1; s2.4; Appendix C	• FRMP • Document distribution register • Induction and pre-start records • Emergency Contact List
FL-02	Train workers on the contents of the FRMP at a site-specific induction in accordance with Section 4.1 of the Emergency Management Plan. Provide ongoing training, consultation and information on site-specific flood risks and emergency procedures through daily site pre-starts, toolbox talks, emergency drill scenarios and emergency information displayed at site compounds. Perform a trial flood emergency event within 6 months of mobilisation and repeat it yearly. Require the positions listed in Appendix B to review, understand and sign off on the FRMP, adding any new personnel to the sign-off where roles change during the Project.	Pre-construction; Construction	Construction Manager; Health and Safety BP	FRMP s2.5; Appendix B (induction elaborates REMM W2)	• Induction materials • Induction records • Pre-start and toolbox talk records • Trial event report • Signed Appendix B sign-off sheet • Photos
FL-03	Monitor forecast and actual rainfall across the Coxs River catchment (to the north and west of the Wallerawang site office compound) using multiple sources, including forecast rain for Wallerawang (Weatherzone), BoM rain radar, BoM Rain and River Conditions for NSW (Marrangaroo 063308 and Ben Bullen 563034) and BoM daily rainfall gauges (Lidsdale Maddox Lane 063132 and Portland Jamieson St), combining the prior and current day totals when reviewing daily rainfall. Monitor water levels in the Coxs River and watercourses near Lithgow, including Coxs River at Wallerawang Power Station (563076 / WaterNSW 212054), Coxs River at Lithgow (563074), Coxs River at Bathurst Road (212008) and Farmers Creek at Mount Walker (212041).	Construction	Construction Manager	FRMP s4.1; s4.2; s4.5	• Daily rainfall and river level check records • Gauge readings logged against TARP triggers • Screenshots / data extracts from BoM and WaterNSW
FL-04	Monitor local conditions and weather daily and interpret on site using the BoM Warning Centre website and local radio, together with media reports, the Hazards Near Me app, NSW SES flood warnings, NSW SES Dam Failure Alerts and WaterNSW's early warning network. Use this information to plan daily work tasks, including consideration of potential flooding of work zones and access to and from site, and communicate weather conditions to work groups at the daily pre-start meeting. The Construction Manager and Team Leaders will follow Australian Warning System (AWS) advice (Advice, Watch and Act, Emergency Warning) to determine the need to enact the Flood Risk Management Plan. Undertake emergency communications via UHF radio or mobile phone, and direct vehicles operating near the Project on access routes to use in the event of local road closures due to flooding.	Construction	Construction Manager; Team Leaders	FRMP s4.3; s4.4	• Daily weather monitoring records • Pre-start records • AWS warning log and actions taken

ID	Measure/requirement	When to implement	Responsibility	Source	Evidence
FL-05	Implement the Flood Trigger Action Response Plan (Table 9), activating an alarm level when any one of the four triggers is met (forecast rain for that work day, recorded rain, Coxs River depth at gauge 212054, or AWS warning level): Green (0 mm forecast / recorded, <1 m, no threat) – continue work and monitor; Yellow (>48 mm forecast, 1–1.3 m, Advice) – work ceases at work sites, inform team members via UHF radio / pre-start, inspect site and confirm emergency preparedness, prepare to enact FRMP and monitor gauges; Orange (>64 mm forecast, >48 mm recorded, >1.3–<1.6 m, Watch and Act) – enact FRMP, cease works in affected areas, prepare to evacuate, move plant, equipment and chemicals to the Site Office Compound, secure loose items, turn off utilities, prepare evacuation transport, assemble at muster point, Team Leaders confirm sites prepared, and monitor gauge levels every hour; Red (>87 mm forecast, >64 mm recorded, >1.6 m, Emergency Warning) – immediately evacuate work sites to the site office compound via primary routes (secondary if flooded), never cross floodwater, and Site Supervisors confirm all sites evacuated; Critical (>115 mm forecast, >87 mm recorded, >2.5 m) – immediately evacuate the Site Office Compound to the Lithgow Workmen's Club carpark and do not return until water levels recede below 2 m and no rain is forecast within 24 hours. The Construction Manager may decide in advance that work will not occur on a future day where the forecast indicates a trigger may be exceeded and will liaise with SES / emergency services as required.	Construction	Construction Manager; Team Leaders; Site Supervisors	FRMP s4.5; Table 8; Table 9 (elaborates REMM W2 / CoA B35(i), B46(h)(iv))	• TARP activation log • Hourly gauge readings at Orange and above • Plant and chemical relocation records • SES / emergency services liaison records
FL-06	Undertake work at flood-prone work sites during day shifts only, and cease work and commence evacuation of all outdoor work sites when the wet-weather shutdown trigger is reached, with workers relocating to the site office compound in accordance with the Project's wet-weather response plan. Where a flood event or significant rainfall event is forecast, review site personnel requirements.	Construction	Construction Manager; Team Leaders	FRMP s3.5.1; s4.5; s4.6	• Shift rosters • Wet-weather shutdown records • Personnel requirement review records
FL-07	Where forecast rain is predicted to potentially cause flooding, and if safe to do so before the forecast flood or storm reaches the site: inspect erosion and sediment controls, waste receptacles, stockpiles and chemical storage areas, undertake any required maintenance and relocate items above the predicted 1% AEP flood level where practicable; isolate plant; and relocate, stow or secure loose materials. If flooding is likely, secure the work area by moving plant, equipment and materials to higher ground and then proceed to the nominated muster point if safe to do so. Personnel must not enter, drive through or attempt to cross floodwater, regardless of its apparent depth.	Construction	Construction Manager; Team Leaders	FRMP s4	• Pre-event inspection checklist • Photos • Maintenance / corrective action records
FL-08	Manage personnel during flood preparation as follows: non-essential personnel, including support personnel, cease work and relocate to the site offices or nominated accommodation; semi-essential personnel nominated by the Site Supervisor may remain to assist with preparedness tasks such as moving machinery and materials from areas at risk; and a skeleton crew of essential personnel only may remain to complete final flood-preparation activities. When the Red TARP level or above is activated, all personnel evacuate work sites to the site office compound immediately. Personnel must follow directions at their work site and report to the nominated assembly point for a roll call, with instructions communicated via two-way radio. If a life-threatening situation arises, activate the site emergency procedures and issue an alert via the two-way radio system, contacting 000 where emergency services are required.	Construction	Construction Manager; Site Supervisors; all personnel	FRMP s4.5; s4.6	• Records of personnel category assignment • Roll-call records at assembly point • Emergency activation / 000 call records where applicable

ID	Measure/requirement	When to implement	Responsibility	Source	Evidence
FL-09	Implement two-stage evacuation: Stage 1 – evacuate flood-prone work sites to the site office compound due to rain, prior to flooding; Stage 2 – evacuate the Wallerawang site office compound before the 5% AEP flood level to the carpark opposite the Lithgow Workmen's Club (outside the Lithgow PMF extent), approximately 15 minutes' drive via the Castlereagh Highway, or via the secondary route south through Wallerawang (Main Street) to the Great Western Highway if Main Street Bridge or the Castlereagh Highway is closed. Direct personnel to the nominated muster point within each site office compound, or to an alternative location by two-way radio if the muster point is unsafe, and account for all personnel by roll call on arrival. Personnel remain at the offsite evacuation location until directed by the Construction Manager, who will engage with local authorities to confirm it is safe to depart; personnel may be directed to return to their accommodation or residence before a flood event. Where all evacuation routes to Lithgow are closed simultaneously due to non-flood events, shelter in place at the Site Office Compound until evacuation can occur safely. Keep the site closed for the duration of the flood event except where access is required to respond to an emergency and is authorised by the Site Manager or emergency services.	Construction	Construction Manager; Site Manager	FRMP s4.6; s4.8; Figure 11; Figure 15 (elaborates CoA B46(i))	• Evacuation records by stage with times • Roll-call records at muster / evacuation points • Site closure and emergency access authorisation records
FL-10	Use the nominated evacuation routes for each group of work sites: primary route to the site office compound (under 2 km for flood-prone sites) where not affected by flooding; and, where the primary route, Main Street Bridge or Castlereagh Highway is closed or unsafe, secondary routes outside the 1% AEP flood extent – work sites 3C, 4C and 5C south along the Castlereagh Highway to Lithgow via Crossing 2; work sites 6C, 7C, 8C, 9D and 10D north along the Castlereagh Highway to the alternative evacuation point at Mount Piper Power Station; work sites 11D and 12D northwest along the project access road to Mount Piper Power Station; and work sites 13 to 30 via their multiple non-flood-prone routes. Use the Mount Piper Power Station laydown area as the alternate muster point, subject to confirming the route and location are safe. Where vehicle evacuation is required, the Construction Manager will review routes and consult Live Traffic NSW to avoid closed or flooded roads, and personnel must comply with road closures, traffic controls and directions from emergency services and public authorities. Communicate route and road closure information via two-way radio; if radios fail, personnel follow the most recent safe directions and obtain updates from Live Traffic NSW (132 701), NSW SES (132 500), the Hazards Near Me app and local radio.	Construction	Construction Manager; Site Management Team; Team Leaders	FRMP s4.6; s4.7; Figures 12–14 (elaborates CoA B35(i), B46(i))	• Evacuation route maps • Route selection records • Live Traffic NSW checks recorded • Induction / toolbox records
FL-11	The Project Director is to notify the Transgrid Project Manager of a flood emergency within 1 hour. Where other emergencies occur concurrently with a flood (e.g. an injury during evacuation), follow the Emergency Management Plan protocols for both concurrently where practical; where not practical and the event is life-threatening or highly serious, contact emergency services and seek advice.	Construction	Project Director; Construction Manager	FRMP s2.4; s7.1	• Notification to Transgrid Project Manager, 000 or emergency services • Emergency Management Plan records
FL-12	Reopen flood-impacted work sites only once deemed safe by the Site Management Team, in consultation with emergency services and relevant local authorities where required (e.g. public road closures). Undertake a site inspection covering, as applicable: entry points, evacuation routes and access tracks free from debris, damage and obstruction; perimeter fencing and signage intact; slip, trip and fall hazards; structures, excavations and trenches, temporary structures, formwork, footings, foundations, cranes and lifting equipment (for cracking, subsidence or erosion); electrical equipment inspected by a suitably qualified person before use, with RCDs tested; plant and equipment inspected before use; hazardous-material storage areas checked for secure	Construction	Site Management Team; Construction Manager	FRMP s5.1 (elaborates REMM W4 post-flood inspection)	• Post-flood inspection checklist • Electrical inspection and RCD test records • Plant pre-use inspection records

ID	Measure/requirement	When to implement	Responsibility	Source	Evidence
	containers and spills, with contaminated materials, water, waste and debris safely removed; environmental controls repaired or replaced, stormwater drains cleared where safe and spill kits restocked; site health, hygiene and biosecurity controlled (amenities, potable water, mosquitoes and pests, first-aid kits); and ground-bearing capacity reassessed before load-bearing equipment such as cranes and drill rigs returns to operation. Control identified hazards and remediate damaged areas before work recommences.				• Ground-bearing capacity assessment • Remediation and corrective action close-out records • Photos
FL-13	Report all incidents immediately to Transgrid and enter them into OMNIA within 24 hours. Notify the Department and NPWS via the NSW Planning Portal within 24 hours of becoming aware of an incident. Notify the Department of non-compliances within 7 days (Condition C15), with Zinfra providing all necessary information to Transgrid. Initiate an investigation promptly following any reported incident using ICAM in alignment with Transgrid's requirements, covering cause, extent and responsibility, additional monitoring, corrective actions and their owners, review of controls, and stakeholder notification. Where a flood causes a WHS notifiable incident (e.g. death by drowning or electrocution, serious injury or illness, structural collapse, plant overturning), a pollution incident (e.g. chemical or fuel spills, contaminated runoff, sewage discharge), or damage to electrical, sewage, telecommunications, water or gas infrastructure, make the relevant notifications to the applicable regulator or asset owner.	Construction	Zinfra Project Manager; Health and Safety BP; Environmental BP; Transgrid	FRMP s5.2; s5.3.1–5.3.5 (elaborates CoA C15, C16, C17)	• OMNIA entry • Portal notification • Incident reports • Non-compliance notification • ICAM report • SafeWork NSW, EPA or asset owner notifications • Corrective action register
FL-14	The Project Director will prepare, review annually, maintain and implement the Emergency Management Plan (including this FRMP), particularly after an emergency, a response exercise or a change to the plan. Undertake management reviews as part of the CEMP continual improvement process, including relevant project team members and external stakeholders, to identify opportunities for improvement, determine the causes of non-conformances and other issues, develop and implement corrective and preventative actions, verify their effectiveness, and document resulting changes to procedures.	Construction	Project Director; Project Team	FRMP s2.4; s6.1	• FRMP • Post-emergency / post-exercise review records • Corrective & preventative action register

6. Review and Improvement

6.1 Revision of Strategies, Plans and Programs

Ongoing monitoring and review of the performance and implementation of this Plan will be undertaken in accordance with Condition C3 of the Infrastructure Approval.

If updates to an environmental management document are required:

a. to include new information or changes to the development as a result of:
    i. a modification of Project approval; or
    ii. a change in the phase of development as notified under condition C10;
b. to update risk controls or mitigation measures in response to a change in risk level identified by the annual review of the environmental risk assessment required by condition C1(f);
c. to address the findings of an Independent Environmental Audit under condition C14;
d. to implement the findings of an incident report required by condition C16;
e. to comply with a directive by the Planning Secretary;

the relevant environmental management document(s) must be revised and submitted to the Planning Secretary for approval within three months unless otherwise agreed by the Planning Secretary.

It is noted that the review of this Plan as detailed in the Infrastructure Approval will be undertaken by Zinfra during the construction phase and by Transgrid during the operation of the Project. The review must ensure that the Plan remains consistent with the approved operations. If a revision to this Plan is determined to be required, the review of the Plan will be undertaken by a suitably qualified person whose appointment has been approved by the Planning Secretary in accordance with the Infrastructure Approval.

Any revision of this Plan must be approved by the Planning Secretary, unless the revision is purely administrative in nature, in which case, with the agreement of the Planning Secretary and/or the Environmental Representative (per condition A12), a revised strategy, plan or program may be prepared without undertaking consultation with all the parties referred to under the relevant condition of this consent.

6.2 Independent Environmental Audit

As per Condition C14 of the Infrastructure Approval, an Independent Audit will be carried out for the Project

The audit will be conducted in accordance with the current Independent Audit Post Approval Requirements.

The recommendations of the Independent Environmental Audit will be implemented to the satisfaction of the Planning Secretary, as relevant to this Plan.

7. Other Emergency Events

7.1 Other Emergencies

In the event of other emergencies happening concurrently, for example a injury during the evacuation, then the Emergency Management Plan protocols will be followed for both concurrently where practical and possible to do so. Where not practical and possible to do so, if the event is life threatening or of a highly serious nature emergency services shall be contacted and advice sought.

Appendix A – Consultation Process

The Emergency Management Plan, including the Flood Risk and Bushfire Management Plans were provided to the RFS, FRNSW and the SES for consultation. NPWS were also provided the bushfire management plan for comment.

In addition to the project approval conditions, the PStateroject committed to consultation with the SES in the development of the FRMP. Two rounds of consultation occurred, Table 11 and

Table 12 document this process and how the FRMP adequately addressed the commitment to consultation.

Table 11 - SES consultation – Round 1

SES Comment	Section updated in Plan
Updating the FRMP provided to provide sufficient information on the flood behaviour and risks (including depth, velocity, hazard level, time to overtopping, duration of inundation and isolation, etc.) at the site and proposed access/egress, to appropriately inform a suitable emergency management strategy. From an emergency management perspective, consideration must be given to flood events up to and including the Probable Maximum Flood (PMF).	Section 3 updated documents flood behaviour and risk for the project including flood timing, depth, velocity and time of inundation. Section 4 updated documents the access and egress to appropriately inform emergency management. The site evacuates before a 5% AEP flood level, therefore a PMF would not change the FRMP management strategy.
Updating the FRMP to clearly outline the proposed strategy and location of proposed refuge locations, along with clarification of duration of inundation/isolation and overlayed with flood mapping to show the flood risk present at these locations, and demonstrate if these are suitable for flood refuge. Any proposed flood refuge location must be above the height of the PMF and align with the design criteria in the NSW Government shelter-in-place for flash flooding Guideline and the Red Cross Preferred Sheltering Practices for Emergency Sheltering in Australia, including water supply, waste management, sanitation, food, and shelter and space management.	Location of the refuge (the evacuation point) above the PMF has been updated in Figure 11 and 12. All sites evacuate to Lithgow prior to the 5% AEP, the PMF will not change this requirement. The SES flood emergency evacuation locations are documented as per the Lithgow City Flood Emergency Sub Plan (SES, 2024)
Assessing the proposed evacuation routes and safe evacuation routes are clearly identified in the FRMP. Any proposed evacuation routes should be provided in a flood context, overlayed with flood mapping to demonstrate how/if safe evacuation can be achieved for the site. The analysis of the impact of flooding on the roadways should go beyond immediately adjacent to the site to fully understand the isolation risks and evacuation constraints. Currently the FRMP indicates that site management/team leaders are expected to provide direction regarding safe access/evacuation routes to be used in a flood event.	Figure 11 and 12 show each site has multiple evacuation routes. Table 8 documents the flood events these routes are inundation Work sites all flood prior to evacuation routes flooding. Therefore, all work sites will already be evacuated hours prior to any access roads being inundation The TARP (Table 9) documents the evacuation triggers and the multiple evacuation options

Table 12 - SES consultation – Round 2

SES Comment	Section updated in Plan
the site is not located within a Bureau of Meteorology (BoM) Forecast Reference Area, therefore there are no quantitative Flood Warnings available. Severe Weather Warnings would be the most appropriate form of advice for potential flood-producing rainfall events. Your triggers would likely be based on predicted rainfall, rather than flood water level warnings.	Section 4.5 of the FRMP adopts four trigger parameters: forecast rainfall, recorded rainfall, recorded Coxs River water levels and Australian Warning System alerts. Activation of any trigger initiates the corresponding TARP alarm level. This approach provides multiple sources of information where quantitative BoM Flood Warnings are unavailable.
an assessment of access/egress routes in a flood context to understand at what point the roads get cut, time to overtopping as well as duration of inundation/isolation. This will inform requirements around the pre-emptive closure of the site, and contingency measures should this fail for any reason.	Table 8 documents the flood immunity and potential overtopping depths of access and evacuation routes. Each work site has at least one evacuation route outside the 1% AEP flood extent, and the TARP requires evacuation before the 5% AEP flood level is reached.
	Figures 12-15 identify two evacuation routes for each work site: • the primary route to the Site Office Compound, with at least 5% AEP flood immunity; and • a secondary route (Great Western Highway) to Lithgow to a location outside of the PMF.
	Section 3.5.1 assesses flood timing using a historical event and modelled results near Site 6C. The assessment indicates sufficient time between rainfall and site inundation to implement evacuation. At the Castlereagh Highway, the modelled 1% AEP inundation is approximately 0.1 m deep and persists for approximately two hours.
	The TARP also includes alarm levels for: • evacuation of the Site Office Compound to Lithgow before the 5% AEP flood level; and • evacuation to the Lithgow Workmen's Club carpark prior to workers returning to accommodation when safe to do so.
proposed refuge areas provided in a PMF flood context. We reiterate evacuation means people going to an area beyond the reach of the PMF. Flood emergency plans are not fail-proof, and directing people to a refuge that may be subject to flooding can result in loss of human life.	The FRMP adopts evacuation rather than on-site refuge as the primary response. The flood-prone work sites are affected during events between the 5% and 1% AEP, and the TARP requires personnel to evacuate for rain events equivalent to a 50% AEP (1 in 2)
	The work sites are outdoor, daytime operations and will cease work in response to rainfall triggers before flooding occurs. Evacuation routes remain outside the 1% AEP flood extent.
	The FRMP has been prepared in accordance with REMM W2 and the Project's 1% AEP flood assessment. On this basis, PMF modelling is not expected to alter the adopted site-closure or evacuation triggers.

	The FRMP has been aligned with the Lithgow City Flood Emergency Sub Plan (NSW SES, 2024) which covers Wallerawang. There is no PMF modelling in this plan, it only defines flood risk in Lithgow up to the 1% AEP. The project-specific assessment supplements the Sub Plan through contemporary flood modelling, 1% AEP flood mapping and defined TARP triggers and evacuation routes. The Lithgow Floodplain Risk Management Study and Plan 2023 was also reviewed; however, it does not include flood modelling near Wallerawang. This plan does have PMF modelling for Lithgow, which was used to identify a safe location to evacuate to outside of the PMF.
We also recommend referring to the EM01 Support for Emergency Management Planning guideline for important emergency management considerations in managing flood risk, as this will help inform the development of your Flood Risk Management Plan.	The FRMP has considered the following documents: • Flood Risk Management Manual (NSW Government); • Flood Impact and Risk Assessment guideline (NSW Government); • Support for Emergency Management Planning – EM01 (NSW Government); and • Lithgow City Flood Emergency Sub Plan (NSW SES, 2024).
	EM01 primarily supports councils, agencies and consultants in managing community flood risk. EM01 has been considered, and its applicability to this FRMP is addressed in Section 4. The FRMP applies its relevant principles within a project-specific construction context.
	Consistent with Section A2.5.1 of EM01, the FRMP prioritises evacuation to areas outside the assessed flood extent. The TARP requires evacuation of work sites before any flooding occurs and evacuation of the Site Office Compound before the 5% AEP flood level.

Appendix B – Plan Responsibility Sign Off

In the event of personnel/roles change during the project, the new person shall be added to the sign off.

Table 13 - Plan Responsibility Sign Off

Title	Name	Sign	Date
Project Director			
Project Manager			
Civil Construction Manager			
Construction Manager			
Senior Project Engineer			
Project Engineer			
Project Engineer			
Project Engineer			
Health and Safety BP			
Environmental BP			
Team Leaders			

Appendix C - Emergency Contact List

Table 14 - Emergency Contacts

Project:	**Mount Piper to Wallerawang Transmission Line Upgrade**
Customer:	**Transgrid**
Address:	**Mount Piper Substation – Blackmans Flat, 2790, NSW** **Wallerawang Substation – Greenspot, Wallerawang**

Emergency Contacts		
	Name	**Contact #**
[redacted]		
Transgrid Emergency Hotline	Transgrid Emergency Hotline	1800 027 253
External Emergency Contacts		
Ochre Medical Centre Lithgow Monday - 8.30am to 5.00pm Tuesday - 8.30am to 5.00pm Wednesday - 8.30am to 5.00pm Thursday - 8.30am to 5.00pm Friday - 8.30am to 5.00pm Saturday - CLOSED Sunday - CLOSED	136 Main St, Lithgow NSW 2790	(02) 6352 5685
Lithgow Medical Clinic Monday - 8.00am to 8.00pm Tuesday - 8.00am to 8.00pm Wednesday - 8.00am to 8.00pm Thursday - 8.00am to 8.00pm	11 Bridge Street, Lithgow NSW	(02) 6352 5588

Friday - 8.00am to 8.00pm Saturday – 9.00am – 5.00pm Sunday – 9.00am – 5.00pm		
Lithgow Hospital - 24/7	2 Col Drewe Dr, South Bowenfels	(02) 6350 2300
Online Medical Centre - 24/7	Injury Net	1300 307 418
Emergency Services	Fire / Ambulance / Police	000
Lithgow Police Station 24/7	244/270 Mort St, Lithgow	(02) 6354 2310
Rural Fire Service (Lithgow)	58 Cook Street, Lithgow NSW 2790	1800 679 737
NPWS Duty Office		02 8275 1748
NSW National Park		1300 072 757
EPA	Pollution hotline	131 555
NSW DCCEEW (Department of Climate Change, Environment and Water)	General Enquiries - Office hours only	1800 920 528
NSW DCCEEW (Department of Climate Change, Environment and Water)	Indigenous Cultural Heritage Hotline	1800 571 242
Lithgow Council	24hr hotline Manages Water Supply in the area.	6354 9999
Employee Assistance Provider	ACACIA	Ph.1300 364 273 SMS 0480 087 020