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SNOWY 2.0 SEGMENT FACTORY – FLOOD EMERGENCY RESPONSE PLAN

Approval Record			
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Document Revision Table		
Rev.	Date	Description of modifications / revisions
A	20.12.2019	Initial draft for Snowy Hydro review
B	13.02.2020	Revised to address Snowy Hydro comments on Rev A. Issued for agency review.
C	08.03.2020	Revised to address agency comments.
D	06.04.2020	Revised to address Snowy Hydro comments and final conditions of approval. For issue to DPIE.
E	08.04.2020	Revised to address DPIE comments. For issue to DPIE

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TABLES

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ABBREVIATIONS AND DEFINITIONS

Acronym	Definition
AEP	Annual exceedance probability
ANZECC / ARMCANZ (2000)	Australian and New Zealand Guidelines for Fresh and Marine Water Quality
BCD	Biodiversity Conservation Division (part of Department of Planning, Industry and Environment)
Blue Book	*Managing Urban Stormwater: Soils and Construction*. Landcom, (4th Edition) March 2004
BoM	Bureau of Meteorology
CoA	Conditions of Approval
CSSI	Critical State significant infrastructure
DPIE Water	NSW Department of Planning, Industry and Environment – Water
DPIE	NSW Department of Planning, Industry and Environment
DPI Fisheries	NSW Department of Primary Industries – Fisheries
EIS	*Environmental Impact Statement – Proposed Segment Factory*
EMS	Environmental Management Strategy
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPA	NSW Environment Protection Authority
EPL	Environment Protection Licence
FERP	Flood Emergency Response Plan
Future Generation	Future Generation Joint Venture
Future Generation-PMS	Future Generation Project Management System
Hydro-electric	Generation of electricity using flowing water (typically from a reservoir held behind a dam or barrage) to drive a turbine which powers a generator.
MNES	Matters of National Environmental Significance (MNES)
PEP	Project Execution Plan
POEO	*Protection of the Environment Operations Act 1997*
Project, the	Segment Factory
QMP	Quality Management Plan
REMMs	Revised environmental management measures
Snowy Hydro	Snowy Hydro Limited
STP	Sewage (wastewater) treatment plant
Submissions Report or RTS	*Segment Factory Response to Submissions*
SWA	Surface Water Assessment
SWMP	Surface Water Management Plan
WAL	Works Access Licence
WMS	Work Method Statement

1. INTRODUCTION

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 will be built in two stages: Exploratory Works (which has commenced) and Snowy 2.0 Main Works.

Snowy 2.0 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.

Salini Impregilo, 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 Snowy 2.0 Main Works. To support the construction of these projects, a precast concrete segment factory is required to be established to enable the concrete segments that line the tunnel to be manufactured.

This plan has been prepared for the Snowy 2.0 Segment Factory (Segment Factory or project).

1.2. Background

The Segment Factory is required to manufacture precast concrete segments exclusively to line the tunnels being excavated for Snowy 2.0 Exploratory Works and Main Works. The construction and operation of the Segment Factory is essential for the efficient completion and realisation of Snowy 2.0. The Segment Factory would operate the production and transportation approximately 14,500 precast reinforced concrete tunnel rings (containing 130,500 segments) to be exclusively used on the Snowy 2.0 project.

The Segment Factory would be located on industrial-zoned land in the south-eastern corner of Polo Flat, an industrial zoned area located to the east of Cooma. The operational facility would contain a concrete batching plant, a warehouse building for the manufacture of precast concrete segments (the precast building), uncovered storage areas for raw material and segments, vehicle parking areas and associated offices and workshops.

An environmental impact statement has been prepared for Snowy 2.0 Segment Factory (*Environmental Impact Statement - Proposed Segment Factory* (Segment Factory EIS)) to assess the impact of the project on the environment.

The Segment Factory EIS was submitted to Department of Planning, Industry and Environment in September 2019 and was publicly exhibited between 10 October 2019 and 6 November 2019. A total of 33 submissions were received, including 26 from the public and six from NSW government agencies and one from Snowy Monaro Regional Council. Of the 26 public submission, 22 related to Snowy 2.0 Main Works rather than the proposed segment factory. In December 2019, the response to submissions was prepared (*Segment Factory Response to Submissions*) (Submissions Report or RTS). Following consideration of this document and the Segment Factory EIS, approval was granted by the Minister for Planning and Public Spaces on 31 March 2020, through issue of Infrastructure Approval SSI 10034.

The Segment Factory EIS was prepared to assess the impact of these works on the environment, and included an assessment of potential flood impacts within chapter 5.7 and Appendix M.

The Segment Factory EIS included flood modelling which found that the project is subject to flooding from Watercourse A which passes through the site from south to north (Figure 3-2). The Flood Assessment showed that a large portion of the site is currently subject to out of bank flooding for all events assessed up to and including the probable maximum flood (PMF).

1.3. Approved project

The Segment Factory includes, but is not limited to, the following construction activities:

- demolition and removal of buildings on southern part of the site, and removal of the decommissioned communications tower;
- installation of temporary fencing and security measures as well as any necessary construction environmental management measures;
- confirmation of all utility services and any affected services which will be relocated or required to be made safe to allow construction to proceed;
- clearing and removal of topsoil and vegetation (excavated topsoil excavated will be stockpiled on site for later use);
- earthworks, including:
  - cut and fill to establish a level area for the pads;
  - trenching to install services (power, water and communications);
- laying concrete for the precast building;
- laying of asphalt or concrete for all internal roads; and
- laying of cement soil for all other areas, including the storage areas;
- construction of primary access roads in the unmade road corridor and connection to Polo Flat Road;
- pavement strengthening works on Polo Flat Road from the intersection with the Monaro Highway to the site access road;
- upgraded intersection of Polo Flat Road and the Monaro Highway;
- installation of temporary traffic signals at the intersection of Snowy Mountains Highway and Bombala Street; and
- construction of all buildings (precast building, offices, workshops and guardhouse), concrete batching plant, carparks, and associated facilities.

The operation of the Segment Factory would include the fabrication of precast tunnel segments utilising steel moulds. Key elements in the fabrication of the precast tunnel segments will include carousel production cycle, curing of segments, repair works, packer placement, quality control, and precast tunnel segment handling and transport.

The concrete batch plant would be located on the southern portion of the site and would include a conveyor system, cement and silo slags and adjacent aggregate and sand storage areas for mixing to form concrete prior to insertion into steel moulds.

1.4. Management System

Overall environmental management for the Segment Factory is described in the Environmental Management Strategy (EMS).

This Flood Emergency Response Plan (FERP) aims to transfer the relevant requirements of the Approval documents into a management plan which can be practically applied on the project site.

Ongoing revisions to this plan will occur in accordance with Section 1.7 of the EMS, and as required by condition 2 of schedule 4 of the Infrastructure Approval. Circumstances requiring a review, and if necessary, revision of this plan include submission of incident reports or audit reports, approval of modifications to the conditions of Approval and directions of the Planning Secretary under condition 2 of schedule 4.

1.5. Purpose

The purpose of this FERP is to describe how Future Generation will minimise and manage impacts on stormwater and flooding during the construction and operation of the project. This plan has been prepared to address the requirements of the Infrastructure Approval (SSI-10034) (the Approval) issued for Snowy 2.0 Segment Factory on 31 March 2020, the Segment Factory EIS, and the revised environmental management measures (REMMs) within the Submissions Report.

The purpose of this plan is to describe how the project proposes to minimise and manage the risk of flooding to site personnel and the project as a whole.

1.6. Consultation Summary

In accordance with schedule 3, condition 26 of the Approval, the FERP is to be prepared in consultation with Snowy Monaro Regional Council and to the satisfaction of the Secretary.

On 14 February 2020, the plan was issued to Snowy Monaro Regional Council (SMRC). Additionally, a workshop with stakeholders was held on 21 February 2020 regarding the content of the management plans.

Comments are summarised in Table 1-1.

Table 1-1: Consultation undertaken for this plan

Date	Consultation	Outcomes
14 February 2020	FERP submitted for consultation to SMRC.	There were no comments received in writing regarding the FERP.
21 February 2020	Agency briefing with EPA, Roads and Maritime Services and SMRC.	The main comment received was in relation to the location of the western drain. This information will be communicated to the design consultant.

2. LEGAL AND OTHER REQUIREMENTS

2.1. Legislation

The main legislation relevant to stormwater and flood management includes:

- *Protection of the Environment Operations Act 1997;*
- *Protection of the Environment (General) Regulation 2009* (as amended);
- *Water Management Act 2000;*
- *Water Management Amendment Act 2014*; and
- *Water Management (General) Regulation 2011.*

Refer to the EMS for details of other relevant legislation.

2.2. Conditions of Approval

Table 2-1 details all conditions of Approval relevant to management of flooding impacts.

Table 2-1: Conditions of Approval relevant to flood management

Condition	Requirement	Where addressed
Stormwater management		
Schedule 3 Condition 23	The Proponent must carry out the creek realignment works generally in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (NRAR, 2018), or its latest version, and implement additional measures if necessary to minimise the water quality and erosion impacts of the diversion.	Section 4
Schedule 3 Condition 24	The Proponent must provide an inter-allotment stormwater easement in favour of Council along the western boundary of the site. The easement shall be established in accordance with the requirements of Council and allow for stormwater from the industrial properties to the west of the site to be discharged via the easement to Council's existing stormwater infrastructure.	Section 4
Flooding		
Schedule 3 Condition 25	The Proponent must ensure: (a) all new habitable buildings, electrical wiring and equipment are constructed above the 1% AEP flood level with a minimum 500 mm of freeboard; (b) all new non-habitable buildings are constructed above the 1% AEP flood level with a minimum 300 mm of freeboard; (c) waste and hazardous materials are stored outside the 1% AEP flood extent; to the satisfaction of Council.	Section 4
Schedule 3 Condition 26	Prior to commencing operation, the Proponent must prepare a Flood Emergency Response Plan for the development in consultation with Council, and to the satisfaction of the Planning Secretary. This plan must include: (a) procedures for managing flood risks on site, including flood recovery measures and procedures for protecting human safety and infrastructure (b) identify assembly points, emergency evacuation routes and evacuation procedures; (c) describe the controls to be implemented to ensure plant, equipment and stockpiles do not become floating debris during flood events. Following the Planning Secretary's approval, the Proponent must implement the Flood Emergency Response Plan.	This plan Section 1.6 Section 5 Section 6 Appendix D Evacuation and Closure Protocol

2.3. Revised Environmental Management Measures

Environmental safeguards and management measures are included in the EIS in Section 6.3. During preparation of the Submissions Report, revised environmental management measures (REMMs) were developed and are included in Appendix C of the Submissions Report.

The REMMs relevant to this plan are listed in Table 2-2 below.

Table 2-2: Revised environmental management measures relevant to flooding management

Impact	Reference	Revised environmental management measures	Where addressed
Flooding	WM01	A flood emergency response plan will be prepared for the site that will include triggers for site preparation, evacuation and closure protocols. The plan will also detail the following flood risk controls to be applied to the site: – waste and hazardous materials will be located outside the 1% Annual Exceedance Probability (AEP) extent; – habitable buildings, electrical wiring and equipment will be located 500mm above the 1% AEP level; and – non-habitable building floor level will be a minimum of 300mm above the 1% AEP.	Sections 4 and 5, Appendix D Surface Water Management Plan
Flooding	WM02	Future detailed design would have consideration to: – minimising adverse offsite flooding impacts to the extent practicable for events up to and including the 1% AEP; and – Incorporating the flood risk controls outlined in WM01 above.	Sections 4 and 5
Drainage	WM03	Snowy Hydro will work with SMRC to provide an inter-allotment drainage easement on the western side of the site to enable stormwater from western adjoining properties to be legally conveyed into council's stormwater system.	Section 5

3. SITE CHARACTERISTICS

A Flood Assessment for the project was prepared by GRC Hydro (2019) as part of the Segment Factory EIS. The objectives of the flood assessment were to:

- establish the existing flooding characteristics at the site;
- establish the flooding characteristics of the proposed site layout; and
- assess the flood impacts of the proposed site layout.

The following sections describe existing flood characteristics at the site and potential flood impacts due to construction and operation of the segment factory. The GRC Hydro report is provided in Annexure B of the EIS Water Assessment (*Appendix M Proposed Segment Factory Water Assessment,* EMM September 2019).

3.1. Existing Conditions

The project is located in the upper reaches of the Cooma Creek catchment. Cooma Creek flows into the Numeralla River some 40 km downstream of Cooma. The regional hydrological context is shown in Figure 4.1.

There are three watercourses located in or near the site. As these watercourses are unnamed, they are referred to as Watercourses A, B and C herein for convenience, and their location is shown on Figure 4.2. All watercourses are known to have an ephemeral flow regime.

Watercourse A is a third order watercourse which traverses the site, flowing generally from the south-east to the north-west. The upstream catchment is approximately 4.6 km^2 in area and comprises a variety of land uses including the Cooma landfill, Monbeef abattoir, and numerous agricultural properties.

Watercourse B is a second order watercourse with a small catchment area of approximately 0.2 km^2, consisting of a portion of the adjoining property to the east of the site. The watercourse enters the site for only a short distance along the northern boundary. Watercourse B joins Watercourse A approximately 100 m downstream of the site.

Watercourse C is a first order watercourse that joins Watercourse B east of the site.

Hydrologic and hydraulic models were applied by GRC Hydro to develop a site specific flood model for the Segment Factory site. Flood mapping, showing depths of inundation, peak water surface elevation contours and flood hazard, were developed for the 10% AEP, 1% AEP and PMF events. Existing condition flood mapping for 10% AEP, 1% AEP and PMF events without construction of the project are provided in Appendix B.

Existing flood conditions show the site is subject to flooding from Watercourse A which passes through the site from south the north. The GRC flood assessment shows that a large portion of the site is currently subject to minor out of bank flooding for all events assessed up to and including the PMF.

Flood waters are predominantly associated with runoff from the upstream catchment area entering site through Watercourse A, however there is also some flow through the eastern and western boundaries from adjacent properties.

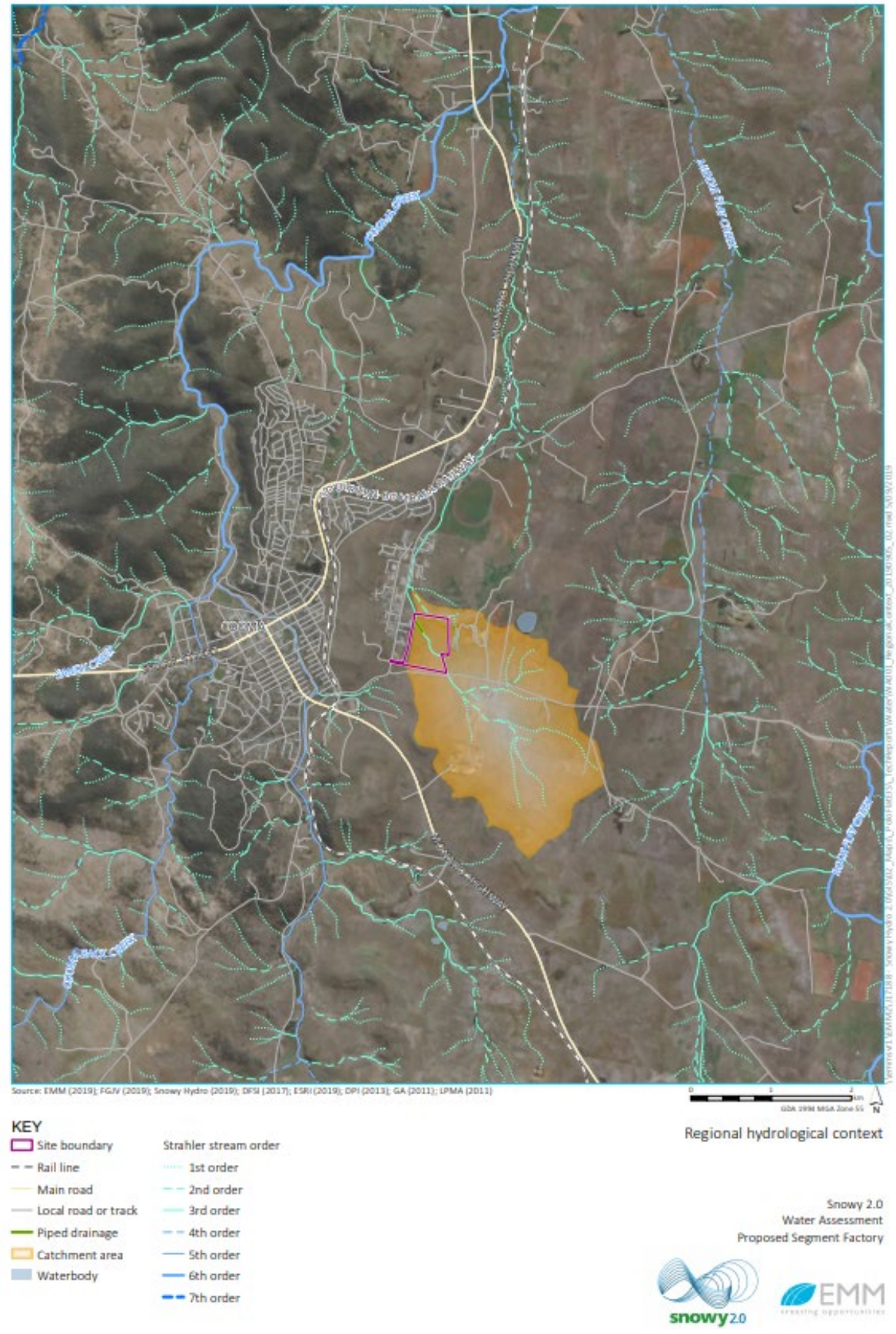

Figure 3-1: Regional hydrological context (EIS, EMM)

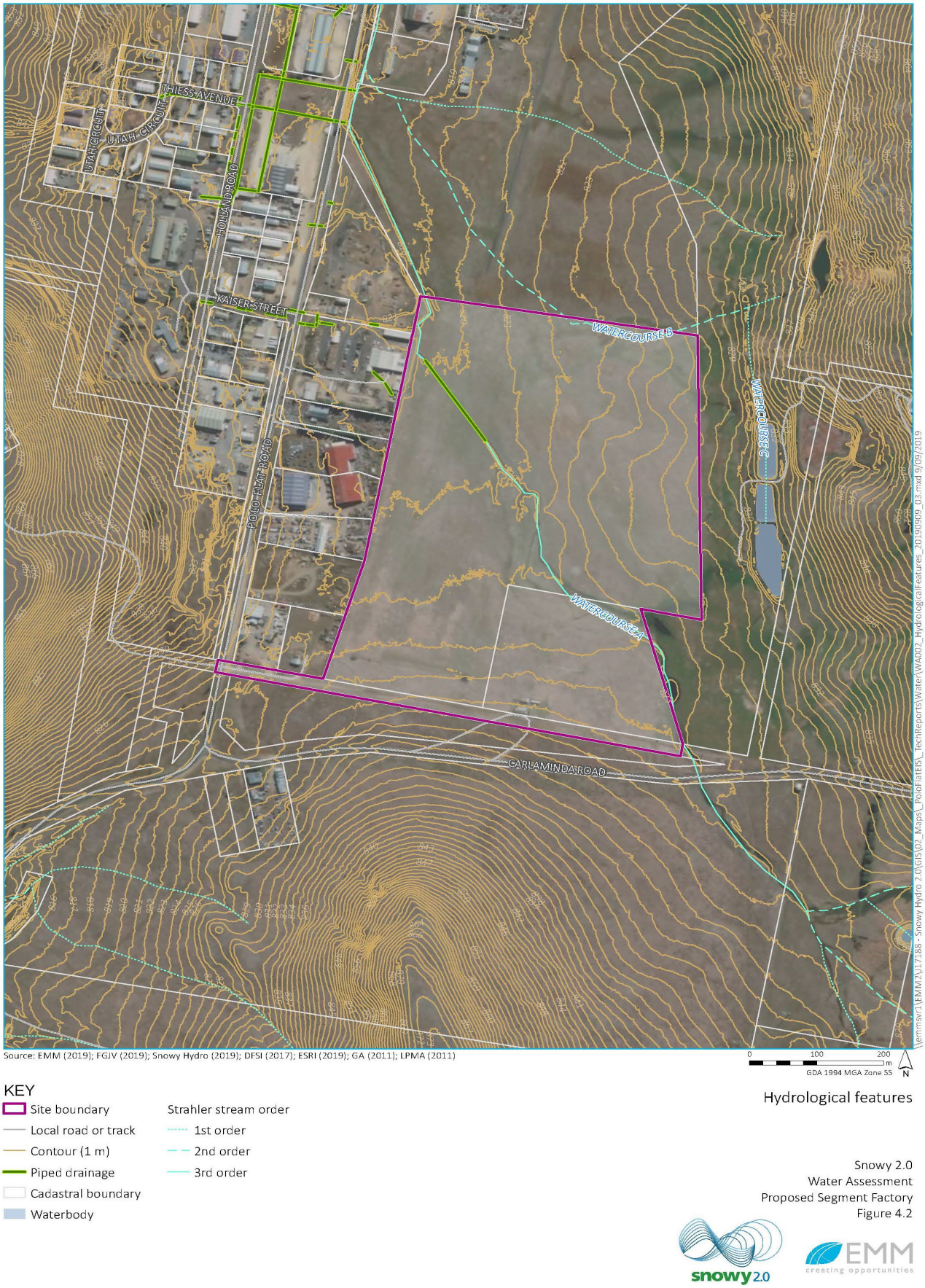

Figure 3-2: Hydrological features (EIS, EMM)

3.2. Flooding Conditions with the Project

Modelled flood mapping with construction of the project are provided in Appendix A. These include modelling that indicates that 10% AEP, 1% AEP and PMF events. Model results indicate that:

- in the **10% AEP** event some flows from Watercourse A are predicted to break out just upstream of the site. This breakout causes a shallow flow path (typically less than 0.1m) to enter the site under the proposed conditions. These flows are minor and would be conveyed by site grading to the internal water management system.

  The flood hazard for affected areas is H1 (generally safe for vehicles, people and buildings), except for the water management basin and areas downstream of the hardstand area. **Thus, the site is generally considered safe for people, vehicles and buildings**.

- in the **1% AEP** event the areas of inundation are predicted to affect the eastern portions of the site including hardstand areas in and around segment storage areas and an internal drainage channel. Depth of flooding in the 1% AEP event is predicted to be greatest within the internal drainage channel, with depths between 0.3 and 0.5 m. The remainder of the area affected by flooding experiences flooding typically around 0.1 m deep and up to 0.3 m deep. The bunded cementitious area is not affected by flooding in the 1% AEP event.

  The flood hazard of affected areas is H1 and H2 (unsafe for small vehicles only), except for the water management basin and areas downstream of the hardstand area. **Thus, the site is generally considered safe although internal drains may not be considered safe for small vehicles.**

- for a **PMF** the entire site is inundated, with the exception of a small portion of the site in the south-west corner which includes the offices, guard house and first aid. Flooding within the site in the PMF ranges up to 2.0 m deep.

  A large portion of the site (comprising of mostly segment storage areas, internal roads and associated hardstand) were categorised as H5 (unsafe for people, vehicles and buildings). Remaining flood affected areas were predicted to range from H1 to H3 (unsafe for vehicles, children and the elderly).

  In such events, the majority of the site will be designed to contain rising road (or pedestrian) access. Therefore, floodwaters will gradually extend from the flood affected area and occupants have flood free access egress from the site.

Increases in potential flood liability are noted to impact on existing properties along the western property boundary across the 10% AEP, 1% AEP and PMF. This includes areas where minor flood level increases are predicated as well as areas presented as ‘Newly Flooded’ areas. This is generally attributed to runoff from small local catchments being blocked by proposed raising of ground levels within the site.

4. FLOOD PREVENTION AND PREPARATION

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, Future Generation proposes to take the following preventative measures.

4.2. Drainage Design

The majority of site flood issues can be addressed through drainage design of the site. As indicated in Appendix A, processing areas of the site (central southern area) characterised by the CBP and precast facility will not be impacted by 1% and 10% AEP events and partially impacted by the PMF event.

The following principles have been applied to the site:

- site design will provide immunity from external flooding in events up to the 10% AEP;
- a v-drain or similar will be constructed, in conjunction with SMRC and as directed by Snowy Hydro to address local drainage issues and minor flood impacts for the industrial properties to the west of the site;
- diversion of flow paths around the site (including that from the south-east corner);
- habitable buildings, electrical wiring and equipment will be located 500mm above the 1% AEP level;
- waste and hazardous material storage will be located outside the 1% AEP extent;
- plant, equipment and stockpiles that have the potential to become floating debris in a flood event will be located outside the 1% AEP extent; and
- non-habitable building floor level will be a minimum of 300mm above the 1% AEP; and
- flood free access and egress will be available from the site.

Residual risk following the implementation of these design measures will be managed as outlined in the flood response procedures in Section 6.

In accordance with the Approval creek realignment works will be undertaken generally in accordance with the *Guidelines for Controlled Activities on Waterfront Land (NRAR, 2018)* with the detailed design giving consideration to the establishment of a vegetated buffer zone where this can practically be accommodated within the site boundary.

4.3. Hazardous Materials Storage

Potentially contaminating activities (e.g. concrete batching and curing) and materials (e.g. cement, fine aggregates and hazardous materials) will be contained within a bunded cementitious water management area and within the enclosed segment factory, outside the 1% AEP flood extent.

Designated chemical storage areas will be established including appropriate primary bunding consistent with NSW government guidelines and relevant Australian Standards, including, but not limited to:

- National Standard – *Storage and Handling of Workplace Dangerous Goods*, National Occupational Health and Safety Commission (NOHSC), NOHSC:1015 (2001);

- *Storage and Handling of Dangerous Goods Code of Practice*, SafeWork NSW (2005);
- *Storing and Handling of Liquids: Environmental Protection – Participants Manual*, Department of Environment and Climate Change (2007);
- AS 1940:2004 - *The storage and handling of flammable and combustible liquids*;
- AS/NZS 4452:1997 - *The storage and handling of toxic substances*; and
- AS/NZS 3883:2007 – *The storage and handling of mixed classes of dangerous goods, in packages and intermediate bulk containers*.

The location of potential storage areas for toxic and hazardous materials is provided in Figure 4-1.

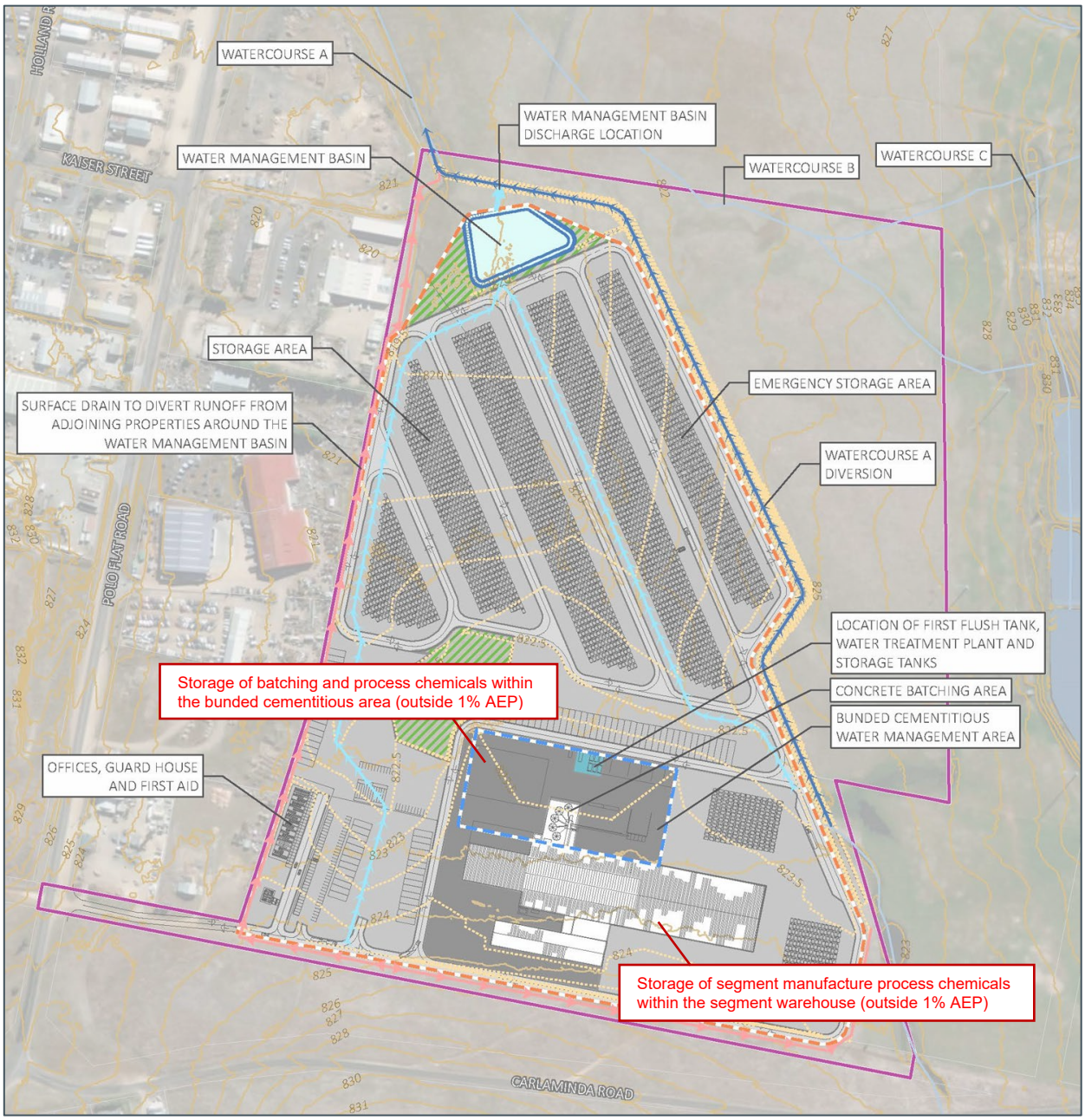

Figure 4-1: Surface water management site layout with storage areas

5. FLOOD RESPONSE

Response encompasses actions to reduce the threat to life, property and the environment following the onset of an emergency. This can include the pre-onset mobilisation and related activity. Response activity is usually based on pre-existing sub-plans and supporting plans, which are scalable and flexible.

5.1. Extreme Weather Monitoring

Future Generation will monitor and interpret local conditions onsite and via the BOM Warning Centre website (http://www.bom.gov.au/australia/flood/). Monitoring information will be used to allow appropriate planning for work tasks to be undertaken for the day.

The following action and alarm levels are proposed for the site:

Category 1: Site preparation

- when 80 mm (or greater) of rainfall is forecast over a 24 hour period (or less), sediment and erosion controls will be inspected and prepared in accordance with the erosion and sediment control plant prepared for the site.

Category 2: Alarm

- if 50 mm (or greater) of rainfall falls occur within a 2 hour period or 130 mm (or greater) of rainfall is forecast over a 24 hour period, the Site Supervisor is to monitor flooding conditions and overland flows, and initiate flood evacuations from the site if required.

5.2. Site preparation

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

5.3. Evacuation

Weather monitoring would provide ample identification of potential flooding risk and would allow safe and orderly evacuation of site personnel as required.

Staff on site would follow instructions to meet at the designated muster point.

The site would be closed and remain closed for the duration of the flood event except in an emergency or as directed by emergency service providers.

5.4. Emergency Contact Numbers

Appendix D contains contact details for key Future Generation and emergency services personnel.

6. FLOOD RECOVERY

6.1. Site Inspections

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

A post-rainfall inspection will be completed immediately following significant rainfall (i.e. > 80 mm in 24 hours). This will be undertaken by the Future Generation 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. Repair

When it is safe to do so any damage to the site is to be repaired according to the original design specifications and geometries that have been assessed as part of flood modelling investigations.

6.3. Post-incident Investigation

The environmental incident process in Section 7 and Appendix A4 of the EMS will be considered following the flood event. Should the flood event constitute an incident, notification and reporting will occur in accordance with the requirements of Section 7 the EMS, the Pollution Incident Response Management Plan and EPL. The investigation will include a review of events leading up to the incident and implement improved practices as required.

APPENDIX A – MODELLED FLOOD CONDITIONS (WITH PROJECT)

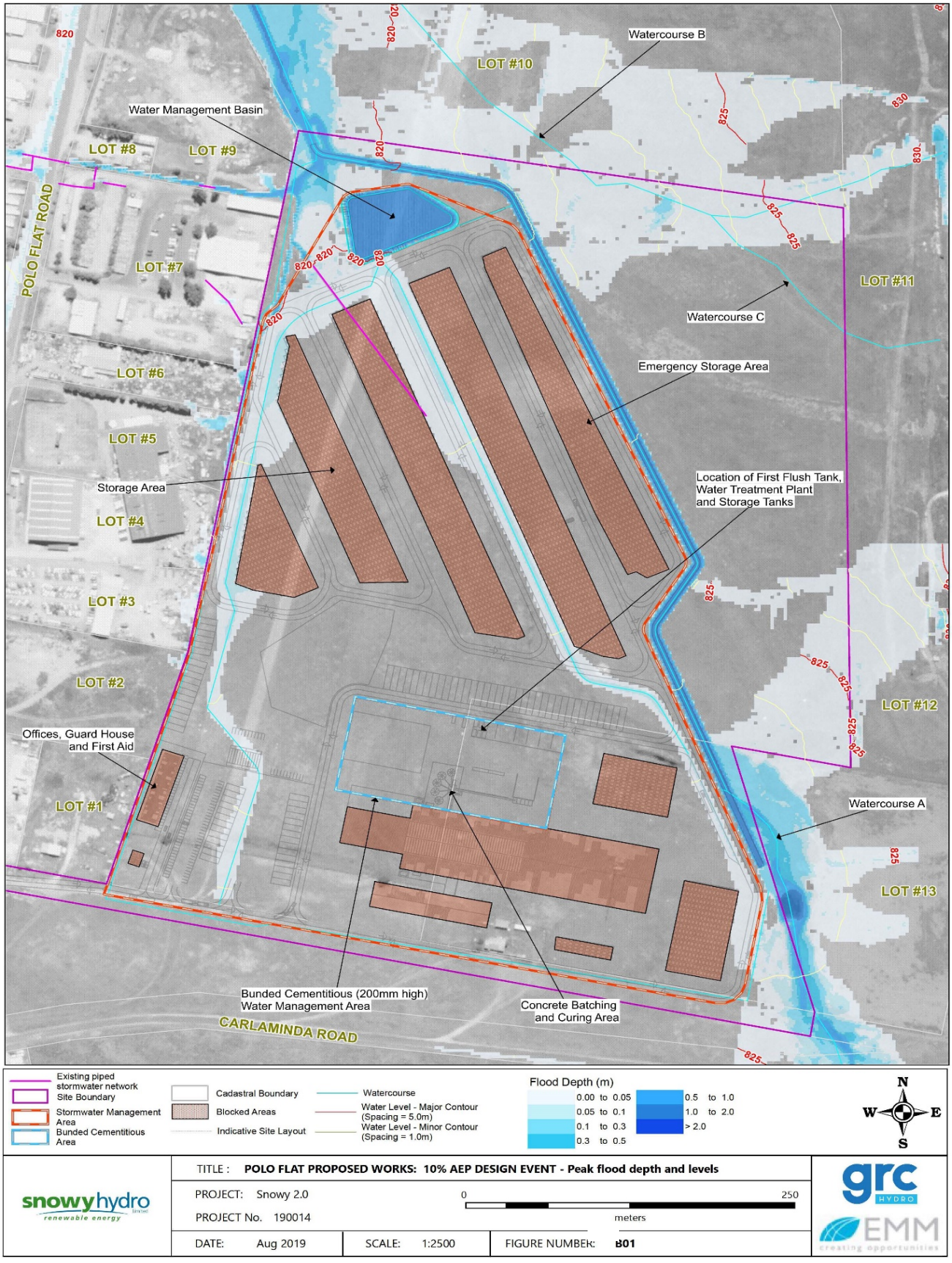

Figure A-1: Proposed 10% AEP Design Event – Peak Flood Depth and Levels (GRC Hydro 2019)

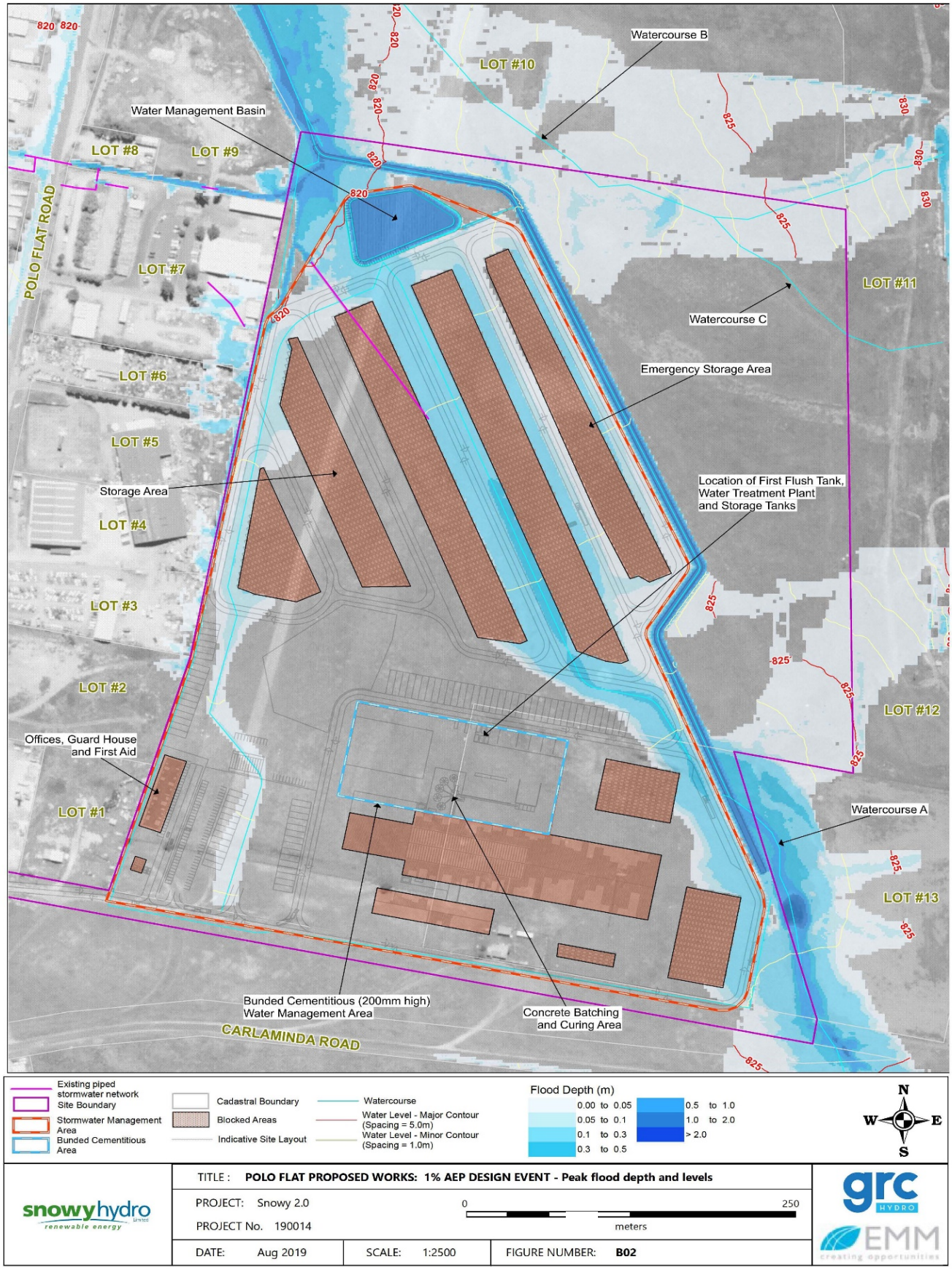

Figure A-2: Proposed 1% AEP Design Event – Peak Flood Depth and Levels (GRC Hydro 2019)

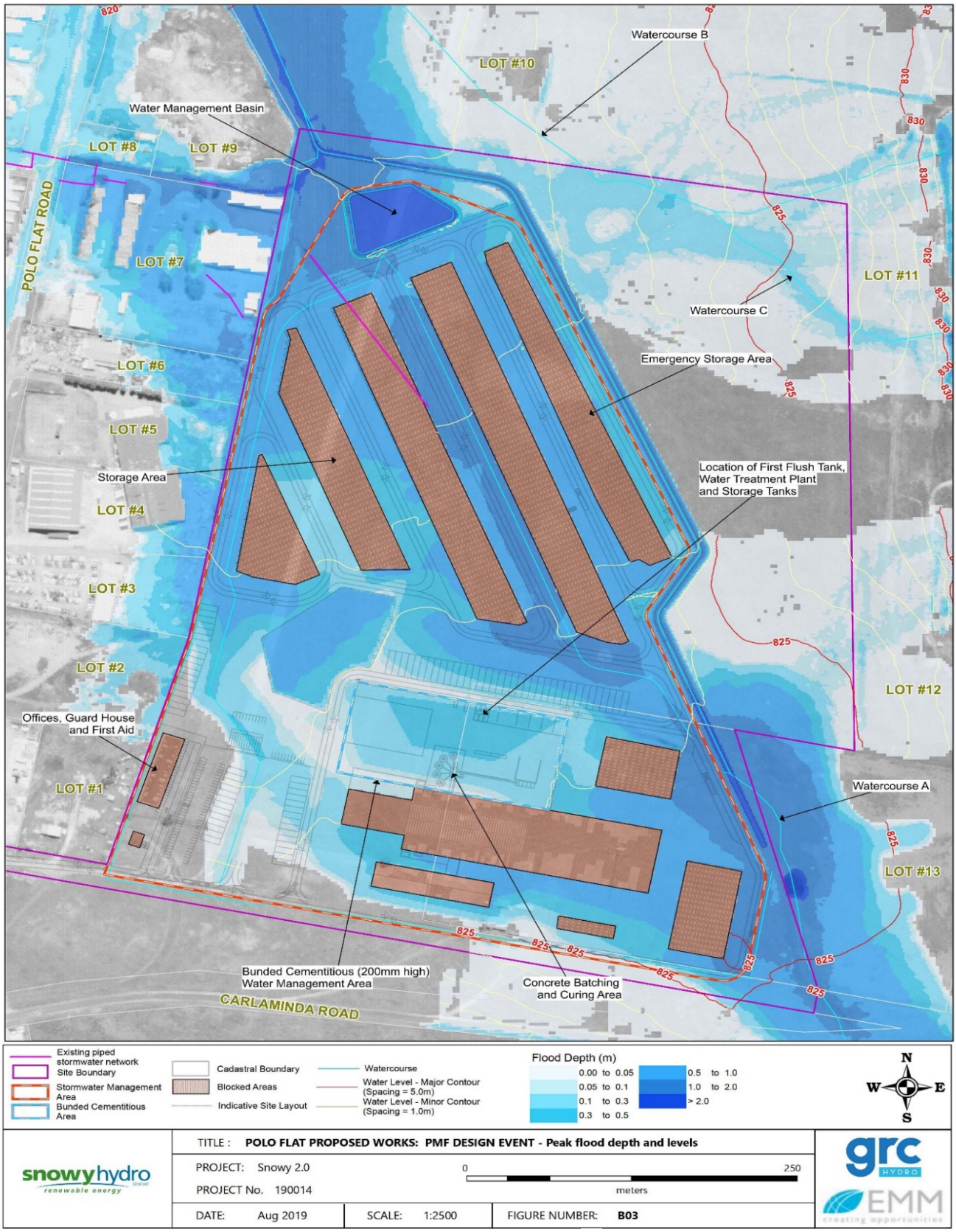

Figure A-3: Proposed PMF Design Event – Peak Flood Depth and Levels (GRC Hydro 2019)

APPENDIX B – PRE-EXISTING FLOOD CONDITIONS (WITHOUT PROJECT)

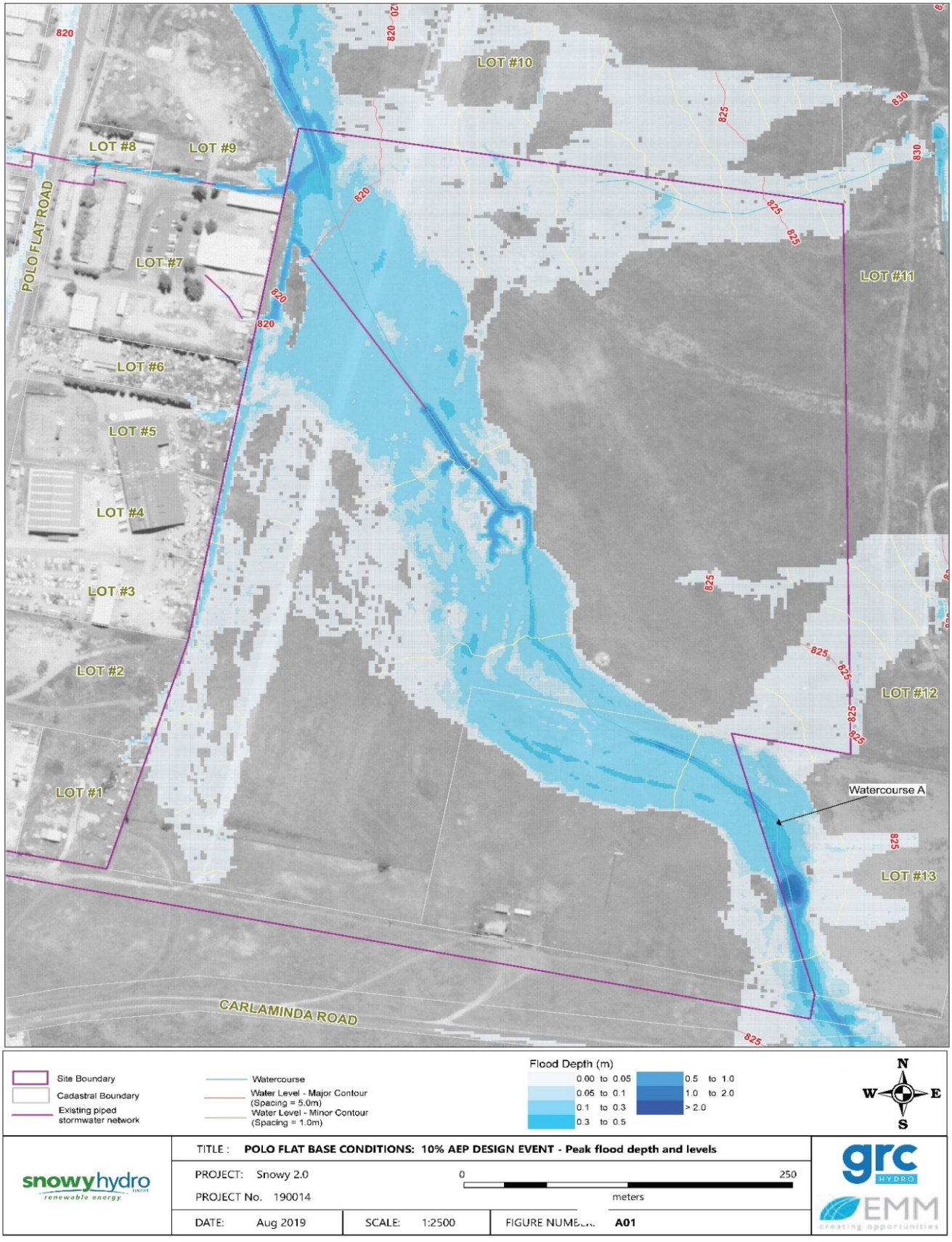

Figure B-1: Baseline 10% AEP Design Event – Peak Flood Depth and Levels (GRC Hydro 2019)

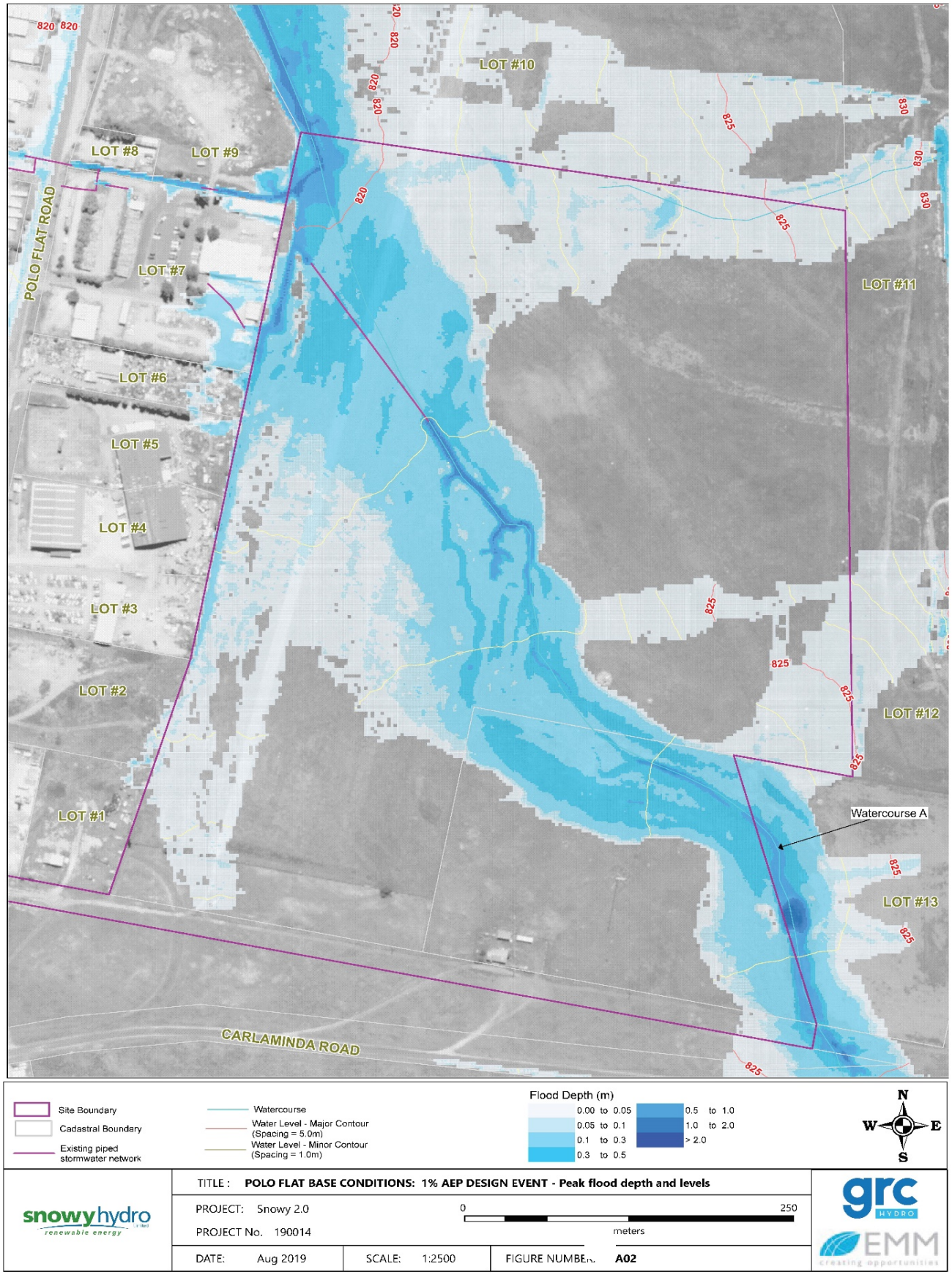

Figure B-2: Baseline 1% AEP Design Event – Peak Flood Depth and Levels (GRC Hydro 2019)

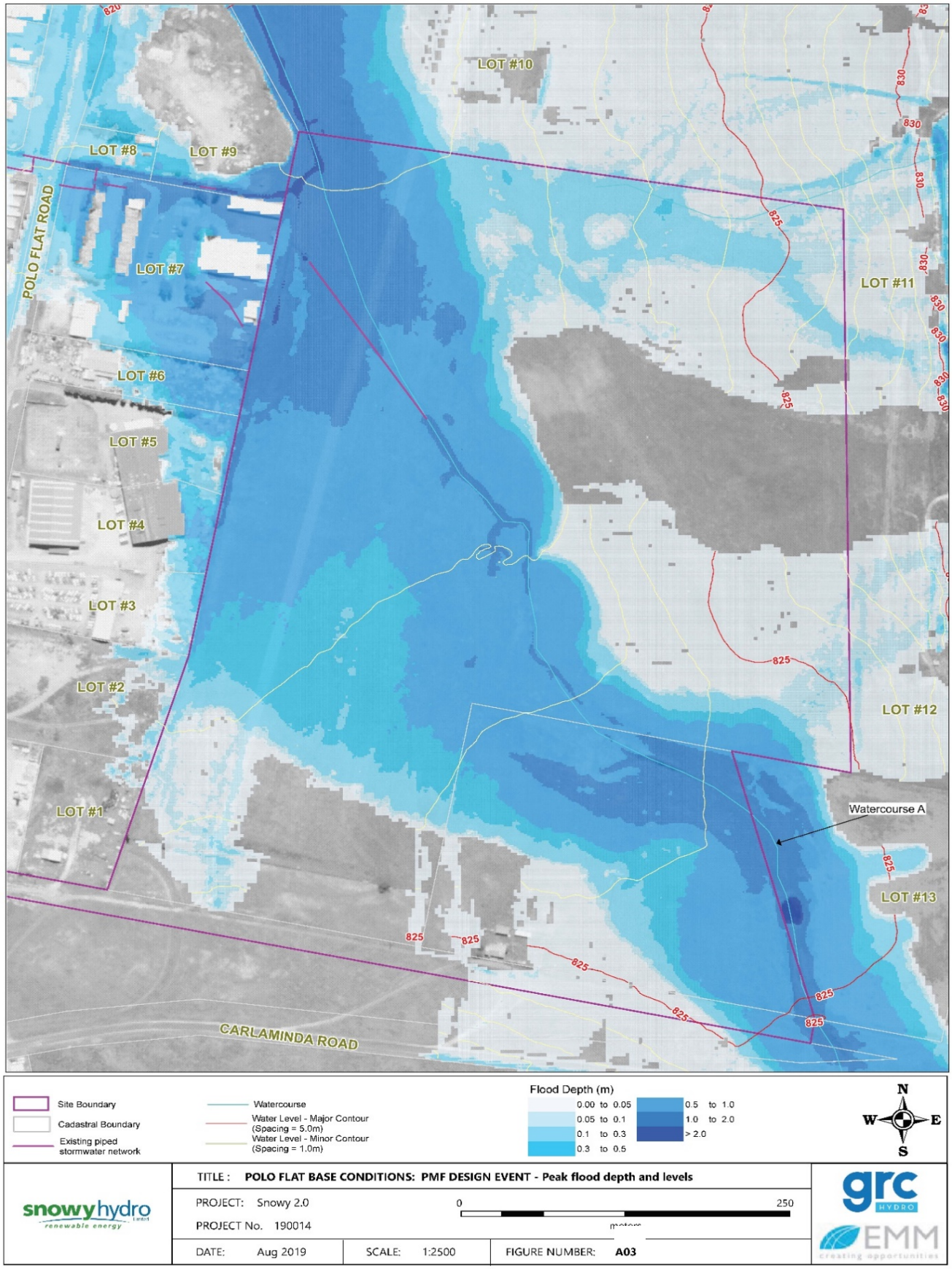

Figure B-3: Baseline PMF Design Event – Peak Flood Depth and Levels (GRC Hydro 2019)

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.

APPENDIX D - EMERGENCY CONTACT LIST

The following details will be refined during construction and operation.

EXAMPLE EMERGENCY CONTACY LIST

POSITION	NAME	CONTACT
Joint Crisis Management Team Representatives	Project Director HSE Manager	Phone: TBA Email: TBA
Person in Charge	Project Director	Phone: TBA Email: TBA
Logistics / Radio Operator	IT / Communications Manager	Phone: TBA Email: TBA
HSSE	HSE Manager	Phone: TBA Email: TBA
Log Keeper	HSE Administrator	Phone: TBA Email: TBA
Emergency Response Team	Security Manager External Agencies	Phone: TBA Email: TBA

EXAMPLE EMERGENCY SERVICE CONTACT DETAILS

Note that this contact list is an example only, live lists will be kept up to date within the project office.

All contact for Emergency Services should be made through 000 for emergency situations.		
Agency	**Location**	**Number**
Police	Adaminaby	02 6454 2244
	Cooma	02 6452 0099
	Tumut	02 6947 7199
Snowy Valleys LGA	Tumut	1300 275 782
Snowy Monaro LGA	Cooma	1300 345 345
Fire and Rescue NSW	Tumut	02 6947 1202
Snowy Monaro Shire Council – After hours duty officer	Cooma	0428 633 598
Snowy Valleys Shire Council – After hours duty officer	Tumut	0427 470 555
EPA Pollution Incident Hotline	NSW	131 555
SafeWork NSW Jason Maynard - Assistant State Inspector	NSW Wagga	13 10 50 02 6933 6506 0428 104 217

APPENDIX E - EVACUATION AND CLOSURE PROTOCOL

The following methodology would be followed in the event that evacuations and closure of the site is required during or in preparation of a flood event. Flood evacuation assembly points and routes are provided below.

- weather monitoring would provide ample identification of potential flooding risk and would allow safe and orderly evacuation of site personnel as required;
- if 50 mm (or greater) of rainfall falls occur within a 2 hour period or 130 mm (or greater) of rainfall is forecast over a 24 hour period, the Site Supervisor is to monitor flooding conditions and overland flows, and initiate flood evacuations from the site as required;
- where enough notice is provided and where it is considered safe to do so, any plant, equipment or hazardous materials located within potential flood zones would be moved to flood free locations on site as instructed by the Site Supervisor;
- workers will be told to move in an orderly and calm manner to a pre-determined Flood Muster Point in the south-west of the site, not impact by flood waters;
- the site would be closed and remain closed for the duration of the flood event except in an emergency or as directed by emergency service providers;
- the site would be opened once it is deemed safe following appropriate inspections and checks;
- when it is safe to do so any damage to the site is to be repaired according to the original design specifications and geometries that have been assessed as part of flood modelling investigations.

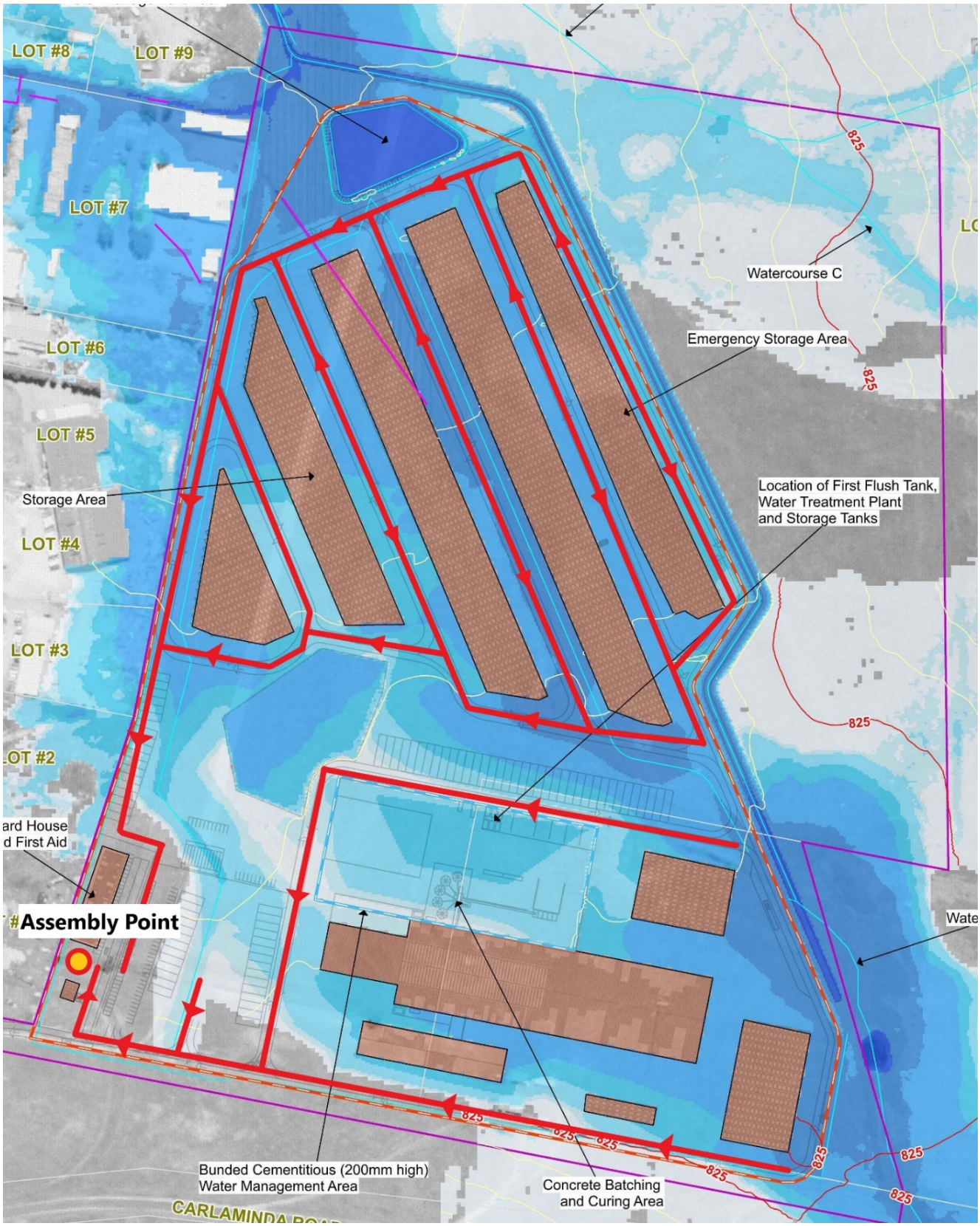

Figure E-1: Indicative flood evacuation assembly points and evacuation routes