Department of Planning, Housing and Infrastructure

Our ref: SSI-9687-PA-253

Nicola Fraser
Post Approvals
Snowy Hydro Limited
By email

25/09/2025

Subject: Snowy 2.0 Main Works - Natural Hazards Management Plan (Emergency Management Plan)

Dear Ms Fraser

I refer to the Natural Hazards Management Plan, Revision H dated February 2025, submitted in accordance with Condition 61, Schedule 3 of the infrastructure approval (Emergency Management Plan) for the Snowy 2.0 Main Works (SSI-9687))

The Department acknowledges receipt of the Natural Hazards Management Plan and has no further comments at this time.

You are reminded that if there are any inconsistencies between the Natural Hazards Management Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Sarah Barclay at Sarah.Barclay@dpie.nsw.gov.au.

Yours sincerely

Nicole Brewer
Director
Energy Assessments

As nominee of the Planning Secretary

future generation

webuild | clough | lane

MANAGEMENT PLAN

SNOWY 2.0 MAIN WORKS – NATURAL HAZARD MANAGEMENT PLAN

S2-FGJV-ENV-PLN-0090

REV H

FEBRUARY 2025

ABSTRACT

The key objective of this plan is to identify the hazards and risks associated with and the actions and responsibilities for managing, bushfire response procedures (Appendix A), flooding response procedures landslip response procedures; and management of external natural hazards by ensuring appropriate measures are implemented to address the relevant conditions of approval and practicable measures are implemented during construction to avoid or minimise impacts of natural hazards on public safety, the project, and the surrounding areas during construction.

Revision Record

H	24/02/2025	Revised for Modification 3	E. Porter	D. Drummond	M. Franceschi
Rev	**Date**	**Reason for Issue**	**Responsible**	**Accountable**	**Endorsed**

Document Verification

RACIE Record

R esponsible:	Name: Ellen Porter Job Title: Environment Manager Signed: p.p.  Date: 24/02/2025
A ccountable:	Name: Dave Drummond Job Title: QHSE Director Signed: Signed by: Dave Drummond 20030A67088E43C... Date: 25 February 2025
C onsulted:	See distribution list on Page 3.
I nformed:	See distribution list on Page 3.
E ndorsed:	Name: Massimo Franceschi Job Title: Project Director Signed: DocuSigned by: F64E528E534C459... Date: 25 February 2025

RACIE Terms

R	**Responsible** The person who actually produces the document.
A	**Accountable** The person who has the answer for success or failure of the quality and timeliness of the document.
C	**Consulted** Those who must be consulted before the document is published.
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Revision Tracking

Rev.	Date	Description of Revision
A	19.06.2020	Initial draft for Snowy Hydro review
B	2.07.2020	Rev B revised to address Snowy Hydro comments and for issue to NPWS
C	04.08.2020	Rev C revised to address NPWS comments.
D	25.10.2022	Rev D updated NHMP to bring plans up to currency and address FGJV and NPWS comments and change requests.
E	11.11.2022	Revised to incorporate SHL comments.
F	16.11.2022	Revised to incorporate SHL comments.
G	24.09.2023	Revised to include comments from NPWS and RFS.
H	24.02.2025	Updated for Modification 3

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ABBREVIATIONS AND DEFINITIONS

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<tr><th>Acronym</th><th>Definition</th></tr>
<tr><td>AEP</td><td>Annual Exceedance Probability. The probability of an event being equalled or exceeded within a year.
<table>
<tr><th>AEP (%)</th><th>Average recurrence interval (years)</th></tr>
<tr><td>10</td><td>10</td></tr>
<tr><td>5</td><td>20</td></tr>
<tr><td>2</td><td>50</td></tr>
<tr><td>1</td><td>100</td></tr>
<tr><td>0.2</td><td>500</td></tr>
<tr><td>0.05</td><td>2,000</td></tr>
</table></td></tr>
<tr><td>AHD</td><td>Australian Height Datum – national surface level datum corresponding to a mean sea level</td></tr>
<tr><td>BoM</td><td>Bureau of Meteorology</td></tr>
<tr><td>BCD</td><td>Biodiversity and Conservation Division (formerly OEH)</td></tr>
<tr><td>CMG</td><td>Consequence Management Guide</td></tr>
<tr><td>DPHI</td><td>Department of Planning, Housing and Infrastructure (formally DPIE)</td></tr>
<tr><td>DPIE</td><td>NSW Department of Planning, Industry and Environment</td></tr>
<tr><td>EIS</td><td>Environmental Impact Statement</td></tr>
<tr><td>EMS</td><td>Environmental Management Strategy</td></tr>
<tr><td>EOC</td><td>Emergency Operations Centre</td></tr>
<tr><td>EP&A Act</td><td>Environmental Planning and Assessment Act 1979</td></tr>
<tr><td>EP&A Regulation</td><td>Environmental Planning and Assessment Regulation 2000</td></tr>
<tr><td>EPA</td><td>NSW Environment Protection Authority</td></tr>
<tr><td>EPL</td><td>Environment Protection Licence</td></tr>
<tr><td>ERMP</td><td>Emergency Response Management Plan – the parent plan to this plan</td></tr>
<tr><td>FSL</td><td>(Reservoir) Full Supply Level</td></tr>
<tr><td>Fire Season</td><td>Fire season also referred to as the statutory Bush Fire Danger Period normally starts on 1 October and continues through the following 31 March as per the RFS website.</td></tr>
<tr><td>FGJV</td><td>Future Generation Joint Venture</td></tr>
<tr><td>FGJV-PMS</td><td>Project Management System</td></tr>
<tr><td>HSMP</td><td>Health and Safety Management Plan</td></tr>
<tr><td>HSE</td><td>Health, Safety and Environment</td></tr>
<tr><td>IC</td><td>Incident Controller</td></tr>
<tr><td>KNP</td><td>Kosciuszko National Park</td></tr>
<tr><td>LEOC</td><td>Local Emergency Operations Committee</td></tr>
<tr><td>Main Works EIS</td><td>The development of an underground power station and associated infrastructure described in the Environmental Impact Statement for the Snowy 2.0 Main Works (CSSI 9687) dated September 2019, and modified by the:
Preferred Infrastructure Report and Response to Submissions – Snowy 2.0 Main Works, dated February 2020; and
Additional information provided to the Department by EMM on 24 March 2020 and 7 April 2020</td></tr>
<tr><td>MOL</td><td>(Reservoir) Minimum Operating Level</td></tr>
</table>

Acronym	Definition
NPWS	NSW National Parks and Wildlife Service (within the NSW Department of Planning, Industry and Environment (DPIE))
NSW RFS	NSW Rural Fire Service
PEP	Project Execution Plan
PIC	Person in charge – the Project Director or their delegate
PMF	Probable Maximum Flood
PMT	Project Management Team
Project, the	Snowy 2.0 Main Works
QMP	Quality Management Plan
REMM	Revised environmental management measures
Remote Area	A remote area is one where personnel are not within a 20-minute response time of the project ambulance
SES	State Emergency Services
SHL or Snowy Hydro	Snowy Hydro Limited
Submissions Report or RTS	*Response to Submissions Snowy 2.0 Main Works*

1. INTRODUCTION

1.1. Project Description

1.1.1. Overview

Snowy Hydro Limited (Snowy Hydro) is constructing a pumped hydro-electric expansion of the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), called Snowy 2.0. Snowy 2.0 is being built by the delivery of two projects: Exploratory Works and Snowy 2.0 Main Works, which commenced in May 2020.

Snowy 2.0 is a pumped hydro-electric project that will link the existing Tantangara and Talbingo reservoirs through a series of new underground tunnels and a hydro-electric power station. Most of the project's facilities will be built underground, with approximately 27 kilometres of concrete-lined tunnels constructed to link the two reservoirs and a further 20 kilometres of tunnels required to support the facility. Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs.

Snowy 2.0 will increase the generation capacity of the Snowy Scheme by an additional 2,000 MW, and at full capacity will provide approximately 350,000 MWh of large-scale energy storage to the National Electricity Market (NEM). This will be enough to ensure the stability and reliability of the NEM, even during prolonged periods of adverse weather conditions.

Webuild, Clough and Lane have formed the Future Generation Joint Venture (Future Generation) and have been engaged to deliver both Stage 2 of Exploratory Works and Main Works.

1.1.2. Construction Activities and Program

The Snowy 2.0 Main Works Project includes, but is not limited to, construction of the following:

- pre-construction preparatory activities including dilapidation studies, survey, investigations, access etc;
- accommodation camps;
- construction pads;
- an underground pumped hydro-electric power station complex;
- water intake structures at Tantangara and Talbingo reservoirs;
- power waterway tunnels, chambers and shafts;
- access tunnels;
- new and upgraded roads to allow ongoing access and maintenance;
- power, water and communication infrastructure, including:
    - a cable yard to facilitate connection between the NEM electricity transmission network and Snowy 2.0;
    - permanent auxiliary power connection;
    - permanent communication cables;
    - permanent water supply to the underground power station; and
- post-construction revegetation and rehabilitation.

The Snowy 2.0 construction program is summarised in Figure 1-1.

HIGH SUMMARY PROGRAMME AS OF SEP 2024

ID	Task Name	Forecast_24 Start	Forecast_24 Finish	AUG-24 Start	AUG-24 Finish	Variance (FOR-24) In Months
1	**Milestones**					
2	Notice to Proceed for Main Works		28 Aug '20		28 Aug '20	0
3	Notice of Commencement for Main Works		21 Oct '20		21 Oct '20	0
4	**Access Adit & Tunnels**					
5	**Main Access Tunnel**					
6	Portal + Cradle Works	11 Nov '19	15 Oct '20	11 Nov '19	15 Oct '20	0
7	Assembly of TBM	15 Oct '20	18 Mar '21	15 Oct '20	18 Mar '21	0
8	Substation Rectification / TBM SAT / Blind Ring Installation	8 Apr '21	4 Jun '21	8 Apr '21	4 Jun '21	0
9	Employer's Notice for Work Stoppage at MAT	4 Jun '21	22 Jun '21	4 Jun '21	22 Jun '21	0
10	Main Access Tunnel to Crown of Machine Hall	22 Jun '21	15 Jun '23	22 Jun '21	15 Jun '23	0
11	**ECVT**					
12	ECVT Portal + Cradle Works	26 Oct '20	20 Aug '21	26 Oct '20	20 Aug '21	0
13	Assembly of TBM	17 Jul '21	3 Dec '21	19 Jul '21	3 Dec '21	0
14	ECVT to Crown of Machine Hall	16 Dec '21	1 Sep '23	16 Dec '21	1 Sep '23	0
15	**Tantangara Portal**					
16	Tantangara Portal + Cradle Works	14 Nov '20	26 Sep '21	16 Nov '20	26 Sep '21	0
17	Assembly of TBM	26 Sep '21	21 Mar '22	27 Sep '21	21 Mar '22	0
18	**Waterways Tunnels**					
19	Tail Race Tunnel (Including TBM Dismantling)	18 Jul '23	7 Aug '25	18 Jul '23	22 Oct '25	-2.53
20	Tail Race Tunnel - D&B Tunnel + Lining (with Junction + Adit Plug)	5 Jul '23	23 Mar '27	5 Jul '23	18 Mar '27	0.17
21	Upstream Surge Shaft	18 Oct '22	26 Nov '27	18 Oct '22	10 Dec '27	-0.47
22	Talbingo Intake	24 Jan '22	23 Jul '27	24 Jan '22	3 Aug '27	-0.37
23	Tantangara Intake	23 Feb '22	1 Aug '27	23 Feb '22	11 Jul '27	0.7
24	Inclined Pressure Shaft + HRT upto Ch. 17+000 (including TBM Dismantling)	17 May '23	16 May '26	17 May '23	29 May '26	-0.43
25	Head Race Tunnel (Tantangara & TBM3 + Tant. Junction + Adit Plug)	6 Dec '23	12 Nov '27	6 Dec '23	17 Feb '28	-3.23
26	Head Race Tunnel (Marica Adit & TBM 04 Tunneling + TBM Dismantling + D. Chamber)			17 Jan '25	12 Jul '27	
27	Head Race Tunnel (Secondary Lining + Marica Junction + Adit Plug)			8 Feb '27	17 Feb '28	
28	**Power Station Complex**					
29	**Construction**					
30	Machine Hall Excavation	16 Jun '23	6 Aug '25	16 Jun '23	27 Oct '25	-2.73
31	Concrete + E&M Installation works (Dry Commisisoned)	28 Jul '25	25 Jul '28	1 Apr '25	16 Jul '28	0.3
32	Commissioning - All Units	17 Dec '27	11 Apr '29	23 Mar '28	31 Dec '28	3.37
33	Demobilization	11 Apr '29	9 Oct '29	1 Jan '29	30 Jun '29	3.37
34	Project Completion		9 Oct '29		30 Jun '29	3.37

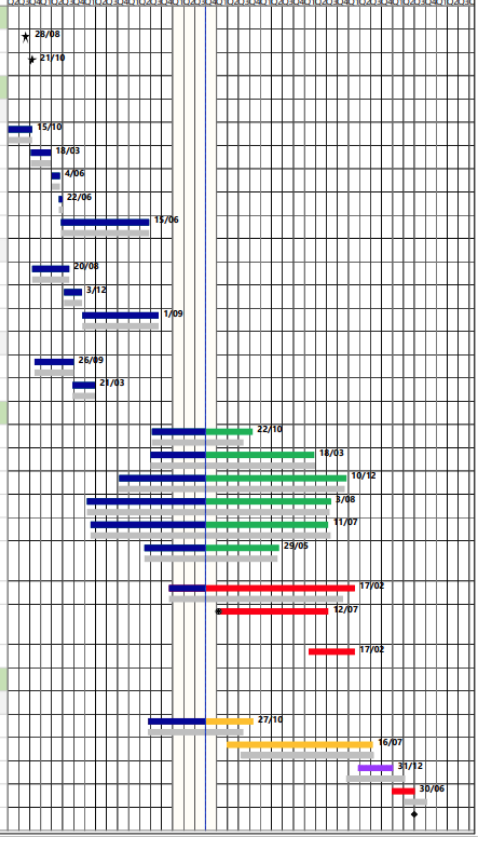

Figure 1-1 Timing of Snowy 2.0

The Snowy 2.0 Main Works Project includes numerous work sites as shown Figure 1-2. These work sites include:

- Lobs Hole Ravine Road;
- Lobs Hole;
- Marica;
- Plateau;
- Rock Forest;
- Talbingo; and
- Tantangara.

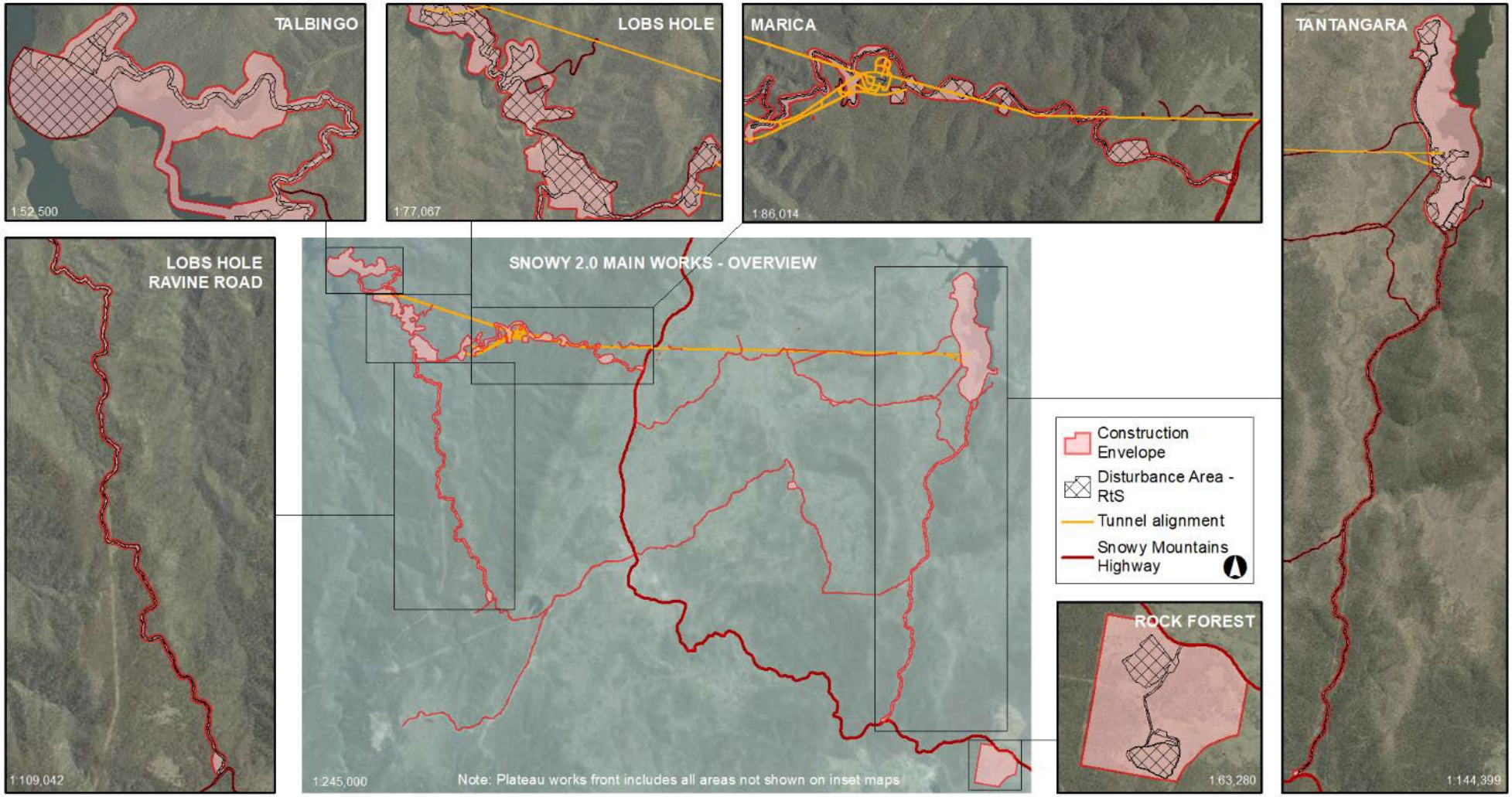

Figure 1-2: Snowy 2.0 Main Works work areas

Note: Marica Trail West will no longer be constructed between Lobs Hole and Marica

1.2. Project Approval

On 7 March 2018 the NSW Minister for Planning declared Snowy 2.0 to be State significant infrastructure (SSI) and critical State significant infrastructure (CSSI) under the Environmental Planning and Assessment Act 1979 (EP&A Act, 1979) on the basis that it is critical to the State for environmental, economic or social reasons.

An environmental impact statement for the first stage of Snowy 2.0, the Exploratory Works for Snowy 2.0 (Exploratory Work EIS) was submitted to the then Department of Planning and Environment in July 2018 and publicly exhibited between 23 July 2018 and 20 August 2018. Approval for the first stage of Snowy 2.0 was granted for Exploratory Works by the Minister for Planning on 7 February 2019. The purpose of Exploratory Works is primarily to gain a greater understanding of the underground geological conditions at the new power station. In accordance with section 5.25 of the EP&A Act 1979, the infrastructure approval for the Exploratory Works was modified on 2 December 2019 and on 27 March 2020.

An environmental impact statement for the second stage of Snowy 2.0, the Main Works for Snowy 2.0 (Main Work EIS) was submitted to Department of Planning, Housing and Infrastructure (DPHI) in September 2019 and was publicly exhibited between 26 September 2019 and 7 November 2019. A total of 222 submissions were received during the public exhibition period, including 10 from government agencies, 30 from special interest groups and 182 from the general public. In February 2020, the response to submissions (RTS or Submissions Report) was issued to DPHI to address the public and agency submissions (Snowy 2.0 Main Works - Preferred Infrastructure Report and Response to Submissions, February 2020).

Following consideration of the Main Works EIS and RTS, approval was granted by the Minister for Planning and Public Spaces on 20 May 2020, through issue of Infrastructure Approval SSI 9687.

Further to the Infrastructure Approval, the Main Works RTS includes revised environmental management measures (REMMs) within Appendix C which will also be implemented for the project.

On 27 January 2022, a modification to SSI-9687 (SSI-9687-Mod-1) was granted under Section 2.22 and clause 20 of Schedule 1 of the EP&A Act, 1979. The scope of the modification included horizontal directional drilling (HDD) to establish water and electricity services between the Lobs Hole and Marica areas of the Project.

On 29 November 2023, a second modification to SSI-9687 (SSI-9687-MOD-2) was granted under Section 5.25 of the EP&A Act 1979, approving the undertaking of sinkhole rectification works near the Tantangara Adit Portal, inclusive of geotechnical investigations and remediation works.

A subsequent planning application (SSI-9687-MOD-3) was approved on 16 December 2024 to permit the construction of an additional adit and launching of a fourth tunnel boring machine at Marica West to facilitate excavation of a section of the headrace tunnel (HRT) through the long plain fault zone (LPFZ). The LPFZ is the most geologically complex section of the HRT and represented a significant risk to the overall project completion date. The application was approved in accordance with Section 5.25 of the EP&A Act, 1979.

In addition to the State approval, a referral (EPBC 2018/8322) was prepared and lodged with the Commonwealth Department of Agriculture, Water and the Environment (DAWE) under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act, 1999). The Commonwealth Minister's delegate determined on 5 December 2018 that Snowy 2.0 Main Works is a "controlled action" under the EPBC Act, 1999. The EPBC Act referral decision determined that the project will be assessed by accredited assessment under Part 5, Division 5.2 of the EP&A Act, 1979.

1.3. Disturbance area

A key refinement following public exhibition of the Main Works EIS was a change to and clarification of disturbance area terminology. The revised disturbance area terminology as per the SSI-9687 Instrument, Main Works RTS and this Plan is outlined in Table 1-1, with an example shown at Lobs Hole Ravine Road in Figure 1-3.

Table 1-1: Disturbance area terminology

Term	Definition	Reasoning
Project area	The project area is the broader region within which Snowy 2.0 will be built and operated, and the extent within which direct impacts from Snowy 2.0 Main Works are anticipated.	The project area does not represent a footprint for the construction works, but rather indicates an area that was investigated during environmental assessments.
Construction envelope	The envelope within which the disturbance area of the development may be located.	As detailed design continues, final siting of the infrastructure (i.e. the disturbance area) can move within the assessed construction envelope subject to recommended environmental management measures and provided it does not exceed the limits defined by the construction envelope.
Disturbance area	The area within the construction envelope where development may be carried out; the precise location of the disturbance area will be fixed within the construction envelope following final design.	

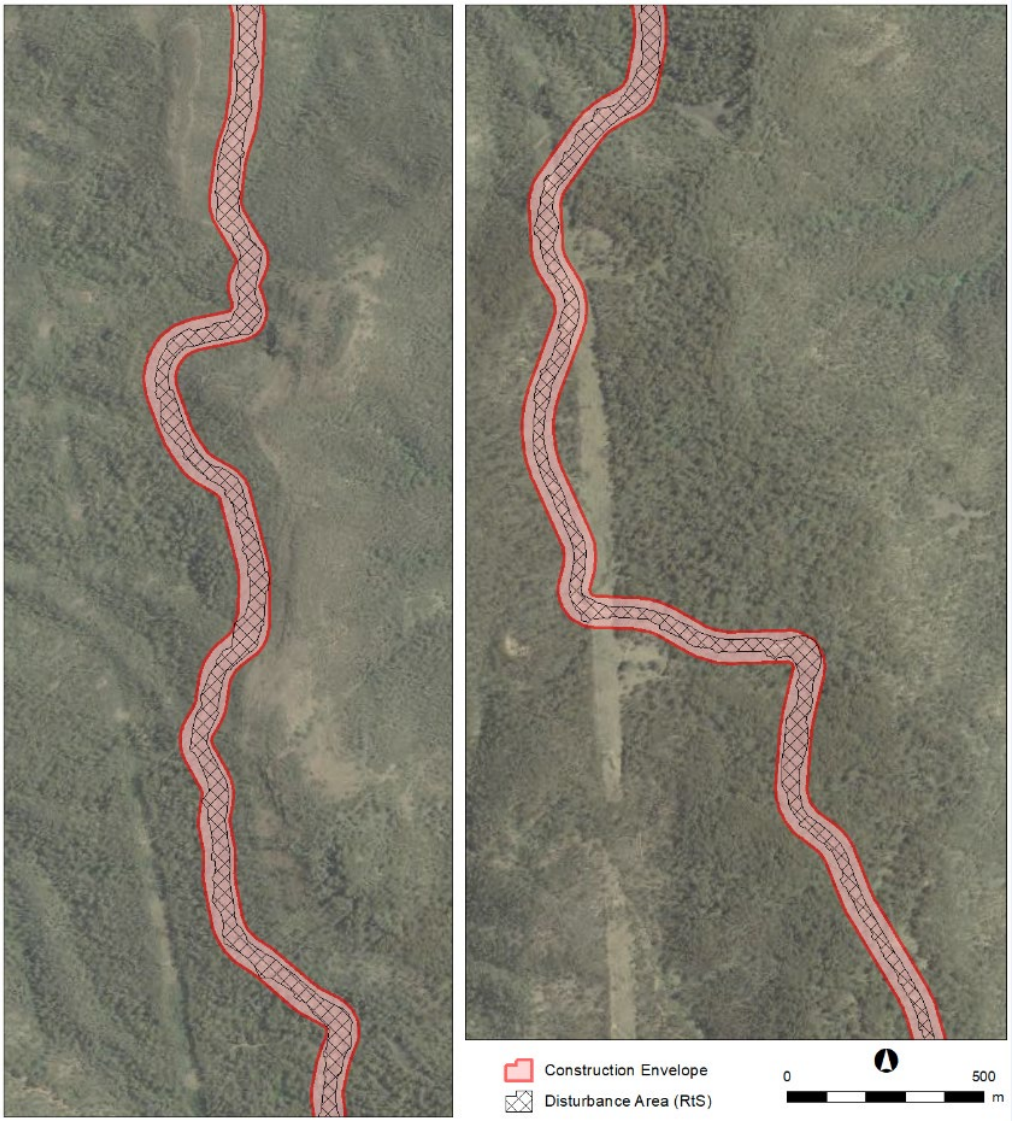

Figure 1-3: Disturbance area and construction envelope

1.4. Works within the Construction Envelope

Where project works are required to occur in locations outside of the disturbance boundary, FGJV will review the proposed area of clearing against the limits included within condition 5 of schedule 2. The review will be undertaken to ensure that the maximum disturbance area and maximum native vegetation clearing remains within the total areas nominated within the condition. These area limits are included within Table 1-2.

All vegetation clearing that occurs on the project will be monitored regularly to record the extent of clearing which has occurred, and to ensure that the clearing limits are not exceeded.

Table 1-2: Maximum disturbance area and native vegetation clearing

Matter	Exploratory Works	Main Works	Total
Maximum Disturbance Area	126 ha	504 ha	630 ha
Maximum Native Vegetation Clearing	107 ha	425 ha	532 ha

1.5. Environmental Management System

The overall environmental management system for the project is described in the Environmental Management Strategy (EMS). The EMS forms part of the Project Management System (FGJV-PMS) and will include any requirements specified in the contract documents, where appropriate.

The management plans and post-approval documents for the project include those listed within figure 1-4.

This Natural Hazard Management Plan (NHMP or plan) and Bushfire Management Plan (BushfireMP) (Appendix A) form part of FGJV's environmental management framework as described in the EMS and also sits under the Health and Safety Emergency Response Management Plan as shown in Figure 1-5.

This plan aims to transfer the relevant requirements of the Approval documents into a management plan which can be practically applied on the project site. This Plan has been prepared to fulfill the requirements as set out in schedule 2, Condition 9 and Schedule 3, Conditions 60 (bushfire requirements) and 61 (Emergency Management Plan) of the project approval

This document has been prepared for construction of the Snowy 2.0 Main Works project. It does not address the operational phase of the project.

1.5.1. Management Plan Hierarchy

Figure 1-4 demonstrates the management plan hierarchy in relation to this plan. This Natural Hazard Management Plan sits under the Emergency Response Management Plan refer Figure 1-5 , which sits within the overarching Health and Safety Management Plan. The Bushfire Management Plan is included as Appendix A of this plan.

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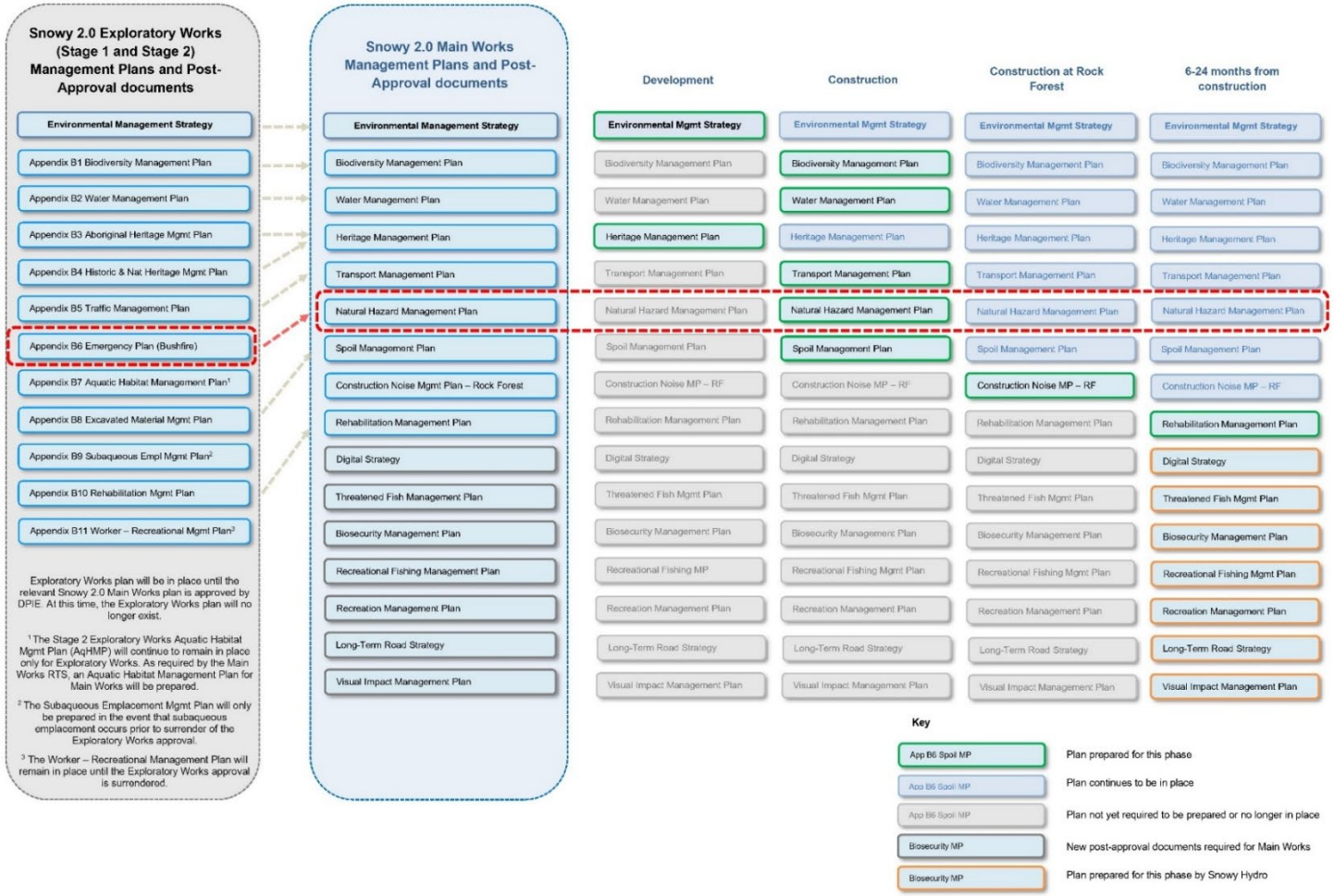

Figure 1-4: Management plans and post-approval documents with the Natural Hazard MP indicated.

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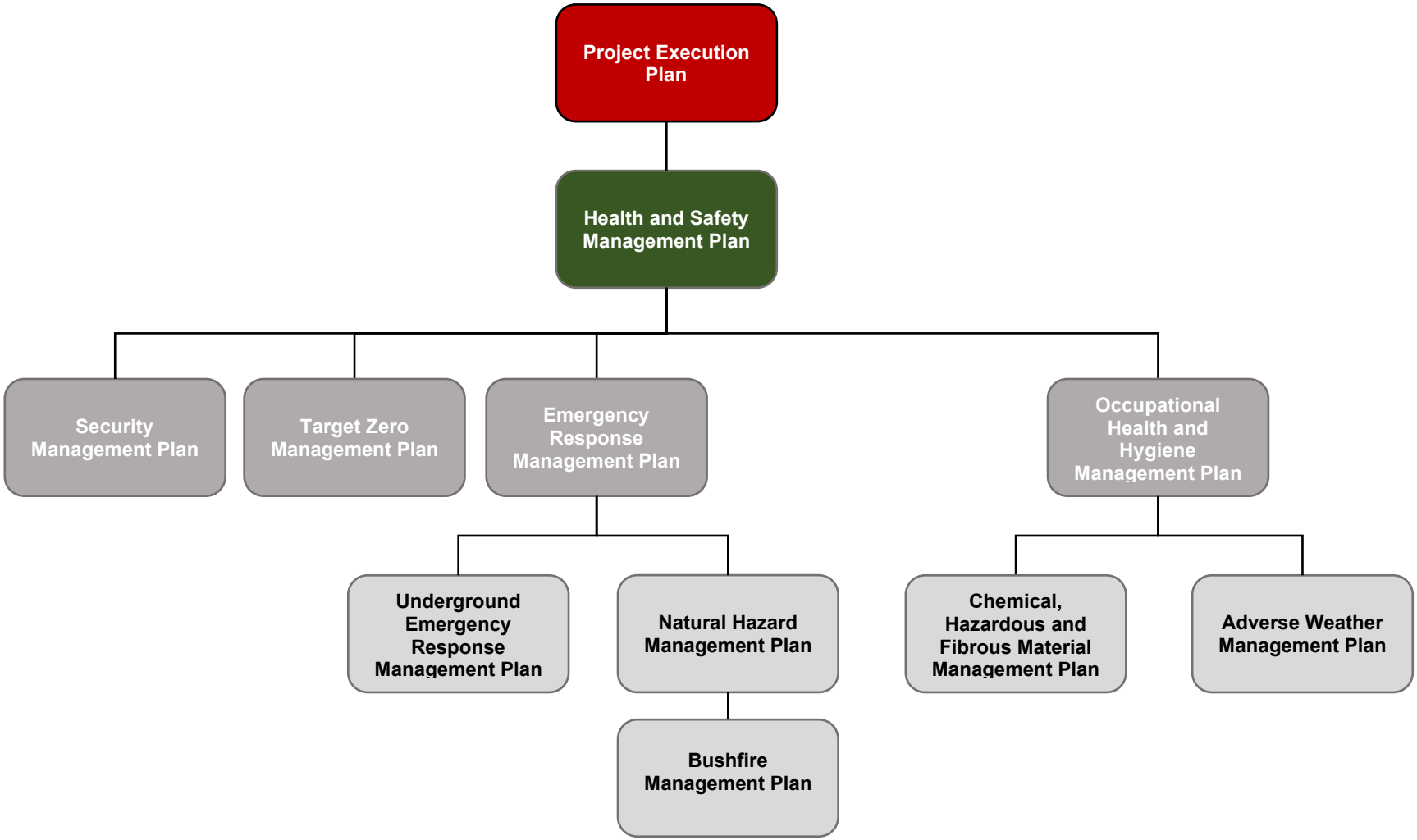

Figure 1-5 Health and Safety Management Plans

1.6. Purpose and objectives of this plan

The purpose of this plan is to address the construction environmental management requirements relevant to natural hazards, detailed in:

- the Infrastructure Approval (SSI 9687) (Approval) issued for Snowy 2.0 Main Works on 20 May 2020;
- the Infrastructure Approval (SSI 9208) issued for Snowy 2.0 Exploratory Works on 07 February 2019;
- the Main Works Snowy 2.0 - Environmental Impact Statement;
- the revised environmental management measures (REMMs) within the Main Works RTS;
- the Exploratory Works for Snowy 2.0 - Environmental Impact Statement;
- the Exploratory Works for Snowy 2.0 – Modification 1 Assessment Report;
- the Exploratory Works for Snowy 2.0 – Modification 2 Assessment Report; and
- the REMMs within the Exploratory Works RTS.

The key objective of this plan is to identify the hazards and risks associated with and the actions and responsibilities for managing, bushfire response procedures (Appendix A), flooding response procedures landslip response procedures; and management of external natural hazards.

To achieve this, Snowy Hydro and FGJV will:

- ensure appropriate measures are implemented to address the relevant conditions of Approval and the REMMs listed within the Submissions Report, as detailed within Section 2.2 and 2.3 of this plan; and
- ensure practicable measures are implemented during construction to avoid or minimise impacts of natural hazards on worker and public safety, the project and the surrounding areas prior to and during the bush fire season.

1.7. Consultation

Consultation undertaken and endorsement of the Bushfire MP is included in Section 1.8 of the Bushfire MP, provided in Appendix A of this plan.

In accordance with schedule 3, condition 61 of the Approval, this plan is to be prepared to the satisfaction of the National Parks and Wildlife Service (NPWS).

Table 1-3 below provides a summary of consultation on this plan.

Table 1-3: Consultation with stakeholder summary

Date	Consultation	Outcome
05 July 2020	NPWS	Various comments on both the NHMP and BushfireMP. Amendments made and response provided on 4 August 2020.
14 July 2022	Local Emergency Management Committee, NSWRFS, NSWSES and NPWS	Verbal consultation held with stakeholders with various comments and change requests on both the NHMP and BushfireMP provided. Amendments made.

1.8. Plan Preparation

In accordance with condition 61 of the Infrastructure Approval, this plan is to be prepared by a suitably qualified an experienced person/s whose appointment has been endorsed by NPWS.

Nathan Kearnes of Eco Logical Australia is the approved suitably qualified and experienced person in relation to bushfire management. While the plan's focus is primarily on bushfire management, condition 61 also requires that the plan include measures relevant to flood and landslide risk, response and evacuation. FGJV has incorporated the project's existing health and safety procedures into the plan in relation to flood risk and landslide management.

Updates to the Bushfire Management Plan, including the changes in fire danger ratings were made and Nathan Kearnes in 2022, with further minor amendments made to the Plan by FGJV in 2023.

2. ENVIRONMENTAL REQUIREMENTS

Environmental requirements relevant to bushfire management are included in the Bushfire MP provided as Appendix A of this plan.

2.1. Legislation

Legislation relevant to natural hazards includes:

- NSW *Biodiversity Conservation Act 2016* (BC Act);
- Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- NSW *Environmental Planning and Assessment Act 1979* (EP&A Act);
- NSW *National Parks and Wildlife Act 1974* (NPW Act);
- NSW *State Emergency Service Act 1989*;
- NSW *State Emergency and Rescue Management Act 1989*;
- NSW *Water Management Act 2000*; and
- NSW *Rural Fires Act 1997*.
- Protection of the Environment Operations Act 1997 (POEO Act)

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the EMS.

2.2. Conditions of Approval

Table 2-1 details conditions of Approval (SSI 9687) relevant to the management of natural hazards and bushfire risk for Main Works.

Table 2-1: Main Works (CSSI 9687) conditions of approval relevant to natural hazards

Condition	Requirement	Where addressed
Schedule 3, Condition 17	The proponent must	
	…. (c) minimise the trimming of trees required for safety purposes along the approved road network within the Kosciuszko National Park and adjoining the disturbance area; ….	Section 4.5 Main Works Biodiversity Management Plan (Table 5-1, BM16)
Schedule 3, Condition 60	The proponent must	Refer to Section 5.1 of Appendix A
	(a) include suitable asset protection measures into the final design of the development in accordance with the Planning for Bushfire Protection (RFS 2018) guidelines, or its latest version;	Refer to Section 5.1 of Appendix A
	(b) ensure all buildings developed on site comply with the relevant requirements of the BAL-29 construction standards of Australian Standard AS 3959-2018: Construction of buildings in bushfire prone areas or the NASH Standard (1.7.14 updated) in National Standard Steel Framed Construction in Bushfire Areas – 2014; and	Refer to Section 5.1 of Appendix A
	(c) ensure any fire trails or asset protection zones associated with the development are wholly contained within the approved disturbance area.	Refer to Section 5.1 of Appendix A

Condition	Requirement	Where addressed
=Schedule 3, Condition 61	Prior to the commencement of construction, the Proponent must prepare an Emergency Management Plan for the development to the satisfaction of the NPWS. This plan must	This plan, Section 1.4
	(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the NPWS;	This plan, Section 1.7
	(b) be consistent with the Kosciuszko National Park Fire Management Strategy 2008-2013 (NPWS 2008), or its latest version;	Appendix A – Bushfire Management Plan
	(c) include evacuation protocols for the site;	Section 5.2.2, Section 5.2.3, Appendix A – Bushfire Management Plan
	(d) describe the measures that would be implemented to: • minimise the risk of bushfires on site;	Appendix A – Bushfire Management Plan
	• protect the assets on site from bushfires;	Appendix A – Bushfire Management Plan
	• respond to any bushfires on or in the vicinity of the site;	Appendix A – Bushfire Management Plan
	• minimise flood risks on site, including flooding response procedures;	This plan, Section 4.3, Section 5.2 and Section 6
	• minimise the risk of landslips on site, including landslip response procedures; and	This plan, Section 4.4 and Section 5.3
	• evacuate the site in an emergency; and	This plan, Section 5.2.2, Section 5.2.3 and Appendix A – Bushfire Management Plan
	(e) monitor and review the effectiveness of these measures.	This plan, Section 7

2.3. Revised Environmental Management Measures

Environmental safeguards and management measures are included in the Main Works EIS in Appendix G. During preparation of the Submissions Report, revised environmental management measures (REMMs) were developed and are included in Appendix C of the Submissions Report.

The Main Works REMMs relevant to this plan are listed in Table 2-2 below. If additional measures are cross-referenced from another section of the Main Works EIS or Submissions Report, these measures are also included. To evaluate the continuity or redundancy of Exploratory Works REMMs, these are provided in Table 2-3.

Table 2-2: Main Works (CSSI 9687) management measures relevant to natural hazards

Ref #	Revised environmental management measures	Where addressed
WM14	Flood emergency response plans will be developed for both construction and operational phases	This plan. Section 5.2 (operational phase by Snowy Hydro)

Table 2-3: Exploratory Works (SSI-9208) management measures relevant to natural hazards

Ref #	Revised environmental management measures	Where addressed
FM_1.3	A flood emergency response plan will be prepared as part of the project's emergency response plans.	This plan. Section 5.2
PUS01	An Emergency Response Management Plan (ERMP) will be prepared and implemented during construction. The ERMP will contain all procedures relating to flood and other emergencies.	This plan Bushfire Management Plan (Appendix A)

Main Works and Exploratory Works REMMs relevant to bushfire management are provided in Tables 2.2 and 2.3 respectively of Appendix A – Bushfire Management Plan.

2.4. Permits and Licences

Environment Protection Licence (EPL) (No 21266) was been issued as part of the Exploratory Works phase for extractive activities. The premise boundary for the Exploratory Works EPL was expanded to encompasses both Exploratory Works and Main Works activities and the governing schedule activity was updated to Electricity Generation.

EPL 21266 has been varied on a number of occasions since being issued by the EPA. In October 2020 the EPL was amended to reflect the commencement of Main Works, including change to the premises boundary, primary fee-based scheduled activity, ancillary activities, including chemical storage, scheduled development works and a range of administrative, limit, monitoring, reporting and special conditions.

A Construction Lease and Works Access Licence will be established with NPWS in order to carry the works in accordance with Main Works, Exploratory Works, CSSI 9687, and the approved management plans, and Guidelines

The guidelines considered in the development and implementation of this management plan include:

- Ball, J et al (2016), Australian Rainfall and Runoff: A Guide to Flood Estimation, Commonwealth of Australia;
- DPIE (2019) NPWS Tree Risk Management Procedures;
- DPIE (2020) NPWS Landslides and Rockfalls Procedures;
- NSW Department of Infrastructure, Planning and Natural Resources (2005), *Floodplain Development Manual*, NSW Government;
- Tree Risk Management Procedures, 2019, NSW National Parks and Wildlife Services (2019); and
- *Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia, Supporting Guideline 7-3 - Flood Hazard*, Australian Institute of Disaster Resilience 2017(AIDR 2017).

3. SITE CHARACTERISTICS

3.1. Bushfire Risk

The bushfire risk of the project area is detailed in Section 3 of the Bushfire MP, provided in Appendix A of this plan.

3.1.1. January 2020 Bushfire

On 4 January 2020, the Snowy 2.0 project site and greater northern section of KNP was impacted by a significant bushfire. The project site at Lobs Hole was severely impacted with much of the groundcover and trees burned, leaving the catchment area with bare soil and no ground protection. Other parts of the Main Works project area including the Plateau, Marica and Tantangara were also impacted by the bushfire to varying degrees.

Following the bushfire, fuel loads in the locality has been substantially reduced and the threat of bushfire has been somewhat reduced for the near term. However, the threat of bushfire in and surrounding the project remains. Also, removed ground cover due to the 2020 bushfire has increased the potential for topsoil erosion and ground destabilisation in steep areas during rainfall events.

3.2. Flood Risk

Parts of the project will be undertaken on, or in close proximity to, flood prone land. This includes construction of temporary and permanent infrastructure. The Flood Risk Assessment, undertaken for the Main Works EIS (Appendix J, Annexure C), concluded any impacts on flooding would be localised and would not impact areas of significance and that the risk of flood impacts is considered minor.

This plan addresses the residual flood risk to the workforce during construction.

Flood hazard is defined as a source of potential harm or a situation with the potential to result in loss. The hazard is based on the relationship between velocity and depth of flood waters. Figure 3-1 and Table 3-1 describe the flood hazard relationship.

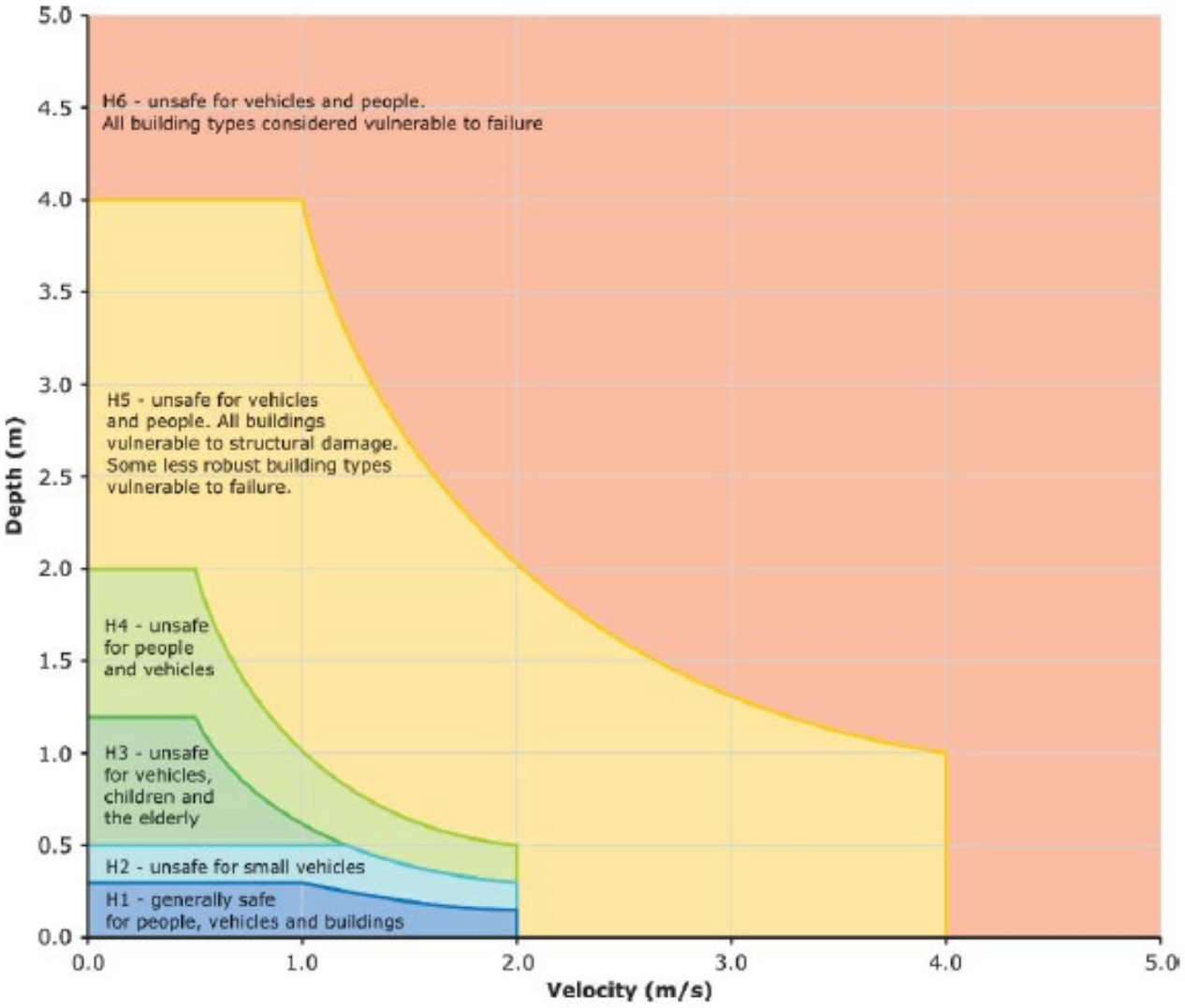

Figure 3-1: Flood hazard curves

Table 3-1: Flood hazards classification

Classification	Description
H1	Generally safe for people, vehicles and buildings
H2	Unsafe for small vehicles
H3	Unsafe for vehicles, children and the elderly
H4	Unsafe for vehicles and people
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust building types vulnerable to failure.
H6	Unsafe for vehicles and people. All building types vulnerable to failure.

Baseline flooding characteristics is described below for key project areas, where residual flood risk may pose a risk to workers.

3.2.1. Ravine

The Ravine area includes Talbingo Reservoir and Yarrangobilly River at Lobs Hole.

Within the Ravine area, the Yarrangobilly River is the major regional watercourse that flows into Talbingo Reservoir, downstream of Lobs Hole. The Yarrangobilly River has a number of tributaries within the ravine, including Wallaces Creek, Stable Creek, Sheep Station Creek and Highground Creek. At Lobs Hole the Yarrangobilly River emerges from a deeply incised gorge and follows a relatively narrow floodplain through to Talbingo Reservoir.

In flood, flows along the Yarrangobilly River through Lobs Hole are predominantly confined to the main river channel and immediate overbank areas for floods up to about the 5% annual exceedance probability (AEP) event. Full inundation of the floodplain occurs in the 1% AEP and greater magnitude events (rare events).

Flood characteristics of Talbingo Reservoir are summarised in Table 3-2. The spillway would be overtopped in a 2% AEP flood event.

Table 3-2: Talbingo Reservoir flood levels

Characteristic	Reservoir Level (mAHD)
Minimum Operating Level (MOL)	534.3
Full Supply Level (FSL)	543.2
Spillway Crest	544.7
Water level 2% AEP	545.8
Water level 1% AEP	546.1
Probable Maximum Flood (PMF)	552.1

Flood hazard is generally classified H6 in Yarrangobilly River for all flood events between a 20% AEP and the PMF. At Wallace Creek a flood hazard is classified H5 for the 20% AEP flood event, increasing to H6 for all other flood events up to the PMF. Flood hazard mapping for the 1% AEP and the PMF event at Lobs Hole are included in Appendix B.

3.2.2. Plateau

The plateau is within the upper reaches of the Murrumbidgee and Eucumbene River catchments, wholly within KNP. The headwaters of the Eucumbene River are in the western plateau, and the river flows in a southerly direction to Lake Eucumbene. The Murrumbidgee River flows from north of the plateau in a south easterly direction into Tantangara Reservoir.

A number of perennial waterways are present across the plateau, which either flow north into the Murrumbidgee River or directly into Tantangara Reservoir, including Gooandra Creek, Tantangara Creek, Nungar Creek and Kellys Plain Creek.

Floodwaters generally follow the alignment of Kellys Plain Creek for all events up to the PMF, with no major breakouts or flow diversions.

Flood characteristics of Tantangara Reservoir are summarised in Table 3-3.

Table 3-3: Tantangara Reservoir flood levels

Characteristic	Dam Level (mAHD)
MOL	1205.8

Characteristic	Dam Level (mAHD)
FSL	1228.7
Spillway Crest	1228.7
Water level 2% AEP	1230.1
Water level 1% AEP	1230.3
PMF	1236.3

The spillway would be overtopped in a 2% AEP flood event.

Flood hazard is classified generally as H5 along Kellys Plain Creek for the 1% AEP event, rising to H6 for the PMF. Shallow overland flows the approach Kellys Plain Creek from the east are classified generally as H1 flood hazard. Peak flood levels in the lower reaches of Kelly Plain Creek are influenced by reservoir water levels. Flood hazard mapping for the 1% AEP and the PMF event at Kellys Plain Creek are included in Appendix B.

3.2.3. Rock Forest

Rock Forest is in the headwaters of the Goorudee Rivulet catchment, outside of Kosciuszko National Park and is nearby to two watercourses, being Camerons Creek and an unnamed 3rd order watercourse.

Floodwaters generally follow the alignment of watercourses for all events up to the PMF, with no major breakouts or flow diversions.

Flood hazard is classified generally as H1 in the vicinity of Rock Forest for all events up to the PMF, with some isolated areas of greater hazard (up to H5).

3.3. Landslip Risk

The term ‘landslide’ may be taken to mean any kind of movement of material down a slope.

Different combinations of movement and material create different landslide types, including:

- falls – rocks tumbling off a cliff (referred to as ‘rockfalls’ in these procedures);
- topples – similar to falls, but involve an entire slab collapsing;
- slides – material sliding down an incline;
- spreads – sideways movement of saturated material;
- flows – similar to slides, but involve more liquid and travel further; and
- complex combinations of different movement types.

Within Kosciuszko National Park, landslides are a known risk. The *Kosciuszko National Park Plan of Management Implementation Report 2011-2012* notes that heavy rains in summer 2010-11 and 2011-12 led to some landslips and further degradation of previously rehabilitated sites. This included a large slip that reached down to lake water level at Club Lake and Lake Cootapatamba.

Landslides and rock falls are also known to periodically obstruct roads within Kosciuszko National Park.

Weather events such as heavy rainfall and flooding, can affect the stability of geological or geomorphological features and increase the risk of landslip.

4. HAZARD PREVENTION

4.1. Overview

The prevention stage of emergency management includes the identification of hazards, the assessment of threats to life and property and the taking of measures to reduce potential loss to life or property. Prevention is the reduction, elimination or mitigation of emergency risks using an all-hazards approach, before an emergency event occurs. For Snowy 2.0, FGJV proposes to take the following preventative measures.

4.2. Bushfire

Actions for bushfire prevention are provided in Section 5 of the Bushfire MP which is provided in Appendix A of this plan.

4.3. Flood Design

4.3.1. Access and road design

All project roads and bridges will be designed above the 1% AEP in order to ensure flood free access is maintained for flood events up to the 1% AEP. Main access roads are shown in Figure 5-1 and road design criteria provided in Table 4-1.

Table 4-1: Road design criteria

	Classification		
	Primary	**Maintenance**	**Construction**
Road	Mine Trail Ravine Road	Lobs Hole Road Marica Trail Pipeline Road Quarry Trail Talbingo Intake Road Tantangara Road Wharf Road	Camp Road Talbingo Adit Road Talbingo Spoil Disposal Road Tantangara Camp Road Tantangara Spoil Disposal Road
Bridge		Wallaces Creek Bridge on Mine Trail Nungar Creek Bridge on Tantangara Road Yarrangobilly River Bridge	Camp Bridge
Minimum elevation	1.0m above the greater of: • the 1% AEP flood extent; or • FSL of the relevant reservoir	1.0m above the greater of: • the 1% AEP flood extent; or • FSL of the relevant reservoir	0.5m above the greater of: • the 1% AEP flood extent; or • FSL of the relevant reservoir

In rare flood events with a magnitude greater than the 1% AEP access may be cut at points along roads and trails. Given the modelled flood behaviour, overtopping is likely to occur first at existing creek crossings.

4.3.2. Accommodation camps and work sites

The design for the Lobs Hole and Tantangara accommodation camps has considered flood levels and risks. Both accommodation camps are entirely free from flood in the 1% AEP and only the very

margin of the Lobs Hole camp is affected by less frequent flood events including the PMF event. Marica accommodation camp and works area has not been identified as a flood risk area.

During construction work there is the potential for Tantangara Reservoir to be held at lower levels within the current operating range to facilitate construction activities. This may potentially lower peak water levels for any given frequency of flooding.

As all accommodation camps are above the PMF levels, they are considered as suitable onsite flood refuges as shown in Figure 5-1.

In addition, all active work areas for tunnelling, logistics, laydown and on land rock emplacement have been designed to avoid flood prone lane as far as practicable as shown in Appendix B. This includes the temporary infrastructure associated with the logistics yard and emplacement areas at Rock Forest which largely avoids flood prone land.

4.4. Landslip Design

Landslip and stability issues are dealt with through the design process through a combination of designs, all of which are in accordance with Transport for NSW quality assurance specifications. This includes but is not limited to:

- soil stability:
  - batters to be reinforced with soil and or rock nails where required;
  - revegetation of slopes to be undertaken with temporary and permanent grasses to prevent undermining and erosion gullies;
  - dependant on slope grade, batters will have scour protection;
  - as required cuttings will be shotcrete or terramesh supported;
- water diversion to reduce soil saturation:
  - clean water drains on the upslope of all cuts; and
  - surface waters from road will drain into an engineered swale drain / culvert.

4.5. Dangerous Tree Trimming

Where dangerous trees, which are located adjacent to the disturbance area (but within the construction envelope), present a safety hazard that requires intervention, they should be managed/removed such that the impact to native vegetation is minimised. Where safe to do so, corrective pruning is preferable to tree removal and should be performed in accordance with Australian standard AS 4373-2007 Pruning of Amenity Trees.

All clearing impacts associated with dangerous tree removal/management shall be accounted for in the project-wide clearing tracking. Further information is provided in the Main Works Biodiversity Management Plan.

5. HAZARD PREPAREDNESS AND RESPONSE

The following key actions are implemented across the site to ensure natural hazard risks are minimised.

5.1. Bushfire Preparedness and Response

Actions for bushfire emergency preparedness and response are provided in Section 7 and 8 of the Bushfire MP which is provided in Appendix A of this plan.

5.2. Flood Preparedness and Response

Flood preparedness and response measures will include:

- design of access roads ensures flood free access to all work sites up to the 1% AEP; and
- all accommodation and refuge areas will be located above the PMF risk area. Safe flood refuge is therefore available on site.

5.2.1. Extreme Weather Monitoring

FGJV will monitor and interpret local conditions onsite, via the BOM Warning Centre website (http://www.bom.gov.au/australia/flood/) and via more accurate, local forecasting provided by Snowy Hydro Monitoring information will be used to allow appropriate planning for work tasks to be undertaken for the day.

Due to the potential for lag in accurate and local weather forecasting, direction from the PIC to stop work and find safe refuge will be based on conservative analysis of site and weather monitoring to enable proactive response (e.g. in the event of a flash flood).

Consultation with Snowy Hydro will occur in relation to reservoir levels during flood periods.

Risk notifications and warnings can also be found through the NSW SES website (www.ses.nsw.gov.au). The NSW SES is the combat agency for flooding and information can be sourced at.

5.2.2. Site Preparation

If a flood event is forecast work activities will be reviewed and the event management guide within Appendix C will be implemented.

5.2.2.1. Plant and machinery

Where it is considered safe to do so, any plant, equipment and potentially contaminating materials located within potential flood zones would be moved to flood free locations on site as instructed by the Site Supervisor.

For inland waterways specific weather reports will be provided giving three day lookahead and 24-hour lookahead, broken down into three-hourly intervals. These forecasts will give details of anticipated wind speeds (both average and expected gusts), wind direction and anticipated wave heights at each work front location. The weather forecast will be discussed at each morning briefing and/or JHA and be taken into consideration for the work planned.

When required, work will cease and all vessels are to be safely fixed to their dedicated storm mooring.

5.2.2.2. Personnel

If a flood event is forecast site personnel requirements will be reviewed.

Personnel on site would follow instructions to meet at the designated muster points. Key muster points are identified within Figure 5-1. Muster checkers will complete a muster check (roll-call).

All personnel will be directed to seek shelter at project accommodation at the appropriate times staged as below.

1. Non-essential personnel including support personnel shall return to flood refuge (accommodation) on notice from the Project Management Team (PMT).
2. Semi-essential personnel may be required to remain on site to assist with flood preparedness. This may include the work teams, engineers, and anyone deemed useful by the PMT to carry out preparedness duties.
3. Skeleton crew will involve essential personnel to carry out final preparedness, including supervisors, riggers and welders and anyone deemed appropriate.

No attempt should be made to enter or cross any flood waters that is above a minor flood level, or where the flood inundation level is not known. Should a life-threatening situation arise in a flood event, emergency services will be contacted (000) immediately.

Based on an assessment of the likely length of disruption to site activities, site personnel may be directed to vacate the site if it is safe to do so.

5.2.3. Evacuation

Evacuation of project personnel from an area of danger or potential danger is a possible strategy to mitigate the impact of any hazard. Assessment of the imminent danger to the project and the need to evacuate must be assessed prior to the decision to evacuate. The Person in Charge (PIC) that manages or controls evacuation arrangements is to ensure that such arrangements do not conflict with other emergency response agencies. Consultation with relevant stakeholders identified in the Emergency Response Management Plan will be undertaken prior to evacuating.

Where evacuation from an area of flood potential occurs, the PIC will direct workers to access roads (above the 1% AEP) and accommodation areas (above the PMF).

Should a life-threatening situation arise in a flood event, emergency services will be contacted (000) immediately. Where emergency services are required to attend a flood event, FGJV will provide clear access and control of the emergency area for emergency services to undertake relevant works.

Remobilisation will be in accordance with forecasts from BOM, NSW Emergency Services, and instruction from the Project Director and the HR / IR Manager.

5.3. Landslip Preparedness and Response

Landslip preparedness and response measures will include:

- landslip hazard is minimised through design, as ground stability is considered in the design of all temporary and permanent structures including access roads;
- the safe removal of all personnel from the area of the landslide will occur (if working in the vicinity of the area);
- the area will be secured to restrict access to the area;
- site personnel will be advised of the restrictions which apply on the project site (eg restricted road access); and
- in the event that the landslip prohibits access on site roads, alternate access provisions will be communicated to project staff;

- where evacuation of the site is required, it will be undertaken in accordance with section 5.2.3 of this plan; and
- where necessary adherence to Local Emergency Operations Controller as the combat agency for landslip.

Landslips are often occur during periods of extreme weather or extended rain.

Site inspections will occur following adverse conditions (e.g. including bushfire, heavy rain, flood) to check for natural hazards.

Where emergency services are required to attend the scene of a landslip, FGJV will provide clear access. The relevant emergency service will control the area until it is cleared for release back to FGJV.

If required advice from appropriate specialist (engineering/geotechnical, arborist/ecologist) will be obtained, to assess the stability of the incident area and to identify risks. This will inform required short term actions and any longer-term or broader investigations that may be required.

5.4. Emergency Contact Numbers

Appendix D of the Emergency Response Management Plan contains contact details for key FGJV emergency response personnel. Note that FGJV and emergency service contacts are subject to change.

Table 5-1 below includes relevant emergency service contact details. Note that all contact to emergency services in an emergency should be made through 000.

Table 5-1: Emergency service contact details

Agency	Location	Phone
Police	Adaminaby	02 6454 2244
	Cooma	02 6452 0099
	Tumut	02 6947 7199
Snowy Valleys Council – all hours duty officer	Tumut	1300 275 782 0427 470 555 (after hours)
Snowy Monaro Regional Council – all hours duty officer	Cooma	1300 345 345
Fire and Rescue NSW	Tumut	02 6947 1202
NSW RFS	Cooma	02 6455 0455
	Tumut	02 6981 4222
SES	NSW	132 500
LEOCON	Brad Hughs – Snowy Monaro	0410551011
	Josh Broadfoot – Snowy Valleys	0417 242 988
NPWS	24-hour incident response	1800 629 104
	Jindabyne	02 6450 5600
	Tumut	02 6947 7025
EPA Pollution Incident Hotline	NSW	131 555
Safe Work NSW	NSW	13 10 50

Agency	Location	Phone

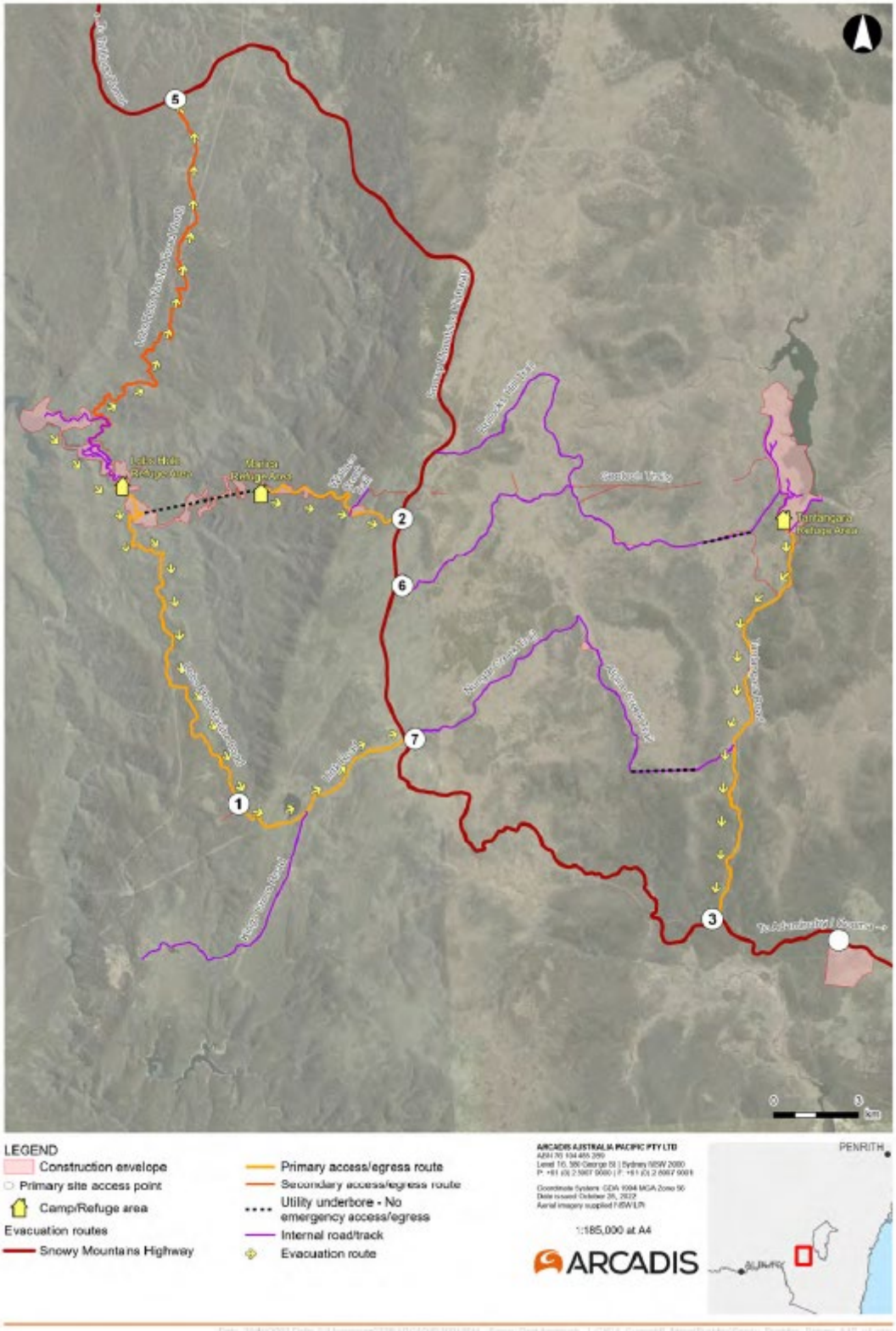

Figure 5-1: Access and refuge areas

6. RECOVERY

6.1. Site Inspections

Any site areas which required closure would be opened only once it is deemed safe following inspection by the HSE Manager and Site Supervisor. Other specialists, such as structural engineers or geotechnical specialists, may be requested to assess the site prior to reopening.

Where areas have been closed by a relevant combat agency for response, the site will be handed back to FGJV when deemed safe to do so by the relevant combat agency.

When safe to do so, a post-rainfall inspection will be completed immediately following significant rainfall (> 80 mm in 24 hours or otherwise depending on the intensity, duration, soil moisture or location). This will be undertaken by the FGJV Environment Team and/ or Site Supervisor. Actions and timeframe for completion will be agreed with the Construction Team. Safety considerations will also be a factor in determining if it is safe to complete the action following significant rainfall.

6.2. Post-incident Investigation

The environmental incident process in Section 7 and Appendix A5 of the EMS (Figure 6-1) will be considered following flood or landslide events. Should the event constitute an incident, notification and reporting will occur in accordance with the requirements of Section 7 of the EMS, the Pollution Incident Response Management Plan (PIRMP) and EPL. The investigation will include a review of events leading up to the incident and implement improved practices as required.

In accordance with Schedule 4, Condition 4 of the Infrastructure Approval (CSSI 9687), within 3 months of an incident the approved plans, strategies, and procedures will be reviewed and updated where necessary.

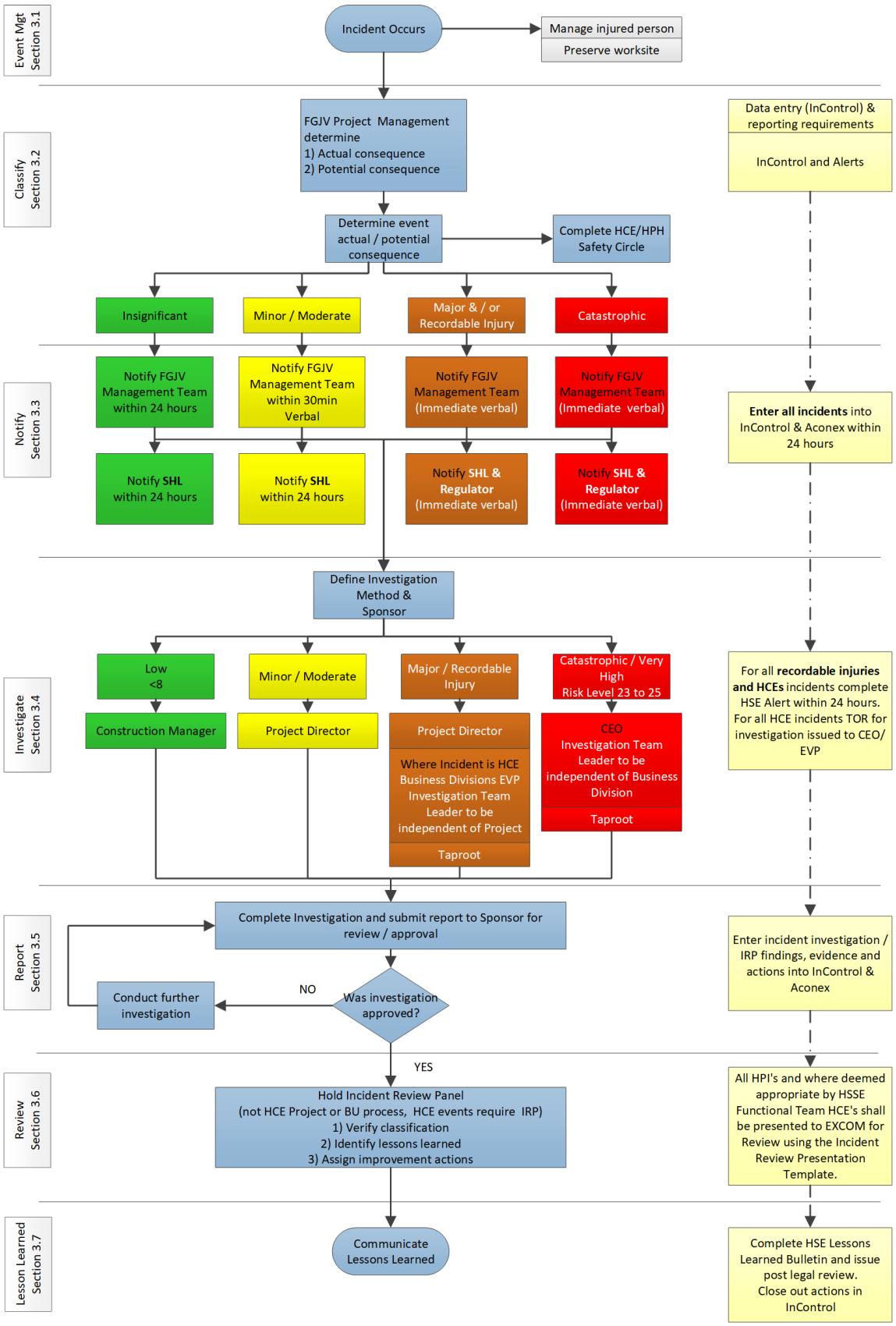

Figure 6-1: Environmental incident process

7. COMPLIANCE MANAGEMENT

7.1. Site Induction and Training Requirements

The PIC or delegate is responsible for the induction of new staff members, contractors, visitors and site users. The induction is to include information relating to natural hazards. Further details regarding the staff induction and training are outlined in Section 5 of the EMS.

All personnel with responsibilities within the emergency control organisational structure or for the operation of emergency equipment must have the appropriate level of competency-based training in accordance with the FGJV ERMP.

7.2. Monitoring and Inspection

The PIC should undertake the following monitoring activities on a monthly basis:

- confirm that the preparedness processes (as per Section 5) are being followed, including site inspections following adverse conditions (e.g. including bushfire, heavy rain, flood) to check for natural hazards;
- ensure the relevant personnel have received appropriate training (as per section 6.1); and
- implement corrective actions where necessary to maintain compliance with this plan.

Weekly environmental inspections of the project will occur in accordance with Section 8 of the EMS.

Bushfire monitoring and inspection requirements are provided in Section 9.1 of the Bushfire MP provided in Appendix A of this plan.

7.3. Review

This NHMP will be provided for comment annually to Local Emergency Management Committees, NSWRFS, NSWSES and NPWS. Following natural hazard emergencies, where necessary lessons learnt will be incorporated into this plan.

The following NHMP review(s) will be undertaken in July each year, or as requested by each stakeholder. The following NHMP reviews will be notified a month prior, and will be notified on the existing site status.

APPENDIX A – BUSHFIRE MANAGEMENT PLAN

BUSHFIRE MANAGEMENT PLAN

SNOWY 2.0 MAIN WORKS – BUSHFIRE MANAGEMENT PLAN

S2-FGJV-HSA-PLN-0060

Rev B

SEPTEMBER 2024

ABSTRACT

The key objective of this Plan is to identify the associated bushfire hazards and risks and the actions and responsibilities for managing these during construction of Snowy 2.0, by ensuring appropriate measures are implemented to address the relevant conditions of approval and practicable measures are implemented during construction to avoid or minimise impacts of bush fire on public safety, the project, and the surrounding areas prior to and during the bush fire season.

Revision Record

B	19.09.2024	2024 Review	C.Cowan	C.Cowan	D.Drummond
Rev.	**Date**	**Reason for Issue**	**Responsible**	**Accountable**	**Endorsed**

Document Verification

RACIE Record

R esponsible:	Name: Christopher Cowan Job Title: Emergency Services Manager Signed: C.Cowan Date: 26 September 2024
A ccountable:	Name: Christopher Cowan Job Title: Emergency Services Manager Signed: C.Cowan Date: 26 September 2024
C onsulted:	See distribution list on Page 3.
I nformed:	See distribution list on Page 3.
E ndorsed:	Name: Dave Drummond Job Title: QHSE Director Signed: Date: 26 Sep 2024

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R	**Responsible** The person who actually produces the document.
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Sept 2024	EC	Chris Cowan – Emergency Services Manager	FGJV	Cooma
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Revision Tracking

Rev.	Date	Description of Revision
A	27.11.2019	Initial draft for Snowy Hydro review
B.1	14.05.2020	Updated to incorporate project updates and include Main Works Draft Conditions of Approval
B.2	10.06.2020	Updated to include final conditions of approval
C	02.07.2020	Revised following Snowy Hydro comment. For consultation.
D	04.08.2020	Rev D revised to address NPWS comments.
E	18.12.2020	Revised to include TOBAN and smoking exemptions
F	19.02.2020	Revised to address agency feedback on Rev E
G	25.10.2022	Revised to bring plans up to currency and address FGJV and NPWS comments and change requests
H	11.11.2022	Revised to incorporate SHL comments
I	16.11.2022	Revised to incorporate SHL comments
J	11.09.2023	Revised to incorporate comments from external stakeholder consultation
-	Note:	Due to document ownership changed from S2-FGJV-ENV-PLN-0050 Rev J to S2-FGJV-HAS-PLN-0060 Document begins at REV A again.
A	27.12.2023	Revised to align with site-based management protocols
B	19.09.2024	Reviewed for 2024 bushfire season

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1. INTRODUCTION

1.1 *PROJECT DESCRIPTION*

1.1.1 Overview

Snowy Hydro Limited (Snowy Hydro) is constructing a pumped hydro-electric expansion of the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), called Snowy 2.0. Snowy 2.0 is being built by the delivery of two projects: Exploratory Works and Snowy 2.0 Main Works, which commenced in May 2020.

Snowy 2.0 is a pumped hydro-electric project that will link the existing Tantangara and Talbingo reservoirs through a series of new underground tunnels and a hydro-electric power station. Most of the project's facilities will be built underground, with approximately 27 kilometres of concrete-lined tunnels constructed to link the two reservoirs and a further 20 kilometres of tunnels required to support the facility. Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs.

Snowy 2.0 will increase the generation capacity of the Snowy Scheme by an additional 2,200 MW, and at full capacity will provide approximately 350,000 MWh of large-scale energy storage to the National Electricity Market (NEM). This will be enough to ensure the stability and reliability of the NEM, even during prolonged periods of adverse weather conditions.

Webuild, Clough and Lane formed the Future Generation Joint Venture (Future Generation) and have been engaged to deliver both Stage 2 of Exploratory Works and Main Works.

1.1.2 Construction Activities and Program

The Snowy 2.0 Main Works Project includes, but is not limited to, construction of the following:

- pre-construction preparatory activities including dilapidation studies, survey, investigations, access etc.
- accommodation camps.
- construction pads.
- an underground pumped hydro-electric power station complex.
- water intake structures at Tantangara and Talbingo reservoirs.
- power waterway tunnels, chambers and shafts.
- access tunnels.
- new and upgraded roads to allow ongoing access and maintenance.
- power, water and communication infrastructure, including:
  - a cable yard to facilitate connection between the NEM electricity transmission network and Snowy 2.0.
  - permanent auxiliary power connection.
  - permanent communication cables.
  - permanent water supply to the underground power station; and
- post-construction revegetation and rehabilitation.

The Snowy 2.0 Main Works Project includes numerous work sites as shown in Figure 1-1.

These work sites include:

- Lobs Hole Ravine Road.
- Lobs Hole.
- Marica.
- Plateau (area between Tantangara and Marica).
- Rock Forest.
- Talbingo; and
- Tantangara.

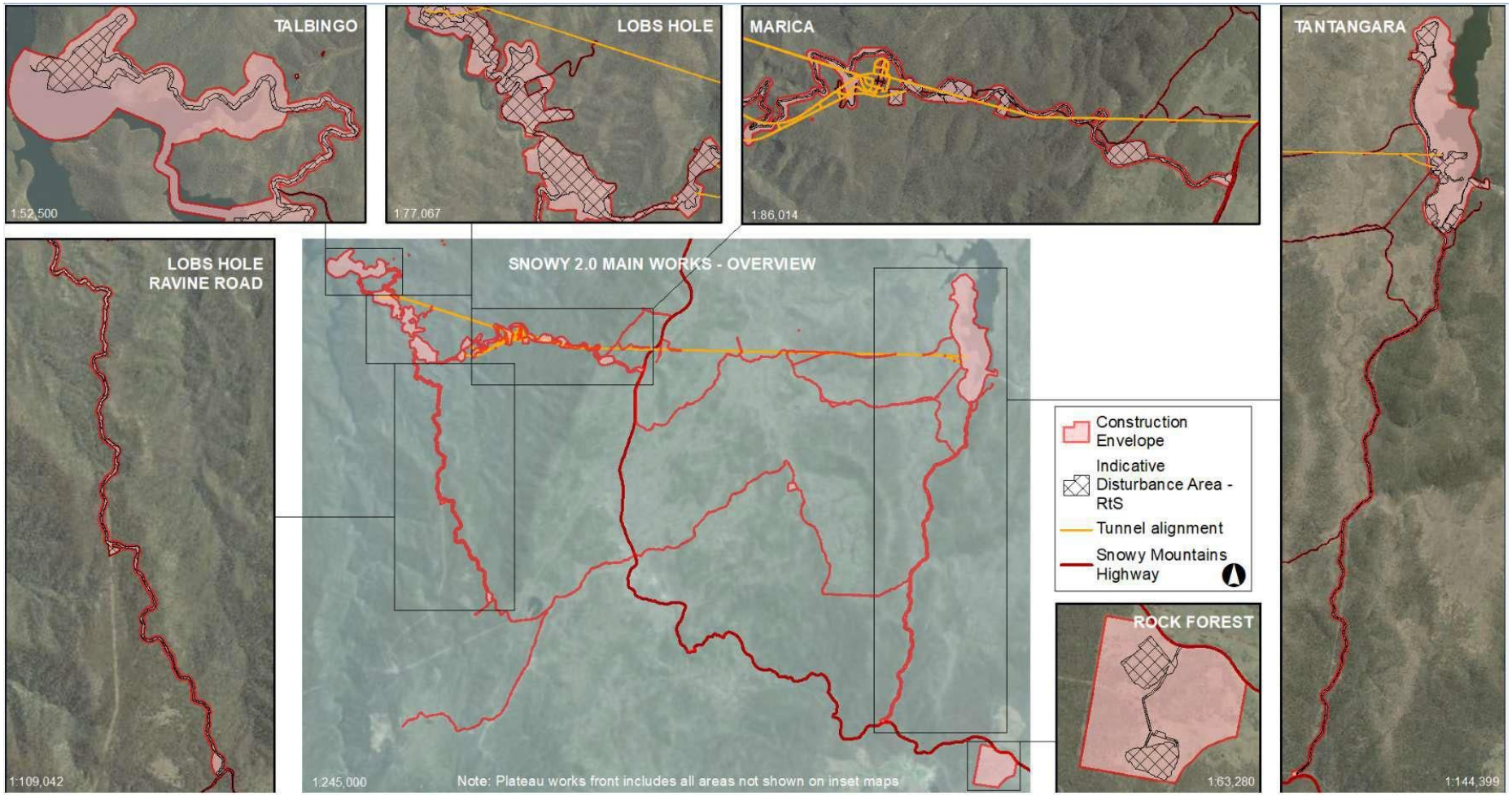


Figure 1-1. Snowy 2.0 Works sites

1.2 *OBJECTIVE*

The key objective of this Bushfire MP is to identify the associated bushfire hazards and risks and the actions and responsibilities for managing these during construction of Snowy 2.0. To achieve this, Snowy Hydro and Future Generation will:

- ensure appropriate measures are implemented to address the relevant conditions of approval and the REMMs listed within the Submissions Report, as detailed within Section 2.2 and Section 2.3 of this Plan;
- ensure practicable measures are implemented during construction to avoid or minimise impacts of bush fire on public safety, the project and the surrounding areas prior to and during the bush fire season.

The focus of this plan is hazard mitigation and preparedness.

Bushfire management measures are grouped into five sections within this plan based on the relative seasonal timing and situational context as shown in Figure 1-2.

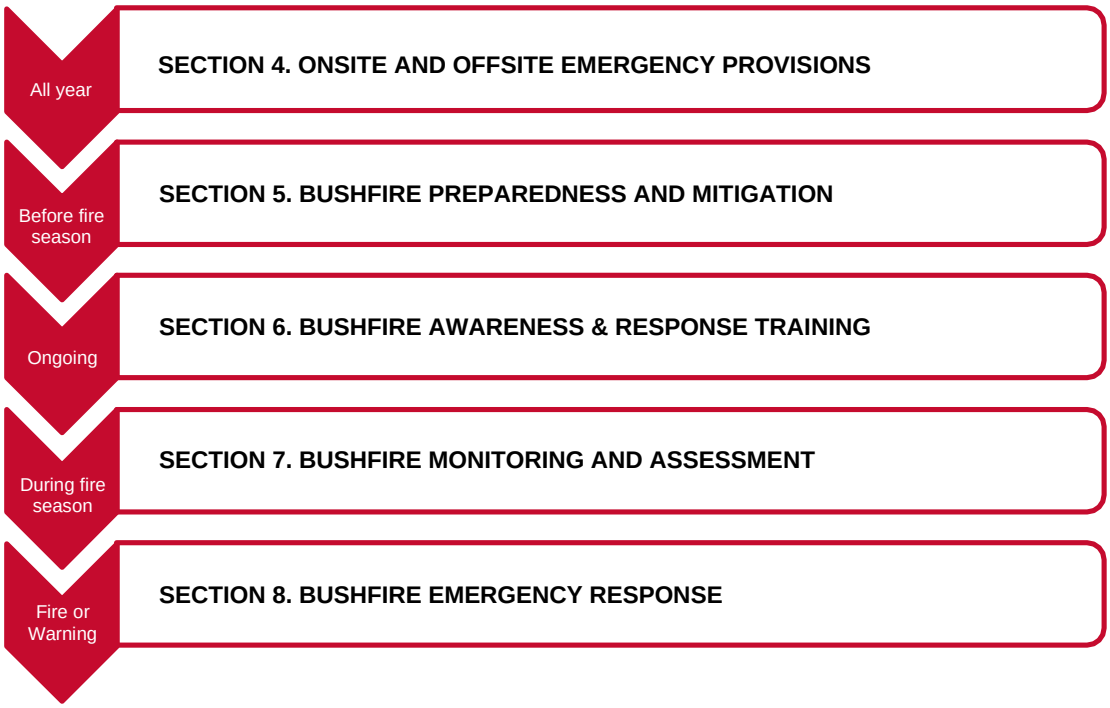


Figure 1-2. Indicative timings in relation to plan sections.

1.3 *ABBREVIATIONS AND DEFINITIONS*

Term	Definition
AA (AA)	Assembly Area – map symbol = encircled
AFAC	Australasian Fire and Emergency Services Authorities Council
APZ	Asset protection zone
Back-burning	Back-burning is a last-resort measure to stop wildfire from burning out specific areas. It works by setting fires from containment lines, such as established fire breaks or ones made with a bulldozer or cut by hand.
BFDP	Bush Fire Danger Period – refer to Fire season below
BFMC	Bush Fire Management Committee
BoM	Bureau of Meteorology
Bushfire MP	Bushfire Management Plan, a sub-plan of the Natural Hazard Management Plan
BCD	Biodiversity and Conservation Division (formerly OEH)
CASA	Civil Aviation Safety Authority
CEMP	Construction Environmental Management Plan
CMG	Consequence Management Guide
CoA	Conditions of Approval

Designated Smoking Area	A signposted non-combustible area set aside within the Project site for the purpose of smoking. KNP is a no smoking area, however, smoking is permitted in designated areas in accordance. with NPWS permit (Annexure B).
DPE	NSW Department of Planning and Environment
EIS	Environmental Impact Statement
EMS	Environmental Management Strategy
Enclosed Area	An area that is sheltered from the weather which fully contains the enclosed activities such that there is zero potential for bushfire ignition in surrounding areas. It may include, but not be limited to, inside buildings, workshops, shipping containers and inside tunnelling.
EOC	Emergency Operations Centre
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
ERMP	Emergency Response Management Plan – the parent plan to this Plan
EWAR	Exploratory Works Access Roads
FCNSW	Forestry Corporation NSW
FBI	Forest Behaviour Index. A numerical scale with increasingly high values indicating increasingly dangerous fire behaviour and therefore fire danger risk. It unites a range of potential fire behaviour characteristics that includes fire intensity, flame height, rate of spread and spotting potential.
FDR	Fire Danger Rating. A relative class denoting the potential rates of spread or suppression difficulty for specific combinations of temperature, relative humidity, drought effects and wind speed, indicating the relative evaluation of fire danger. Forecast in classes as MODERATE, HIGH, EXTREME and CATASTROPHIC.
Fire Risk Work	Includes heat or potential spark producing activities other than hot works that have the potential of creating a fire risk when undertaken in a hazardous area. Fire Risk work on the Project includes: • Slashing. • Mulching. • Chainsaw operation • Chipping. • Mowing. • Brush cutting. • Track grading. • Rock-breaking. • Drilling. • Blasting; and • Geophysical investigations.
Fire Season	Fire season also referred to as the statutory Bush Fire Danger Period normally starts on 1 October and continues through the following 31 March in accordance with the RFS website.
Future Generation	Future Generation Joint Venture
Future Generation-PMS	Project Management System
HSMP	Health and Safety Management Plan
H Ⓗ	Helipad – map symbol = encircled 'H'
Hazard Reduction Burn	A hazard reduction burn is one way to reduce the fuel load (vegetation) and therefore minimise the potential impacts of a bush fire on life, property and the environment. Hazard reduction burns are a preventative mitigation measure and differs from back-burning, which is a firefighting strategy.
Hazardous Area	For the purposes of this plan a Hazardous Area is defined as any work area where flames, sparks, molten materials, and hot surfaces may come into contact with flammable/combustible materials. Hazardous areas may include (but not be limited to): • Dry/combustible vegetation or areas within 30m of such vegetation. • Confined spaces (not including tunnels). • Buildings where there are materials that are made of or contain combustible matter. • Rubbish, and • Oil and fuel storage areas.
Hot works	Any action that involves high temperatures and has a high risk of creating a fire. Examples of hot work include but are not limited to: • Welding, Oxy-Acetylene or Plasma cutting.
	• Grinding/cutting of metal including the use of flexible sanding disks. • Production of heat, flammable fumes and gases during work activities; and • Dry concrete metal grinding/cutting.

HSE	Health, Safety and Environment
IC	Incident Controller
KNP	Kosciuszko National Park
Main Works EIS	The development of an underground power station and associated infrastructure described in the Environmental Impact Statement for the Snowy 2.0 Main Works (CSSI 9687) dated September 2019, and modified by the: • Preferred Infrastructure Report and Response to Submissions – Snowy 2.0 Main Works, dated February 2020; and Additional information provided to the Department by EMM on 24 March 2020 and 7 April 2020
Neighbourhood Safer Place	A Neighbourhood Safer Place is a building or an open space that may provide for improved protection of human life during the onset and passage of a bush fire. It is a location where people facing an immediate threat to their personal safety can gather and seek shelter from the impact of a bush fire. Their function is to provide a place of last resort for a person to seek shelter at during the passage of the bush fire front.
NHMP	Natural Hazard Management Plan
Non-combustible areas	Includes enclosed workshops, hardstand laydown areas, area within camp boundaries, underground tunnels and maintained access roads that are not otherwise considered a hazardous area. Non-combustible areas may be indoors or outdoors but is indicative of a modified environment where bushfire ignition potential is negligible.
NPWS	NSW National Parks and Wildlife Service (within the NSW Office of Environment and Heritage (OEH))
NSW RFS	NSW Rural Fire Service
Outdoor Area	An area that is not an enclosed area
PEP	Project Execution Plan
PIC	Person in charge – the Project Director or their delegate
Project	The Main Works Project (SSI 9687) including the proposed works detailed in Section 1.1
PTW	Permit to Work
QMP	Quality Management Plan
REMM	Revised environmental management measures
Remote Area	A remote area is one where personnel are not within a 20-minute response time of the project ambulance
SNOWY HYDRO	Snowy Hydro Limited
Submissions Report or RTS	*Response to Submissions Snowy 2.0 Main Works*
TOBAN	Total Fire Ban as declared by the NSW RFS Commissioner

1.4 *PROJECT APPROVAL*

On 7 March 2018, the NSW Minister for Planning declared Snowy 2.0 to be State Significant Infrastructure (SSI) and Critical State Significant Infrastructure (CSSI) under the Environmental Planning and Assessment Act 1979 (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons.

An environmental impact statement for the first stage of Snowy 2.0, the *Environmental Impact Statement Exploratory Works for Snowy 2.0* (Exploratory Work EIS) was submitted to the then Department of Planning and Environment in July 2018 and publicly exhibited between 23 July 2018 and 20 August 2018. Approval for the first stage of Snowy 2.0 was granted for Exploratory Works by the Minister for Planning on 7 February 2019. In accordance with section 5.25 of the EP&A Act, the infrastructure approval for the Exploratory Works was modified on 2 December 2019 and on 27 March 2020.

An environmental impact statement for the second stage of Snowy 2.0, the *Snowy 2.0 Main Works Environmental Impact Statement* (Main Work EIS) was submitted to Department of Planning, Industry and Environment (DPIE) in September 2019 and was publicly exhibited between 26 September 2019 and 7 November 2019. A total of 222 submissions were received during the public exhibition period, including 10 from government agencies, 30 from special interest groups and 182 from the general public. In February 2020, the response to submissions (RTS or Submissions Report) was issued to DPIE to address the public and agency submissions (*Snowy 2.0 Main Works - Preferred Infrastructure Report and Response to Submissions, February 2020*).

Following consideration of the Main Works EIS and RTS, approval was granted by the Minister for Planning

and Public Spaces on 20 May 2020, through issue of Infrastructure Approval SSI 9687. Further to the Infrastructure Approval, the Main Works RTS include revised environmental management measures (REMMs) within Appendix C of the RTS which will also be implemented for the Project.

In addition to the State approval, a referral (EPBC 2018/8322) was prepared and lodged with the Commonwealth Department of Energy and Environment (DoEE – now Department of Agriculture, Water and the Environment, DAWE) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Commonwealth Minister's delegate determined on 5 December 2018 that Snowy 2.0 Main Works is a "controlled action" under the EPBC Act. The EPBC Act referral decision determined that the project will be assessed by accredited assessment under Part 5, Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979.*

1.5 *HSSE MANAGEMENT SYSTEM*

This Bushfire Management Plan (Bushfire MP or plan) forms part of Future Generation's environmental management framework as described in the EMS and sits under the Health and Safety Emergency Response Management Plan as shown in Figure 1-3.

This plan aims to transfer the relevant requirements of the Approval documents into a management plan which can be practically applied on the Project site.

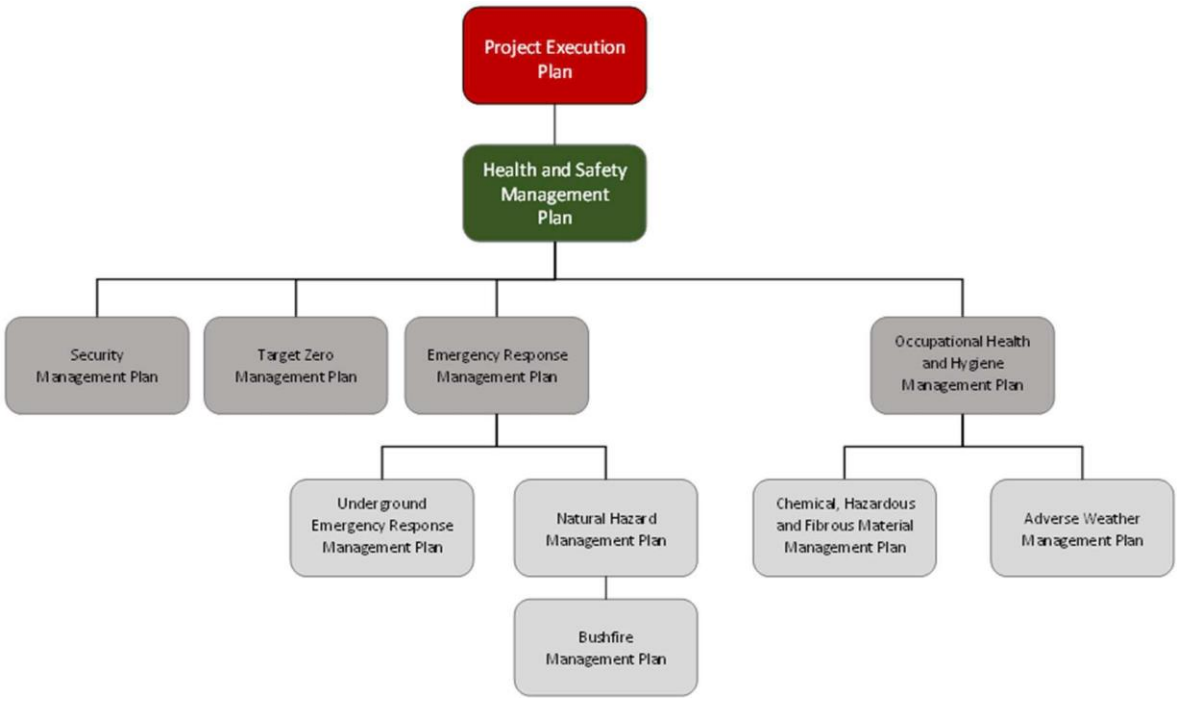


Figure 1-3. HSSE Plans

1.6 *CONSULTATION*

In accordance with schedule 3, condition 61 of the Infrastructure Approval, this plan is to be prepared to the satisfaction of the National Parks and Wildlife Service (NPWS).

This plan was initially prepared for the Exploratory Works project (SSI 9208) and has been updated for Main Works. Table 1-3 below provides a summary of the consultation on this plan that has occurred throughout the Exploratory Works project through to Main Works.

Table 1-3: Consultation with stakeholder summary

Project	Date	Consultation	Outcome
Exploratory Works	04/09/2018	Site visit with NSWRFS, NPWS and Bushfire Specialist (EcoLogical)	Discuss expectations of NSWRFS and NPWS to inform the plan preparation
	17/04/2019	Initial draft for review and consultation	Comments received and addressed
	28/06/2019	Update following agency consultation	Plan approved
	19/11/2019	Plan updated to incorporate Mod 1 changes and issued for approval	Received feedback and comments indicating the need for a workshop to clarify definitions and preparedness actions.
	5/12/2019	Workshop with Snowy Hydro, NPWS and Future Generation	Bushfire preparedness measures refined. Clearer identification of hot works and other activities to be prohibited at certain forest fire danger index (FFDI) levels
	11/02/2020	Plan was updated for Modification 1 and issued to NPWS for review and comment.	NPWS approved Rev E of the Exploratory Works plan.
	13/03/2020	Phone consultation was undertaken with NPWS following the 2019/20 bushfires in KNP.	The plan was updated based on the NPWS comments.
	03/04/2020	Rev G of EW Plan revised and issued to NPWS for comment.	NPWS provided comments which were addressed in Rev H
	07/05/2020	Rev H issued to NPWS for final signoff	NPWS approve the revised plan (Rev H) on 08/05/2020.
Main Works	02/07/2020	Main Works plan Rev C issued to NPWS for review. The plan was updated from EW Rev H to include additional matters and work areas relevant to Main Works.	NPWS provided comments which were addressed in Rev D and reissued to NPWS on 3 August 2020.
Update	14/07/2022	Update of Main Works plan Rev E to address stakeholder comments and bring plan up to currency	Verbal consultation held with NPWS, RFS, and LEMO provided comments which were addressed. Bushfire preparedness actions updated in line with the new Australian Fire Danger Rating System (AFDRS)
Update	15/09/2023	Review of Main Works plan Rev J by stakeholders and to bring plan up to currency	
Update	Dec 2023	Review of Main Works plan to Rev A (amendment to doc number) to update to current procedures and include the Evacuation and Refuge process.	
Update	Sept 2024	Review of BMP to Rev B – general review of structure, revise requirement for evacuation / refuge protocol and include CMG.	

2. HSSE REQUIREMENTS

2.1 *LEGISLATION*

Legislation relevant to bushfire includes:

- NSW Biodiversity Conservation Act 2016 (BC Act);
- NSW Biosecurity Act 2015 (Biosecurity Act);
- NSW Environmental Planning and Assessment Act 1979 (EP&A Act);
- Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act);

- NSW Fire Brigades Act 1989 (FB Act);
- NSW National Parks and Wildlife Act 1974 (NPW Act);
- NSW Rural Fires Act 1997 (RF Act); and
- State Emergency and Rescue Management Act 1989.

Relevant provisions of the above legislation are explained in the register of legal and other requirements included in Appendix A1 of the EMS.

2.2 *CONDITIONS OF APPROVAL*

Table 2-1 outlines the conditions of Approval (SSI 9687) relevant to the management of bushfire risk for Main Works.

Table 2-1. Main Works (SSI 9687) conditions of approval relevant to bush fire management.

Condition	Requirement	Where addressed
Bushfire Requirements		
Schedule 3, Condition 60	The Proponent must:	
	(a) include suitable asset protection measures into the final design of the development in accordance with the Planning for Bushfire Protection (RFS 2018) guidelines, or its latest version;	This plan, Section 5
	(b) ensure all buildings developed on site comply with the relevant requirements of the BAL-29 construction standards of Australian Standard AS 3959-2018: Construction of buildings in bushfire prone areas or the NASH Standard (1.7.14 updated) in National Standard Steel Framed Construction in Bushfire Areas – 2014; and	This plan, Section 5
	(c) ensure any fire trails or asset protection zones associated with the development are wholly contained within the approved disturbance area.	This plan, Section 5.4
Emergency Management Plan		
Schedule 3, Condition 61	Prior to the commencement of construction, the Proponent must prepare an Emergency Management Plan for the development to the satisfaction of the NPWS. This plan must:	This plan addresses the bushfire related requirements. Section 1.7
	(a) be prepared by a suitably qualified and experienced person/s whose appointment has been endorsed by the NPWS;	Section 1.8
	(b) be consistent with the *Kosciuszko National Park Fire Management Strategy 2008-2013* (NPWS 2008), or its latest version;	The *Kosciuszko National Park Fire Management Strategy* was reviewed in preparation of this plan. This plan has been prepared to the satisfaction of NPWS – Section 2.5
	(c) include evacuation protocols for the site;	Section 8.6
	(d) describe the measures that would be implemented to: • minimise the risk of bushfires on site;	Section 5.5, 6 and 7
	• protect the assets on site from bushfires;	Section 5
	• respond to any bushfires on or in the vicinity of the site;	Section 4 and 8
	• minimise flood risks on site, including flooding response procedures;	Addressed in Natural Hazard Management Plan
	• minimise the risk of landslips on site, including landslip response procedures; and	
	• evacuate the site in an emergency; and	Section 8.6
	(e) monitor and review the effectiveness of these measures.	Section 9.1 for bushfire

2.3 *REVISED ENVIRONMENTAL MANAGEMENT MEASURES*

The Main Works REMMs relevant to this plan are listed in **Table *2-2*** below. If additional measures are cross-referenced from another section of the Main Works EIS or Submissions Report, these measures are also included.

Table 2-2. Main Works (CSSI 9687) management measures relevant to bush fire

Ref #	Revised Environmental Management Measures	Where addressed
HAZ02	Vegetation is managed within operational APZs in perpetuity.	APZ maintenance throughout construction is detailed in Section 5
HAZ04	All On-site Refuge buildings will be within each Snowy 2.0 Main Works Accommodation site, constructed to BAL- 29 construction standard, be of appropriate capacity, signposted and mapped.	Section 5 includes details on construction standards, maintenance requirements to protect refuge areas prior to and during the bushfire season.
HAZ05	Primary and secondary access is maintained, upgraded and/or constructed to comply where possible with performance criteria and/or acceptable solution requirements of PBP 2019 and NSWRFS Fire Trail Standards (NSWRFS 2019). Consultation with the NSW RFS will be undertaken where compliance is constrained.	Construction site access is detailed in Section 4.1.
HAZ06	Water supply requirements for firefighting, including the provision of hydrants and hose reels, is designed, constructed in accordance with the relevant Standards and PBP 2019.	Construction fire water resources are detailed in Section 4.6.
HAZ08	A Bushfire Emergency Management Plan is prepared for the project area and includes responsibilities associated with and details of:	This plan
	• site specific hazards and risk at each Snowy 2.0 Main Works site;	Section 3 details the existing bushfire hazards. Section 8.2 includes additional details of hazards in the vicinity of power lines.
	• procedures to maintain bushfire awareness;	Section 6.1 details personnel training. Section 6.2 details fire danger awareness measures.
	• bushfire mitigation measures;	Site mitigation measures addressed in Section 5.
	• fire preparedness actions;	Fire prevention and preparedness activities and limitations are detailed in Section 7.
	• fire response actions including responses to Emergency Alerts issued by emergency services; and	Emergency response addressed in section 8.
	• bushfire recovery requirements.	
HAZ09	Each main works accommodation camp shall have a full time, onsite Emergency Response Team (ERT), with an appropriate level of training and equipment to respond to potential bushfire and initial structural fire events.	All personnel working on the project shall receive bushfire awareness training as detailed in Section 6.1. FGJV ERT personnel shall undergo specific training in the use of firefighting equipment provided at each work area as detailed in the Preparedness requirements. While the ERT are provided bushfire preparedness training on an annual basis in preparation for the bushfire season, it is not intended that the FGJV ERT will be responsible for fighting major bushfires beyond structural protection (e.g. refuge protection).

2.4 *PERMITS AND LICENCES*

Environment Protection Licence (EPL) 21266 has been issued for the project for the scheduled activity of extractive activities for the Exploratory Works phase. EPL 21266 has been varied on a number of occasions since it was issued by the EPA. This includes expanding the premises boundary for the Exploratory Works EPL to encompass both Exploratory Works and Main Works activities and the governing schedule activity for Main Works will be Electricity Generation.

A Construction Lease and Works Access Licence will be established with NPWS in order to carry the works in accordance with Main Works, Exploratory Works, CSSI 9687, and the approved management plans. An exemption permit has been obtained from NPWS for smoking in KNP within the project site (refer Annexure B).

2.5 *GUIDELINES*

The guidelines considered in the development and implementation of this management plan include:

- AS 3959:2018 Construction of buildings in bushfire-prone areas. Standards Australia, Sydney;
- AS 2441-2005 Installation of fire hose reels – incorporating amendment No. 1 Reconfirmed 2018. Standards Australia, Sydney;

- Common Hose Couplings for Australian AFAC Member Agencies. Version 6 May 2008 Australasian Fire and Emergency Services Authorities Council (AFAC) (2008);
- Guidelines for the establishment and operation of onshore Helicopter Landing Sites. Civil Aviation Advisory Publication CAAP 92-2(2) February 2014, Civil Aviation Safety Authority (CASA) (2014);
- Kosciuszko National Park Fire Management Strategy 2008–2013. Prepared by the Parks and Wildlife Group, July 2008, Sydney Department of Environment and Climate Change (2008);
- National Construction Code Volume One - Building Code of Australia, Australian Building Codes Board (2019);
- National Guidelines on Electrical Safety for Emergency Service Personnel ENA Doc 008—2006, Standards Australia, Sydney;
- NSW RFS: Fire Trail Standards. March 2019, (Doc17/4137) https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0009/69552/Fire-Trail-Standards.pdf;
- Planning for Bush Fire Protection – A guide for councils, planners, fire authorities and developers. 2019, NSW RFS, Sydney;
- Overall fuel hazard assessment guide 4th edition July 2010. Fire and adaptive management, report no. 82, Hines, F., Tolhurst, KG., Wilson, AAG, and McCarthy, GJ. (2010); and
- Tree Risk Management Procedures, 2019, NSW National Parks and Wildlife Services (2019).

3. EXISTING ENVIRONMENT

3.1 *LANDSCAPE BUSH FIRE ENVIRONMENT*

The project is located within the KNP (refer **Figure *1-1***), with a range of infrastructure types to be developed in bushfire-prone environments. Construction works will be ongoing for several years and will continue throughout bushfire seasons. As such, a range of ongoing mitigation, awareness, preparedness and response actions are required to be implemented continuously during the bushfire danger period.

Within the KNP, when vegetation is dry enough for a fire to start and spread, bushfires have historically burnt over large areas of these alpine regions and at high intensity, producing embers and spotting ahead of the fire front. Under certain conditions (i.e. dry vegetation and strong winds) fire can be a risk at any time of the year. The project area is located in part of the KNP with one of the highest occurrences of bushfire (DECC 2008).

The majority of Main Works sites occur west of the Snowy Mountains Highway within the Southern Slopes Fire Weather Area and the Snowy Valleys Bush Fire Management Committee (BFMC) Area. The Snowy Valleys BFMC Bush Fire Risk Management Plan (Snowy Valleys BFMC 2017) identifies that within this region the:

- climate is cool temperate with winter rainfall maximum;
- bush fire season usually occurs from November to March;
- adverse fire weather is associated with north-westerly winds, high daytime temperature and low humidity; and
- dry lightning storms are common in the fire season.

The eastern sites of Tantangara, Plateau and Rock Forest are within the western extent of the Monaro Alpine Fire Weather Area and the Snowy Monaro BFMC Area. The Snowy Monaro BFMC Bush Fire Risk Management Plan (Snowy Monaro BFMC 2009) identifies that within this region the:

- climate is cool temperate with winter and summer rainfall maximums;
- bush fire season usually occurs from October to March;
- adverse fire weather is associated with north-westerly to south-westerly winds, high daytime temperature and low humidity;
- dry lightning storms occur in the fire season; and
- fire danger periods have occurred in winter months.

3.2 *FIRE DANGER PERIOD (BUSHFIRE SEASON)*

The fire danger period is usually declared from 01 October to 31 March, unless adjusted by the NSW Rural Fire Service (NSW RFS) Commissioner.

3.3 *LOCAL GOVERNMENT AREA AND FIRE DANGER RATINGS AREAS*

The Main Works are located within:

Lobs Hole, Talbingo and Marica works

- Snowy Valleys Council area;
- Southern Slopes Fire Area (for fire danger rating forecasting);

Tantangara, Plateau and Rock Forest works

- Snowy Monaro Regional Council;
- Monaro Alpine Fire Area (for fire danger rating forecasting).

It is noteworthy that the plateau topography divides the Fire Area and council jurisdictions roughly east to west.

3.4 *ABORIGINAL AND HISTORIC HERITAGE SITES*

The area includes a range of Aboriginal and historic heritage sites which are subject to management measures identified in the Aboriginal heritage management plan and Historical and natural heritage management plan.

Bushfire preparedness works shall not impact on these locations.

3.5 *THREATENED SPECIES*

The site includes a range of threatened fauna species. The following restrictions are required to reduce potential impacts:

- Firefighting chemicals (bushfire fighting foam or retardant) should not be applied within 50m of the banks of the Yarrangobilly River, Tantangara Creek, Talbingo Reservoir or Tantangara Reservoir.
- No track widening, new control line construction or vegetation disturbance is permitted on upper Lobs Hole Ravine Road between the junction of O'Hares Trail and the junction with Link Road. Where emergency track widening occurs as part of a coordinated fire suppression strategy with combat agencies, this may result in vegetation and / or heritage site disturbance.

4. ONSITE AND OFFSITE EMERGENCY PROVISIONS

4.1 *ONSITE PROVISION*

4.1.1 Project Location and Access

Lobs Hole and Talbingo works

Access to Lobs Hole will be via Ravine Road from the southern access point at the Link Road junction (refer Figure 4-1). Secondary LV emergency access via Lobs Hole Ravine Road North. However, Ravine Road North has been identified as not suitable for convoys or the 4-wheel drive buses identified for evacuation of personnel.

Link Road – Lobs Hole Ravine Road junction is designated as the Link Road Junction Muster Point and is located:

- 11.2 km north-east of Cabramurra;
- 47 km west of Adaminaby;
- 63 km south Talbingo;
- 97 km south Tumut;
- 100 km west of Cooma.

Marica works

Access to the Marica area will be via Marica Trail off the Snowy Mountains Highway.

Tantangara works.

- Access to the Tantangara Works area is via Tantangara Road north off Snowy Mountains Highway (refer Figure 4-1). The junction of Tantangara Road and Snowy Mountains Highway provides evacuation routes southeast to Adaminaby (19km) and Cooma (72km) or northwest to Talbingo (74km)

and Tumut (108km).

Plateau works

While works in the Plateau area have been completed, any minor works to finish or maintain will primarily be accessed off Snowy Mountains Highway.

In the event of a bushfire warning being issued, or a Fire Danger Rating exceeds 'Moderate' level, all works across the plateau area will be immediately suspended with all personnel being evacuated off project or to the nearest major operational area for refuge.

Rock Forest works

The Rock Forest works site is situated directly on Snowy Mountains Highway (refer Figure 4-1) which provides evacuation routes southeast to Adaminaby (13km) and Cooma (66km) or northwest to Talbingo (80km) and Tumut (114km).

4.1.2 Muster Points

Muster points provide gathering points for personnel in the locality of their works area. They serve as the initial coordination point for personnel prior to mobilisation from the works area to the assembly areas (refer Section 4.1.2).

Muster points will be determined dynamically by the PIC and/or HSE representative as the construction activities progress throughout the project site. The location of muster points will be communicated to personnel through signage on site, HSE notice boards and in toolbox talks.

Muster points are dynamic and may change as the work site is developed. Their location must be clearly demarcated across all sites and communicated with the workforce to maintain awareness. It should be noted that Muster Points will be utilized for any emergency at that specific work site.

4.1.3 Bushfire Refuge Locations

The nominated assembly areas across the project are identified in Table 4-1. These areas provide a safe space for workers to assemble prior to evacuation (if required). Evacuation from the site will be in accordance with the site-specific Bushfire Response Protocol (refer Section 8.4). General evacuation instructions are included in Section 8.4.

Table 4-1. Refuge Assembly Area – location and description

Assembly Area	Lat	Long
Lobs Hole Camp Refuge Assembly Area Pad E.	35°46'57.00"S	148°23'41.00"E
	This Refuge Assembly area is located within Lobs Hole Camp, on the Western side of Yarrangobilly River, 300m West of Yarrangobilly River Bridge Crossing at Main Camp Pad E. It is 16.4km north along Lobs Hole Ravine Road from the Link Road junction,	
Marica Camp Assembly Area	35°47'10.4"S	148°26'39.1"E
	This assembly area is located within the Marica Camp along the Marica trail approximately 5.5km west of the Snowy Mountain Highway.	
Tantangara Camp Assembly Area	35°48'18.2"S	148°39'13.1"E
	This assembly area is located within the Tantangara Camp at the southern extent of the Tantangara Reservoir on Quarry Trail off Tantangara Road, approximately 15km north of the Snowy Mountain Highway.	

While Refuge Assembly Area(s) should meet the following specifications, deviations may occur following risk assessment and approval from the Project Director:

- A minimum 20,000L dedicated fire water supply feeding a ring main and fire hydrants fitted with 65mm Storz couplings;
- Fire hose reels mounted in immediate proximity in the refuge.
- The sizing of these assembly areas will be catered to suit the expected number of personnel at each location.
- Gravel road around the Refuge and buildings within are on a concrete slab.
- Fireproof mesh around the bottom of the buildings.
- Fireproof aluminium window shutters.

- Colorbond perimeter fence (minimum 1.8m high) may be required subject to individual assessment of assembly areas – should it be determined to be required the Colorbond perimeter fence is flush with the ground and maintained with no gaps between the fence bottom and the ground surface.
- Trees and bush cleared.

A 20m buffer around the refuge buildings and a 10m buffer around the perimeter will be maintained as an APZ with any grass <10cm height.

4.1.4 Evacuation Arrangements

All vehicle access routes traverse bushfire prone vegetation which can support higher intensity bushfires. Attempting to evacuate at the last moment through these areas during a bushfire may be extremely dangerous, with fatal consequences.

All evacuations must be managed in accordance with the instructions of the Person in Charge (PIC), fire warden (for offices and accommodation camps) or their delegate(s). Personnel may be directed to a works area Muster Point to await instructions or seek refuge and shelter at the nearest Refuge Assembly Area until a bushfire passes (refer section 8).

A Consequence Management Guide (CMG) relating to evacuation will be maintained, which will include notification triggers to the local Emergency Operations Centre (EOC). CMGs will be discussed with the local EOC to ensure compatibility with EOC operations.

4.1.5 Firefighting Supplies and Equipment

The following resources will be available on the project site:

- Dedicated 20kL firefighting static water supply tanks (steel-shielded) will be located at each of the assembly areas. The water supply tanks will feed ring mains that supply fire hydrants that have 65 mm Storz coupling to suit bushfire tankers.
- Lobs Hole & Tantangara will maintain Cat 1 Fire Trucks with 3000 L capacity, and water trucks with cannons.
- Marica will maintain Cat 7 Fire Truck with 1500 L capacity, and water trucks with cannons.
- Static fire hydrants and hoses.
- Fire extinguishers

In addition, water can be directly sourced from the treated water holding tanks at each site or Talbingo Reservoir or Tantangara Reservoir. In an emergency water can be sourced from Basins with Standpipes and pumps in place across site.

Adequate water supply and pressure is to be designed, implemented and maintained for firefighting purposes. All camp buildings (irrespective of occupancy classification) must comply with the requirements of clause E1.4 of the National Construction Code and AS 2441.

4.1.6 Helicopter Access

In the event that helicopter access to sites are required, they shall be guided to the designated helicopter landing locations, as specified in the Project Emergency Response Management Plan (*S2-FGJV-HSA-PLN-0002*) or alternate landing site, should the primary landing location be compromised, in consultation and agreement with the FGJV ERT, NSW RFS and the associated helicopter service provider.

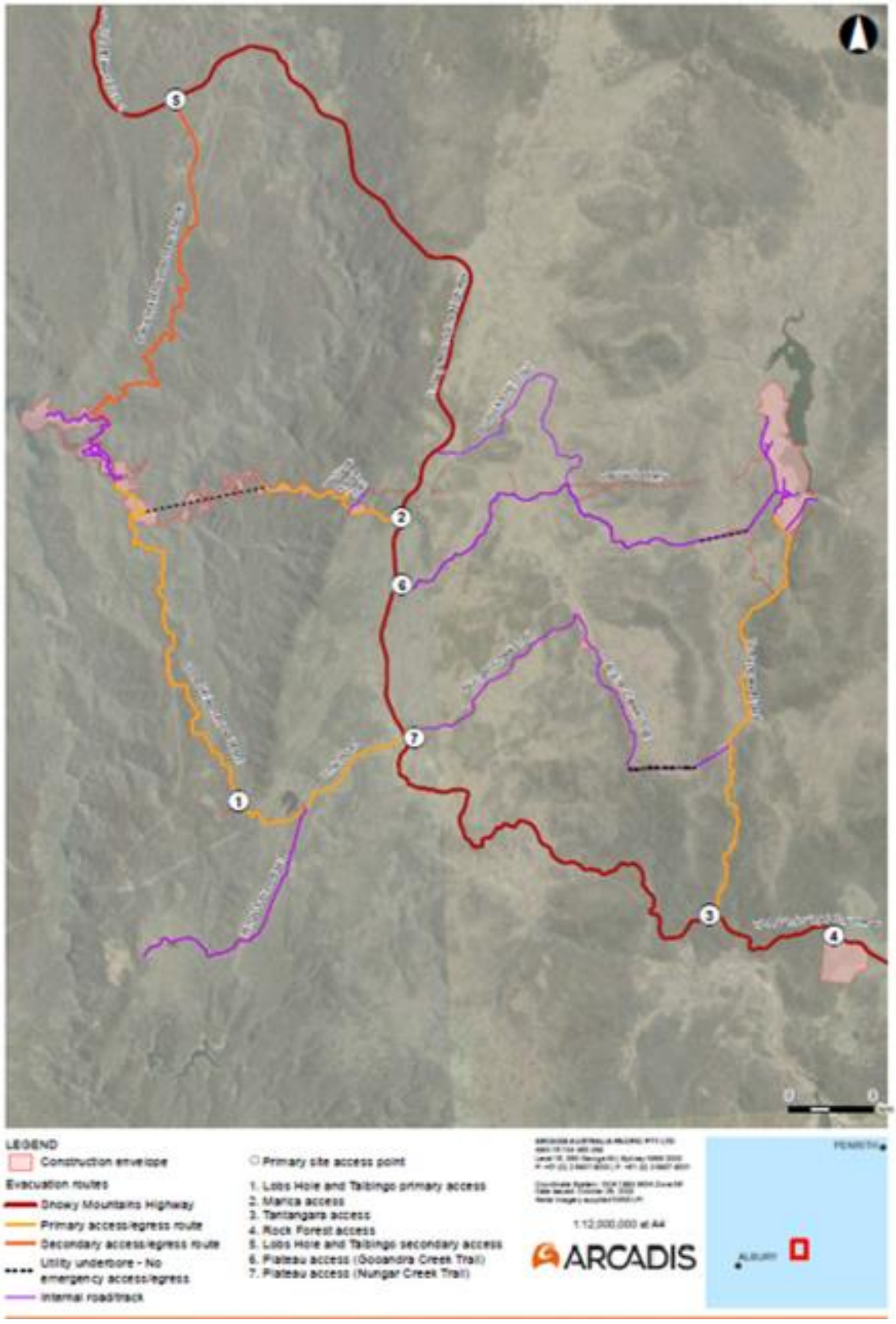


Figure 4-1. General access to project work fronts – NOT ALL APPROVED FOR EGRESS UNDER BUSHFIRE CONDITIONS

4.2 *OFFSITE PROVISION*

4.2.1 Neighbourhood Safer Place

Neighbourhood Safer Places are a place of last resort during a bush fir emergency, which may be used when all other options within a Bushfire Response Plan cannot be executed.

Neighbourhood Safer Places, identified within travel distance of the Project areas are identified in Table 4-2 and Figure 4-2.

Table 4-2 Neighbourhood Safer Place

Location	LGA	Type
Miles Franklin Park *Cnr Murray Jackson Dve & Bridle St, Talbingo*	Snowy Valleys	Open Space
1488 Bistro and Canteen *Murralin Road (centre of Town Complex), Cabramurra*	Snowy Valleys	Building
Tumbarumba Sportsground *Lauder Street, Tumbarumba*	Snowy Valleys	Open Space
Tooma Sportsground Oval Cnr Welaregang Rd & Lower Mannus Creek Rd, Tooma	Snowy Valleys	Open Space
The Big Trout Park *Off Snowy Mountains Highway, Adaminaby*	Snowy Monaro	Open Space
Multifunction Centre *Cromwell Street, Cooma*	Snowy Monaro	Building

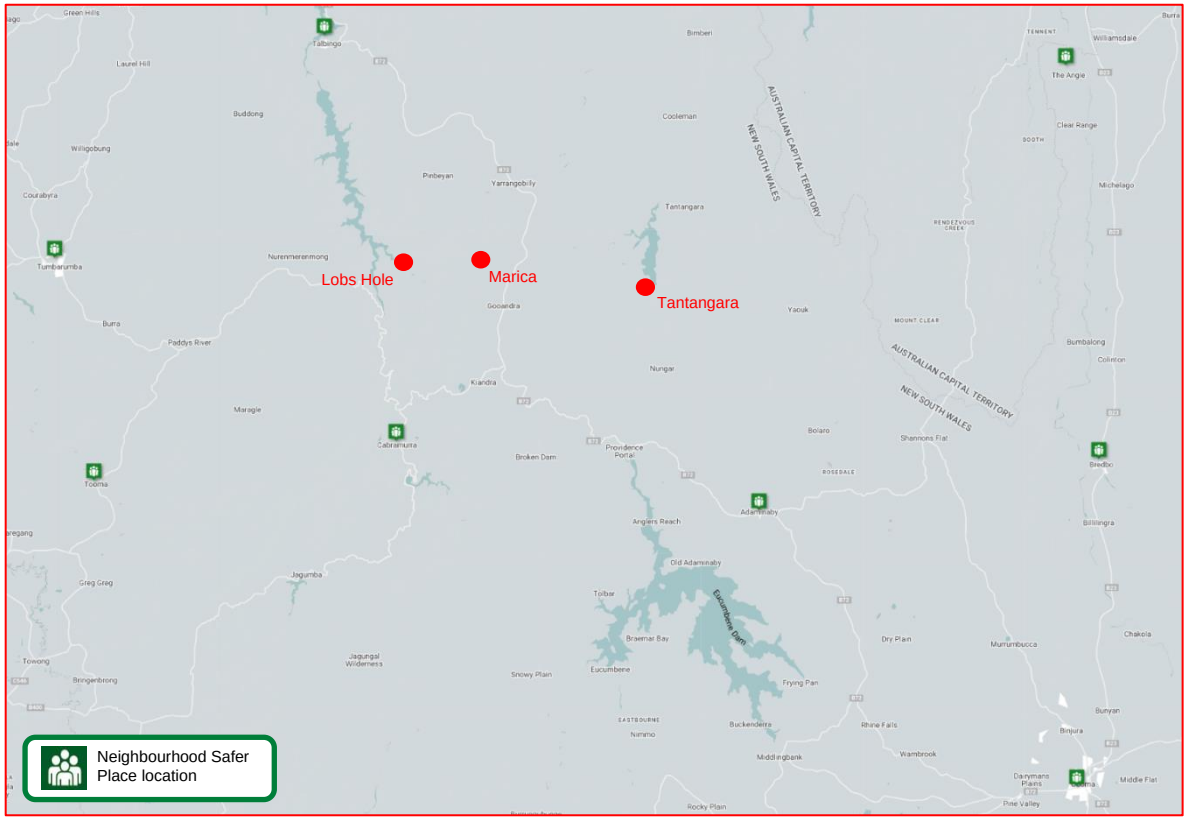


Figure 4-2. Neighbourhood Safer Place locations

4.2.2 External Firefighting Resources

The nearest fire resources are the volunteer NSW RFS brigades at Adaminaby, and Talbingo, which have been identified as having a potential response time of greater than one hour, when available. NPWS also maintains firefighting units, which are based at Tumut and Jindabyne.

The NSW RFS Adaminaby or Tumbarumba Fire and Rescue are likely to be the first responders despatched to an incident. This will be dependent on the emergency response automated system which will deploy available or closest units. There are also fire stations in Cooma and Tumut, however both are more than two hours response time away.

4.2.2.1 Emergency Contact Details

Table 4-3 presents the emergency contacts and stakeholders within the project vicinity.

Table 4-3 Emergency and Stakeholder Contact Details

Emergency Contacts IN AN EMERGENCY and FOR ALL FIRES: Dial 000 Secondary Emergency Call from Mobiles: Dial 112 DO NOT CALL 000 FOR INFORMATION OR ADVICE. CALLING 000 UNNECESSARILY MAY PUT OTHERS WHO ARE IN A GENUINE EMERGENCY SITUATION AT RISK	
All emergencies including bushfires	Dial 000
NSW RFS – current fire information	https://www.rfs.nsw.gov.au/fire-information/fires-near-me
NSW RFS Bush Fire Information Line	1800 NSW RFS (1800 679 737)
ABC Local Radio[1] ([1] Poor reception in Lobs Hole)	BC South East NSW 1602 kHz AM Monaro BC Riverina 97.9FM
STAKEHOLDERS (TO BE NOTIFIED IN THE EVENT OF A FIRE)	
Snowy Hydro Snowy Mountains Control Centre	02 6453 2777
NPWS Duty Officer After Hours Emergency	02 6450 5550
NPWS After Hours Emergency Call Centre	1800 629 104
NSW RFS Snowy Monaro Duty Officer (24 hours)	1300 722 164
NSW RFS Snowy Monaro Operations Centre	02 6455 0455
NSW RFS Riverina Highlands Duty Officer (24 hours)	02 6981 4229
NSW RFS Riverina Highlands Operations Centre	02 6981 4222
TransGrid (emergencies)	1800 027 253
OTHER INFORMATION (NON-EMERGENCY)	
NSW Police Talbingo Station (not 24 hours)	02 6949 5244
NSW Police Tumut Station (not 24 hours)	02 6947 7199
NSW Police Adaminaby (not 24 hours)	02 6454 2244
NSW Ambulance	131 233
State Emergency Service	132 500
UHF Radio Communication – UHF CB Bands	UHF Ch 12 and UHF Ch 20 – preferred RFS fireground UHF Ch 05 – Big Talbingo Mountain Emergency Repeater UHF Ch 02 – Mt Youngal UHF Transmitter

5. BUSHFIRE PREPAREDNESS AND MITIGATION

5.1 *ASSET PROTECTION ZONE(S) MAINTENANCE AND VEGETATION MANAGEMENT*

From the commencement of the works and for every bushfire season throughout the project duration, the PIC or delegate must maintain the following asset protection zones (APZ):

- A 20m radius APZ from the external wall and/or part of the Refuge Assembly Area buildings (once constructed) and occupied accommodation buildings;
- A 10m APZ around:
  - The external side of each Refuge Assembly Area perimeter Colourbond fence;
  - All diesel generators;
  - Non-accommodation buildings;

- All other site infrastructure.

A 25m radius APZ around any buildings in the vicinity of high voltage transmission lines. Buildings at these areas are to be located > 25m from the nearest transmission line due to potential electrical hazards (refer Section 6). The siting of liquid fuel and explosive storage areas will maximise the distance from bushfire prone vegetation and will not be located within a 20m radius of retained vegetation or within the nominated asset protection zones for other infrastructure as detailed above.

Fuel levels within all APZs are to be maintained in accordance with NSW RFS Standards (NSWRFS 2018, Appendix 4), within an overall fuel hazard of low to moderate range (based on Hines et al 2010). This is achieved by:

- Slashing grass to <10cm but avoiding damage to the thatch, which would result in grass death or mineral soil exposure;
- Reducing tree cover to <15% within the first 10m of any structure by:
  - Removing all lower branches up to 2m through pruning;
  - Removing all flammable shrubs and tall grasses near walls, windows and doors;
  - Reducing shrubs to <30% across the extent of the APZ.
- Removing all flammable landscaping material (such as woodchip and mulch) or fuels from within 10m of buildings.

NOTE: APZ maintenance activities are to occur within the project area only. Vegetation management/removal is prohibited in the adjacent KNP.

5.2 *BUILDING MAINTENANCE AND PREPAREDNESS*

- Once constructed, site buildings are to be well-maintained for bushfire mitigation. The following preparatory maintenance activities should be conducted, at a minimum, prior to the official start of the bushfire season (1ST October, unless declared earlier):
- Clear excessive leaf litter and debris from:
  - Roofs;
  - External decks;
- Ensuring external walls, eaves and roofs are sealed and painted and any window fly wires or screens are repaired – this will reduce the potential for ember attack;
- Ensure fire fighting equipment and asset test & tag are in date;
- Conduct testing of fire hose reels and alarm systems, where installed.

Inspections and maintenance shall be performed in accordance with the scheduled as outlined in Section 9.1.

5.3 *NEW BUILDING ESTABLISHMENT (OCCUPIED AND FUELS AND/OR EXPLOSIVE STORES)*

Construction buildings will be in accordance with the Building Code of Australia and AS3959:2018 for all occupied buildings and all structures containing flammable materials or for storing explosives.

Any above-ground building containing flammable liquids and explosive materials must be constructed to a minimum of BAL29 construction standard, AS3959:2018, to provide enhanced ember protection.

5.4 *FIRE BREAKS AND TRAILS*

The Project will ensure that all fire trails and access passageways that may be used in response to a bushfire response will not be blocked

5.5 *PERMIT TO WORK SYSTEM*

All personnel and contractors must abide by the Permit to Work (PTW) system as detailed in the Future Generation Health and Safety Management Plan (HSMP), including:

- Hot works controls.
- Other ignition prevention actions (including smoking in designated areas only (refer Annexure B).

In addition, the following measures apply for site works throughout the bushfire season:

- Bushfire preparedness measures and permissions in accordance with Section 7.
- Fire Risk Assessment and Control Measures Form (*S2-FGJV-HSA-FRM-0036*) (refer Annexure A) will be required where the FBI is 24 or greater (FBI detailed in Section 7.2.1).

5.6 *LIAISON AND PRE-SEASON INTERACTION WITH THE NPWS AND NSW RFS*

FGJV will annually, and prior to the bushfire season (which typically starts 1 October, unless brought forward by the NSW RFS Commissioner), invite the local NSW RFS Brigade and NPWS representatives onsite for site familiarisation, fire response and evacuation drill and liaison with personnel. This will include running through the procedures and operations detailed in this plan.

A copy of this plan will be provided to Snowy Hydro to provide to the relevant Bush Fire Management Committee (BFMC) and Local Emergency Management Committees.

During times where FDR is High or above, Future Generation's ERT shall monitor the situation and will remain in frequent communication to share information on project activities being undertaken and how these relate to ongoing or predicted bushfire hazards in the locality. Snowy Hydro will be kept informed of these discussions and the resulting Project consequences.

5.7 *OTHER RELATED HAZARDS*

5.7.1 Aerial Operations

During a bushfire incident, no project related aerial vehicles (e.g. drones) will be used from the first sighting or notification of a fire in the area until clearance is given by the NSW RFS and NPWS.

6. BUSHFIRE AWARENESS & RESPONSE TRAINING

6.1 *SITE INDUCTION AND TRAINING REQUIREMENTS*

The Project Manager, or delegate, with the assistance with HR and HSE Teams, is responsible for the induction of new staff members, contractors, visitors and site users. The induction is to include:

- Information about the site (refer Section 1.1);
- Bushfire awareness and preparedness requirements (refer Section 7.3);
- Response to an emergency warning being issued by fire authorities (refer Section 8.3);
- Fire reporting and response actions to a smoke sighting or fire starting (refer Section 7.1);
- Onsite and offsite emergency arrangements, including but not limited to evacuation procedures and assembly area locations (refer Section 4).

Bushfire awareness training shall be provided to all personnel through the onboarding Project Induction process with refresher information provided in advance of bushfire season to remind personnel of the response protocols.

6.1.1 Escalation Training

All personnel with responsibilities within the emergency control organisational structure or for the operation of emergency equipment must have the appropriate level of competency-based training in accordance with the FGJV Emergency Response Management Plan (ERMP) and Training Management Plan (TMP).

6.2 *FGJV ERT FIRE RESPONSE TRAINING*

All FGJV ERT personnel will be trained in basic bush/wildland firefighter training and will include the following, at a minimum:

- Following FGJV site procedures to respond to an incident.
- The use and operation of site base fire pumps.
- Fighting small to medium fires using fire appliances i.e. fire truck, fire trailers, water carts and fire hydrants.
- The use of mineral earth control line i.e. a machine cut lines or already established roads to slow or stop small to medium fire.
- Using dry firefighting techniques to conserve water usage.
- Site evacuation/refuge procedures and ERT's role during these events.

This is detailed in the Project Emergency Response and Management Plan (ERMP) (*S2-FGJV-HSA-PLN-0002*).

6.3 *FIRE DANGER COMMUNICATIONS*

6.3.1 Fire Danger Boards

Fire danger boards will be established, updated daily and will communicate the RFS Fire Danger Rating (FDR) for the day. The fire danger boards will be positioned at the discretion of the Area Construction Manager and/or PIC throughout the site to give best visibility for the workforce and will be relocated appropriate for works activities. A fire danger board will also be situated at the main access gate.

6.3.2 Staff Briefing and Toolbox Talks

The PIC shall ensure that personnel are informed of site-specific fire and emergency procedures and hot works permit requirements as part of toolbox talks given to all staff and contractors at:

- The commencement of each fire season.
- New starter induction.
- Daily during the fire season, to confirm the FBI and fire danger works preparedness code level for the current and next four days.

7. BUSHFIRE MONITORING AND ASSESSMENT

7.1 *SMOKE OR FIRE PRESENT*

Figure 7-1 breaks down the different stages of action in the event of fire or smoke. Relevant contact details are shown in Section 4.2.2.1.

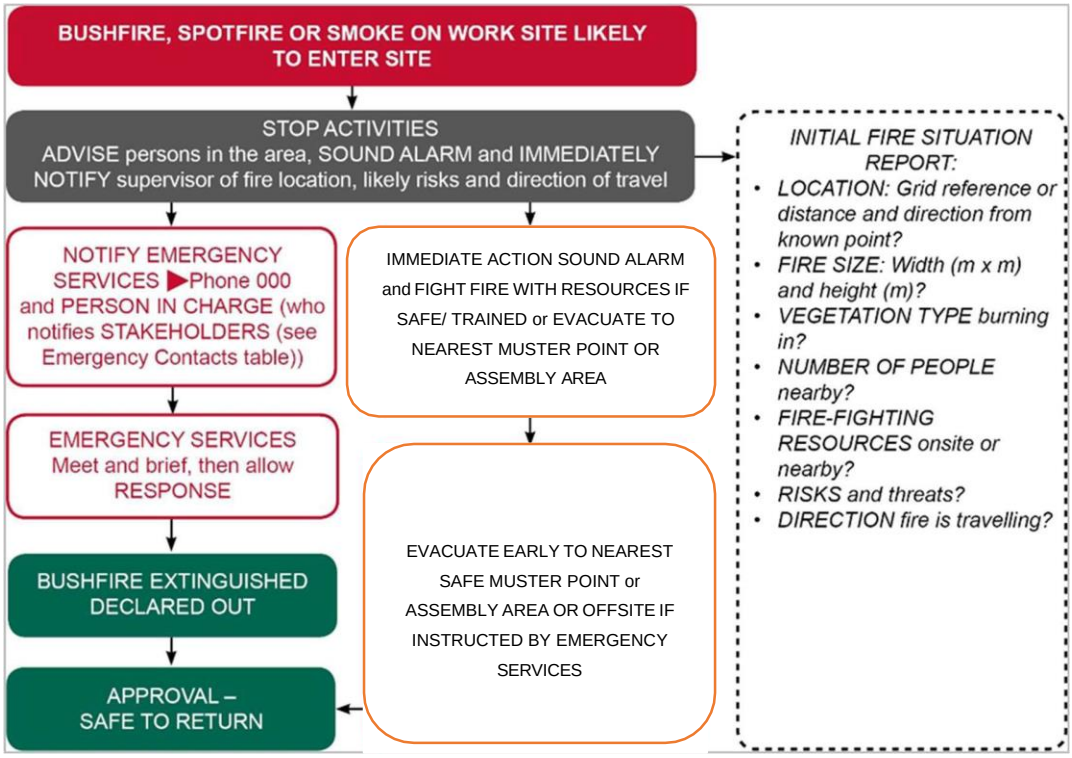


Figure 7-1. Fire reporting procedures and actions

7.2 *ASSESS FIRE DANGER AND NOTIFY PERSONNEL*

The PIC or delegate must undertake the following daily throughout the bushfire season:

- check for notice of Total Fire Ban in the relevant fire areas (refer Section 7.3.1);
- check the fire danger rating for the site at 6am each day;
- review the fire danger prior to the commencement of night shift.

- daily monitor fire danger weather warnings and change in weather conditions on the Bureau of Meteorology (BoM) website over the next four days. Take note of forecasts for:
  - Fire Danger Rating.
  - increases in wind or temperature.
  - reductions in humidity.
  - significant changes to wind direction or speed.
  - potential for lightning; and
  - fires in the area.
- determine the fire preparedness works colour code by 6am each day (refer Section 7.3);
- consider the merits of leaving early (refer Section 8.4) on days where the FBI is or is predicted to be greater than 50 (for night shift following these days, refer Section 7.2.3).
- notify personnel of relevant weather forecasts and direct the implementation of the applicable fire preparedness works colour code actions;
- consistently monitor the fire danger levels and weather forecast on adverse bush fire weather days throughout the day;
- consistently monitor the following media for fire warnings and bushfire emergency alerts:
  - ABC local radio (ABC Southeast NSW 1602 kHz AM Monaro, ABC Riverina 97.9FM or 89.9FM in the Ravine) – note there is poor reception in Lobs Hole.
  - NSW RFS website and/or Fires Near Me App.
- notify personnel of any official emergency alert issued for the site (as required); and
- direct initiation of response actions when an emergency warning is issued (refer Section 8).

7.2.1 Accessing Fire Danger Information

The primary fire danger indicator to be employed on the project site is the Forest Behaviour Index (FBI).

The Fire Danger Rating (FDR) is considered a secondary fire danger indicator for the project site because the conditions on site can vary significantly from the surrounding Fire Areas due to altitude variations and other localised climatic effects on the project site. At other times, the localised FBI could be higher than the surrounding Fire Areas.

The forecast FBI and FDR for the next four days should be reviewed for planning purposes, and is available from: http://www.bom.gov.au/nsw/forecasts/fire-danger-ratings.shtml.

Works in the vicinity of Lobs Hole, Talbingo and Marica are located within the Southern Slopes Fire Area. Works in the vicinity of Tantangara Reservoir Plateau and Rock Forest are located within the Monaro Alpine Fire Area.

FBI and FDR are reported for regions across the state. Section 7.2.1 details how to obtain more refined FBI information for the closest weather station.

7.2.1.1 Fire Behaviour Index

The current FBI from the closest weather station can be obtained via the Fire Weather Observation Bulletin (Product code: IDZ20081) (fireweatherbulletins.pdf (bom.gov.au)) is a subscription-based service which provides text-based data of the current FBI and maximum FBI observed for the subject day, updated every ten minutes for all weather stations in NSW. The nearest weather station to the project sites is Cabramurra. This is the preferred data source for FBI, however it is noted that the Lobs Hole area may experience slightly higher FBI than Cabramurra, due to the difference in elevation. The PIC can obtain the necessary subscription from BOM Real-time Data Services at http://reg.bom.gov.au/reguser/reguser.shtml.

7.2.2 Determining Fire Preparedness Works Code

The fire preparedness code is determined by cross-referencing the FBI and Total Fire Ban declaration (if in force) in Figure 1-1.

The forecast FDR over the next four days should be considered as detailed in Section 7.2.1.1. Additional forecast weather conditions over the following three days should also be considered. Where significant increases in wind and/or temperature or decreases in humidity are forecast, the fire danger is likely to increase. Significant increases in fire danger for coming days should be considered for any works with ignition potential or where personnel will be working in remote and hazardous areas.

7.2.3 Night Shift Considerations

If the decision to cease work has been taken for the day shift due to bushfire concern, then night shift can only commence if:

- the FBI has dropped below 50.
- there is no TOBAN in place.
- the Fire Risk Assessment and Control Measures Form (*S2-FGJV-HSA-FRM-0036*) has been completed by the Superintendent or the Construction Manager; and
- relevant management measures will be implemented for the proposed shift activities.

However, if an evacuation has been ordered, night shift personnel must be woken and included in the evacuation process.

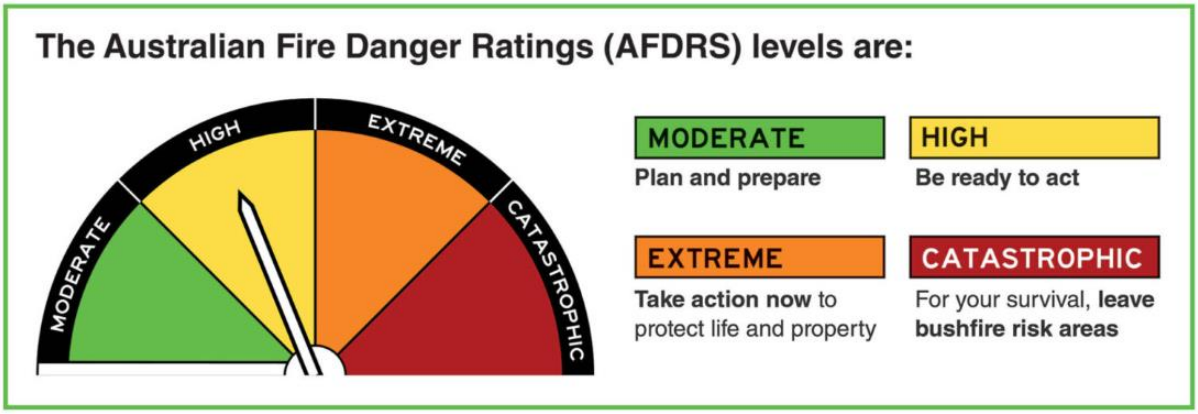
No shifts may resume work under an evacuation order. Works may resume only once release for return to site is provided through consultation with the ICT, PIC and the RFS.

Where disruption has occurred to workers sleep, full consideration shall be given to fatigue management to ensure adequate rest has been obtained prior to resumption of work.

7.3 *BUSHFIRE PREPAREDNESS (CODE GREEN, YELLOW, ORANGE, RED)*

The Australian Fire Danger Rating System was developed using the latest science to be more accurate and relevant.

Figure 7-1 details the bushfire preparedness requirements for all project works within the bushfire danger period. Where Total Fire Ban (TOBAN) has been declared, refer to Section 7.3.1.



Fire Danger	MODERATE	HIGH	EXTREME	CATASTROPHIC
Key Message	**Plan and Prepare**	**Be ready to act**	**Take action now** to protect your life and property	For your survival, **leave bushfire risk area(s)**
Fire Behaviour	Most fires can be controlled	Fire can be dangerous	Fires will spread quickly and be extremely dangerous	If a fire starts and takes hold, lives are likely to be lost.
Supporting Messages	• Stay up to date and be ready to act if there is a fire	• There's a heightened risk. Be alert for fires in your area. • Decide what you will do if a fire starts • If a fire starts, your life and property may be at risk. The safest option is to avoid bushfire risk areas.	• These are dangerous fire conditions. • Check your bushfire plan and ensure that you property is fire ready. • If a fire starts, take immediate action. If you and your property are not prepared to the highest level, go to a safer location well before the fire impacts. • Reconsider travel through bushfire risk areas.	• These are the most dangerous conditions for a fire. • Your life may depend on the decisions you make, even before there is a fire. • Stay safe by going to a safer location early in the morning or the night before. • Homes cannot withstand fires in these conditions. You may not be able to leave, and help may not be available.
Monitor conditions and official sources for warnings. Adhere to local regulations governing fire activity. Ensure any industrial or agricultural activities adhere to relevant industry guidelines. If a fire starts near you, take action immediately to protect your life. Do not wait for a warning.				

Figure 7-2. AFDRS Levels and preparation guidance

Daily fire danger rating may be checked via the RFS website, in the Fires Near Me NSW smartphone app, daily prestarts or on-site fire danger boards.

Fire danger ratings are used on days when there is a risk of fires and you may need to take action. The higher the fire danger, the more dangerous the conditions and the greater the potential consequences if a fire starts.

If you are in an area near bush or grasslands, you are in a bush fire risk area. Identify a safer location. A safer location may include an area well away from bushland. If you are in a remote area, consider going to a built up area that may offer safety.

7.3.1 Total Fire Ban (CODE BLACK)

When NSW RFS has declared a TOBAN in the Project's Fire Areas[1], the fire preparedness requirements detailed in Table 7-1 below override those in Figure 7-2.

Table 7-1. Total Fire Ban preparedness requirements

Total Fire Ban	Works Fire Preparedness Code	Fire Preparedness Requirements
TOTAL FIRE BAN (TOBAN)*	CODE BLACK	In the event that a TOBAN is declared by NSW RFS the following preparedness requirements override the provisions detailed in Figure 7-1. The PIC must ensure: • The Code preparedness requirements from Figure 7-2 will apply based on the forecast/current FFDI for the site. • Haulage and other vehicle usage can occur on formed tracks and access roads only • Code Black work limitations override those prescribed in Figure 7-2 Code Black work limitations: • All Hot Works* and Fire Risk Works* may be undertaken following notice and approval by the nearest F+R NSW fire station and nearest NSW RFS District office, and in accordance with the Total Fire Ban exemption conditions provided in Annexure C and in Table *7-2*. • TOBAN rules will be added to prestart sheets and obtained off the NSW RFS Website: https://www.rfs.nsw.gov.au/fire-information/fdr-and-tobans/total-fire-ban-rules
* refer to Abbreviation and Definitions at start of this document		

7.3.1.1 TOBAN Rules Exemptions

A TOBAN means no fires out in the open. A Total Fire Ban helps limit the potential of fires developing. During a Total Fire Ban you cannot light, maintain or use a fire in the open, or to carry out any activity in the open that causes, or is likely to cause, a fire.

For the purposes of this project the "outdoors" are defined in the definition section of this plan.

General purpose Hot Works (such as welding, grinding or gas cutting or any activity that produces a spark or flame) and Fire Risk Works may be undertaken in the outdoors during TOBAN (refer Table 7-1) following notice and approval by the nearest F+R NSW fire station and nearest NSW RFS District office[2], and in accordance with the TOBAN exemption permit (refer Annexure C).

Additionally, the nearest F+R NSW fire station and nearest NSW RFS District office is required to be notified immediately upon ceasing all Hot Works activities on any and all TOBAN days.

[1] Works in the vicinity of Lobs Hole and Marica are located within the Southern Slopes Fire Area (Area 16). Works in the vicinity of Tantangara Reservoir are located within the Monaro Alpine Fire Area (Area 7).

[2] Hot Works at Talbingo, Lobs Hole, Marica work fronts would seek approval from the Snowy Valleys NSW RFS district office, where as the Plateau, Tantangara and Rock Forest work fronts would seek approval from the Snowy Monaro NSW RFS district office.

Conditions and mitigation control measures for the TOBAN exemptions provided by NSW RFS are provided in Table 7-2.

Table 7-2. TOBAN exemption conditions

Mitigation Control Measures	
Adequate firefighting equipment immediately accessible	Adequate firefighting equipment must be immediately available to prevent the escape of any fire, spark or incandescent material from the site of the exempted work/event.
Discussion of proposed work/event **with NSW RFS**	Prior to undertaking and immediately upon ceasing all Hot Works activities on any and all days of a Total Fire Ban the activities must be notified to the **local NSW RFS Zone/District Manager** or the **Officer in Charge of the nearest Fire and Rescue NSW Fire Station**, as additional conditions may be imposed, which may include a direction that the event be postponed.
Supplementary Conditions	
Provision of minimum 9 litre dry chemical fire extinguisher (tested, tagged and in date), fire blanket and minimum 10 litre water container which is readily accessible and located within reach (within 5 metres) of the all appliances being used, areas of work and any areas of preparation for the approved activity.	
Staff training and supervision in the use of this firefighting equipment.	
A spark arrestor to be fitted onto the outlet of any flues and air inlets of equipment being used.	
All combustible materials must be removed for a distance of not less than 15 metres in all directions from the cooking appliance whilst in operation.	
All fuels must be completely extinguished and allowed to sufficiently cool prior to being disposed of in a safe manner.	
The area is checked (including rubbish receptacles, bins, etc.) at the completion of the activity to ensure no heated, smouldering or burning material remains.	
On days where the Fire Danger Rating is predicted to be Extreme or Catastrophic, in consultation with the NSW RFS and or Fire + Rescue NSW, request may be made for all hot works activities (including cooking and baking) to be suspended. *	
Access to a reticulated water supply and provision of an operating fire hose and or hoses that will provide coverage to the entire site when the activities are being undertaken.	
Areas are to be clear of all combustible materials for a minimum of **10 meters** in all directions from the site.	
Strict supervision of all activities to be undertaken for entire duration of works.	
A fire spotter in place before, during and minimum **30 minutes after activities**.	
The area is checked post activities to ensure no heated, smouldering or burning material remains.	
A copy of the TOBAN Exemption Approval is to be available for display to an authorised person (e.g. representative of a fire agency, police force, etc.) when requested.	
On days of Catastrophic Fire Weather all hot works (Services & Utilities - Construction, Essential Repairs or Maintenance) with an open flame are suspended.	
*In response to agency feedback, FGJV will consult with the NSW and Fire + Rescue NSW	

7.3.1.2 TOBAN Standard Exemptions

A range of other activities may be exempt from Total Fire Bans, such as emergency infrastructure work, use of fireworks or ceremonial fires. The NSW RFS Commissioner is responsible for exemptions to Total Fire Bans, which are advertised in the NSW Government Gazette (https://legislation.nsw.gov.au/#/gazettes) each time a Total Fire Ban is declared. Each declaration can be unique and so the gazette **must be reviewed for the relevant exemptions**, to ensure ongoing compliance with fire management directivesSnowy 2.0 Total Fire Ban Hot Work Exemption

Exemption from Total Fire Ban (TOBAN) orders was requested by Future Generation on 08 September 2021 for “Hot works related to Critical State Infrastructure Construction” at Kosciuszko National Park. Pursuant to section 99(4) of the Rural Fires Act 1997 (NSW), the NSW RFS granted the exemption (30 September 2021) for the period 01 October 2021 to 31 March 2022.

NSW RFS further indicated that under the Government Gazette Exemption Schedules, the proposed works may continue without the additional requirement of continually seeking further TOBAN exemptions under section 99 (4) as the works appear covered under schedule 6 of the NSW Government Gazette. The NSW RFS has acknowledged Future Generation’s intent to continue operating under this exemption until notified in writing otherwise, subject to the associated conditions.

The NSW RFS FDR and Total Fire Ban (TOBAN) declarations can be found at the following link:

- https://www.rfs.nsw.gov.au/fire-information/fdr-and-tobans

8. BUSHFIRE EMERGENCY RESPONSE

8.1 *FIRE AND INCIDENT EMERGENCY CONTROLLER (IC)*

In the event of an emergency, the PIC will function initially as the Incident Controller (IC), until replaced by ERT Captain onsite who will take charge of the response until the responding external fire authority IC. The replacement will occur on the arrival of the external fire authority IC and following a handover briefing.

The IC shall ensure the necessary parties are notified of an existing bushfire as necessary (refer Section 4.2.2.1). The PIC shall carefully consider, and act upon, information obtained from the current Fire Danger Rating, Emergency Alert status (refer Figure 8-1) and advice from the NSW RFS to guide decisions made on the protection or personnel and assets under bushfire conditions.

In the event of ignition on site the IC shall delegate responsibility to the ERT Captain and his trained personnel to provide a rapid response first attack (refer Section 8.2) if safe to do so.

8.2 *FIRE FIGHTING FIRST RESPONSE*

The Project has Permanent and Volunteer Trained Emergency Response Teams members.

Water trucks onsite are fitted with water cannons for fighting fires, and hydrants within proximity to buildings onsite.

Site personnel are not employed as firefighters and are not expected to combat bushfires on the site. However, in accordance with Section 6, relevant personnel will be provided with Bushfire Awareness Training and will be instructed on the safe and effective operation of the fire safety equipment (refer Section 4.1.5). In the event of a fire ignition on site, these trained personnel will be capable of providing a rapid response to extinguish minor fires and to prevent escalation to bushfire. Personnel should only carry out this work if safe to do so and report any incidents immediately.

8.2.1 Firefighting Near Powerlines

Follow the following steps when firefighting under powerlines:

- Non-ERT personnel with training in relation to fighting fires in proximity to powerlines are not to approach and attempt to extinguish a fire.
- At all times treat the powerline as live until clearance has been given by powerline company personnel onsite.
- At all times keep personnel and vehicles at a minimum of 25m clear of a fire burning under or within 25m of the powerlines.

8.3 *EMERGENCY ALERT ISSUED*

The PIC should oversee the steps detailed in Figure 8-1 in the event of:

- A formal bushfire emergency alert being issued by the NSW Rural Fire Service.

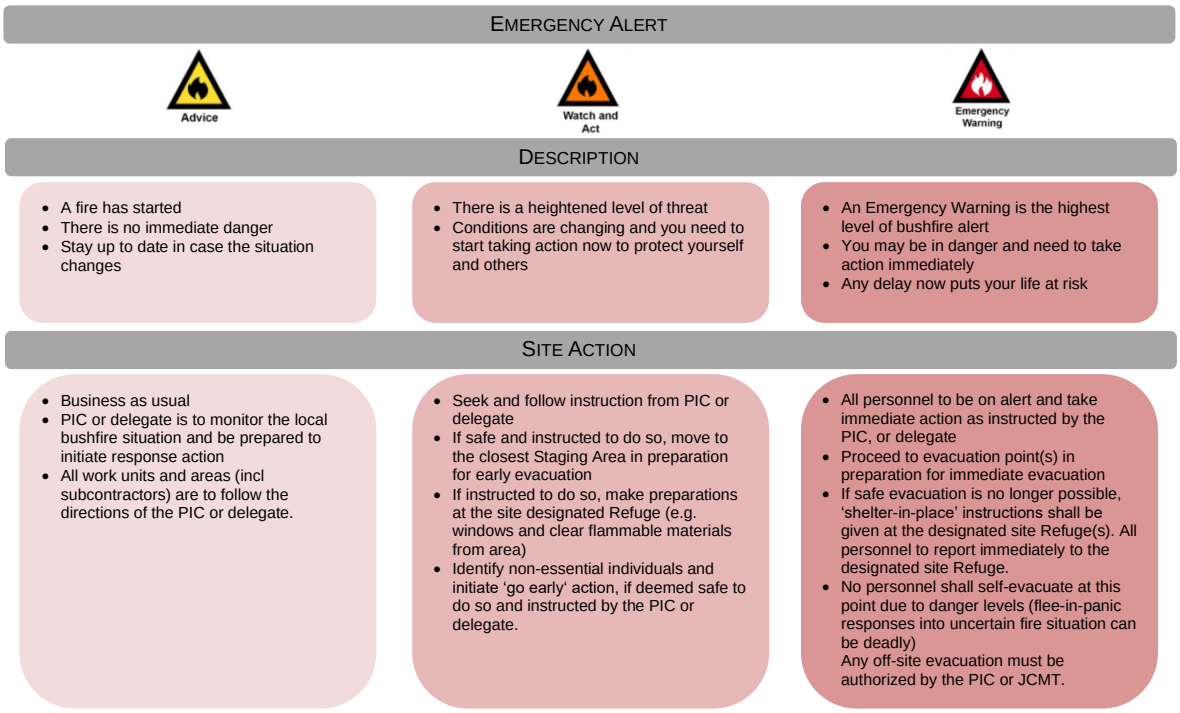


Figure 8-1. Emergency alert response actions

8.4 *MANAGED EVACUATION*

In the event of an instruction from the NSW RFS or a decision from the PIC (or their delegate), a managed evacuation in consultation with the relevant Emergency Services Agency shall be initiated.

It is important that personnel do not self-evacuate without careful communication with the management team to ensure that they are accounted for and their whereabouts known.

Options for offsite evacuation include but are not limited to:

- the primary evacuation location of Cooma or Tumut to enable coordinated transport of personnel to their Point of Hire;
- a Neighbourhood Safer Place for the work front being evacuated (refer Section 4.2.1);
- another low fire risk area; or
- an evacuation centre (if activated).

The detailed procedures for managed evacuations will be addressed in the respective CMG (refer Annexure E) and site-specific Bushfire Response Protocols.

8.4.1 Site Map and Evacuation Routes

Table ***8-1*** details assembly and evacuation instructions and site maps for the project work areas. Evacuation offsite will only be conducted under instruction from the PIC or Emergency Services. Site maps are shown on the following pages.

Table 8-1. Work area maps and evacuation instructions

Works Location	Assembly and evacuation instructions
Lobs Hole and MAT Portal	Personnel in this area will muster and fall back to the Lobs Hole and Ravine Assembly Areas. If required, evacuation from these areas will follow the route shown on Figure 8-2 as directed by the PIC.
Lobs Hole and Talbingo South	Personnel in this area will muster and fall back to the Lobs Hole and Ravine Assembly Areas. If required, evacuation from these areas will follow the route shown on Figure 8-2 as directed by the PIC.
Lobs Hole Ravine Road evacuation route	The general evacuation route will head south from the Assembly Areas along Lobs Hole Ravine Road to Link Road. If required, evacuation from this area will follow the route shown on Figure 8-2 as directed by the PIC.
Marica evacuation route	Personnel in this area will muster in the works area and fall back to the Marica Assembly area. If required, evacuation from this area will follow the route shown on Figure 8-2 as directed by the PIC.
Tantangara evacuation route	Personnel in this area will muster in the works area and fall back to the Tantangara Assembly area. If required, evacuation from this area will follow the route shown on Figure 8-2 as directed by the PIC.
Plateau evacuation route	Personnel in this area will muster in the works area and then proceed collectively to the nearest evacuation destination (Adaminaby) unless directed elsewhere by PIC.
Rock Forest evacuation route	Personnel in this area will muster in the works area and then proceed collectively to the nearest evacuation destination (Adaminaby) unless directed elsewhere by PIC.

8.4.2 Leaving Early

Early evacuation is always the safest option above FBI 50 – Works Code Red - Catastrophic fire danger days. Leaving early may mean staff stay offsite or schedule works earlier and that only critical personnel[3] attend the works area (no contractors or visitors).

The PIC or their delegate may direct onsite personnel to leave early and/or reschedule works under, and not necessarily limited to, the following conditions:

- Above FBI 50 – Works Code Red Extreme or Catastrophic FDR is forecast by the BoM for the Southern Slopes Fire Area and/or Monaro Alpine Fire Area.
- staff are not physically or mentally prepared and not able to stay and shelter in place, if required.
- dry lightning storms coupled with hot weather is forecast.
- remote work areas are not defendable from bush or grassfire under the conditions forecast.
- National Parks and Wildlife Service or an emergency services authority recommends vacating the area.

All personnel are to accounted for so all personnel are responsible for ensuring that the PIC and personnel involved in coordinating an evacuation event are aware that they have departed site. The security gatehouses shall be involved in monitoring individuals / groups departing site and communicating this to the PIC.

Personnel leaving early must scan out so their departure can be verified through the digital system.

[3] The Area Construction Manager / PIC is responsible for determining which personnel would be deemed “critical personnel” based on the activities being carried out in relation to the potential bush fire risk.

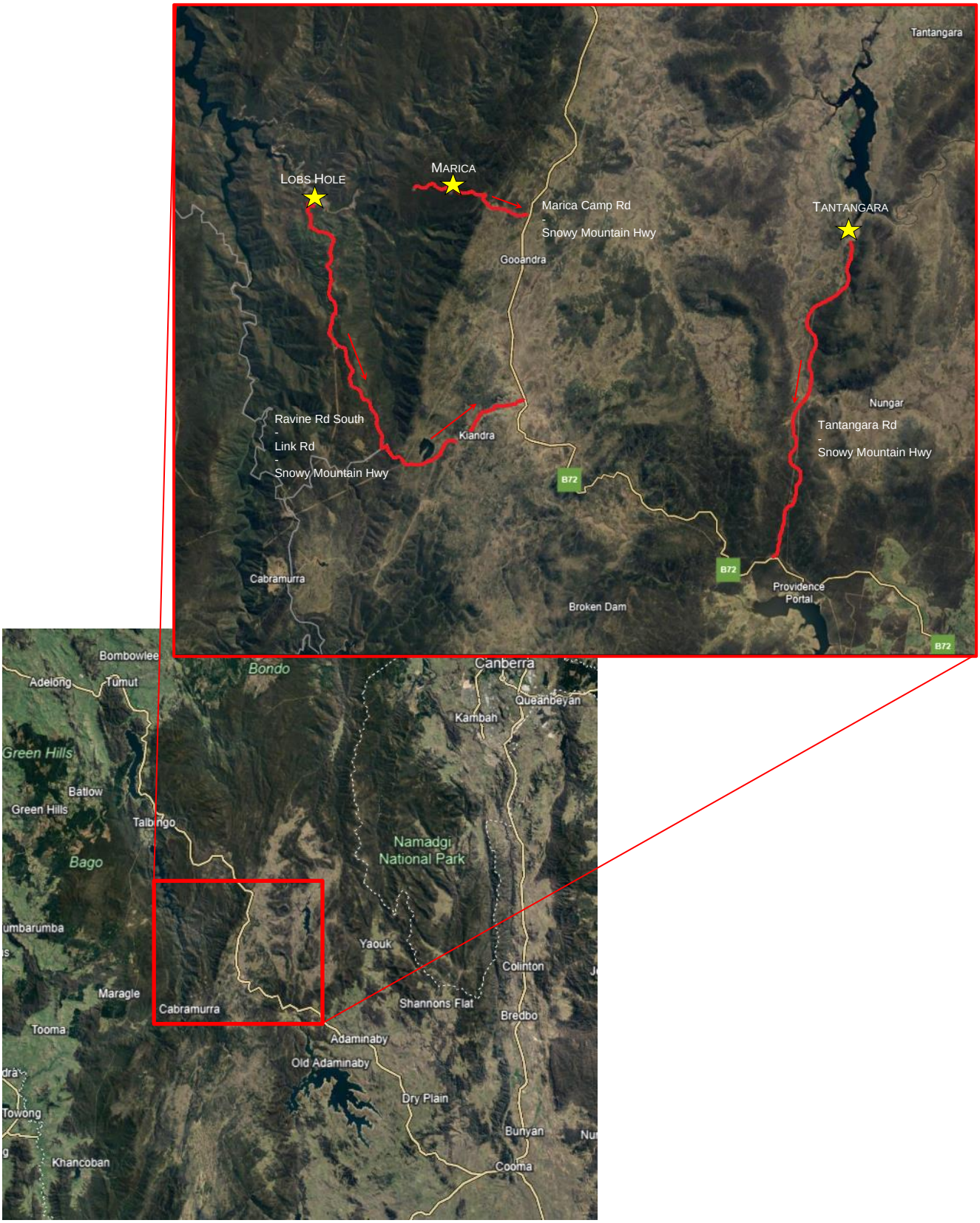


Figure 8-2. Evacuation routes – overview

8.5 *TAKING REFUGE ON SITE*

In accordance with FGJV policy of prudent action, the bulk or all of the workforce would be evacuated well in advance of any known bushfire threat. However, in preparation for situations of imminent threat, assembly areas will also function as a site of safer refuge for workers if it is determined too late to safely evacuate from site.

The decision to stay and defend at a site must not be taken without careful planning. A specific incident action plan and a back-up plan that carefully considers all the local risk factors associated with a bushfire in the vicinity of each Refuge Assembly Area shall be prepared using the FGJV format (refer Annex D). The incident action plan should also consider the impact an evacuation, which may increase congestion on the Snowy Mountain Highway, would have on the egress capabilities for the surrounding community.

The Refuge Assembly Areas should be prepared for direct flames, radiant heat and ember attack from bushfire and mitigation actions identified in Section 5 shall be verified as in place and effective prior to each fire season.

9. COMPLIANCE MANAGEMENT

9.1 *MONITORING AND INSPECTION*

The relevant Project Manager, or delegate, shall ensure the activities outlined in Table 9-1 are conducted in preparation for and throughout bushfire season.

Table 9-1. Monitoring and Preparation Requirements

MONITORING / INSPECTION ACTIVITY	RESPONSIBLE	FREQUENCY	RECORD
Confirm that FBI monitoring procedures are in place	Project Manager	Prior to bushfire season	S2-FGJV-HSA-FRM-0036
Confirm that refresher toolbox talks have been delivered to work crews	HSE Manager	Prior to bushfire season or within 2 weeks of advisement of advanced bushfire season	Prestart / Toolbox talk
Assess the APZs to ensure compliance with the requirements detailed in Section 5.1.	Project Manager	Prior to bushfire season and monthly throughout the designated bushfire season	S2-FGJV-HSA-FRM-0036
Drills & exercises	HSE Manager	As per Activity Schedule	S2-FGJV-HSA-FRM-0025
Monitor TOBAN status	ERT Captain	Daily	Visual
Monitor Fire Danger status and weather warnings	ERT Captain / HSE Manager	Daily	Visual

ANNEX A. FIRE RISK ASSESSMENT AND CONTROL MEASURES FORM

FIRE RISK ASSESSMENT & CONTROL MEASURES FORM

Future Generation
Webuild • Clough • Lane

A. DETAILS OF ACTIVITY (*undertaken for fire risk work or hot work in a hazardous area*)			
Location:		**Date:**	**Time:**
Description of Work:			

B. RISK ASSESSMENT (*check appropriate answer*)		
Declared Bushfire Danger Rating: Moderate / High / Extreme / Catastrophic (https://www.rfs.nsw.gov.au/fire-information/fdr-and-toban or call the NSW RFS phone.: **1800 679 737**)		
Has a Total Fire Ban been declared? If Yes, TOBAN rules and exemption rules apply (for exemptions see TOBAN notice and permit – if obtained)	☐ Yes (next)	☐ No (Go to Section C)
Fire Risk Work activity proposed in a hazardous area? Includes Mulching / Slashing / Chainsaw Operations / Chipping / Mowing / Brush Cutting / Track Grading / Rock-Breaking / Drilling / Blasting / Geophysical Investigations (circle activity) Note: This requires approval from the Project Director (or Designate) and Project HSSE Manager (or Designate)	☐ Yes (next)	☐ No (Go to Section C)
Confirmed approval by Project Director (or Designate) and Project HSSE Manager (or Designate)	☐ Yes	☐ No (attach approval)

C. CONTROL MEASURES (*confirm the control measures are implemented*)

FIRE RISK WORK CONTROLS AND PRECAUTIONS (Check ☑ to indicate the control has been implemented)

Nominated Controls	Y	NA	Fire Fighting Requirements	Y	NA
Machinery free from combustible debris	☐	☐	9kg dry chemical extinguisher OR	☐	☐
Plant & equipment serviced and checked	☐	☐	9kg water extinguisher OR	☐	☐
Combustible materials removed from work area	☐	☐	15L Knapsack	☐	☐
Clear refueling area set up	☐	☐	Hand tools i.e. Rake-hoe & shovel	☐	☐
Equipment fitted with spark arrestor	☐	☐	Fire Trailer	☐	☐
• Avoid driving vehicles off formed tracks • Available exit routes have been identified & all staff are aware of their location and muster location • Do not place or park hot equipment on combustible surfaces / materials • Monitor equipment that may cause sparks • Monitor weather conditions (Section E)	☐	☐	• Firefighting equipment laid out ready for use (including hoses & pumps etc. With enough water • Staff trained & competent to use fire equipment	☐ ☐	☐ ☐
Trained and Competent Fire Watch Observer Nominated • Must be alert for any fire outbreak & immediately stop work & notify Supervisor if hazardous conditions are observed • Ready to combat outbreak of fire if safe to do so • Don't leave site unless the Supervisor approves a suitable replacement • Keep work inside designated area				☐	☐
Fire Watch – Inspect site before, during, at end of work & for 60 minutes after shutdown				☐	☐

Other Controls:

D. HSE ADVISOR VERIFY RISK ASSESSMENT & CONTROL MEASURES (*before work commences*)		
Proposed work has been assessed for Fire Risk. I confirm the work can proceed with control measures implemented		
Time:	**Print Full Name:**	**Signature:**

E. SUPERVISOR VALIDATION OF CONTROL MEASURES DURING THE WORK		
Control Measures must be revalidated **AT LEAST ONCE** per day & must be re-assessed if conditions change significantly during the day or new work activity undertaken		
The above control measures have been validated & any changes to requirements implemented.		
Time:	**Print Full Name:**	**Signature:**
Time:	**Print Full Name:**	**Signature:**

F. FINAL FIRE CHECK AT COMPLETION OF WORK		
A final fire check must be performed & signed off at the completion of any Fire Risk Works following designated monitoring period		
FIRE WATCH OBSERVER STATEMENT - Final fire check has been completed & there is no risk of ignition		
Time:	**Print Full Name:**	**Signature:**

ANNEX B. EXEMPTION FOR SMOKING AREAS (NPWS)

NSW GOVERNMENT

Ref: DOC20/837434-1

Mr Antonio Betti
Project Director & Contractor's Representative
Future Generation JV
l.coetzee@futuregenerationjv.com.au

Re: Exemption for Snowy 2.0 Project from Smoking Prohibition in NSW National Parks under Clause 18 of NPW Regulation

Dear Antonio

I refer to your letter dated 12 October 2020 requesting an exemption from the smoking prohibition in national parks for the Main Works construction phase of the Snowy 2.0 Project. Please note this is regulated under Clause 18 of the *National Parks and Wildlife Regulation 2009* (NPW Regulation).

I appreciate the nature of the Snowy 2.0 Project and understand the requirement for an exemption. This letter constitutes a temporary exemption under clause 18A(3)(b) of the NPW Regulation for the Snowy 2.0 approved Main Works construction period, at the following designated smoking areas within Kosciuszko National Park:

- Lobs Hole (accommodation camps and works site areas at Lobs Hole)
- Tantangara (accommodation camps and works site areas at Tantangara)
- Marica Trail (accommodation camps and works site areas at Marica)

This exemption is conditional on the facilities noted in your letter continuing to be in place – designated smoking areas clearly identified with signage, waste facilities for butts, hard standing areas, fire extinguishers and sand buckets.

As you note this exemption, or any other exemption identified in the NPW Regulation does not over-ride the *Smoke-Free Environment Act 2000* and I recommend you confirm your responsibilities under that Act with the relevant authority at any time if required.

I look forward to hearing about initiatives developed by FGJV during the Snowy 2.0 Project to assist workers to stop smoking.

If you have any questions regarding this exemption, please contact Glenn Stroud, Senior Project Officer Snowy 2.0, National Parks and Wildlife Service, on 0428 427 553.

Yours sincerely

NICOLE SHOTTER
Manager, NPWS Snowy 2.0 Team
National Parks and Wildlife Service

Date: 26 October 2020

PO Box 2228 Jindabyne NSW 2627
Kosciuszko Road Jindabyne
Tel: 1300 072 757
ABN 20 770 707 468
www.nationalparks.nsw.gov.au

ANNEX C. NSW RFS TOTAL FIRE BAN EXEMPTION NOTICE

NSW GOVERNMENT

NSW RURAL FIRE SERVICE

Future Generation Joint Venture
ATTN: Massimo Franceschi
220-226 Sharp Street COOMA NSW 2630

m.franceschi@futuregenerationjv.com.au

Your reference:
Our reference: 21-22-00026

30/09/2021

Dear Massimo Franceschi,

TOTAL FIRE BAN APPLICATION - 21-22-00026

Thank you for your Total Fire Ban Exemption application.

As you may be aware, following consultation and feedback, the standing Government Gazette Exemption Schedules were revised late 2017 and promulgated in February 2018. The changes will allow some businesses and event organisers to meet the requirements of a TOBAN day without the additional requirement of continually seeking a further TOBAN Exemption under Section 99 (4) of the Rural Fires Act.

With respect to your TOBAN application, your application Hot works activities related to critical infratsture and maintenance of plant and materials, including cutting, grinding and use of naked flame. activity works appear to be covered under schedule **6-Services and utilities—construction, essential repairs or maintenance** of the NSW Government Gazette. Upon review from the relevant stakeholders, these works activities may proceed as long as the conditions within the relevant Schedule (please see below) are met, as well as additional agency conditions, and the local NSW Rural Fire Service District Office or nearest Fire + Rescue Station are notified.

Unless you notify us in writing otherwise, the NSW Rural Fire Service acknoledges your intent to operate under the aforementioned scheduled exemption as follows:

Applicant Name:	**Future Generation Joint Venture**
Event Description:	Hot works activities related to critical infratsture and maintenance of plant and materials, including cutting, grinding and use of naked flame.
Type of Works:	Hot works activities including cutting, grinding and use of naked flame for construction, essential maintenance & capital activities
Location/s of work:	Snowy 2.0 project - Kosciuszko National Park - Snowy Valleys and Snowy Monaro LGAs
Period:	From 1/10/2021 to 31/03/2022

The conditions on which your activity may proceed without further application are as follows:

GAZETTE CONDITIONS
Provided that:

(a) the fire is lit, maintained or used in a manner which will prevent the escape of the fire, and

Postal address
NSW Rural Fire Service
Locked Bag 17
GRANVILLE NSW 2142

Street address
NSW Rural Fire Service
4 Murray Rose Ave
SYDNEY OLYMPIC PARK NSW 2127

T (02) 8741 5555
F (02) 8741 5550
www.rfs.nsw.gov.au

(b) adequate firefighting equipment is provided at the site of the fire to prevent the escape or spread of the fire, and

(c) In the case of construction, the provider of the utility or transport service has:

(i) if the land where the construction works is to be undertaken within a rural fire district— notified the NSW Rural Fire Service Fire Control Centre for that district, or

(ii) if the land where the construction works is to be undertaken is within a fire district— notified the officer in charge of the nearest Fire and Rescue NSW fire station.

(2) The provider of the utility or transport service must comply with any direction or additional condition which may be imposed by the NSW Rural Fire Service or Fire and Rescue NSW, which may include

a direction that a fire not be lit.

(3)In this clause:

utility or transport service means a sewerage, drainage, water, gas, electricity, telephone service or the operation of a road or railway.

Fire + Rescue NSW & NSW Rural Fire Service Additional Conditions

1). On days of Catastrophic Fire Weather all work with an open flame is suspended.

2). In areas where work with a naked flame is undertaken in close proximity to vegetation (within 15m) a spotter is used to operate a suitable extinguisher and monitor the area for potential fire escape while the work is carried out.

3). The area is checked post work to ensure no burning/smouldering material has been left.

Please also note the requirement to notify the nearest NSW Rural Fire Service office and/or Fire + Rescue NSW Communications Centre on 1800 422 281, prior to undertaking Hot Works on all days of Total Fire Ban.

If these conditions cannot be met on a declared Total Fire Ban Day, or the schedule of which your exemption falls under is revoked, these activities may not proceed.

It remains the responsibility of individuals to:

- Check specific TOBAN Orders to ascertain whether standard exemptions have been approved on each day of a TOBAN, and;
- Ensure sufficient firefighting equipment is available and accessible within 10 meters of the activity site while an additional staff member is available to act as a fire spotter during all activities.
- Check the areas are clear of all combustible material including vegetation for a minimum of 15 metres and in the case of hot works, ensure welding screens are in place at the hot works site.
- Check the area post activity to ensure no heated, smouldering or burning material remains.
- Note that, each time a TOBAN day is declared the Gazette is re-published on the website, as well as a "TOBAN ORDER". That Order will have in it, a list of Schedules that are approved to go ahead during that TOBAN. It is envisaged it will remain the same the majority of time, but in the event we need to essentially "suspend" an exemption schedule due to extreme weather conditions, we will publish it here. A full copy of the standing exemptions and imposed conditions are detailed in the NSW Government Gazette

Attached to this letter, you will find a quick facts guide for employees to ensuring that these conditions can be met for your use, should you choose to.

Should you require further information, or have any additional questions or concerns please do not hesitate to contact toban.exemptions@rfs.nsw.gov.au

Kind regards,

Laura Wythes
Manager – Emergency Management
NSW Rural Fire Service

ANNEX D. BUSHFIRE RESPONSE PROTOCOL TEMPLATE

BUSHFIRE RESPONSE PROTOCOL – *[Site]*				
GENERAL				
The first priority for a bushfire event is to assess the situation and evacuate if safe to do so • The ERT are in constant contact with RFS who will direct us to evacuate if there is a threat • If there is a large bushfire developing that is a deemed a threat to the Project, the RFS will advise the Project to evacuate early while still safe to do so. This is always the preferred option. • If the bushfire is small and localised in nature, the Project ERT shall attempt to extinguish utilizing the project assets (including fire trucks, water carts and designated water trailers)				
Scenario description	Any uncontrolled site fire or bushfire in the area, or approaching wildfire event that threatens any work site or camp facility that is too large to be contained Potentially damaging seismic event / or landslide Failure of ground support Security incident or threat of, including unauthorized persons entering site or area Uncontrolled release of hazardous substance At any other time deemed necessary to protect workers from harm.			
General outline of emergency response	ERT to maintain seasonal vigilance of NSW National Parks and Wildlife service (NPWS) and NSW Rural Fire Service (NSW RFS). Site preparedness will align Alert Levels and monitor social media such as NSW RFS Facebook and Twitter and the Bush Fire Information Line – 1800 679 737. Lobs Hole has a bush fire survival plan, which includes a fire refuge capable of accommodating the forecast workforce with firefighting and protection systems in place. If a credible threat exists according to bush fire alert levels, assessment of early evacuation is to be conducted. If the assessment concludes people should shelter in place, the PIC / ERT are to initiate a site muster into the designated Bushfire Refuge. ERT and IMT are to account for personnel and inform NPWS and the NSW RFS of the situation and firefighting capability.			
Personnel from the disciplines in the right-hand table may be required to stay on site depending on the severity of fire, and will be directed by the site PIC, ERT and/or the JCMT. These will be identified ahead of time and briefed on their responsibilities in a fire event if personnel are to remain on site.	ERT	☐	Medics	☐
	Water Truck Operators	☐	Mechanical crew	☐
	Dewatering crew	☐	Electricians	☐
	General Services	☐	Management / HSE	☐
	Machinery Operators	☐	Supervisors	☐
Emergency response resources and their location	Site ERT Staging Area Site based paramedics at ex Camp and MAT portal.		Permanent ERT based at Pad F, Volunteer ERT, site-based paramedics at Ex Camp and MAT portal, internal FGJV personnel, external ambulance	
	Combat Agency		NSW RFS and NPWS	
Acronyms	ERT PIC JCMT		Emergency Response Team Person in Charge Joint Crisis Management Team	

BUSHFIRE RESPONSE PROTOCOL

RESPONSE SCENARIOS

There are two (2) response scenarios for bush fire events, pending on the assessment in relation to ensuring the safety of project personnel.

Scenario 1 – Evacuate from site, early warning and not an emergency exit

If a large fire is deemed a threat to the Project, the RFS will advise us to evacuate early when still safe to do so. Evacuate to safety (e.g. Cooma and / or Tumut) for further transport arrangements.

Scenario 2 – Evacuation no longer safe, take refuge on site

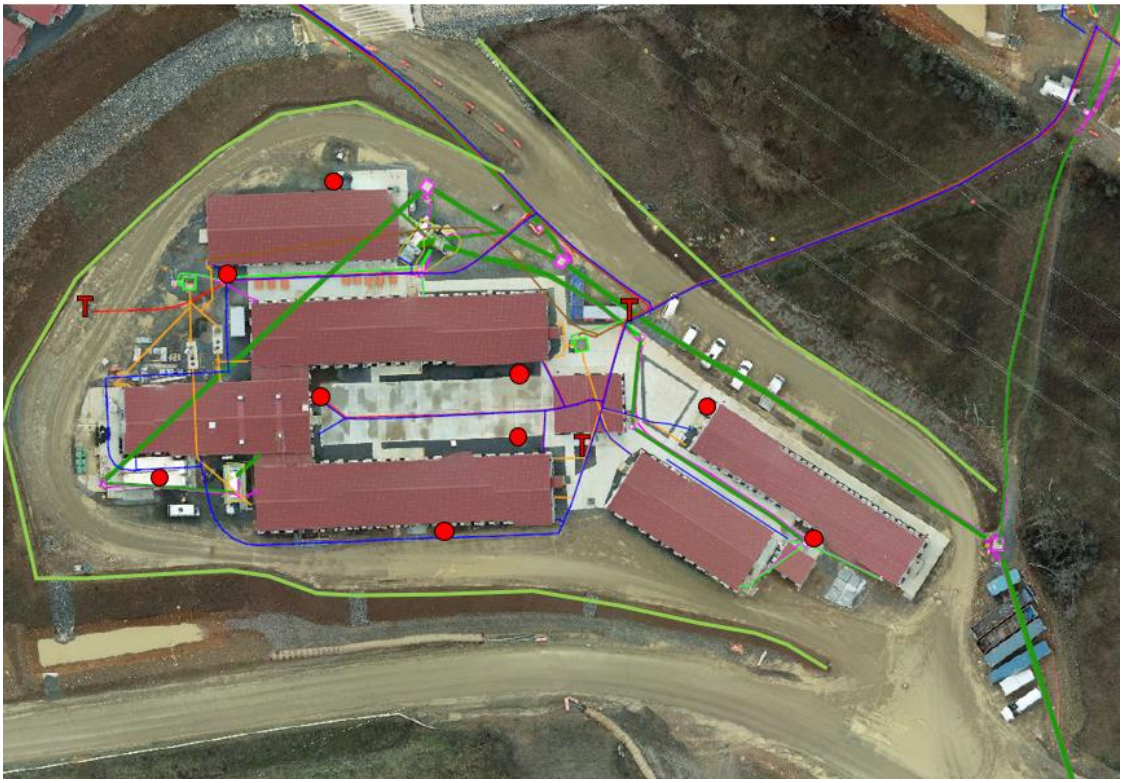
If a fire starts close to the Project site impacting our safe exit, then personnel are to assemble and seek refuge at the designated Bushfire Refuge location

SCENARIO 1

Action	Responsible	Comment

BUSHFIRE RESPONSE PROTOCOL		
SCENARIO 2		
Action	**Responsible**	**Comment**

Refuge Location Pad E



[insert map indicating Bushfire Refuge location]

ANNEX E. CONSEQUENCE MANAGEMENT GUIDE (CMG)

SNOWY MONARO LOCAL EMERGENCY MANGEMENT COMMITTEE CONSEQUENCE MANAGEMENT GUIDE

ALL HAZARDS RESPONSE ARRANGEMENTS – SNOWY 2.0 Marica

1. GENERAL DESCRIPTION

Snowy Hydro Limited (Snowy Hydro) is constructing a pumped hydro-electric expansion of the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), called Snowy 2.0. Snowy 2.0 will be built in two stages: Exploratory Works (which has commenced) and Snowy 2.0 Main Works. Snowy 2.0 is a pumped hydro-electric project that will link the existing Tantangara and Talbingo reservoirs through a series of new underground tunnels and a hydro-electric power station. Most of the project's facilities will be built underground, with approximately 27 kilometres of concrete-lined tunnels constructed to link the two reservoirs and a further 20 kilometres of tunnels required to support the facility. Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs

2. CONTROL

The primary combat agencies for all major incidents and fires will be NSW Fire + Rescue, NSWRFS, NSW Ambulance and NSW Police.

3. COMMAND / CO-ORDINATION

Initial Incident Controller will be Area Manager or delegated Superintendent on site, liaising with Emergency Response Team Commander till appropriate combat agency arrives on site, with hand over and briefing being conducted and handing over incident control.

Incident control centre will be run out of Marica Camp Rec room.

4. TRIGGERS

In event of Fire or HAZMAT incident 000 will be contacted and detailed information provided for combat agencies prior to arriving on site.

5. STRATEGIES

Strategy	Details
Communication Plan	Control Network – Combat agency network Tactical Network – Marica site network / or Combat agency second tier network VHF / UHF– ERT operates on channel 16 UHF and Ch 9 working channel for ERT Teams. Tasking Network – VHF / UHF
Contact Directory	Provided by IMT on day as due to FIFO of management and Superintendent. Contacts for the PIC on shift will be located at the front gate at the site.
Marica ERT	Emergency channel UHF 16 ERT Mobile: 0475 455 967 Cpt Richard Williams M: 0411 126 430
Combat agency response times	Estimated travel times to Marica:

6. ACTIONS

Item	Responsibility	Actions/Details
Site Induction	Snowy 2.0	briefing details: no induction will be required at the time of an emergency all incoming Agencies will be briefed at control centre or forward staging areas.
Traffic Management	Snowy 2.0	Access / directions / briefing details 1 Road Access is via Snowy mountains Highway into Marica trail. The Security Gate house is located around 500m down the Marica Trail Road where incoming agencies will contact security and be given directions or there will be an escort vehicle to guide them to the control centre or staging area.
Control Point	Incident Controller	Location at Marica The control point will be located at the Marica Rec Room. EMT will be set up in the prayer room at camp.
Staging Area	Staging Area Manager	Location at Marica/ Coms Plan / briefing arrangements. Briefings will be conducted on site at staging area at Marica Rec Room.
Sitreps / Impact Assessments	Situation Officer	how / where / when / who
Public Information	Public Liaison Officer	media management plan
Refuge site	Incident Controller	location / facilities Marica main camp Dry Mess Hall, Wet Mess Room, and gym. Both have seating and water arrangements
Evacuation Management	Incident Controllers	Location / arrangements / access / egress Any evacuation will be conducted via vehicle movement utilising the site shuttle buses and LV's. Allocation of vehicles will be instructed by PIC during the Assembly of personnel prior to evacuation briefing. Access and Egress will be via the main Marica Trail and out on to the Snowy Highway under the direction of the PIC as outlined in the Marica Emergency Response Management Plan.
Medical Support	ERT / Medical units	Location / capability The Medical centre is located at Marica camp. Medical Rescue have two (2) 4wd Ambulance on site. Located at Marica Camp they also have a Medical Centre with ability for immediate temporary Emergency Care. located at Shaft Office Pad is the satellite first aid room.
Welfare	Snowy 2.0	Location / capability Marica Camp can cater for incoming Combat Agencies but CANNOT accommodate them, at this stage. Camp kitchen will be utilised for any on site catering that may take place. Post evacuation the camp capability will be approximately 130 beds
Accommodation	Snowy 2.0	Location / capability Marica Camp – The accommodation is located at the Marica Camp and has a 180 Bed capacity

7. RECOVERY	8. SUPPORTING DOCUMENTS
List combat agency / organisation contacts responsible for recovery plans FGJV is responsible for the recovery process inside the project boundary. RFS – Bushfire EPA – Hazmat NPWS – Environmental etc	Major Incident Coordination Plan Emergency Response Management Plan Underground Emergency Response Plan Marica Emergency Response Management Plan Marica Medical Emergency Response Plan

9. EVACUATION CENTRE	
Name & Address	**Capacity**
The main evacuation will be through to Canberra airport and if necessary to Sydney. If we are evacuating Lobs Hole, Marica and Tantangara then we are looking at **2000** people. As we bus them out the Cooma Travel Team will be booking flights and accommodation.	
Primary Cooma Evacuation Centre as it has capacity and house evacuees from site due to large volume of staff and vehicles. Cooma Airport will be operating charter flights to evacuate interstate staff and alleviate the need to house workers and not overrun local accommodation.	
Secondary Adaminaby	
Third Tumut	

10. VULNERABLE FACILITIES & INFRASTRUCTURE				
Name of Asset	**Type**	**Address MGRS**	**RFS Grid Reference**	**Contact**
Communications Infrastructure	Cell tower	Located on pad M2 at Wallace Creek trail		
Electrical Infrastructure	Generators	Currently all power is generated by temporary generators. Camp has 2 Surge Shaft has 4		
Water Treatment Plant	Marica Camp Surge Shaft	On site storage 2 x 175kl water tanks located at Marica camp 2 x 175kl water tanks located at Sure Shaft		
Fuel Storage	Diesel 102,500 Litres	Marica Camp 34500Lt Warehouse pad 58000Lt Surge Shaft generator pad 1,0000Lt		
Water supply Hydrant	Hydrants boosted.	Surge Shaft x 7 Marica main camp x 10 Office pad x 1 Warehouse x 1		
Gas storage	Oxy / Acetylene Oxy / Acetylene LPG	Warehouse Surge shaft dewatering workshop Surge shaft change rooms		
ERT base	Surge Shaft	-35.78790 Latitude 148.46223 Longitude	(Map –Ravine)	
CAMP Muster Point		-35.79290 Latitude 148.48331 Longitude	322 387 (Map –Ravine)	
Camp Helipad		-35.79283 Latitude 148.48214 Longitude	340 379 (Map –Ravine)	
Main Office Surge Shaft		- 35.78635 Latitude 148.46332 Longitude	339 380 (Map –Ravine	

MARICA CAMP

SURGE SHAFT

SNOWY MONARO LOCAL EMERGENCY MANGEMENT COMMITTEE CONSEQUENCE MANAGEMENT GUIDE: TANTANGARA

ALL HAZARDS RESPONSE ARRANGEMENTS – SNOWY 2.0 TANTANGARA (V4)

1. GENERAL DESCRIPTION

Snowy Hydro Limited (Snowy Hydro) is constructing a pumped hydro-electric expansion of the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), called Snowy 2.0. Snowy 2.0 will be built in two stages: Exploratory Works (which has commenced) and Snowy 2.0 Main Works. Snowy 2.0 is a pumped hydro-electric project that will link the existing Tantangara and Talbingo reservoirs through a series of new underground tunnels and a hydro-electric power station. Most of the project's facilities will be built underground, with approximately 27 kilometres of concrete-lined tunnels constructed to link the two reservoirs and a further 20 kilometres of tunnels required to support the facility. Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs

2. CONTROL

The primary combat agencies for all major incidents and fires will be initiated and dictated by 000 personnel after incident details passed on.

3. COMMAND / CO-ORDINATION

Initial Incident Controller will be Area Manager or delegated Superintendent on site, liaising with Emergency Response Team Commander till appropriate combat agency arrives on site, with hand over and briefing being conducted and handing over incident control. This will be done at scene of incident or close too between ERT Commander and combat agency taking over incident. Once initial response vehicle arrives on site at the Gate House (Security), they will be escorted to incident by FG JV personnel to conduct and handover and briefing by ERT. Incident control centre will be run out of ERT Base or Main Office at Fill Three (3).

4. TRIGGERS

In event of any emergency 000 will be contacted and detailed information provided for combat agencies prior to arriving on site. NPWS Duty Officer should be notified on 6450 5550 following the initial 000 emergency call.

5. STRATEGIES

Strategy	Details
Tantangara Road Response arrangements	All emergency vehicles on Tantangara Road must announce on Channel 15 UHF CB their location using the roadside segment numbers. Call sign for all emergency vehicles using Tantangara Road is "EV". Example "EV 2-3", "EV 3-4", "EV 4-5" etc. Emergency vehicles approaching the Tantangara 2.0 gate must change to Channel 16 UHF CB and contact operators for tasking to incident and personnel.
Camp Superintendent	The Camp Superintendent or delegate will be part of IMT to coordinate and allocate food, rooms and accommodation for all the incoming combat agencies and personnel that will be attending incident. There will be sufficient accommodation and food available on request from Incident Controller.
Communication Plans Control Networks Tactical Network	**RFS** - PMR 2229 Monaro STH / PMR 2228 Monaro NTH - Interagency ESO Liaison Channels are available on request. **NPWS** - Parks VHF Vote Group 260 **FRNSW** TBC - **NSW Police Force** TBC - **NSW SES** TBC - **NSW Ambulance** TBC Tantangara 2.0 site network / or Combat agency second tier network VHF / UHF Tantangara Emergency Response Team (ERT) operates on emergency channel 16 UHF CB and working channel (ops normal) channel 9 UHF CB
Community Liaison Community Engagement	FG JV will provide a Media Liaison Officer once the EMT has been activated to attend Control Centre (Marriane McCabe 0429 319 256).
Contact Directory **PIC (Person in Charge)** **Construction Superintendent** **Tantangara 2.0 ERT**	Provided by IMT on day as due to FIFO of management and Superintendent. There will be a dedicated hard phone line in IMT Office with WIFI and 4G Network. Contacts for the PIC on shift will be located at the front gate at the site on white board attached to external of Security building. Will be identified on the day and will be responsible for having technical experts in IMT responsible for the electrical and mechanical isolations of equipment and areas. AS well as a rep from Viking who look after most of the power generators on site. ERT Mobile: 0457 304 252 / Sat. phone: 0147 142 037. ERT Captain: Glen Squires: 0427 123 190

6. ACTIONS

Item	Responsibility	Actions/Details
Combat agency response times	Agency dispatch	Estimated travel times to Tantangara 2.0 from Adaminaby (42km) 50 min, Talabingo (97km) 1hr 40 min and Cabramurra (62km) 1hr 20min.
Traffic Management	Snowy 2.0 / FGJV	Access is via Tantangara Road (gravel) from Snowy Mountains Highway. The gate house is located 13.5km from the highway where security will give directions or escort emergency personnel to the control centre or staging area.
Site Induction	Snowy 2.0 / FGJV	No induction will be required at the time of an emergency response. All incoming emergency personnel will be briefed at control centre or forward staging areas.
Staging Area	Staging Area Manager	Location of the staging area will be determined by the IC and based on the location of the incident. Staging Area Manager will conduct the initial briefing for incoming emergency personnel prior to tasking. This briefing will confirm Comms Plan and allocated channels for the management of the incident.
Control Point	Incident Controller	The Joint Operations Centre (JOC) will be located at the ERT base or Meeting Room Fill 3 Office Pad. The attached map provides the location of these facilities. The IMT location will be determined by the Combat agency IC in consultation with the Snowy 2.0 and FGJV.
Sitreps/Impact Assessments	Incident Controller / Situation Officer	The IC will be responsible for Sitreps through the Combat agency. Agency liaison officers will provide further reporting through their respective agencies.
Public Information	Public Liaison Officer	The IC and Combat agency will be responsible for public information and media management plan. IC should liaise with FGJV Media Liaison Officer (Marriane McCabe 0429 319 256).
Refuge site	Camp Superintendent / Incident Controller	Location of refuge and muster points are show on the attached map
Evacuation Management	Incident Controller / LEOCON/ FGJV PIC/ Camp Superintendent	Evacuation procedures are outline in the Tantangara 2.0 Evacuation Plan. Emergency personnel are to use the refuge and muster points prior to initiating evacuation from the site. Cooma Evacuation Centre will be the primary facility to support an evacuation from the site. This facility has capacity and accommodate evacuees from site due to large volume of staff and vehicles. Cooma Airport will be operating charter flights to evacuate interstate staff and alleviate the need to house workers and not overrun local accommodation. Adaminaby and Tumut townships provide further opportunities to support an evacuation.
Medical Support	ERT Medical units	The Medical centre is located at Tantangara 2.0 camp as shown on the attached map. Medical Rescue have one 4wd Ambulance on site. The medical centre has 4 beds and has 48hrs emergency care capability.
Welfare / Accommodation	Snowy 2.0	Tantangara 2.0 camp has adequate facilities to cater for and accommodate (350-450 beds) emergency personnel for extended incidents on request from IC.
Aerial response to incidents	Aviation	Incoming aircraft will establish communication with Tantangara ERT on channel 16 UHF CB to establish liaison and communication plan.
Helipad	Snowy 2.0	A dedicated helipad has been established on site as shown on the attached map.
Recovery	LEMC / Snowy 2.0 / FGJV	LEMC to determine the need to formalise a local recovery committee in consultation with the IC , Snowy 2.0 and FGJV. Future Gen, in the absence of a formal committee, will be responsible for the recovery process inside the project boundary.

7. SUPPORTING DOCUMENTS

Title	Date
Emergency Response Management Plan	xx
Underground Emergency Response Plan	xx
Snowy 2.0 Main Works Natural Hazard Management Plan	xx
Bushfire Management Plan Snowy 2.0 Main Works	xx
Chemical, Hazardous and Fibrous Material Management Plan	xx
Adverse Weather Management Plan	xx

8. FACILITIES & INFRASTRUCTURE

Name	Type	Address MGRS
Communications Infrastructure	Cell tower / Mobile / data	Located on the same pad as Tantangara 2.0 ERT base
Electrical Infrastructure	Generators	FGJV Maintenance Team available to support operations and maintain power 24/7
Water Treatment / Catchment	Plant: Codgene 50lps CWWTP . Storage capacity 5 x 500kl & 1 x 700kl tanks	Locations shown on map
Fuel Storage	Diesel 150000 Litres	Refuelling is available on site at request from IC / Combat agency
Water supply	Reticulated + Hydrants boosted.	Camp has Fire Booster with Reticulated fire mains
Gas storage	Batch plant 4.2kl Vessel	Locations shown on map
Tantangara 2.0 ERT	2 fulltime ERT members per shift. 10-12 retained ERT members on call per shift	49145 37685
Tantangara 2.0 Camp	350 -450 beds	49340 36364
Heli Pad	Latitude: 148.6554380° Longitude: -35.8022210°	49575 36730
Main Office	Facilities available on request from IC	49022 38088
IMT facilities / Control Point	Meeting Room Fill 3 Office Pad	Location shown on map

9. SITE MAP

11. NOTES		
LEOCON should consider relevant legislation/authorities to enact the identification danger areas, appointment of Site Controller(s), authority to evacuate. Triggers identified by IMT.		
Endorsed	LEMC Chair	LEOCON/Combat Agency
Date		

LOBS HOLE CONSEQUENCE MANAGEMENT GUIDE

ALL HAZARDS RESPONSE ARRANGEMENTS – SNOWY 2.0 LOBS HOLE (V3)

1. GENERAL DESCRIPTION

Snowy Hydro Limited (Snowy Hydro) is constructing a pumped hydro-electric expansion of the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), called Snowy 2.0. Snowy 2.0 will be built in two stages: Exploratory Works (which has commenced) and Snowy 2.0 Main Works. Snowy 2.0 is a pumped hydro-electric project that will link the existing Tantangara and Talbingo reservoirs through a series of new underground tunnels and a hydro-electric power station. Most of the project's facilities will be built underground, with approximately 27 kilometres of concrete-lined tunnels constructed to link the two reservoirs and a further 20 kilometres of tunnels required to support the facility. Intake and outlet structures will be built at both Tantangara and Talbingo Reservoirs

2. CONTROL

The primary combat agencies for all major incidents and fires will be initiated and dictated by 000 personnel after incident details passed on.

3. COMMAND / CO-ORDINATION

Incident Controller will be made up Site Manager and HSE in the first stages of the incident and there will be a representative from each department to make sure all hazards can be identified, and control measures are put in place before emergency services arrive.

ICT will be made up by: Site Manager and HSE Managers that are on site at the time of the emergency.

Representatives from department will be activated and will become part of the ICT team these departments are: Electrical/Dewatering/mechanical and camp Manager/supervisor.

Identification of agency / organisation liaison officers reporting Incident Controller

Control centre locations – Combat agency facilities i.e., fire control centre/ EOC and

The JOC for lobs hole is located at Pad F.

4. TRIGGERS

In event of any emergency 000 will be contacted and detailed information provided for combat agencies prior to arriving on site. NPWS Duty Officer should be notified on 6450 5550 following the initial 000 emergency call.

5. STRATEGIES

Strategy	Details
Communication Plan	RFS - TBC
Control Network	NPWS - TBC FRNSW - TBC NSW Police Force - TBC NSW SES - TBC NSW Ambulance - TBC
Tactical Network	Lobs Hole 2.0 site network / or Combat agency second tier network VHF / UHF Lobs Hole ERT operate on UHF CH 16 and have a designated operating channel on UHF CH 09.
Contact Directory	Provided by IMT on day as due to FIFO of management and Superintendent. There will be a dedicated hard phone line in IMT Office with WIFI and 4G Network.
Construction Superintendent	Will be identified on the day and will be responsible for having technical experts in IMT responsible for the electrical and mechanical isolations of equipment and areas. AS well as a rep from Viking who look after most of the power generators on site. Contact Numbers will be identified once ICT is activated.
Lobs Hole ERT	ERT Mobile: 0447 276 669 / sat. phone 0147165634 / Cpt Jason Scotton M: 0474 294 707
Community Liaison Community Engagement	FG JV will provide a Media Liaison Officer once the EMT has been activated to attend Control Centre (Marriane McCabe 0429 319 256).
Lobs Hole Road Response arrangements	All emergency vehicles on Ravine Road must announce on Channel 17 UHF CB their location using the roadside segment numbers. Call sign for all emergency vehicles using Ravine Road is "EV". Example "EV 2-3", "EV 3-4", "EV 4-5" etc. Emergency vehicles approaching the R16 intersection must change to Channel 16 UHF CB and contact operators for tasking to incident and personnel.

6. ACTIONS

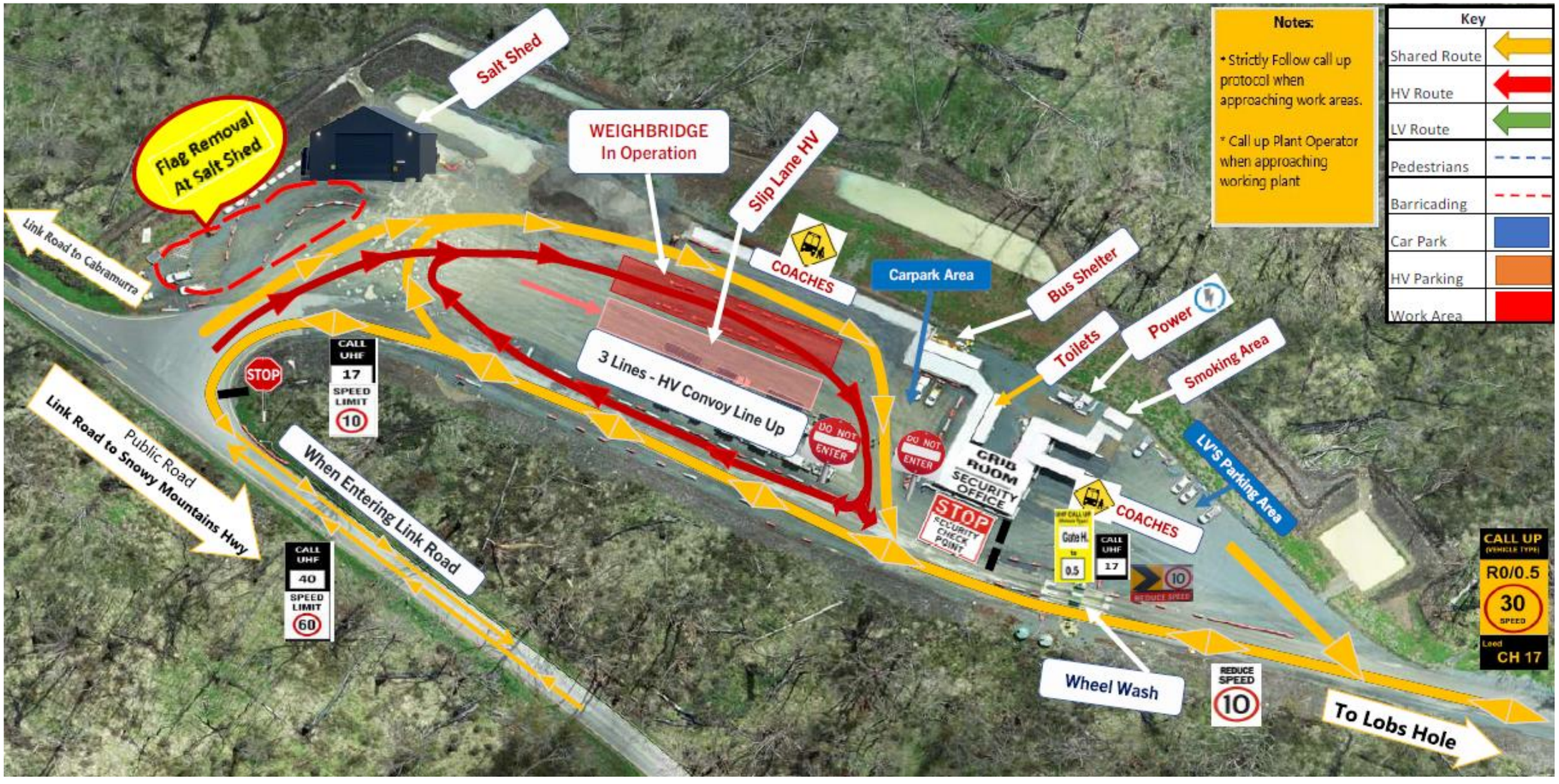
Item	Responsibility	Actions/Details
Combat agency response times	Agency dispatch	
Site Induction	Snowy 2.0	No induction will be required at the time of an emergency all incoming Agencies will be briefed at control centre or forward staging areas.
Traffic Management	Snowy 2.0	Access can be gained via Lobs Hole Ravine Road. directions Access can be gained via Ravine Road which is located at the inter section of lobs hole ravine road and Link Road. Approximately 5km along Link Road after leaving snowy mountains Hyw. briefing details: Briefings will be held at the designated staging areas or JOC.
Control Point	Incident Controller	The JOC is set up a Pad F in lobs hole if not yet activated one of the forward staging areas would be used. The IMT location will be determined by the Combat agency IC in consultation with the Snowy 2.0 and FGJV.
Staging Area	Staging Area Manager	Location of the staging area will be determined by the IC and based on the location of the incident. Staging Area Manager will conduct the initial briefing for incoming emergency personnel prior to tasking. This briefing will confirm Comms Plan and allocated channels for the management of the incident.
Sitreps/Impact Assessments	Situation Officer	In the initial stages sitreps and impact assessments will be conducted by an ERT commander or ICT present via 000 until emergency services arrive on scene.
Public Information	Public Liaison Officer	The IC and Combat agency will be responsible for public information and media management plan. IC should liaise with FGJV Media Liaison Officer (Marriane McCabe 0429 319 256).
Refuge site	Incident Controller	Main camp dining area is the primary refuge area for lobs hole it is capable of holding /// people it has multiple fire hydrants and fire hose reels stationed around the facility it has its own back up booster pumps and fire water storage pumps in the event of pressure lose.
Evacuation Management	Incident Controllers	Evacuation procedures are out lines in the Lobs Hole Evacuation Plan Cooma Evacuation Centre will be the primary facility to support an evacuation from the site. This facility has capacity and accommodate evacuees from site due to large volume of staff and vehicles. Cooma Airport will be operating charter flights to evacuate interstate staff and alleviate the need to house workers and not overrun local accommodation. Adaminaby and Tumut townships provide further opportunities to support an evacuation.
Medical Support	ERT Medical units	Lobs hole medical clinic is in X-camp it is maned 24/7-day shift is covered by a doctor / nurse and paramedic. Night shift is staffed by a nurse supported be an on-call doctor. There is one ambulance stationed at the clinic. The clinic is designed to support two ventilated patients for 24 hr. There is also a small satellite clinic at Mat-portal that is maned 24/7 by paramedics and has one ambulance.
Welfare/ Accommodation	Snowy 2.0	Main camp kitchen will be utilised for this where site catering will take place. Accommodation will be in one of the two camps in lobs hole which will be allocated on the day of the emergency.
Aerial response to incidents	Aviation	Incoming aircraft will establish communication with Lobs Hole ERT on channel 16 UHF CB to establish liaison and communication plan.
Helipad	Snowy 2.0	A dedicated helipad has been established on site as shown on the attached map.
Recovery	LEMC / Snowy 2.0 / FGJV	LEMC to determine the need to formalise a local recovery committee in consultation with the IC, Snowy 2.0 and FGJV. Future Gen, in the absence of a formal committee, will be responsible for the recovery process inside the project boundary.

7. SUPPORTING DOCUMENTS	
Title	**Date**
Major Incident Coordination Plan	
Emergency Response Management Plan	
Underground Emergency Response Plan	
Lobs Hole Emergency Response Management Plan	
Lobs Hole Medical Emergency Response Plan	
Bushfire Management Plan Snowy 2.0 Main Works	
Chemical, Hazardous and Fibrous Material Management Plan	
Adverse Weather Management Plan	

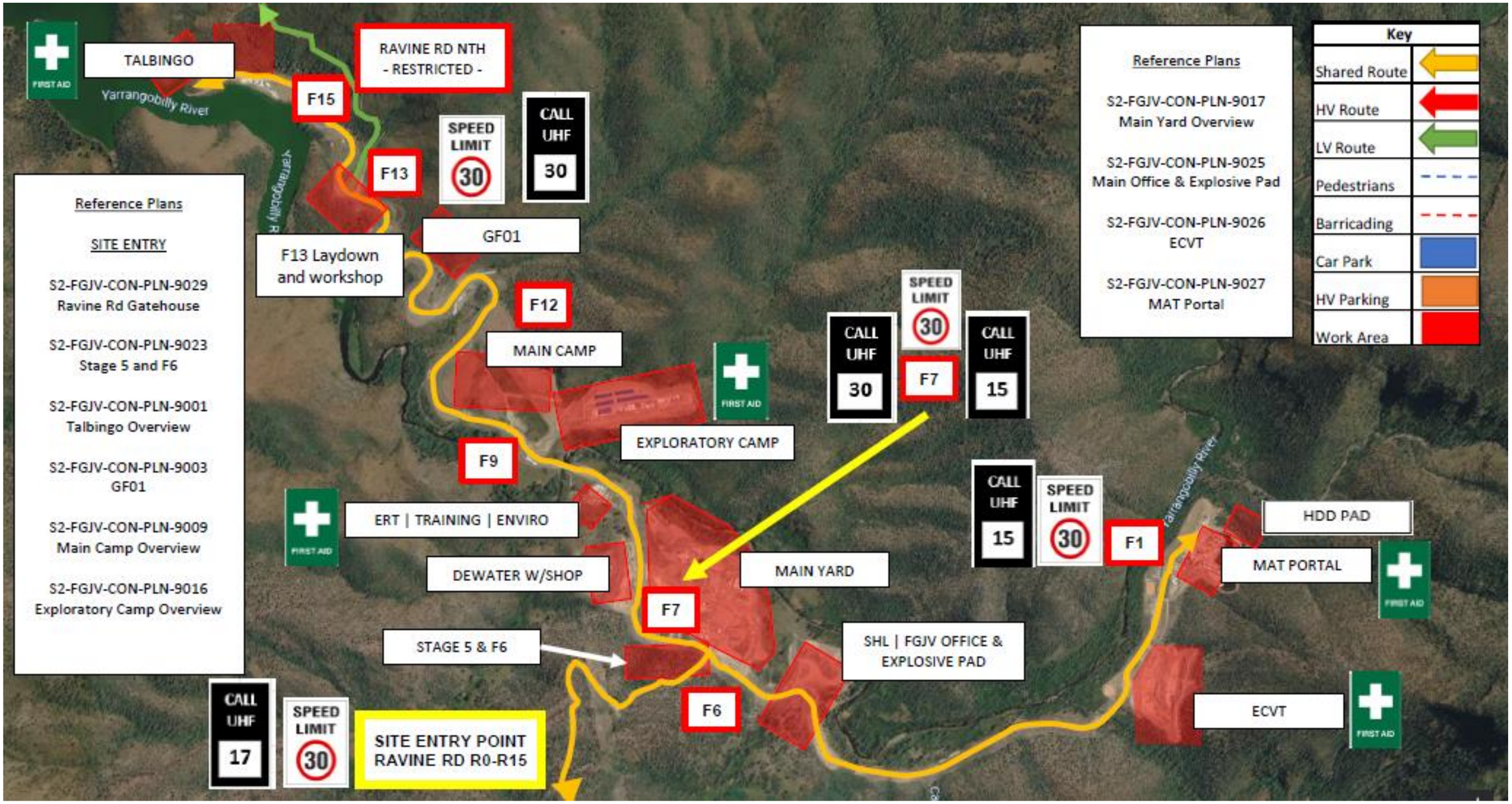
9. EVACUATION CENTRE	
Name & Address	**Capacity**
Primary Cooma Evacuation Centre as it has capacity and house evacuees from site due to large volume of staff and vehicles. Cooma Airport will be operating charter flights to evacuate interstate staff and alleviate the need to house workers and not overrun local accommodation triggers will be if directed by RFS or other agencies.	

10. VULNERABLE FACILITIES & INFRASTRUCTURE					
NAME OF ASSET	**LOCATION**	**RFS GRID REFERENCE**	**LATITUDE**	**LONGITUDE**	**CONTACT**
Water Treatment Plant	MAT Portal	281387 (Map – Ravine)	-35.78721	148.41745	
Water Treatment Plant	ECVT	278380 (Map – Ravine)	-35.79300	148.4119	
Fuel Farm	Haul Road – F6	264382 (Map – Ravine)	-35.79130	148.39911	
TransGrid Substation	TransGrid Pad	260385 (Map – Ravine)	-35.78879	148.39445	
Water Treatment Plant	Pad D	258392 (Map – Ravine)	-35.78310	148.39237	
Hydrant Pumps	Ex-Camp	262392 (Map – Ravine)	-35.78242	148.39711	
Generator Pad	Haul Road – F9	257390 (Map – Ravine)	-35.78454	148.39159	
Water Treatment Plant	Haul Road – F14	248404 (Map-Ravine)	-35.77199	148.38128	
Water Treatment Plant	Talbingo Adit	246405 (Map – Ravine)	-35.77156	148.37909	

LOBS HOLE – GATEHOUSE



LOBS HOLE - OVERVIEW

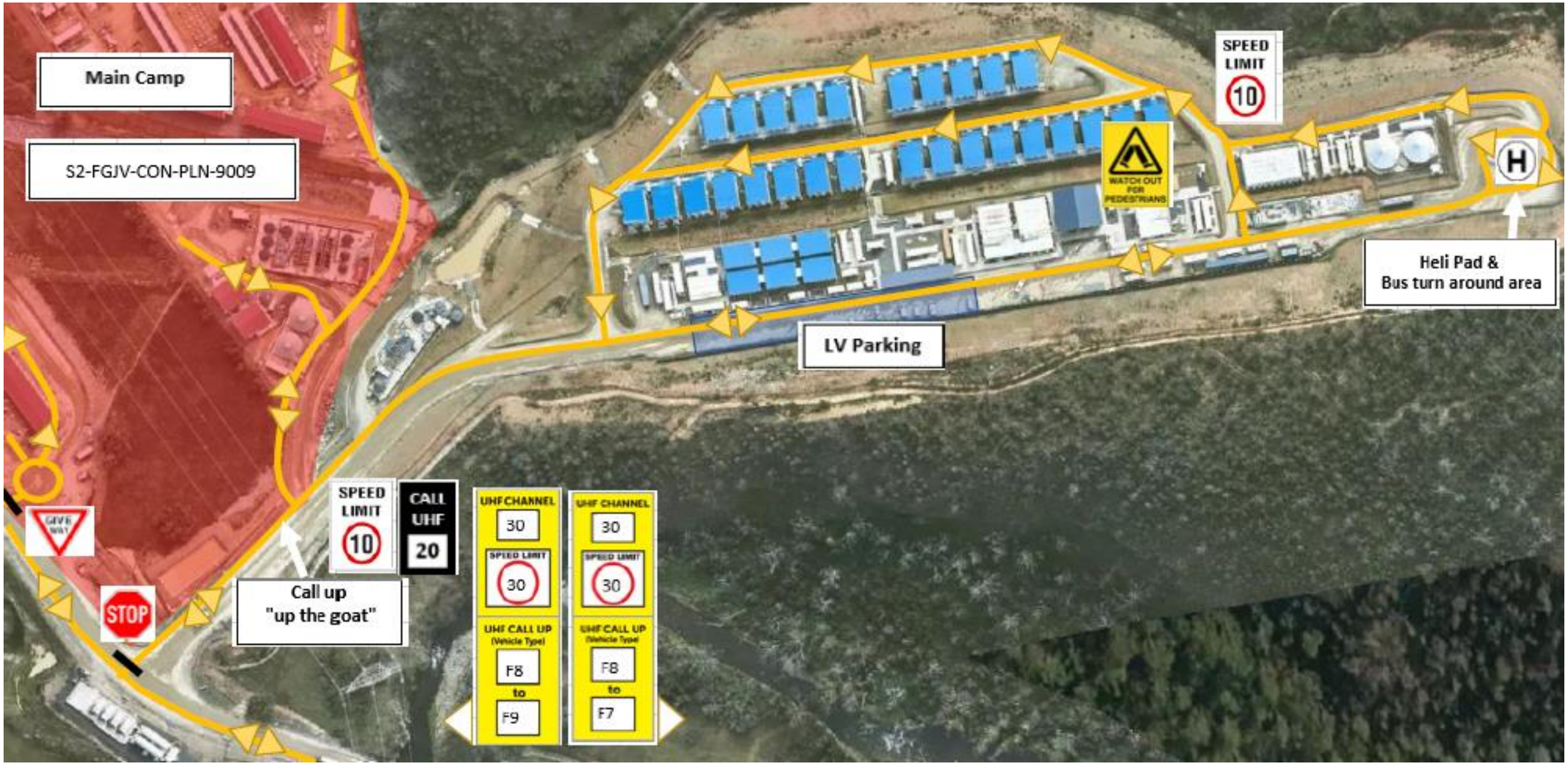


LOBS HOLE – ERT BASE above the Training Centre

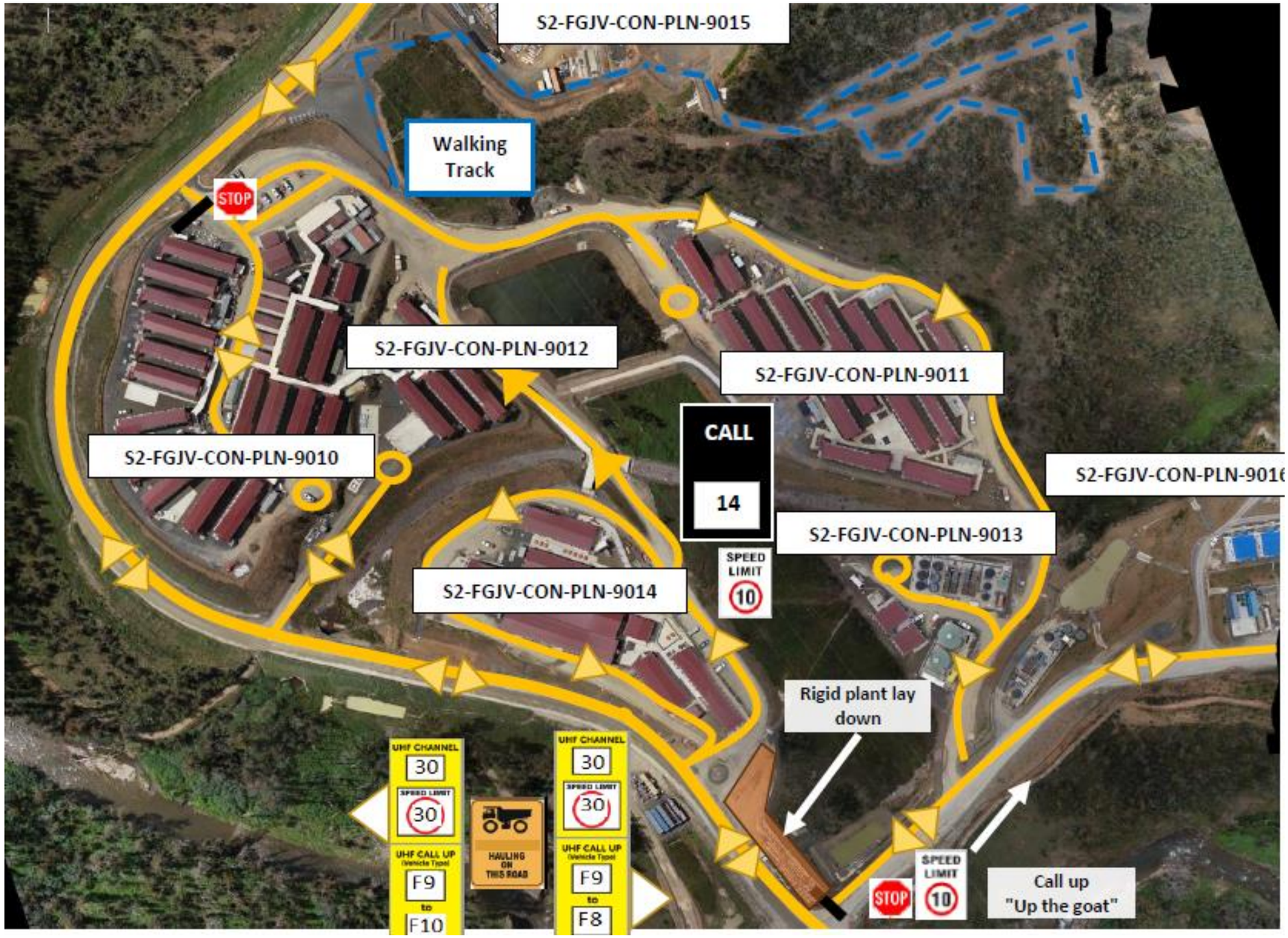
LOBS HOLE MAIN YARD WORKSHOP

LOBS HOLE - BATCH PLANT

LOBS HOLE -
EXPLORATORY CAMP



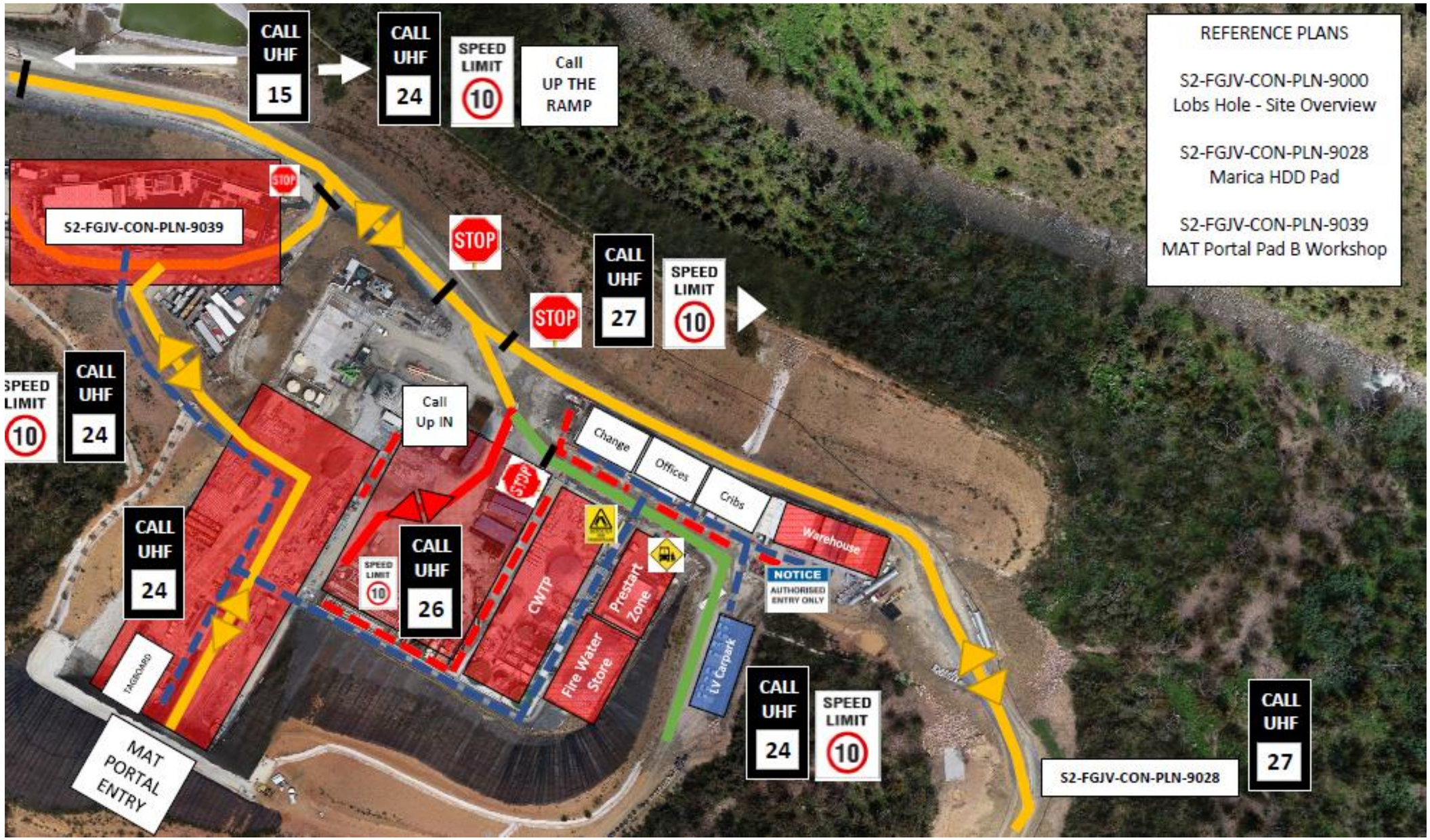
LOBS HOLE - MAIN CAMP OVERVIEW



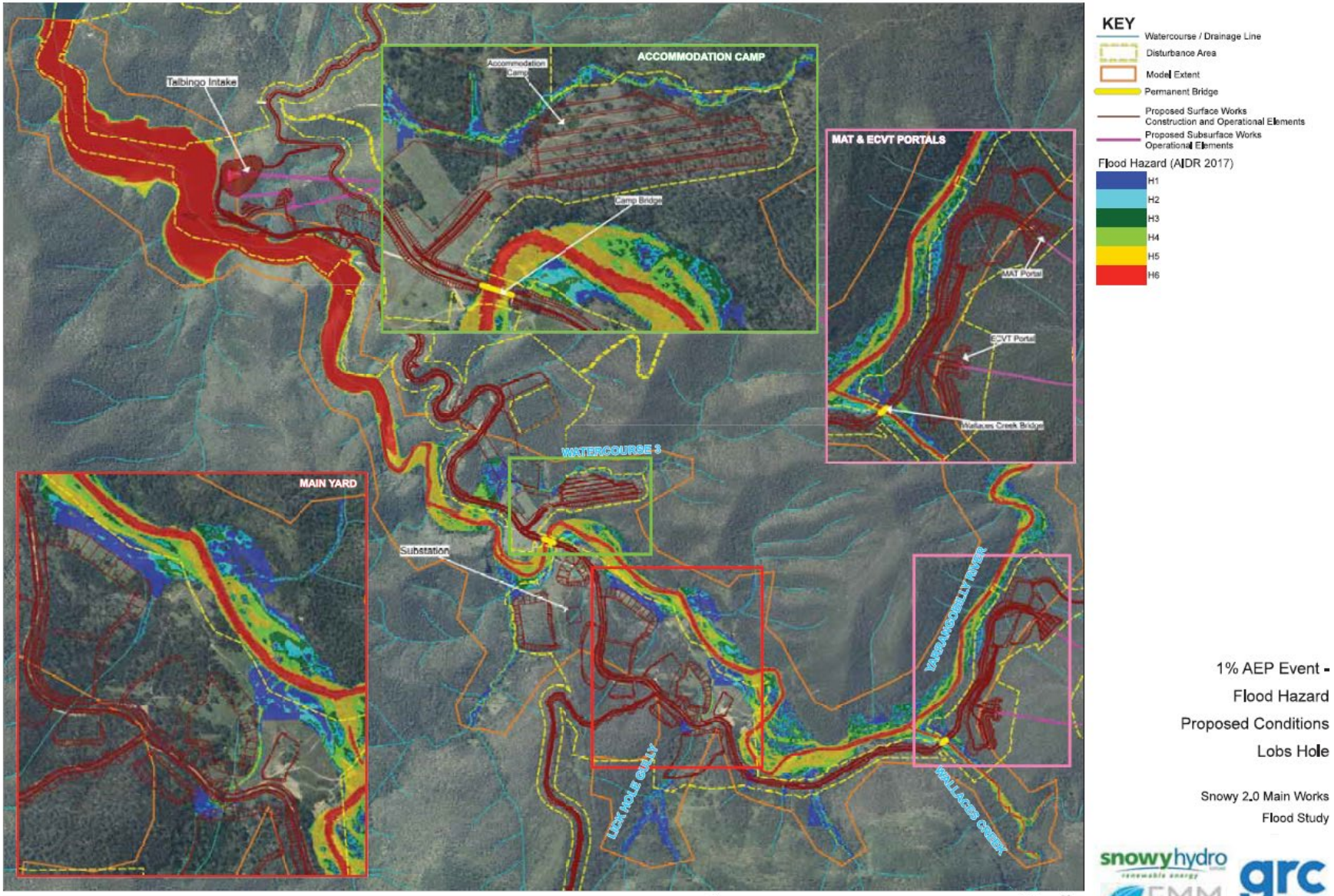
LOBS HOLE – MAIN OFFICE AND ORICA PAD

LOBS HOLE - ECVT

LOBS HOLE - MAT PORTAL

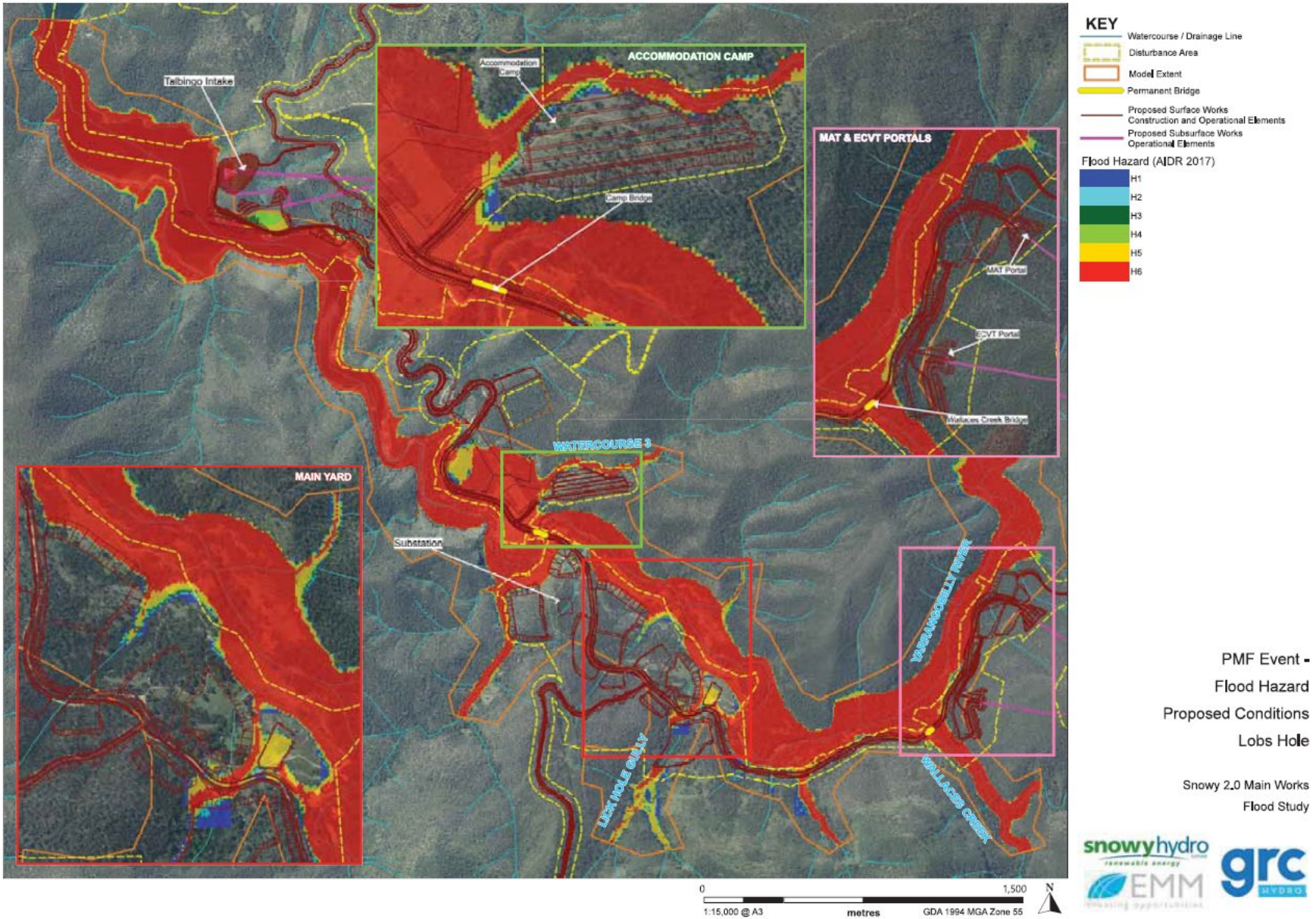


APPENDIX B – FLOOD HAZARD LOBS HOLES AND KELLYS PLAIN CREEK



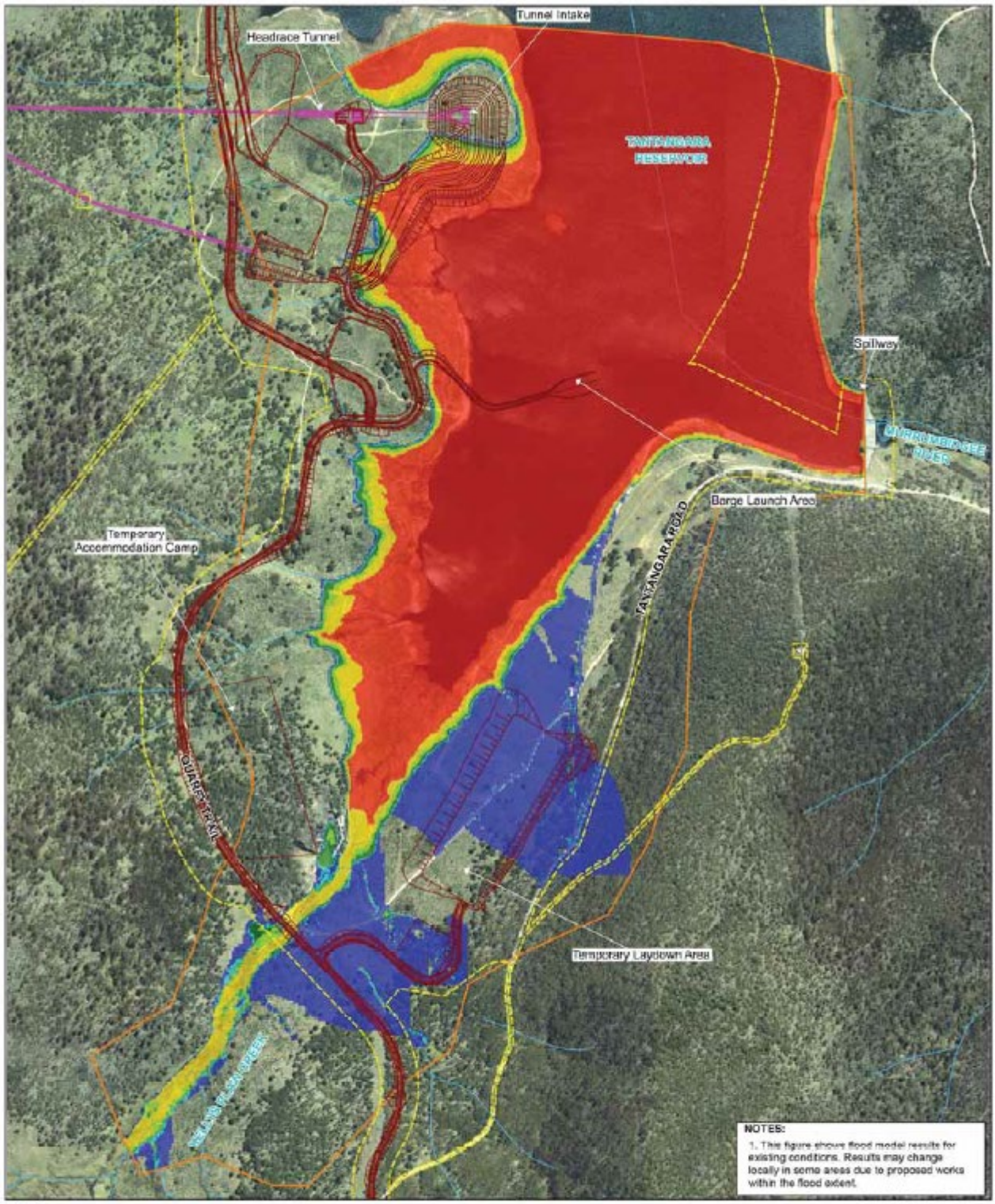
1% AEP Event -
Flood Hazard
Proposed Conditions
Lobs Hole

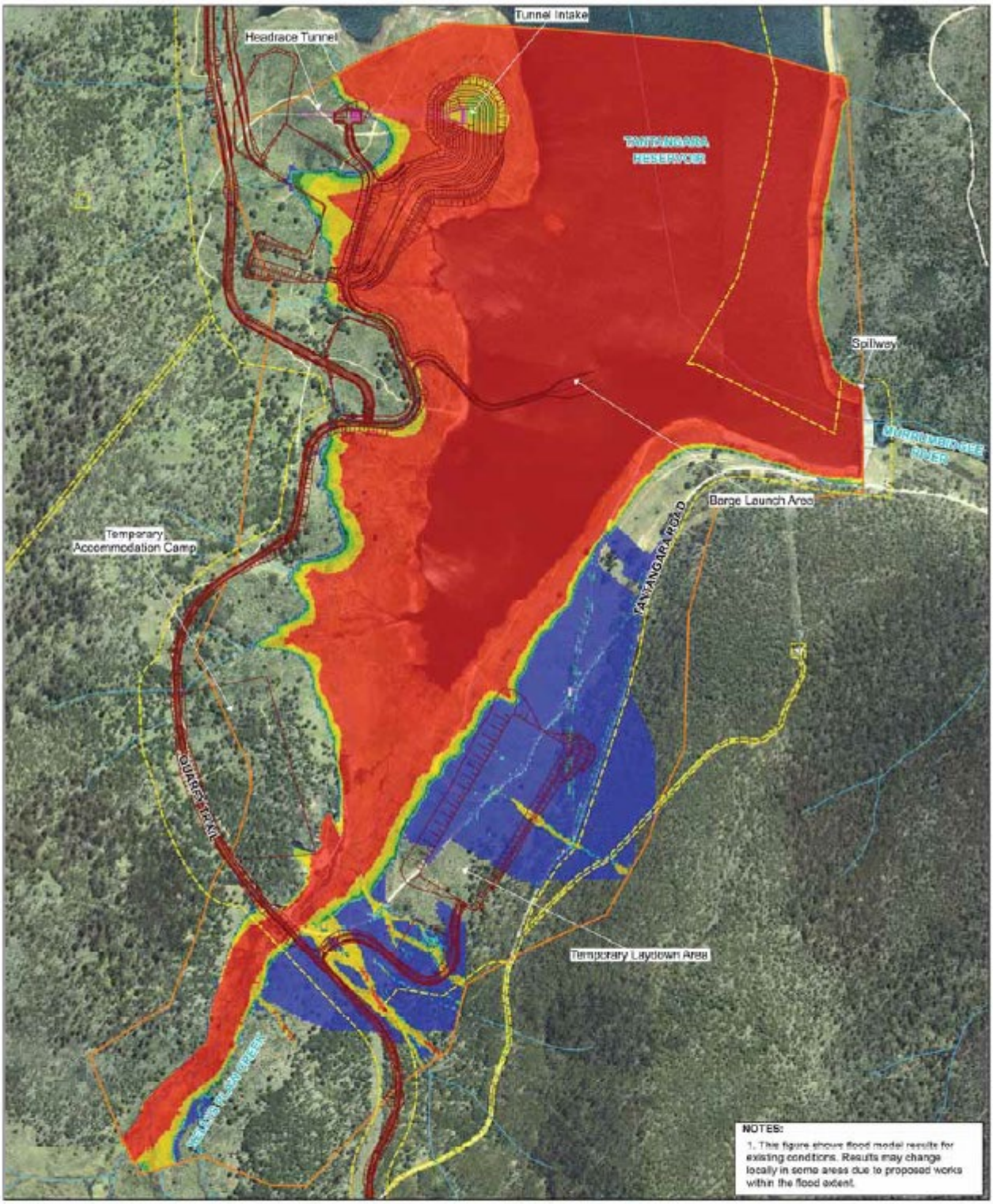
Snowy 2.0 Main Works
Flood Study



PMF Event -
Flood Hazard
Proposed Conditions
Lobs Hole

Snowy 2.0 Main Works
Flood Study


Tunnel Intake
Headrace Tunnel
TANTANGARA RESERVOIR
Spillway
Borge Launch Area
TANTANGARA ROAD
Temporary Accommodation Camp
QUARRY TRACK
Temporary Laydown Area
NOTES:
1. This figure shows flood model results for existing conditions. Results may change locally in some areas due to proposed works within the flood extent.
KEY
Flood Hazard (AIDR 2017)
H1
H2
H3
H4
H5
H6
Watercourses / Drainage Line
Disturbance Area
Model Extent
Proposed Surface Works Construction and Operational Elements
Proposed Subsurface Works Operational Elements
0
750
metres
N
1% AEP Event -
Flood Hazard
Existing Conditions
Kellys Plain Creek
snowy hydro
EMM
grc HYDRO
Snowy 2.0 Main Works
Flood Study


Tunnel Intake
Headrace Tunnel
TAYLANGARA RESERVOIR
Spillway
MURRUMBIDGEE RIVER
Barge Launch Area
Temporary Accommodation Camp
TAYLANGARA ROAD
QUARRY TRACK
Temporary Laydown Area
KELLYS PLAIN CREEK
NOTES:
1. This figure shows flood model results for existing conditions. Results may change locally in some areas due to proposed works within the flood extent.
KEY
Flood Hazard (AIDR 2017)
H1
H2
H3
H4
H5
H6
Watercourses / Drainage Line
Disturbance Area
Model Extent
Proposed Surface Works Construction and Operational Elements
Proposed Subsurface Works Operational Elements
0
750
N
PMF Event -
Flood Hazard
Existing Conditions
Kellys Plain Creek
Snowy 2.0 Main Works
Flood Study

APPENDIX C – FLOOD EVENT MANAGEMENT GUIDE

Flooding – Inclement Weather

Scenario description	Local flooding from rain deluge			
General outline of emergency response	ERT Leader will secure the area. Casualties to be stabilised, first aid administered and evacuated as required. Involve appropriate external agencies if required.			
Disciplines required (indicate) – Guide only	Firefighting	□	First Aid	□
	Vehicle extraction	□	Breathing apparatus	□
	Hazmat	□	Rescue	□
	Specialist	□	Other	□
Emergency response resources and their location	**Site**	ERT, HSE Manager		
	Combat Agency	NSW SES		

	Y/N	
Can work be relocated to a drier area?		If Y, then work can proceed
Is there alternative work available at a drier location?		If Y, then work can proceed
Can tarps and/or enclosures be erected to keep out the rain?		If Y, then work can proceed
Can truck unloading be performed in a dry area?		If Y, then work can proceed
Can non-electrical work be performed?		If Y, then work can proceed if workers remain dry
Is the rain only light – i.e. drizzle, mist, light shower?		If Y, then work can proceed if workers remain dry
Will wet weather gear keep the user dry?		If Y, then work can proceed if work can be done safely
Will wearing of wet weather gear cause additional hazards, excessive sweating, heat stress?		If Y, then wet weather gear is not suitable and alternative work required
Can slings and/or chains be prevented from slipping? Can lift be performed safely?		If Y, then work can proceed if workers remain dry
Is work to be performed within an excavation?		If Y, then alternative work is required
Is lightning and thunder evident?		If Y, then personnel must work under cover
Are high winds present?		If Y, then crane lifts and work from elevating work platforms (EWP) may have to be postponed. Ensure equipment, materials and structure is secured.
Is the area likely to flood?		If Y, then consider damming area, temporary sump pump or alternative work.