



# ENVIRONMENTAL IMPACT STATEMENT

### Segment Factory Response to Submissions

December 2019

# **Proposed Segment Factory**

**Response to Submissions** 



Director 19 December 2019 Duncan Peake Director 19 December 2019

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# 1 Introduction

#### 1.1 Overview

Snowy Hydro Limited (Snowy Hydro) owns and operates the Snowy Mountains Hydro-electric Scheme (Snowy Scheme), a large and complex water storage and diversion scheme in the Australian Alps in southern New South Wales (NSW). Snowy Hydro is the proponent for Snowy 2.0, an expansion of the Snowy Scheme that will increase its generation capacity by almost 50%, providing an additional 2,000 megawatts (MW) generating capacity, and making approximately 350,000 megawatt hours (MWh) (175 hours of energy storage) available to the National Electricity Market (NEM).

Snowy 2.0 will increase the pumped hydro-electric capacity of the existing Snowy Scheme by linking Tantangara and Talbingo reservoirs with tunnels and a power station built in between, almost 1 km below the ground. Snowy 2.0 is the largest committed renewable energy project in Australia and is critical to underpinning system security and reliability as Australia transitions to a decarbonised economy.

Precast concrete segments are essential to line the tunnels for Snowy 2.0 that would be excavated by tunnel boring machines (TBMs). Accordingly, Snowy Hydro proposes to construct and operate a factory which will manufacture the concrete segments required for Snowy 2.0 (the proposed segment factory) on industrial zoned land at Polo Flat, an industrial area located to the east of Cooma (the site).

This response to submissions (RTS) report has been prepared to address submissions made on the environmental impact statement (EIS) prepared for the proposed segment factory.

#### 1.2 Assessment process

#### 1.2.1 New South Wales

Snowy 2.0 has been declared State significant infrastructure (SSI) and critical State significant infrastructure (CSSI) in accordance with the provisions of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). The declaration of Snowy 2.0 as a CSSI project acknowledges that the project is critical to the State for environmental, economic or social reasons.

Applications for SSI and CSSI must be accompanied by an EIS prepared in accordance with the provisions of the EP&A Act and its regulation; the NSW *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). This includes preparation of an EIS to address the Planning Secretary's environmental assessment requirements (SEARs) as required under section 5.16 of the EP&A Act.

Separate applications have been submitted by Snowy Hydro for different phases of Snowy 2.0, including the Exploratory Works and the Main Works. A separate application has also been submitted for an ancillary aspect of Snowy 2.0 being an application for the proposed segment factory that would manufacture the concrete segments that would line the tunnels being excavated for Snowy 2.0.

On 19 June 2019, a scoping report for the proposed segment factory was issued to the NSW Department of Planning, Industry and Environment (DPIE). The purpose of the scoping report was to request and inform the content of the SEARs. SEARs for the proposed segment factory were issued on 31 July 2019 and an EIS was subsequently prepared. In accordance with the EP&A Act and EP&A Regulation, the EIS was placed on public exhibition for a period of 28 days, between 10 October and 6 November 2019.

While the EIS for the proposed segment factory was placed on exhibition, the EIS for Snowy 2.0 Main Works was also placed on exhibition. Main Works is the proposed construction and operation of Snowy 2.0, including the connection of Talbingo and Tantangara reservoirs via the tunnels and power station.

A total of 33 submissions were received during the public exhibition period of the EIS for the proposed segment factory, including 26 submissions from the community, six from NSW government agencies and one from Snowy Monaro Regional Council (SMRC). Of the 26 community submissions, 22 related to Snowy 2.0 Main Works rather than the proposed segment factory. Accordingly, while the submissions on Main Works are recognised in this RTS, the matters raised in the submissions will be addressed in the RTS for Main Works. A detailed analysis of matters raised in the submissions is set out in Chapter 2.

#### 1.2.2 Commonwealth

On 26 June 2019, Snowy Hydro referred the proposed segment factory to the Commonwealth Minister for the Environment under the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). On 13 August 2019, the proposed segment factory was determined by the Acting Assistant Secretary Assessments and Waste Branch of the Commonwealth Department of the Environment and Energy (DEE), as delegate to the Minister, to be 'not a controlled action' and therefore does not require further assessment or approval under the EPBC Act.

#### 1.3 The proposed segment factory

#### 1.3.1 Key elements of the exhibited project

The site of the proposed segment factory is located on land in the southern eastern corner of the Polo Flat industrial area. The site, which has an area of about 31.6 hectares (ha), is surrounded by industrial development to the north and west and predominantly vacant land to the south and east. Notwithstanding this, an abattoir is located immediately of the east of the site. A photograph of the site and surrounding development can be seen in Photograph 1.1.



### Photograph 1.1 The site as viewed from the west – the site is located behind the industrial development located in the middle-ground of the photograph

In developing the layout and design of the proposed segment factory, an iterative and risk-based design and assessment process was adopted, referred to as a design integration and assessment approach (DIAA). This DIAA process was undertaken with the guiding principles of avoiding and minimising environmental impacts where possible. While project components are generally fixed, there may be some refinements to the physical layout or design of certain components of the project following further investigation and design. Consistent with the DIAA process, the objective for the detailed design process is to optimise the design to meet construction requirements while continuing to minimise environmental impacts.

The proposed segment factory would contain a concrete batching plant (CBP), building for the manufacture of the segments (the precast building), uncovered storage areas for raw material and segments, vehicle parking areas and associated offices and workshops. The layout of the proposed segment factory can be seen in Figure 1.1.

The construction phase of the proposed segment factory would last about five months utilising a workforce of about 30 people. Construction vehicle movements would comprise construction workers' light vehicles as well as heavy vehicles transporting equipment, building and construction materials, waste, and fill material if required.

The proposed segment factory would operate over a period of about 3.5 years utilising a workforce of about 125 people.

Approximately 130,500 segments making up about 14,500 precast concrete tunnel rings would be manufactured over the operational period of the proposed segment factory for exclusive use as part of Snowy 2.0. Each tunnel ring would consist of nine segments.

Primary inputs for the proposed segment factory include aggregate, sand, cement and rebar steel. Primary outputs include the precast tunnel segmental linings which would be transported to the construction sites of Snowy 2.0 within KNP.

Operational vehicle movements will comprise light vehicles (worker's vehicles and service vehicles) and heavy vehicles required for the transportation of the main inputs for the segments and for the transportation of the segments.

#### 1.3.2 Refinements since public exhibition

Since exhibition of the EIS for the proposed segment factory there have been some refinements to the project, including:

- reduction in predicted traffic generated by the proposed segment factory;
- resolution on external road upgrades required for the proposed segment factory and Snowy 2.0 Main Works;
- update to the layout provided in the EIS of the proposed segment factory to reflect noise modelling reported within the EIS; and
- clarification around need for further soil testing for site re-use, following decontamination.

These refinements form part of the DIAA process identified above.

Details on these refinements are provided in Chapter 3.

#### 1.4 Purpose of this report

This RTS has been prepared pursuant to section 5.17(6)(a) of the EP&A Act and in accordance with the *Responding* to Submissions – Draft Environmental Impact Assessment Guidance Series June 2017 (Department of Planning and Environment 2017). The purpose of the document is to consider and respond to submissions made in relation to the EIS for the proposed segment factory by various State and local government agencies, special interest groups and the public.

#### 1.5 Structure of this report

This report follows the below structure:

- introduction;
- analysis of submissions;
- actions taken since exhibition;
- response to submissions; and
- updated evaluation and conclusions.

This report also presents a submissions summary register in Appendix A, a register of submitters in Appendix B, the revised mitigation measures in Appendix C and a revised traffic noise assessment memo in Appendix D.



Snowy 2.0 Response to Submissions Proposed Segment Factory Figure 1.1



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# 2 Analysis of submissions

#### 2.1 Submissions received

A total of 33 submissions were received in response to the exhibition of the EIS for the proposed segment factory, including 26 submissions from the community, six from NSW government agencies and one from SMRC. Of the 26 community submissions, 22 related to Main Works rather than the proposed segment factory. A summary of the community and government submissions received is provided in the sections below.

#### 2.1.1 Community

Details of the submissions made by the community are provided in Table 2.1. This includes:

- the submission number;
- the location of the submitter to determine whether they are local or not (submissions received from either the Snowy Monaro Regional or the Snowy Valleys local government area (LGA) were considered to be local);
- the submission type (ie supports, objects or comments);
- whether the submission relates to the proposed segment factory or whether it relates to Main Works those relating to the proposed segment factory are shaded grey; and
- the key issues raised for those that provided a submission relating to the proposed segment factory.

It should be noted that the submission type has been characterised by DPIE following their review of the submission.

Submission	Location			Submission type		Relates to		
no.	Local	Non-local	Location	Supports	Objects	Comments	segment factory?	Key issues
1		х	Wilberforce		х		No	N/A
2		х	Leura		x		No	N/A
3		х	Cremorne		x		No	N/A
4			Not stated	Х		No	N/A	
5		х	Earlwood		х		No	N/A
6		х	Mount Fairy		х		No	N/A
7		х	Chisholm		х		No	N/A
8		х	Manly	Х		No	N/A	
9		х	Caves Beach		х		No	N/A
10		х	Lane Cove		х		No	N/A
11		х	Kingston			х	No	N/A
12		х	Port Macquarie			х	No	N/A
13	х		Adaminaby			х	No	N/A

#### Table 2.1Summary of community submissions

Submission	Location		Sul	Submission type				
no.	Local	Non-local	Location	Supports	Objects	Comments	segment factory?	Key issues
14	х		Cooma			х	Yes	Transport impacts
								Economic benefits
								Amenity
								Disturbance     footprint
15		х	Balnarring		х		No	N/A
16	х	x Cooma				х	Yes	Transport impacts
17		х	Illawong		х		No	N/A
18		х	x Murwillumbah		х		No	N/A
19		х	x Newport			x	No	N/A
20		х	The Ponds	х			Yes	Social benefits
21		х	Warwick Farm			х	No	N/A
22		х	Wollstonecraft		х		No	N/A
23		х	Bulli		х		No	N/A
24	х		Cooma			х	Yes	Transport impacts
								Amenity impacts
25		х	Chatswood		х		No	N/A
26		х	Caniaba		х		No	N/A

Table 2.1 indicates:

- out of the 26 community submissions, 22 submissions (85%) were for the Main Works and not the proposed segment factory conversely only four submissions (15%) were for the proposed segment factory;
- four community submissions (15%) were from local residents (three in Cooma and one in Adaminaby), with the remainder (85%) being from non-local residents;
- all submissions from non-local residents were for Main Works;
- of the four submissions relating to the proposed segment factory, three were from local residents (Cooma) and one was from a non-local resident;
- of the four submissions relating to the proposed segment factory, three were characterised as providing comments, one was characterised as providing support and none objected; and
- the key issues raised in the four submissions on the proposed segment factory related to potential transport impacts, amenity impacts and social and economic benefits.

The matters raised in the submissions that relate to Main Works will be addressed in the RTS for the Main Works, and not addressed in this RTS. The locations of the community submissions received are shown in Figure 2.1. Community comments made on the proposed segment factory have been addressed in Section 4.3.



Local government area

Project-related submission (Proposed Segment Factory)

- Supports (1)
- Comments (3)

Non-related submission (Main Works)

- Ocomments (5)
- Objects (17\*)

\*Location not stated for one submission

Location of community submissions

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Snowy 2.0 Response to Submissions Proposed Segment Factory Figure 2.1



#### 2.1.2 Government

Seven submissions were received from government, including six submissions from NSW government agencies and one submission from SMRC. The six submissions from the NSW government agencies were classified as providing comments, while the submission from SMRC was classified as providing support to the proposed segment factory.

The following NSW government agencies that provided submissions included:

- Transport for NSW (TfNSW);
- NSW Environment Protection Authority (EPA);
- Biodiversity and Conservation Division (BCD) of DPIE;
- NSW Department of Primary Industries (DPI);
- NSW Roads and Maritime Services (RMS); and
- Water Division of DPIE (DPIE Water) and NSW Natural Resources Access Regulator (NRAR).

It is noted that the RMS was recently integrated with TfNSW. However given separate submissions were received from these agencies the matters raised are addressed separately in Section 4.2.5 and Section 4.2.6 respectively.

With the exception of DPI, all agencies requested additional information on the proposed segment factory. These matters are addressed in Section 4.2. DPI stated that it "has reviewed this proposal and has no comment."

SMRC's submission states that it:

... strongly supports the Snowy 2.0 project and acknowledges the efforts made by Snowy Hydro Limited (SHL) to engage with Council during the formative stages of both the Main Works and the Segment Factory projects in order to identify issues of potential concern and possible mitigation measures.

SMRC also wishes to acknowledge the efforts made by SHL to ensure that local communities receive benefits from the proposal, and particularly for those communities likely to be more affected by some of the project's impacts. The Segment Factory proposal is one such benefit.

SMRC's submission also provides some general comments which have been addressed in Section 4.2.1.

#### 2.2 Issues raised in submissions

This section provides details of the issues raised in the submissions received.

#### 2.2.1 Response methodology

All submissions received were collated and categorised based on who they were from, in accordance with the following categories:

- individual community member; and
- council and State government agencies.

The submissions were reviewed, and the key matters raised in each submission identified. Matters raised in each submission were categorised by theme. The themes identified through the review of key matters were:

- air;
- amenity;
- approval process;
- biodiversity;
- contamination;
- disturbance footprint;
- economic;
- engagement;
- heritage;
- social;
- strategic need and justification;
- transport;
- waste; and
- water.

Responses were prepared to each matter, with input from technical specialists who prepared the relevant impact assessment for the EIS. The study team was the same team that prepared the EIS.

#### 2.2.2 Submissions in objection

As noted previously, 33 submissions were received, however only 11 relate to the proposed segment factory (seven government and four community). In total, 17 out of 33 submissions received were objections. All of the objections regarded matters beyond the scope of the proposed segment factory, primarily relating to impacts associated with the Snowy 2.0 Main Works application. There were no objections made to the proposed segment factory.

#### 2.2.3 Government

As noted above, six NSW government agencies commented on the proposed segment factory and SMRC provided a submission in support. A summary of the matters raised in submissions from government agencies and SMRC is provided in Table 2.2.

#### Table 2.2 Summary of matters raised in government submissions

Aspect	Quantity	Percentage (%)
Noise	1	14%
Biodiversity	2	29%
Heritage	1	14%
Contamination	1	14%
Air	1	14%
Waste	1	14%
Transport	2	29%
Approval process	1	14%
Water	1	14%

#### 2.2.4 Individual community members

In total, 26 individual community member submissions were received by DPIE following the public exhibition of the EIS for the proposed segment factory. However, only four submission relate to the proposed segment factory, which have been summarised in Table 2.3 below.

### Table 2.3Summary of matters raised in community submissions regarding the proposed segment<br/>factory

Aspect	Quantity	Percentage (%)
Amenity	2	50%
Economic	1	25%
Social	1	25%
Transport	3	75%
Disturbance footprint	1	25%
Engagement	1	25%

Several submissions were received on matters beyond the scope of the proposed segment factory and related to the Snowy 2.0 Main Works application. The matters raised in community submissions are further detailed in Section 4.3.

#### 2.3 Exhibition details

The EIS for the proposed segment factory was publicly exhibited for a period of 28 days, between 10 October 2019 and 6 November 2019. Hard copies of the EIS and EIS Summary were exhibited at SMRC's Cooma offices and the Cooma library. The EIS was also available for review on DPIE's Major Projects website.

## 3 Actions taken since exhibition

#### 3.1 Refinements to the project

Since exhibition of the EIS for the proposed segment factory there have been some refinements to the project, including:

- a reduction in predicted traffic movements generated by the proposed segment factory;
- resolution on external road upgrades required for the proposed segment factory and Snowy 2.0 Main Works;
- update to the layout provided in the EIS of the proposed segment factory to reflect noise modelling reported within the EIS; and
- clarification around need for further soil testing for site re-use, following decontamination.

These refinements are detailed below.

#### 3.2 Predicted traffic movements

#### 3.2.1 Reduction in predicted movements

Since the public exhibition period, clarification of the predicted traffic volume data has identified a significant reduction in the predicted traffic movements. The final traffic volumes show a peak of approximately 410 (205 in each direction) truck movements per day through Cooma for Snowy 2.0, noting the average number of trucks is lower through the project. The EIS for the proposed segment factory, and its supporting technical assessments, were based on predicted operational project-generated traffic volumes that are double those now proposed.

The volumes are different to what was modelled in the traffic and transport assessment which was 820 daily twoway heavy vehicle movements (ie 410 one-way movements). The change was the result of how the data provided by FGJV was interpreted with respect to the definition of 'one-way movements'. Accordingly, predicted operational project-related traffic volumes would now be half of those contained within the EIS and supporting assessments.

For example, the EIS for the proposed segment factory stated that there would be a peak of 132 one-way (or 264 two-way) daily operational heavy vehicle movements on the Monaro Highway west of Polo Flat Road. This would now be a peak of 66 one-way (or 132 two-way) daily operational heavy vehicle movements. The predicted average and peak daily light and heavy vehicle one-way movements during the operations of the proposed segment factory are presented in Table 3.1 and shown in Figure 3.2 and Figure 3.3. Note that within Cooma, the Monaro and Snowy Mountains Highways are also known as Sharp Street.

In addition to the above, FGJV is in the process of applying to use Performance-Based Standards (PBS) vehicles to transport segments between the segment factory and construction sites for Snowy 2.0. These vehicles include three articulated trailers which would hold three times the number of segments compared to a regular semi-trailer (ie nine segments compared to three) and as such would reduce the number of heavy vehicle movements transferring segments by about 66%.

The design of the PBS vehicles (see Figure 3.1) is currently under assessment by the National Heavy Vehicle Regulator. It is anticipated that a decision on the use of the PBS vehicles will be made in quarter 1 2020. If approved, FGJV anticipate that the PBS vehicles would transport all segments to the construction sites for Snowy 2.0, including Exploratory Works and Main Works. Notwithstanding this, other heavy vehicles may be required for materials and segment transport during the initial construction of the segment factory.



#### Figure 3.1 Design of proposed PBS vehicles

Should approval be granted for the use of the PBS vehicles, predicted average and peak daily light and heavy vehicle one-way movements during the operations of the proposed segment factory are presented in Table 3.2 and shown in Figure 3.4 and Figure 3.5.

### Table 3.1 Average and peak daily one-way traffic movements during operation without use of PBS vehicles

Road network	Average daily light vehicle movements	Average daily heavy vehicle movements	Peak daily light vehicle movements	Peak daily heavy vehicle movements
Monaro Highway (east of Polo Flat Road north towards Canberra)	8	26	13	42
Monaro Highway (west of Polo Flat Road south towards Cooma)	78	39	98	66
Polo Flat Road (north)	75	65	97	108
Polo Flat Road (south)	105	0	133	0
Monaro Highway (south of Polo Flat Road towards Bombala)	8	0	13	0
Snowy Mountains Highway (west of Bombala Street towards Adaminaby)	8	39	15	66
Tantangara Road	5	18	8	42
Link Road	5	18	8	42

Source: FGJV

### Table 3.2Average and peak daily one-way traffic movements during operation with use of PBS<br/>vehicles

Road network	Average daily light vehicle movements	Average daily heavy vehicle movements	Peak daily light vehicle movements	Peak daily heavy vehicle movements
Monaro Highway (east of Polo Flat Road north towards Canberra)	8	26	13	42
Monaro Highway (west of Polo Flat Road south towards Cooma)	78	12	98	22
Polo Flat Road (north)	75	39	97	64
Polo Flat Road (south)	105	0	133	0
Monaro Highway (south of Polo Flat Road towards Bombala)	8	0	13	0
Snowy Mountains Highway (west of Bombala Street towards Adaminaby)	8	12	15	22
Tantangara Road	5	6	8	11
Link Road	5	6	8	11

It should be noted that while Table 3.1 and Table 3.2 show the predicted number of traffic movements generated through the operational phase of the proposed segment factory with and without PBS vehicles, these are predictions only and there may be other movements required to support the project.



Source: EMM (2019); FGJV (2019); Snowy Hydro (2019); DFSI (2017); GA (2011); LPMA (2011)

- Site boundary
- – Rail line
- Main road
- Local road or track - Watercourse
- Cadastral boundary
- NPWS reserve

 Traffic survey location
 00 Light vehicles 00 Heavy vehicles

Average daily one-way operational traffic movements without PBS vehicles

snowy2.0

Snowy 2.0 Response to Submissions Proposed Segment Factory Figure 3.2

0.5





Source: EMM (2019); FGJV (2019); Snowy Hydro (2019); DFSI (2017); GA (2011); LPMA (2011)

- 🔲 Site boundary
- — Rail line
- Main road
   Local road or track
- Cadastral boundary
- NPWS reserve
- Traffic survey location
   00 Light vehicles
   00 Heavy vehicles

Peak daily one-way operational traffic movements without PBS vehicles

snowy2.0

0.5

Snowy 2.0 Response to Submissions Proposed Segment Factory Figure 3.3





Source: EMM (2019); FGJV (2019); Snowy Hydro (2019); DFSI (2017); GA (2011); LPMA (2011)

- Site boundary
- – Rail line
- Main road
- Local road or track - Watercourse
- Cadastral boundary
- NPWS reserve

 Traffic survey location
 00 Light vehicles 00 Heavy vehicles

Average daily one-way operational traffic movements with PBS vehicles

> Snowy 2.0 Response to Submissions Proposed Segment Factory Figure 3.4







Source: EMM (2019); FGJV (2019); Snowy Hydro (2019); DFSI (2017); GA (2011); LPMA (2011)

- Site boundary
- – Rail line
- Main road
- Local road or track - Watercourse
- Cadastral boundary
- NPWS reserve
- Traffic survey location
   00 Light vehicles 00 Heavy vehicles

Peak daily one-way operational traffic movements with PBS vehicles

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Snowy 2.0 Response to Submissions Proposed Segment Factory Figure 3.5



#### 3.2.2 Use of alternative route

In addition to the key roads identified in Table 3.1 and Table 3.2, an alternative route for heavy vehicles between the proposed segment factory and the Snowy 2.0 construction sites within KNP which bypasses Cooma has been investigated by Snowy Hydro in consultation with SMRC and RMS. This route includes Yallakool, Mittagang, Shannons Flat and Bobeyan roads.

Use of this alternative route by heavy vehicles generated by the proposed segment factory would likely require upgrade works including:

- road widening where required;
- the sealing of Shannon's Flat and Bobeyan roads; and
- upgrades to the intersections of Bobeyan Road and Snowy Mountain Highway, Yallakool Road/Polo Flat Road and Monaro Highway.

The investigation into the alternative transport route is intended to reduce impacts during peak traffic flows on the Monaro and Snowy Mountains highways. If used, this alternative route would reduce traffic volumes generated by the proposed segment factory in Sharp Street in Cooma, including during peak holiday periods. The reductions in traffic volumes are not reflected in Table 3.1 and Table 3.2.

It should be noted that the use of the alternate transport route does not form part of the project, and therefore approval is not being sought for the use of the route at this stage. Should the alternate transport route be upgraded to the standard required approval would be sought separately.

#### 3.3 Road and intersection upgrades

#### 3.3.1 External road and intersection upgrades

Snowy Hydro has been working with RMS in relation to the external road and intersection upgrades required for the Snowy 2.0 project generally, including for the proposed segment factory. The work being undertaken with RMS on external road and intersection upgrades is to address the recommendations from both the traffic and transport assessment and the road safety audit (RSA). Except for the intersection of the access road of the proposed segment factory with Polo Flat Road and maintenance to Polo Flat Road to the extent caused by project-related traffic, all external road and intersection upgrades are proposed to be separately undertaken and managed by RMS. Table 3.3 below lists the various intersections that are in-principle agreed to be undertaken and managed by RMS.

It is envisaged that RMS would undertake the upgrade works in the first half of 2020.

RMS will be managing its own approvals to undertake these road and intersection upgrades under Part 5 of the EP&A Act. Accordingly, while these upgrades will be utilised by traffic generated by construction activities associated with Snowy 2.0, including the proposed segment factory, they do not form part of the applications for Snowy 2.0.

#### Table 3.3 Intersection upgrades agreed with RMS

Major road location	Intersection side road	Intersection upgrades agreed with RMS
Snowy Mountains Highway	Bombala Street Roundabout	The roundabout of Snowy Mountains Highway and Bombala Street will remain in its current state with the addition of a temporary traffic signal on Bombala Street (northern side) that will be used if the traffic queues stretch beyond the Cooma Creek Bridge. The purpose of these works is to reduce delays at the intersection, particularly during the afternoon peak. Some minor works to existing kerbs, signage and internal roundabout pavement will be required to accommodate oversized and over mass special movements.
Snowy Mountains Highway	Vale Street Roundabout	The roundabout of Snowy Mountain Highway and Vale Street will require some minor works to existing kerbs, signage and internal roundabout pavement to accommodate oversized and over mass special movements.
Snowy Mountains Highway	Tantangara Road	The intersection of Tantangara Road and Snowy Mountains Highway will be upgraded from a basic T-intersection to include a dedicated right turn lane on the highway. The purpose of the upgrade is to provide a dedicated turn lane for vehicles entering Tantangara Road and allows vehicles travelling straight to easily pass a turning vehicle. There is also an opportunity to improve safety and deliver better connections for existing road users. As part of the upgrade, it is proposed to reduce the speed limit at the intersection from 80 to 60 km/hr. Further sight distance and design checks will confirm this. A vehicle activated sign may be used to warn drivers of the increased truck movements in the area. Finally, the 50 m throat of the intersection that joins the Snowy Mountains Highway will be sealed to avoid dust and gravel being driven onto the highway.
Snowy Mountains Highway	Kosciusko Road	The intersection of Kosciuszko Road and Snowy Mountains Highway is a four-way, recently reconstructed intersection that will be upgraded with minor shoulder pavement works to accommodate the turn paths for heavy vehicles. This will improve the safety to the road users and reduce the requirement for pavement maintenance due to trucks overrunning existing pavement widths.
Snowy Mountains Highway	Marica Road	A new intersection joining Marica Road to the Snowy Mountains Highway is proposed that comprises a basic right turn treatment and auxiliary left turn. The intersection width has been designed to accommodate a 19 m semi-trailer and will meet the required RMS standards to form a safe intersection for the road user.
Snowy Mountains Highway	Link Road	The intersection of Link Road and Snowy Mountains Highway will be upgraded through minor pavement marking changes and the addition of a vehicle activated sign. The purpose of the upgrade is to provide clarity to the road user through pavement markings in addition to warning vehicles of the increase in truck movements.
Snowy Mountains Highway	"Rockforest"	A new intersection joining "Rockforest" to the Snowy Mountains Highway is proposed that comprises a basic right turn treatment and auxiliary left turn. The intersection width has been designed to accommodate a 19 m semi-trailer and will meet the required RMS standards to form a safe intersection for the road user.
Monaro Highway	Polo Flat Road	The intersection of Polo Flat Road and Monaro Highway will be upgraded from a t- intersection to a three-way, two-lane roundabout. The purpose of the upgrade is to reduce delays at the intersection, particularly during the winter peak. There is also an opportunity to improve safety and deliver better connections for existing road users.

#### Table 3.3 Intersection upgrades agreed with RMS

Major road location	Intersection side road	Intersection upgrades agreed with RMS
Monaro Highway	Sales Yard Road	The intersection of Sales Yard Road and Monaro Highway will be upgraded from a basic t-intersection to an intersection that provides a basic right turn treatment in addition to a vehicle activated sign. The purpose of the upgrade is to provide width for users of the Monaro Highway to bypass any vehicles turning right into Sales Yard Road. The vehicle activated sign will warn users of the Monaro Highway of any vehicles turning out of Sale Yard Road to improve safety.

As mentioned previously, the intersection of the access road of the proposed segment factory with Polo Flat Road will not be completed by RMS and therefore forms part of this approval. For the intersection between the access road to the new factory and Polo Flat Road, a new basic t-intersection is required. With Polo Flat Road being a SMRC asset, this intersection will require council approval. The layout of the intersection will be driven by the required 19 m semi design vehicle turn paths. Snowy Hydro and SMRC are working together to develop an appropriate final design. A concept design for the new intersection can be seen in Figure 3.6.

In addition to the intersection upgrades mentioned in Table 3.3 above, condition assessments and pavement investigations are being undertaken along the Polo Flat Road by Snowy Hydro. Following on from the results of the investigations, a determination on whether strengthening of the pavement will be required. It is not anticipated to undertake any widening or geometrical changes to the Polo Flat Road.

In order to mitigate against potential travel delays to road users, Snowy Hydro has been working in consultation with RMS to develop an arrangement consisting of several turn out bays placed in strategic locations along the Snowy Mountains Highway. It is anticipated that approximately four slow vehicle turn-out bays will be constructed on the northbound route to site, and two new turnout bays constructed on the southbound route along the highway. The specific locations of these will be determined by RMS to ensure that they are effective in mitigating the impacts of project traffic on public users. These turn-out bays will be managed by RMS, including approvals and construction. It is expected that these works will be completed by the start of the winter months, 2020.

Snowy Hydro has conducted extensive community engagement about Snowy 2.0 since mid-2017, to raise awareness about the project and its benefits and impacts, and to seek feedback from the community. We have established effective communications channels including online, social media, publications and face-to face interactions to meaningfully engage with stakeholder groups and the wider community. Community engagement, updated communication materials and consultation will continue throughout the life of the project.

A Snowy 2.0 communications working group has been established, with representation from Snowy Hydro, the project's principal contractor FGJV, RMS, local governments (SMRC and Snowy Valleys Council), the NSW Police, National Parks and Wildlife Service, Destination NSW, and DPIE.

A major focus for the group is coordinating effective and broad-reaching communications around Snowy Mountains road safety, increased traffic in the region and roadworks (either scheduled upgrades or works occurring as a result of Snowy 2.0). A communications strategy has been drafted and aims to:

- share road safety information to help improve safety among road users;
- advise the public of roadworks and encourage journey planning;
- raise awareness about extra heavy vehicles present on Snowy Mountains roads during construction;
- influence driver behaviour during interactions with roadworks or heavy vehicles; and

• educate the community about the need for, and benefits of, roadworks supporting the Snowy 2.0 project.

Snowy Hydro, FGJV and members of the working group will share important information about Snowy 2.0 and work together to coordinate messaging. Communications will be delivered via a wide range of tools and channels (including networks established by key stakeholders) to maximise the reach and audience.

Tools include videos, variable message signs, other signage, works notifications, print and electronic newsletters, written materials, radio advertising etc. Channels include traditional and social media, websites, apps such as Live Traffic, stakeholder networks, Snowy Mountains region business networks, community information sessions etc.

The proposed mitigation measures recommended in the EIS to address potential traffic impacts of the proposed segment factory have been amended to reflect the above changes. As such, the proposed mitigation measures have been updated to reflect that FGJV would only be responsible for the construction of the intersection of the proposed access road with Polo Flat Road. These updates are reflected in Table 3.4 below where changes to the proposed mitigation measures reported in the EIS have been made as tracked changes. Deletions of text are shown as crossed out red text (eg deletion of text), and additions to text are shown in blue text (eg addition of text).

Impact/risk	ID#	Measure(s)
Site distances	TRA01	<ul> <li>Reduced speed areas at locations where minimum site distances cannot be achieved.</li> </ul>
Intersections	TRA02	<ul> <li>Intersection upgrades where either background traffic growth or the addition of project related traffic will result in unsatisfactory intersection performance.</li> </ul>
Road damage	TRA03	<ul> <li>Road maintenance measures to restore any damage that may result due to project related traffic.</li> </ul>
Traffic controls	TRA0 <mark>4</mark> 1	<ul> <li>Traffic controls for locations associated with pavement widening, such as those associated with intersection upgrades, that require temporary occupation of traffic lanes or for works adjacent to the road would be implemented during the construction of the intersection of the access road with Polo Flat Road.</li> </ul>
Community notification	TRA0 <mark>5</mark> 2	<ul> <li>Community consultation, notifying communities and emergency services would be undertaken of for any disruptions to traffic and access restrictions required by the project.</li> </ul>
Management plan	TRA0 <mark>6</mark> 3	• The EMP would set out guidelines, general requirements and procedures to be used when construction and operational activities impact on existing traffic arrangements.

#### Table 3.4 Updated mitigation measures for traffic

An updated consolidated list of mitigation measures for the proposed segment factory is contained in Appendix C.

#### 3.3.2 Access road

A stated above, the intersection of the access road of the proposed segment factory with Polo Flat Road would be constructed by FGJV as part of the project. A concept design of this intersection has been progressed by FGJV and is shown in Figure 3.6. The final design will require SMRC approval.

#### 3.4 Location of raw materials storage and load hopper area

Plans of the proposed segment factory were provided in Appendix E of the EIS. They showed the raw materials storage and load hopper area for the CBP located to the east of the plant. To reduce potential operational noise levels to residents on Carlaminda Road, the EIS stated that this area would be relocated to the western side of the CBP. Revised plans of the proposed segment factory which reflect this change have been prepared by FGJV and are contained in Figure 1.1.

The change to the location of the raw materials storage and load hopper area for the CBP is shown in Figure 3.7 and Figure 3.8.



#### Figure 3.6 Concept design of intersection of access road and Polo Flat Road



Figure 3.7 Original location of raw materials storage and load hopper area



Figure 3.8 Revised location of raw materials storage and load hopper area

#### 3.5 Soil testing

As part of the EIS, a contamination assessment was prepared for the site which included a site survey and intrusive soil investigations on Lot 14 in Deposited Plan (DP) 250029 and a site survey of Lot 3 in DP 238762. Intrusive soil investigations were not undertaken at the time on Lot 3.

Without the results of any intrusive soil and investigations on Lot 3 it was recommended in the EIS that any re-use of soils on the site be subject to further testing. Mitigation measure CON03 stated that "any material excavated and stockpiled on-site requires further testing to confirm its suitability for re-use on the site." In addition, as part of CON01 it was recommended that additional investigations would be undertaken on Lot 3, including:

- targeted soil sampling around the buildings and transmission tower; and
- hazardous materials assessment (HMA) of buildings.

Since the EIS was prepared, a targeted soil investigation and HMA has been undertaken on Lot 3. The soil sampling targeted potential sources of contamination identified at the site, including the buildings and storage area, transmission tower, potential site of a historic air crash, sub surface services pit and dry creek bed in the north eastern portion of the site. Soil samples were collected from each location and analysed for a selection of contaminants of potential concern (CoPC) based on the apparent contamination source.

The analytical results of soil testing did not identify significant chemical contamination in soils at the site, with all samples reporting concentrations less than the adopted assessment criteria for industrial/commercial land use.

Fragments of potential asbestos containing materials (ACM) were observed at the site surface in proximity to the buildings and in the dry creek bed. Analysis of representative samples of ACM confirmed the presence of asbestos.

EMM also commissioned Robson Environmental Pty Ltd (Robson) to undertake the HMA of the house and transmission building located on-site, which confirmed the presence of asbestos, lead-based paint and polychlorinated biphenyls (PCBs). Asbestos (very small fragments of ACM) was also reported in one shallow soil sample collected near the house.

Removal of asbestos impacted soil and management of hazardous materials during demolition of the buildings would be required prior to development work commencing at the site. Surface clearance using and emu bob technique, or similar, will be required to remove the ACM fragments from the site prior to any development.

A clearance certificate from a suitably qualified hazardous materials consultant or occupational hygienist should be obtained following completion of the works.

Following removal of the small area of asbestos in soil and the completion of the surface clearance, it is considered that re-use of soil on the site without further testing is appropriate. This is based on the absence of other contaminants reported in soil at the site during the contamination assessments. An environmental management plan (EMP) including an unexpected finds protocol, would be prepared and implemented to manage unexpected finds of contamination (buried drums, discoloured soil, etc) during construction.

Any soil for off-site disposal will require further testing for appropriate re-use or waste classification and materials imported to site, other than aggregates for concrete production, should be certified as suitable for use (in addition to meeting any required technical specification).

The proposed mitigation measures recommended in the EIS to address potential contamination impacts of the proposed segment factory have been amended to reflect the above changes. These updates are reflected in Table 3.5 below where changes to the proposed mitigation measures reported in the EIS have been made as tracked changes. Deletions of text are shown as crossed out red text (eg deletion of text), and additions to text are shown in blue text (eg addition of text).

#### Table 3.5 Updated mitigation measures for contamination

Impact/risk	ID#	Measure(s)
Additional investigations	CON01	<ul> <li>Additional investigations would be undertaken on Lot 3, including:         <ul> <li>targeted soil sampling around the buildings and transmission tower; and</li> <li>hazardous materials assessment (HMA) of buildings.</li> </ul> </li> </ul>
Remediation	CON0 <mark>2</mark> 1	• Due to the presence of ACM fragments on the surface of the site, it is recommended that a surface clearance (emu-bob or similar) is undertaken prior to construction activities.
<del>Re-use of</del> <del>material</del>	CON03	<ul> <li>Any material excavated and stockpiled on site requires further testing to confirm its suitability for re-use on the site.</li> </ul>
Imported fill	CON042	<ul> <li>Any fill materials imported to the site, other than material used for hardstand areas, would be certified as VENM or ENM.</li> </ul>
Unexpected finds	CON0 <del>5</del> 3	<ul> <li>The EMP should contain an unexpected finds protocol including procedures in the event that potentially contaminated land is identified. Where signs of contamination are identified, construction work within the affected areas would cease until a contamination assessment was undertaken to advise the need for further investigation or remediation.</li> </ul>
Handling of waste	CON0 <mark>6</mark> 4	<ul> <li>The EMP should contain procedures for handling and storing waste, including handling of potentially or known contaminated material and protocols for waste classification and disposal.</li> </ul>

## 4 Response to submissions

#### 4.1 Introduction

This chapter provides a response to submissions on the proposed segment factory. A response is provided on each comment made within the government submissions, and a response is provided on each theme raised within the community submissions.

#### 4.2 Government submissions

#### 4.2.1 Snowy Monaro Regional Council

As previously stated, SMRC's submissions states that is:

... strongly supports the Snowy 2.0 project and acknowledges the efforts made by Snowy Hydro Limited (SHL) to engage with Council during the formative stages of both the Main Works and the Segment Factory projects in order to identify issues of potential concern and possible mitigation measures.

SMRC also wishes to acknowledge the efforts made by SHL to ensure that local communities receive benefits from the proposal, and particularly for those communities likely to be more affected by some of the project's impacts. The Segment Factory proposal is one such benefit.

It further states:

The proposed Segment Factory project represents a remarkable opportunity for the SMRC region to obtain a real and tangible benefit from the Snowy 2.0 project, with increased employment opportunities, and the potential for beneficial secondary uses of the site and premises following the Snowy 2.0 project completion.

Subject to appropriate measures to ameliorate any environmental or operational impacts, this project should be supported.

SMRC's submission also provides several comments which are addressed below in Table 4.1.

#### Table 4.1Response to SMRC submission

Comment	Response
The house was unoccupied but noted to contain a large amount of furniture, boxes, cables, etc. The roof of the house comprised fibre cement sheeting and is likely to contain asbestos. Scattered ACM fragments.	SMRC's comment on the capacity of its waste facilities to receive ACM is noted. The project will liaise with SMRC regarding the disposal of ACM waste from the site prior to construction of the proposed segment factory.
SMRC's waste facilities have limited capacity due to licensingrequirementstoaccept asbestos waste.SMRC may accept small quantities up to approximately five tonnes at a time with prior notification.	
While it is unlikely that excessive quantities of ACM will be encountered in the Segment Factory project, SMRC may require an alternative facility to be used. SMRC is happy to discuss asbestos disposal requirements with SHL before commencement of the project.	
The Land and Soil Assessment identifies that the topsoil is heavily infested with African Lovegrass and holds a significant seedbank.	SMRC's comment on the management of African Lovegrass is noted.
The north western vehicular route from the segment factory to the main works sites within KNP and Tantangara is an area considered to be comparatively clear of African Lovegrass and contains some areas of highly productive agricultural land. SMRC supports the proposal to install a vehicle washdown area at the factory site. This will assist greatly in managing potential spread of noxious weeds along the transport route.	
The segment factory site currently receives natural overland flow from the adjoining sites fronting drainage Polo Flat Road. These sites do not possess an easement to drain stormwater to drainage channel easement within the segment factory site, and as such can only legally dispose of stormwater on site or pump back up to Polo Flat Road. Both these options are a constraint on industrial development on these sites.	SMRC's comment is noted. Since the submission, Snowy Hydro has met with SMRC on this matter. As discussed with SMRC, Snowy Hydro will work with SMRC to provide an interallotment 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.
The redevelopment of the segment factory site presents an opportunity to rectify this issue for the benefit of future development in this southern section of Polo Flat. It is noted that SMRC already has wastewater infrastructure located along this boundary. It is requested that a 3m wide inter-allotment stormwater easement in favour of SMRC be created along the entire length of the western boundary of the segment factory site and along the natural drainage channel crossing this site until the point where this channel exits the site.	It is envisaged that the provision of the drainage easement will not delay construction and operation of the proposed segment factory.
SMRC would be happy to investigate and negotiate this matter on a collaborative basis with SHL, if this is not included in the project determination.	

#### Table 4.1Response to SMRC submission

Comment	Response
Proposals to upgrade specified intersections, as also outlined in the Main Works EIS, are	SMRC's comments are noted.
supported. SMRC supports the proposal to lower the speed limit on Polo Flat Road to 60km/h.	Details on the upgrades to intersections in and around Polo Flat and Cooma are provided in Section 3.3 which responds to the submission from RMS.
	While Snowy Hydro is also supportive of the recommendation to reduce the speed limit of Polo Flat Road to 60 km/hr, it is noted that this is a matter for RMS.
Although not included as part of the project or subject to the EIS considerations, the potential to use Bobeyan Road/Shannons Flat Road as a possible alternate return route for heavy vehicles has been discussed at length with SHL and RMS. This is still viewed as viable, and subject to physical improvements in some locations, will assist in mitigating the effects of the number of heavy vehicle movements through the centre of Cooma. SMRC will continue to work closely with RMS, SHL and their partners on this aspect.	SMRC's comments are noted. Similarly, Snowy Hydro will continue to work with SMRC and RMS on the use of this alternative transport route.
Rather than the segment factory premises being decommissioned, SMRC is eager to work with SHL/FGJV to investigate suitable ongoing use of the premises and site following	SMRC's comments are noted. As discussed in the EIS, it is Snowy Hydro's intention to use the site for an alternative use at the completion of Snowy 2.0.
completion of the project. Achieving a beneficial alternative use for the premises and site following completion of the project would present a far better return on capital outlay	Snowy Hydro propose to lodge a development application (DA) with SMRC for the alternative use before Snowy 2.0 is completed. Snowy Hydro will liaise with SMRC on this alternative use prior to lodgement of the DA.
A water supply network analysis was done for the whole of Cooma and has addressed the segment plant requirements. No issues have been identified with the current supply meeting the needs of the batching plant. It should be noted however, that in drought conditions, residential customers get priority over non-residential customers in regard to supply of potable water. This can be clarified through a suitable service level agreement between SMRC and FGJV	SMRC's comments on water supply are noted.
No details were provided regarding the possibility of recycling failed concrete segments and re- use of cementitious fines from the concrete manufacturing process. SMRC would encourage this to be considered as part of an overall waste management strategy for the project.	It is anticipated that failed concrete segments and cementitious fines will be either recycled on- site or off-site (subject to further investigation and in consultation with appropriately licensed facilities that are able to manage these types of waste materials). Use of SMRC's waste facilities will be agreed between FGJV and Council through the EMP.
	Where recycling cannot be achieved, disposal of waste material will be undertaken in accordance with relevant guidelines.
	As part of the operation of the project, a waste management strategy will be developed to enable to efficient and sustainable operation of the site. The strategy will form part of the EMP for the site.

#### 4.2.2 Biodiversity and Conservation Division of NSW Department of Planning, Industry and Environment

A response to each of the matters raised in the submission from DPIE – BCD is provided in Table 4.2.

#### Table 4.2 Response to DPIE – BCD submission

Comment	Response
There is an error in the application of the BAM. Two species credit species, Calotis glandulosa and Dodonaea procumbens, have been assumed present however the number or number of hectares was not entered.	Targeted flora surveys were undertaken at the site between 21 and 23 November 2019. Surveys were undertaken in accordance with the <i>NSW Guide to Surveying Threatened Plants</i> (OEH 2016) with transects undertaken at 10 m spacing across the site.
<ul> <li>There are three options to resolve this:</li> <li>Get an expert report to provide the individual counts for each species, or</li> <li>extrapolate the species' numbers from a reference site, or</li> <li>survey for the species (now is a suitable time).</li> <li>Vehicle strike of threatened species is identified as a prescribed impact in Table 7.2 of the Biodiversity development application report (BDAR). In accordance to the Biodiversity Assessment Method (BAM Section 9.4 – 9.4.2.4) the proponent must develop an adaptive management strategy in accordance with the guidelines for adaptive management for impacts on biodiversity values that are uncertain. This could be done post consent.</li> <li>Vehicle strikes for threatened species needs to incorporate the cumulative impacts from the entire Snowy 2.0 development, meaning that they need to consider the added trucks and vehicle hits to and from this development, not just within the Segment factory footprint.</li> </ul>	A total of 19 Hoary Sunray ( <i>Leucochrysum albicans</i> var. <i>tricolor</i> ) have been recorded at six locations within and adjacent to the site of the proposed segment factory. Four plants are within the direct disturbance footprint and will be removed, while one plant is located in the area of indirect disturbance. This plant, and adjacent populations, will be managed through construction via fencing and appropriate signage. As this species is not listed as a threatened species in NSW, no amendments to the Biodiversity Assessment Method (BAM) calculator (BAM-C) have been made. No other threatened flora species were recorded during targeted surveys. The BAM-C has been revised to indicate these species are absent from the proposed segment factory. Targeted fauna surveys have been conducted for the Striped Legless Lizard ( <i>Delma impar</i> ) and Grassland Earless Dragon ( <i>Tympanocryptis pinguicolla</i> ) in accordance with the methods set out in Section 6.3.3 of the <i>Proposed Segment Factory: Biodiversity Development Assessment Report</i> (EMM 2019). The Striped Legless Lizard was considered to be present in initial assessments and referrals and was recorded at a single tile grid location on four separate occasions; three times via live animals and a single time via a sloughed skin. This tile grid is located in an area of exotic grassland dominated by African Lovegrass ( <i>Eragrostis curvula</i> ). No animals were recorded in areas of PCT 320 - Kangaroo Grass - Redleg Grass forb-rich temperate tussock grassland of the northern Monaro, ACT and upper Lachlan River regions of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion. This species was considered present at the site in EMM (2019). No amendments to the BAM-C have been made. The Grassland Earless Dragon was not recorded at the site during targeted surveys. The BAM-C has been revised to indicate this species is absent from the proposed segment factory. Revised credit requirements based on amendments to the BAM-C are summarised below in Table 4.3

#### Table 4.2 Response to DPIE – BCD submission

Comment		Response		
		Table 4.3 Revised credit requirements		
		PCT/species	Credits	
		PCT 320 - Kangaroo Grass - Redleg Grass forb-rich temperate tussock grassland of the northern Monaro, ACT and upper Lachlan River regions of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion	25	
		Stiped Legless Lizard	9	
		The number of credits required to offset PCT 320 has increased from EMM (2019) due to in the biodiversity risk weighting from 2.25 to 2.5. Credits required to offset impacts to t Legless Lizard remain unchanged.		
		BCD's comments in relation to vehicle strike of threatened species is noted, particut to the potential cumulative impacts associated with the construction of Snowy 2.0. impacts of Snowy 2.0 were considered in the Main Works EIS. It is recommended to development of an adaptive management strategy for vehicle strike be included as Main Works management measures.	llarly in relation Cumulative hat the part of the	
BCD do not have any concerns regarding Aboriginal cultural heritage (ACH) matters in the area surveyed. However, we note that there may be future road upgrades. BCD recommends that the following conditions are including in any consent issued:		BCD's comments are noted. As part of the EMP for the proposed segment factory, a protocol will be prepared v documents the process to be undertaken should any items of Aboriginal heritage b	vhich e unexpectedly	
1.	An Aboriginal Heritage Management Plan (AHMP) is to be prepared. This AHMP is to provide guidance in the event that any Aboriginal objects are found during construction and operation of the area.	found during the construction phase.		
2.	Any future road upgrades that may be required for traffic access to and from the site must be surveyed and assessed for ACH.			
3.	Further ACH assessment is required if the proposal area is increased outside the current footprint documented in the Aboriginal cultural heritage assessment report.			
# 4.2.3 NSW Department of Primary Industries

As previously stated, the submission from DPI states that it "has reviewed this proposal and has no comment." As such, no response is required.

## 4.2.4 NSW Environment Protection Authority

Table 4.4 provides a response to matters raised in the EPA's submission.

Comment	Response
Noise from the operation of the segment factory has been assessed in accordance with the Noise Policy for Industry (EPA, 2017) under noise-enhancing conditions. However, operational noise impacts at properties on Carlaminda Road may have	Table 2.2 of the Noise Policy for Industry (NPfI) states that the industrial amenity level would normally apply for isolated residences within an industrial zone. Specifically, bullet point six in the notes to the table states:
been underestimated. The properties are described as industrial land-uses and assessed against the (Noise Policy for Industry) amenity criterion of 70 dB(A) Leq.	"industrial – an area defined as an industrial zone on a local environmental plan; for isolated residences within an industrial zone the industrial amenity level would usually apply."
However, it is understood these properties are residential premises, in which case the project intrusiveness noise level should be applied. This would lead to exceedances of 4 dB during the day and 8 dB during evening and night periods at R2, which are	R2 has been specifically identified by the EPA for consideration as a residential assessment location and application of the intrusiveness criteria. However, it should be noted that other residential buildings exist within the industrial area (ie R18, R19 and R20).
The EPA recommends the proponent amend the noise assessment to assess the proponent are determined as residential premises (including a maximum poise)	Locations R18, R19 and R20 were identified in the noise modelling, results and subsequent figures within the Noise and Vibration Impact Assessment (NVIA).
level assessment at night) or provide further information to justify classifying these properties as industrial land-uses.	These locations (R18, R19 and R20) are residences in industrial zoned land with the following addresses and coordinates:
	<ul> <li>R18 - 3 Kaiser Street (upper floor of 2 storey) – easting 692721 and northing 5988111;</li> </ul>
	<ul> <li>R19 - 2 Holland Road (single storey) – easting 692771 and northing 5988797; and</li> </ul>
	<ul> <li>R20 - 2 Geebung Street (upper floor of 2 storey) – easting 693085 and northing 5988992.</li> </ul>
	R2, R18, R19 and R20 are all located on land zoned General Industrial IN1 under the <i>Cooma-Monaro</i> <i>Local Environmental Plan 2013</i> (LEP 2013). Prior to LEP2013 being gazetted, the land was zoned Industrial 4(a) under the <i>Cooma-Monaro Local Environmental Plan 1993—(Urban)</i> (LEP 1993). Under both LEP 2013 and LEP 1993, residential land uses are prohibited. These prohibitions reflect the objectives of the zone which, for LEP 2013, which state:
	• To provide a wide range of industrial and warehouse land uses.
	To encourage employment opportunities.
	• To minimise any adverse effect of industry on other land uses.
	• To support and protect industrial land for industrial uses.

Comment	Response
	• To ensure that development does not detract from the town centre as the primary business, retail and commercial area of Cooma-Monaro.
	EMM is of the opinion that R2 and other residences identified on industrial zoned land (R18, R19 and R20) should be assessed as isolated residences within a defined industrial zone and hence the industrial amenity level should apply. This is consistent with the approach of the NPfI.
	In practice, it would be reasonable to expect that these isolated residences would currently be exposed to noise from existing adjoining industry and hence likely already impacted by industrial noise. Hence, application of residential noise targets is considered inappropriate.
Construction of the segment factory is anticipated to take approximately five- months. Some work is scheduled outside of the recommended standard hours in Table 1 of the Interim Construction Noise Guideline (DECC, 2009) on Saturdays during the periods 7am to 8am and 1pm to 5pm. An exceedance of up to 7 dB is predicted at a residence on Carlaminda Road.	As stated above, R2 and R18, R19 and R20 are located in an industrial zone and under definitions of the NPfI do not attract residential assessment targets. Accordingly, they cannot be considered residences under the <i>Interim Construction Noise Guideline</i> (ICNG) for the assessment of construction noise. FGJV will regularly consult with any impacted properties and manage any concerns.
The EPA recommends the proponent should investigate further feasible and reasonable mitigation including a commitment to managing residual construction noise impacts in the Environmental Management Plan described in Section 7 of the noise impact assessment.	
Road traffic noise is predicted to increase on Snowy Mountains Highway (south) and Polo Flat Road (north) by 5.5 dB and 2.4 dB respectively over a duration of up to 3- months. These changes in road traffic will be noticeable to the community during this	The EPA's comment is noted. An environmental management plan will be prepared and implemented to address traffic noise. As part of this plan, community notification and/or engagement will be documented.
period. The EPA recommends that the proponent should ensure a traffic management plan is in place, including community notification and/or engagement.	In the period since exhibition of the EIS the assessment of traffic noise was revised to improve consistency between the traffic and transport assessment and the NVIA. Additionally the traffic noise assessment was revised to reflect the proposed use of PBS vehicles as detailed in Section 3.2.1 above. The revised traffic noise assessment showed reduced impacts to those assessed in the EIS. The revised traffic noise assessment is provided in Appendix D and summarised below.
	The NVIA prepared for the EIS considered the combined peak traffic generation from the proposed segment factory and Snowy 2.0 Main Works in order to assess potential cumulative traffic noise impacts for residential assessment locations.
	A review of the Traffic Impact Assessment (TIA) confirmed that only the segment factory should be considered for the Polo Flat NVIA, with combined traffic and cumulative traffic noise impacts to be assessed as part of the Snowy 2.0 Main Works NVIA.

Comment	Response
	Proposed segment factory only (standard vehicles – three segments per truck)
	Assessment of day (L <sub>Aeq,15hour</sub> ) traffic noise predictions confirm compliance with the <2 dB allowance criterion for all road segments likely to be used by vehicles associated with the proposed segment factory.
	Assessment of night (L <sub>Aeq,9hour</sub> ) traffic noise predictions confirm compliance with the <2 dB allowance criterion for Monaro Highway (north), Polo Flat Road (south) and Monaro Highway (south).
	For Snowy Mountains Highway (south) predicted levels exceed the <2 dB allowance, however the noise level is level than the baseline criterion of 55 dB(A) and accordingly satisfied the NSW RNP requirements.
	Polo Flat Road (north) is predicted to increase road traffic noise levels by 2.2 dB, resulting in an exceedance of RNP requirements given existing traffic noises level are above the baseline criterion of 55 dB(A). The 0.2 dB exceedance of the <2 dB allowance criterion for Polo Flat Road (north) occurs during proposed peak traffic generation only.
	Outside of the peak traffic generation period (two to three months) for the proposed segment factory, compliance is predicted for day and night on all road segments.
	Proposed segment factory only (PBS vehicles – nine segments per truck)
	As a result of utilisation of PBS vehicles for segment transfer capable of carrying nine segments per heavy vehicle, the number of heavy vehicles required for segment transport is reduced significantly. Accordingly, assessment of day ( $L_{Aeq,15hour}$ ) and night ( $L_{Aeq,9hour}$ ) traffic noise predictions confirm compliance with the <2 dB allowance criterion for all road segments likely to be used by vehicles associated with the proposed segment factory.
The proposed segment factory will supply tunnel linings for the proposed Snowy 2.0 project (main works) with both these project components to operate concurrently.	The EPA's comments are noted, however, construction, operation and traffic adopt different assessment criteria in order to evaluate potential impacts and accordingly, they cannot be directly evaluated.
This will result in cumulative changes in noise levels in certain areas and locations, including Cooma. The EPA advises that the community will hear and likely be affected by noise at difference times during the overall Snowy 2.0 project. In particular, proposed changes in traffic volume and composition increases in road traffic noise	It is acknowledged that the proposed segment factory is being constructed and operated to support the construction of Snowy 2.0. However, it is important to clarify that the closest construction components of Snowy 2.0 are located more than 50 km from the Cooma township therefore, cumulative construction/operational noise impacts are not a risk.
(even when these comply with relevant criteria) is likely to be the major cause of this. As a result, the acoustic environment is likely to change and activities associated with the Snowy project will be audible, particularly as the project progresses. The EPA recommends that the proponent monitor the cumulative changes to the	One possible area of cumulative impacts is road traffic noise. In that respect, it is important to note that the proposed segment factory road traffic noise assessment considered the combined peak traffic generation from the proposed segment factory and Snowy 2.0 Main Works and hence addressed potential for cumulative traffic noise impacts from both project components.
acoustic environment and the potential for this to impact upon on the amenity of the community that live in and around the Snowy 2.0 project areas.	Notwithstanding the outcomes of the NVIA for the proposed segment factory, including the potential for marginal noise exceedances during construction and operation, and night-time traffic noise impacts,

Comment	Response			
	there will be a change in the general acoustic environment at Cooma for the duration of the construction of Snowy 2.0 and construction and operation of the proposed segment factory.			
	In summary, monitoring of cumulative noise impacts during construction or operation of the segment factory is not relevant for this site. Any conditions of consent will typically address noise from the site in accordance with current practices and policies.			
The AQIA included a modelling scenario based on maximum 12-month production: "A single air pollutant emissions scenario representative of maximum 12-month production at the proposed segment factory has been configured to quantify worst-	The model scenario assessed in the Qir Quality Impact Assessment (AQIA) is considered to be representative of worst-case emissions for the following reasons: <u>Material handling</u>			
case emissions from the operational phase" Although this scenario is representative of expected operations, the inclusion of a worst-case modelling scenario based on maximum daily material handling is likely to result in higher project- related increments and additional predicted exceedances.	There will be minimal variation to the production of segments at the proposed segment factory on a day-to-day basis, including the associated concrete batching processes. Given the nature and scale of operations proposed, a consistent production schedule is anticipated which is representative of maximum daily operations.			
The EPA recommends:	Truck movements			
<ul> <li>a) The proponent should revise the AQIA to include a worst-case scenario representative of expected maximum daily operations, including maximum peak daily material handling.</li> <li>b) The AQIA should include tabulated contemporaneous predictions and background concentrations for the most impacted receptors for all particle size fractions and averaging periods.</li> </ul>	Emission calculations for wheel-generated dust from haulage along paved surfaces were based on peak day traffic movements rather than average day traffic movements. This accounts for periods when raw material to the site or dispatch of tunnel segments might fluctuate relative to the consistent production schedule of the pre-cast facility. It is noted that wheel-generated dust is a significant contributor to total site emissions across all particle size fractions quantified. The assumption of peak day truck movements has been carried through to annual average predictions as well as 24-hour predictions adding another laws of conservations.			
The AOIA does not transparently justify the emissions for the modelled scenario.	EPA's comments are noted. Clarifications as requested are provided below.			
Some assumptions and input data used in the emission estimation calculations have not been adequately justified, including:	Hauling			
Hauling	discrepancies in the methodology used. A review of the relevant estimates was undertaken and			
The emissions inventory presented as part of the AQIA shows that the most significant contribution to TSP, PM <sub>10</sub> and PM <sub>2.s</sub> emissions are from hauling (73%, 57%)	confirmed that they are correct. Table 4.5 below provides assumptions or clarifications behind the calculations for each hauling activity.			
and 40% respectively). However, a screening review of the estimation of emissions for hauling activities shows discrepancies in the methodology used. It is unclear if the	Table 4.5         Assumptions for hauling activity calculations			
haul distance presented in Table D.1 covers round trips or just one direction. For	Activity Assumptions/clarifications			
activity rate for "Raw materials trucks - paved roads" indicates the other activity rates calculated in the table (column 4) below could have been underestimated.	Raw materials trucks -       No discrepancy found by EPA.         paved roads       The calculation includes a multiplication for a return trip.			
<ul> <li>a) The proponent should revise the AQIA to include a worst-case scenario representative of expected maximum daily operations, including maximum peak daily material handling.</li> <li>b) The AQIA should include tabulated contemporaneous predictions and background concentrations for the most impacted receptors for all particle size fractions and averaging periods.</li> <li>The AQIA does not transparently justify the emissions for the modelled scenario. Some assumptions and input data used in the emission estimation calculations have not been adequately justified, including:</li> <li>Hauling</li> <li>The emissions inventory presented as part of the AQIA shows that the most significant contribution to TSP, PM<sub>10</sub> and PM<sub>2.s</sub> emissions are from hauling (73%, 57% and 40% respectively). However, a screening review of the estimation of emissions for hauling activities shows discrepancies in the methodology used. It is unclear if the haul distance presented in Table D.1 covers round trips or just one direction. For instance, following the same approach used in the AQIA for the calculation of the activity rates calculated in the table (column 4) below could have been underestimated.</li> </ul>	Emission calculations for wheel-generated dust from haulage along paved surfaces were based on peak day traffic movements rather than average day traffic movements. This accounts for periods when raw material to the site or dispatch of tunnel segments might fluctuate relative to the consistent production schedule of the pre-cast facility. It is noted that wheel-generated dust is a significant contributor to tota site emissions across all particle size fractions quantified. The assumption of peak day truck movements has been carried through to annual average predictions as well as 24-hour predictions adding another layer of conservatism.EPA's comments are noted. Clarifications as requested are provided below. Hauling EPA has stated that a screening review of the estimate of emissions for hauling activities shows discrepancies in the methodology used. A review of the relevant estimates was undertaken and confirmed that they are correct.Table 4.5Assumptions or clarifications Assumptions for hauling activity calculationsActivityAssumptions/clarifications The calculation includes a multiplication for a return trip.			

#### Comment

Activity	Distance (km)	Loads/y	Calculated Activity rate (VKT/y)	Activity rate in Table D.1 (VKT/y)
Raw materials trucks - paved roads	0.6	13,728	16,474	16,474
Forklifts transporting segments from shed to paved yard	0.1	20,280	4,056	2,028
Trucks transporting segments from paved yard to storage area	1.0	20,280	40,560	20,280
Forklifts in stabilised soil storage area loading trucks	0.1	8,424	1,685	842
Segment transport - stabilised soil storage area to paved	1.0	8,424	16,848	8,424
Segment transport - paved roads to site exit	1.5	8,424	25,272	12,636

#### Docnonco

comment						Response	
Activity	Distance (km)	Loads/y	Calculated Activity rate (VKT/y)	Activity rate in Table D.1 (VKT/y)		Forklifts transporting segments from shed to	Distances were rounded to one decimal place in the report figure of the emissions inventory. The distance rounded to two decimal places is 0.05 km. When this value is used in the calculation per the activity above the calculated activity rate is per the AOIA
Raw materials trucks - paved road	s0.6	13,728	16,474	16,474			The calculation includes a multiplication for a return trin
from shed to paved yard	<sup>s</sup> 0.1	20,280	4,056	2,028			
Trucks transporting segments from paved yard to storage area	<sup>n</sup> 1.0	20,280	40,560	20,280		Trucks transporting segments from paved yard	The 1 km distance in the emissions inventory accounts for a loop travelled by the truck from the yard to the storage area and back (ie in effect a return trip). Therefore, the calculation does not
Forklifts in stabilised soil storag area loading trucks	<sup>e</sup> 0.1	8,424	1,685	842		to storage area	include a multiplication for a return trip.
Segment transport - stabilised so storage area to paved	<sup>il</sup> 1.0	8,424	16,848	8,424		Forklifts in stabilised soil storage area loading trucks	As above, this issue relates to rounding of the distance to one decimal place in the report. The distance for this activity is 0.05 km.
Segment transport - paved roads t site exit	<sup>0</sup> 1.5	8,424	25,272	12,636			The calculation assumes a return trip.
The EPA recommends the proponent revise the AQIA to clarify and transparently present input variables used to calculate expected emissions for hauling activities.		Segment transport - stabilised soil storage area to paved	As above, this issue relates to the distance accounting for a loop travelled by trucks and therefore no multiplication for a return trip required.				
						Segment transport - paved roads to site exit	As above, this issue relates to the distance accounting for a loop travelled by trucks and therefore no multiplication for a return trip required.
Whilst. the AOIA includes emissions from LPG combustion from the two boilers used		Boiler combustion emissions					
in the process, it does not clearly state the number of hours the boilers are expected to operate. In this sense, there is uncertainty regarding how representative the estimated boiler emissions are of expected operations.			rs are expected tative the	The emissions estimates for boiler combustion were based on a conservative assumption that both boilers would operate for 8,760 hours of the year.			
The EPA recommends the input variables used to a	e propon alculate d	ent revise assessed	e the AQIA to j emissions.	ustify assum	ed and adopted		
Section 7.4 of the AQIA shows that cumulative results for 24-hour PM2.5 concentrations result in four additional exceedances across receptors on Polo Flat		This response has been b issue.	proken down into three important elements to consider when addressing this				
Road. In addition to the	additiond	al exceed	ances, modelli ancienterena	ng results for	24-hour PM10	Revision to adopted traf	fic numbers
concentrations predict large increments. For instance, 24-hour PM10 concentrations at the closest residential receptor (R2) are predicted to be 10.6 $\mu$ g/m <sup>3</sup> , which		Following the submission of the AQIA, it has been clarified that peak traffic volumes to and from the site will be lower than the values adopted in the AQIA (for the reasons noted above in section 3.2).					
including daily maximur increments.	n process	ing quan	tities is likely to	o result in evo	en larger	The revised traffic numb one-way truck movemer	ers for heavy vehicles (raw material delivery and segment transport) are seven nts lower than were assumed in the AQIA, representing an approximate 10%
The assessment states that the additional exceedances are due to high background levels. It is then concluded that the operation of the proposed segment factory is unlikely to cause adverse air quality impacts. However, based on the information		reduction in traffic emissions. The wheel-generated dust emissions from paved roads are the dominant contributing source of predicted impacts at the neighbouring industrial receptors. The reduction in assumed heavy vehicle movements would therefore reduce the predicted concentrations at industrial receptors R18, R21 and R22 relative to the results presented in the AOIA					

The assessment states that the additional exceedances are due to high backgr levels. It is then concluded that the operation of the proposed segment factory unlikely to cause adverse air quality impacts. However, based on the informati provided in the emissions inventory, the EPA considers not all reasonable and feasible

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#### Response

measures are being considered to control particulate emissions from the site. For instance, the estimated PM<sub>2.5</sub> emissions from diesel combustion from front-end-loaders (FEL) and forklifts (that account for approximately 32% of the total emissions for this pollutant) could be revised to investigate and implement the use of better technologies with lower emissions.

Further, Section 7.7 of the Approved Methods specifies that if the impact assessment criteria are exceeded, the dispersion modelling must be revised to include control strategies until compliance is achieved.

The EPA recommends:

a) The proponent should investigate and include all feasible and reasonable measures to reduce particulate emissions, including contributions from diesel combustion from the onsite fleet, and achieve compliance with the EPA assessment criteria.

b) The proponent nominates and commits to implement controls that are consistent with best practice control of fugitive emissions to minimise potential impacts.

#### Predicted cumulative 24-hour average PM<sub>2.5</sub> exceedances

The AQIA predicted a marginal additional cumulative exceedance of the 24-hour  $PM_{2.5}$  criterion at three industrial assessment locations (R18, R21 and R22), beyond those already occurring in the background dataset. It is important to consider that these industrial locations are within an industrial-zoned area.

A breakdown of the predicted additional exceedance days at receptor R18 (two additional days), R21 (one additional day) and R22 (one additional day) is presented in Table 4.6. Figure 4.1 illustrates these contributions for the maximum cumulative day at each assessment location. It is noted that the date of exceedance was the same day at all receptors (ie 16 June 2017, with an additional day on 17 June 2017 at R18).

#### Table 4.6 Summary of predicted 24-hour PM2.5 exceedances at industrial assessment locations

	Assessment location	Predicted increment	Corresponding background	Total	Day of excee
that are consistent	R18	3.2	23.6	26.8	16/6/2017
,	R18	4.8	20.4	25.2	17/6/2017
	R21	3.9	23.6	27.5	16/6/2017
	R22	2.2	23.6	25.8	16/6/2017

Comment

#### Response

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Maximum 24-ho ur P  $M_{2.5}$  cu mulative concentration



#### Figure 4.1 Maximum predicted 24-hour PM<sub>2.5</sub> cumulative concentration (16/6/17)

The background levels adopted in the AQIA were based on a synthetic profile of measurements taken from the three ACT monitoring stations: Civic, Florey and Monash. As highlighted in Section 5 of the AQIA, the particulate matter concentrations contained within the synthetic background dataset, based on measurements from the ACT monitoring stations, are likely to be higher than they would be at Cooma for the following reasons.

Canberra has a higher population density relative to Cooma (the population of Canberra and Cooma in 2016 was approximately 400,000 and 7,000 respectively). Consequently, Canberra has a significantly higher level of urban development and associated urban emission sources than Cooma.

All three ACT monitoring stations are surrounded by urban development. The Monash and Florey monitoring stations are immediately surrounded by low density residential while the Civic station is surrounded by commercial. By comparison, the site neighbours a general industrial zoning featuring low intensity industrial operations, with the closest low density residential and commercial land located more than 1 km to the west.

The data recorded by the Monash monitoring station is heavily influenced by domestic wood heater emissions, as identified by the several recent studies (Bridgeman 2009 and ACT Government 2013). Further, the ACT Government reported 12 exceedances of the 24-hour average PM<sub>2.5</sub> criterion at the

Comment	Response
	Monash station during 2017 (ACT Environment 2018). The recorded exceedances all occurred between May and July 2017 and were attributed to domestic wood heater emissions (ACT Environment 2018).
	Whilst domestic wood heater emissions are a feature of Cooma, due to the noted lower population density and greater separation distance from residential sources, the autumn and winter PM <sub>2.5</sub> concentrations adopted in the synthetic background profile are considered to be an overestimation of likely background PM <sub>2.5</sub> concentrations experienced at the neighbouring industrial receptors with predicted cumulative exceedances.
	To further illustrate the influence of domestic wood heater emissions, Figure 4.2shows daily-varying $PM_{10}$ and $PM_{2.5}$ concentrations recorded at Monash in 2017. While the spring and summer months show $PM_{10}$ concentrations below $PM_{2.5}$ concentrations, which is generally to be expected, the autumn and winter months show that $PM_{2.5}$ concentrations are generally equal to or above the corresponding $PM_{10}$ concentrations. This seasonal trend was also observed in previous years of data.
	Wood smoke emissions are predominantly in the fine PM fraction (ie PM <sub>2.5</sub> ). The data presented in Figure 4.2 illustrates that the main cause of elevated PM <sub>2.5</sub> concentrations during the autumn and winter months is the intensive use of wood heaters in this area.
	Table 4.6 shows that the predicted additional cumulative exceedances at the industrial receptors occurred on 16 and 17 June 2017. These days are within the identified period influenced by domestic wood heater emissions (ACT Government 2018) caused by high wood smoke use as indicated in the figure below.
	Due to a lack of available local data, monitoring data recorded during 2017 from all three ACT Government monitoring stations, including Monash, was included in the background synthetic profile developed for the AQIA for conservatism. The synthetic background data was recalculated excluding the Monash data and the resultant cumulative concentrations were updated. An analysis of the cumulative 24-hour PM <sub>2.5</sub> concentrations excluding the Monash data showed that the predicted additional criterion exceedances at industrial assessment locations R18, R21 and R22 would no longer occur.
	Given the high level of conservatism in the adopted background dataset, the assumption of continual peak day traffic movements, the reduction in assumed heavy vehicle movements and the low level of site-related incremental concentrations relative to adopted background, it is considered that the additional exceedances of the 24-hour average PM <sub>2.5</sub> criterion presented in the AQIA are highly conservative and overstated. Further, on the basis that the impacted receptors are industrial facilities located within an existing industrial zone, it is considered that the risk of adverse impacts from the proposed segment facility are low.

Comment

### Response



Figure 4.2 PM<sub>2.5</sub> and PM<sub>10</sub> concentrations recorded at Monash in 2017

#### **Mitigation measures**

The proponent has indicated that mobile plant equipment will operate using diesel fuel and the use of Liquefied Petroleum Gas (LPG) is limited to the boilers.

Reasonable and feasible mitigation measures appropriate for the scale and size of the project were identified and included in the modelling. These are summarised in Section 6.4.1 of the AQIA. As presented in the AQIA, the predicted cumulative impacts at all residential assessment locations are below applicable impact assessment criteria. While exceedance of the 24-hour average PM<sub>2.5</sub> criterion is predicted at three neighbouring industrial receptors, these exceedances are considered overly conservative for reasons discussed above.

### **Conclusion**

The AQIA and discussion above has indicated that the use of peak-day traffic movements and the background dataset assumed are conservative assumptions. In addition, the new proposed traffic peak movements are below that assumed in the AQIA. When considering this, the nature of the affected assessment locations (ie industrial receptors in an industrial zoned area) and the marginal nature of the exceedances, it can be said that predicted PM<sub>2.5</sub> concentrations at these locations are likely to be lower than that shown in the AQIA.

# 4.2.5 NSW Roads and Maritime Services

Table 4.7 provides a response to matters raised in the submission by RMS.

## Table 4.7 RMS submission

Comment	Response
RMS is supportive of PBS vehicles being used and as such encourages further discussions with RMS Freight Branch in relation to the above so as to enable an agreement to be reached prior to the applications determination on the type of PBS vehicle to be used. Details of these discussions should be provided as part of any additional information that is provided.	Details on the PBS vehicles are provided in Section 3.2.
RMS notes that no assessment of the impact of the development on journey times for motorists along the classified road network has been undertaken or appropriate measures identified to minimise delays and to ensure road users are kept well informed of the increased traffic and changes driving experience (i.e. slow vehicle turn out bays, electronic variable message signage at key locations on the road network, etc).	As stated in Section 3.3, other than the intersection of the access road to the proposed segment factory and Polo Flat Road which is being constructed by FGJV, all external road and intersection upgrades for Snowy 2.0 (including for the proposed segment factory) are proposed to be managed and constructed by RMS under an in-principle agreement with Snowy Hydro. The following works are being undertaken to minimise impact on journey times for motorists: <i>"RMS undertaking Slow Vehicle Turn out review and designs</i> <i>Comms and VMS</i> [vehicle management system] <i>will be used to warn drivers in addition to potential radio etc</i> <i>There is a sub working group with RMS that is working specifically on OSOM</i> [oversize overmass vehicle] <i>and</i> <i>Communication strategy which will drive ultimate design approach"</i>
<ul> <li>RMS requires the following information be provided for key intersections affected by the proposal – scaled plans to support sight distance measurements, swept path analysis and SIDRA modelling (including provision of modelling files).</li> <li>These intersections include:</li> <li>Monaro Highway and Polo Flat Road;</li> <li>Monaro Highway and Sharp Street;</li> <li>Monaro Highway and Vale Street;</li> <li>Kosciusko Road and Snowy Mountains Highway;</li> <li>Snowy Mountains Highway and Cacess to Rock Forest;</li> <li>Snowy Mountains Highway and Tantangara Road; and</li> <li>Snowy Mountains Highway and Link Road.</li> </ul>	<ul> <li>The following works have or are being undertaken to address this comment:</li> <li><i>"A design pack showing intersection sight checks and turn paths were supplied to RMS</i> [on 1 July 2019].</li> <li>A concept design report was issued on 17 October 2019.</li> <li>The Turn out bays concept and Bombala Street concept was issued on 31 October.</li> <li>Intersection layouts, scope and works have been discussed and agreed with RMS. RMS are progressing these designs and will construct."</li> </ul>

## Table 4.7RMS submission

Comment	Response
No details on how heavy vehicle salvage, if required, will be dealt with so as to minimise impacts on the state road network (e.g. plans/protocols, how road users will be kept informed, etc).	Facility for heavy vehicle haulage salvage will be provided by the project to minimise impacts on the road network. This includes provision of salvage vehicle at critical location and times of the project along with associated road user communications and traffic management/controls.
This RMS notes that a strategic/concept design has not been provided as part of the EIS information submitted for any proposed upgrade	Snowy Hydro has been diligent in seeking to address all of the issues the RMS has raised. The following work is being undertaken to address this comment:
works. RMS request that strategic/concept designs be submitted as detailed in the SEAR's.	"As above RMS have separately agreed in -principle with Snowy Hydro to designs and progressing delivery"
Noting the comments above any road infrastructure upgrade works that are being proposed as part of the current application will need to give consideration/undertake an assessment of the environmental impacts of the proposed works.	As part of the in-principle agreement between Snowy Hydro and RMS for the delivery of external road and intersection upgrades for Snowy 2.0, RMS would be managing the approval process for these upgrades under Part 5 of the EP&A Act. As part of the approval process, RMS would be undertaking an assessment of the environmental impacts of the upgrades.
RMS notes a road safety audit (RSA) has been undertaken. It is unclear to RMS what is being actioned from the RSA that has been submitted and who is responsible for implementing the RSA recommendations. Additional details are required in relation to the above inclusive of a timeframe for when identified actions will be completed.	Snowy Hydro has separately provided comments to RMS on the proposed recommendations identified within the RSA, on 4 December 2019. Snowy Hydro will continue to work with RMS regarding the recommendations identified in the RSA, including responsibilities and timeframes for completing the actions.

# 4.2.6 Transport for NSW

Table 4.8 provides a response to the submission made by TfNSW.

## Table 4.8TfNSW submission

Comment	Response
Clause 84 of the ISEPP 2007 states that the consent authority must not grant consent to development without the concurrence of the rail authority for the rail corridor if the development involves a likely	As stated in the covering page to TfNSW's submission, Polo Flat Road crosses the non-operational railway line between Tuggeranong and Bombala. It is understood that the section of the railway line around Cooma was closed in the late 1980s.
significant increase in the total number of vehicles or the number of trucks using a level crossing.	It is understood that while there have been some proposals to reopen the line, it remains closed, predominantly due to the cost of reinstating and upgrading railway infrastructure such as bridges.

### Table 4.8 TfNSW submission

Comment	Response			
The TTA states that the proposed segment factory would be expected to generate the largest number of heavy vehicles at Polo Flat Road (north of the proposed site) as it is forecast that there would be 130 heavy vehicles on average and 216 heavy vehicles at the peak.	In addition, the proposed segment factory is declared CSSI. In accordance with section 5.22(2) of the EP&A Act, Part 3 of the EP&A Act and environmental planning instruments do not apply to or in respect of this type of infrastructure, except to the extent of declaring infrastructure as CSSI or SSI, and for enabling CSSI or SSI to be carried out in accordance with an approval granted under Part 5, Division 5.2 of the EP&A Act.			
It is clear that the vehicle access to the site via Polo Flat Road would mostly likely cross the rail corridor from the north via a level crossing. Although the TTA considers an increase of the heavy vehicle volumes	With t SEPP) the In	:he ab may b frastrเ	ove i be tak uctur	n mind, clause 84 of State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure ken into account by a determining authority, but does not impose strict obligations. Clause 84 of e SEPP states, in part:
on Polo Flat Road, it does not contain information regarding its	(1)	This	claus	se applies to development that involves—
impact on the level crossing situated on Polo Flat Road to the north of the proposed site		(a)	a n	new level crossing, or
the proposed site. The RtS should include an assessment of suitability of the level		(b)	the	e conversion into a public road of a private access road across a level crossing, or
crossing in order to identify key potential risks associated with the level crossing as a result of the significant increased use of the heavy		(c)	a li. cro	ikely significant increase in the total number of vehicles or the number of trucks using a level ossing as a result of the development.
vehicles during construction and operation in the event that the railway line becomes completed and operational in the future.		Befc cons	ore de sent d	etermining a development application for development to which this clause applies, the authority must—
If such assessment finds that the current condition of the level crossing is not appropriate to manage the significantly increased heavy vehicles, conditions will be suggested (i.e. an upgrade of the		(a)	wit aut	thin 7 days after the application is made, give written notice of the application to the rail thority for the rail corridor, and
		(b)	tak	re into consideration—
suitability assessment. In addition, the relevant Council will also be			(i)	any response to the notice that is received within 21 days after the notice is given, and
required to update a Road Rail Interface Agreement with JHR in accordance with Rail Safety National Law 2012 for the level crossing.			(ii)	the implications of the development for traffic safety including the costs of ensuring an appropriate level of safety, having regard to existing traffic characteristics and any likely change in traffic at level crossings as a result of the development, and
			(iii)	the feasibility of access for the development that does not involve use of level crossings.
		Subj clau	ject to Ise ap	o subclause (5), the consent authority must not grant consent to development to which this oplies without the concurrence of the rail authority for the rail corridor.
	(4)	In de	etern	nining whether to provide concurrence, the rail authority must take into account—
		(a)	any	y rail safety or operational issues associated with the aspects of the development, and
		(b)	the app	e implications of the development for traffic safety including the cost of ensuring an propriate level of safety, having regard to existing traffic and any likely change in traffic at

It is questionable whether the circumstances contemplated by clause 84 of the Infrastructure SEPP even apply to the proposed segment factory. Whilst it is acknowledged that there is a level railway crossing on

level crossings as a result of the development."

## Table 4.8 TfNSW submission

Comment	Response
	Polo Flat Road, as stated above, the railway line has been closed since the late 1980s and there is no firm proposal to reopen it. In addition to this, TfNSW's own submission states that:
	<i>"JHR</i> [John Holland Rail] is currently planning to have the rail removed on a 'temporary and long term' basis in or about November 2019".
	Therefore, while it physically remains a level crossing, it has not been used as such for about 30 years, and there are no firm plans to use it as such.
	Subclauses 2 and 4 of clause 84 require consideration of the implications of a development on the safety of the level crossing having regard to existing and proposed traffic characteristics.
	Traffic counts undertaken on Polo Flat Road indicate that it is heavily trafficked by both light and heavy vehicles. This is not unusual given it is the main access road to the Polo Flat industrial area. At the southern end of Polo Flat Road traffic counts indicate that there are, on average, 1,102 light and 1,067 heavy vehicles movements per day on the road. As stated in Section 3.2, the proposed segment factory would generate an average of 75 one-way daily light vehicle movements and 69 one-way daily heavy vehicle movements (without the use of the PBS vehicles). Doubled to two-way movements, this accounts for 13.6% of current light vehicle movements and 12.9% of current heavy vehicle movements. With use of the PBS vehicles heavy vehicle movements would only account for 7.3% of current heavy vehicle movements.
	Increases of traffic movements of this nature over a level crossing on a railway line that has been closed since the late 1980s would not increase safety risks at the crossing. In fact, it could be reasonably argued that doubling the traffic over an unused level crossing would not increase safety risks.
	Any assessment of the safety of the level crossing should be undertaken by RailCorp and JHR if and when the railway line is proposed to be reopened. And this should be done at RailCorp and JHR's expense.
The RSA provided in the TTA recommends removing redundant signage including railway crossing signs, give way signs and reduce speed residential signs associated with the level crossing at Polo Flat Road. However, JHR is currently planning to have the rail removed on a 'temporary and long term' basis in or about November 2019 which would include the removal of the give way and level crossing sign. It is recommended that the Proponent does not remove the signage	TfNSW's comment is noted. Although recommended in the RSA, Snowy Hydro will not remove any signage associated with the level crossing. As stated above, Snowy Hydro will continue to work with RMS on the recommended actions within the RSA.
It is recommended that the Proponent does not remove the signage.	
There would be a significant increase in vehicle volumes under the rail bridge as the TTA states that a peak of 266 project related light vehicle movements (133 trips in each direction) per day (over a 24- hour period) are anticipated on Polo Flat Road (south end). Despite concluding that this is not expected to cause any capacity issues on	As stated in Section 3.2, the predicted traffic movements in the EIS for the proposed segment factory assumed twice as many vehicle movements than proposed. Notwithstanding this, no heavy vehicles associated with the proposed segment factory are proposed to travel under the rail bridge on the southern end of Polo Flat Road. All heavy vehicles would bypass this section of Polo Flat Road by using Sales Yard Road.

## Table 4.8 TfNSW submission

Comment	Response
Polo Flat Road, it is clear that the vehicle access to the site via Polo Flat Road will cross the rail corridor from the south, under a rail bridge.	Accordingly, it is submitted that no CAMP is required to be prepared, nor should there be any requirement for Snowy Hydro to undertake rail bridge works recommended within the RSA.
The RSA provided in the TTA recommends that the rail bridge piers should be shielded with approved road safety barriers and crash cushions on either end and should be installed to an approved design. It further recommends preparing a Construction Access Management Plan (CAMP) to inform heavy vehicle drivers that vehicles must be within the vertical clearance being 4.1m of the underbridge.	
The Proponent should undertake the recommended rail bridge works at their own costs and in consultation with JHR. In addition, a CAMP should be prepared, which amongst other things, informs heavy vehicle drivers that vehicles must be within the vertical clearance, being 4.1m, of the underbridge.	
The railway line which would be impacted by the Proposal is not currently in operation. However, it is subject to a feasibility study for re-opening and any modification to the rail infrastructure may impact on the railway's reopening.	TfNSW's comment is noted. Snowy Hydro will not be modifying or removing any rail infrastructure as part of the construction and operation of the proposed segment factory. As stated above, Snowy Hydro will continue to work with RMS on the recommended actions within the RSA.
The Proponent should confirm in the RtS that there will be no requirements to modify or remove any of the rail infrastructure as part of the Proposal. Should there be requirements to do so, conditions of consent will be accordingly recommended.	

# 4.2.7 Water Division of NSW Department of Planning, Industry and Environment and NSW Natural Resources Access Regulator

Responses to the submission from DPIE – Water and NRAR are provided in Table 4.9.

## Table 4.9 DPIE – Water and NRAR submission

Comment	Response
<b>Pre project approval</b> <i>Confirmation should be obtained of the ability to access the required water</i> <i>volume from Snowy Monaro Regional Council.</i>	During preparation of the EIS, Snowy Hydro and FGJV consulted with SMRC regarding water requirements for the proposed segment factory. They confirmed that both volume and pressure requirements could be met. This has been confirmed in SMRC's submission on the proposed segment factory which states:
	"A water supply network analysis was done for the whole of Cooma and has addressed the segment plant requirements. No issues have been identified with the current supply meeting the needs of the batching plant. It should be noted however, that in drought conditions, residential customers get priority over non-residential customers in regard to supply of potable water. This can be clarified through a suitable service level agreement between SMRC and FGJV."
Post project approval	DPIE – Water and NRAR's comment is noted. As part of the detailed design of the proposed diversion drain
Detailed design of the proposed diversion and the discharge points into Watercourse A need to ensure stability can be achieved and address the requirements of the Guidelines for Controlled Activities on Waterfront Land (NRAR 2018). A key aspect of this is consideration of flow velocities both within the channel and the floodplain and development of adequate mitigating measures to address the erosion potential. A minimum 10m vegetated buffer is recommended between the infrastructure of the project and the high bank of the proposed diversion.	and discharge points into the watercourse, consideration will be given to the stability of the channel and adjacent floodplain. The design will also consider and ensure proposed surface treatments and revegetation are compatible with predicted flow velocities and minimise erosion potential.
	The detailed design of the proposed diversion will also give consideration to the establishment of a vegetated buffer zone where this can practically be accommodated within the site boundary and giving consideration to the existing site/riparian context and condition, grassland setting and ecological potential.
The proposal to develop an Erosion and Sediment Control Plan to manage potential impacts is supported. These plans should be developed in accordance with the guideline, Soils and Construction: Managing Urban Stormwater (Landcom 2004).	DPIE – Water and NRAR's comment is noted. As stated in the EIS, a proposed mitigation measure for soils (SOI06) was as follows:
	"Erosion and Sediment Control Plans (ESCPs) would be prepared for the construction phase of the project."
	These ESCPs would be prepared in accordance with Soils and Construction: Managing Urban Stormwater.
A Soil and Water Management Plan should be prepared to address the diversion, storage and management of water at the site.	DPIE – Water and NRAR's comment is noted. Measures to address water management on the site during the construction and operational phase of the proposed segment factory would be incorporated into the EMP.
Should incidental dewatering of groundwater during construction be required then appropriate monitoring, reporting and licensing arrangements need to be implemented as advised by NRAR.	DPIE – Water and NRAR's comment is noted.

# 4.3 Community submissions

## 4.3.1 Transport

Responses to transport related comments within community submissions are provided in Table 4.10.

## Table 4.10Response to community submissions regarding transport

Summary of submissions	Response
Adequacy of assessment/survey One community submission raised matters regarding the adequacy of the traffic assessment and survey carried out for the EIS. The submissions argued that the EIS did not clearly explain traffic impacts in easily accessible language. The submission raised concerns that the traffic and transport assessment did not consider impacts to Sharp Street, Cooma. The submissions also questioned the validity of the baseline traffic surveys carried out for the EIS due to differences with existing daily traffic count data for Monaro Highway from RMS.	The EIS of the proposed segment factory was written for the general public to provide publicly accessible and easily understood material regarding the traffic impacts of the project.
	A technical assessment of traffic and transport impacts of the project (TIA) was prepared and provided as an Appendix to the EIS. The findings of the TIA were summarised to focus on key traffic impacts and assessment outcomes in the EIS main report (Section 5.2). A further high-level summary of the traffic and transport assessment was also provided in the EIS Summary that was publicly exhibited alongside the EIS.
	The TIA included consideration of impacts to Sharp Street in Cooma. In the TIA this road section was considered as part of Snowy Mountains Highway between the SMEC offices and Monaro Highway. Therefore, impacts to this road section were fully considered as part of the TIA.
	There are several reasons why the traffic volumes recorded by the nearby RMS traffic count would be different to the baseline traffic surveys undertaken for the EIS. The discrepancy may be due to the different locations on Monaro Highway, the different years in which the data was recorded or the different time of year in which data was recorded. The baseline traffic surveys targeted recording baseline conditions during peak periods and at locations with potential to be impacted by the project.
	The higher number of heavy vehicles and total traffic recorded in the baseline traffic surveys also provides a more conservative assumption for the baseline traffic than the nearby RMS count.
	The higher traffic volumes identified in the baseline traffic surveys provide a worst-case scenario for assessing the capacity of the existing road network and intersections.
Impacts to existing road network	Impacts to roadway Level of Service (LoS) and intersection performance were addressed in the TIA provided
Two submissions raised concerns regarding impacts to the road network. Matters raised include:	in the EIS. The assessment found that intersection upgrade was required to mitigate the traffic impacts of the project including upgrades to Monaro Highway/Yallakool Road, Sharp Street/Polo Flat Road. The
<ul> <li>Concerns about traffic congestion and queueing on Sharp Street in Cooma township.</li> </ul>	intersection of Sharp Street/Bombala Street was also identified as requiring upgrade to provide adequate performance during winter peak conditions. The proposed intersection upgrades are further outlined in Section 3.1.2 above. The proposed intersection upgrades are expected to adequately mitigate any impacts to
<ul> <li>Impacts to travel times on the Snowy Mountains Highway between Cooma and Adaminaby.</li> </ul>	congestion and queueing on Sharp Street or travel times on the Snowy Mountains Highway.
	Impacts to road pavements arising from the project traffic will be managed during construction in accordance with a traffic management plan and rectified following completion of works. A dilapidation
	congestion and queueing on Sharp Street or travel times on the Snowy Mountains Highway. Impacts to road pavements arising from the project traffic will be managed during construction in accordance with a traffic management plan and rectified following completion of works. A dilapidation

### Table 4.10 Response to community submissions regarding transport

Summary	of	subm	issions
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#### Response

• Impacts of project traffic on road pavement along the transport route. In particular impacts to road pavement on Sharp Street within Cooma township as well as to Snowy Mountains Highway between Adaminaby and the KNP. survey will be completed before the project commences. A subsequent dilapidation survey will be carried out at completion of the project and impacts to the road pavement will be rectified.

#### Increased heavy vehicle traffic in Cooma

One submission raised concerns about the heavy vehicle traffic generated by the project. The submission stated that the proposed project traffic would be a large increase in the number of heavy vehicles travelling on Sharp Street through Cooma township. This submission raised concerns that heavy vehicles associated with the project would have an unacceptable impact on public safety and the general amenity of Cooma township. The predicted project generated traffic including heavy vehicles was assessed for impacts to public safety and noise. As described in Section 3.1.1 of this report the predicted project generated traffic has been substantially reduced since the EIS was exhibited. This is expected to significantly reduce the impacts of the project traffic on public safety and noise.

For clarification the assessment outcomes for traffic noise and public safety are provided below.

#### Traffic noise

In the period since exhibition of the EIS the assessment of traffic noise was revised to improve consistency between the traffic and transport assessment and the NVIA. Additionally the traffic noise assessment was revised to reflect the proposed use of PBS vehicles as detailed in Section 3.2.1 above. The revised traffic noise assessment showed reduced impacts to those assessed in the EIS. The revised traffic noise assessment is provided in Appendix D and summarised below.

The NVIA prepared for the EIS considered the combined peak traffic generation from the proposed segment factory and Snowy 2.0 Main Works in order to assess potential cumulative traffic noise impacts for residential assessment locations.

A review of the TIA confirmed that only the proposed segment factory should be considered for the NVIA, with combined traffic and cumulative traffic noise impacts to be assessed as part of the Snowy 2.0 Main Works NVIA.

#### Proposed segment factory only (standard vehicles – three segments per truck)

Assessment of day ( $L_{Aeq, 1Shour}$ ) traffic noise predictions confirm compliance with the <2 dB allowance criterion for all road segments likely to be used by vehicles associated with the proposed segment factory.

Assessment of night ( $L_{Aeq,Shour}$ ) traffic noise predictions confirm compliance with the <2 dB allowance criterion for Monaro Highway (north), Polo Flat Road (south) and Monaro Highway (south).

For Snowy Mountains Highway (south) predicted levels exceed the <2 dB allowance, however the noise level is level than the baseline criterion of 55 dB(A) and accordingly satisfied the NSW RNP requirements.

Polo Flat Road (north) is predicted to increase road traffic noise levels by 2.2 dB, resulting in an exceedance of RNP requirements given existing traffic noises level are above the baseline criterion of 55 dB(A). The 0.2 dB exceedance of the <2 dB allowance criterion for Polo Flat Road (north) occurs during proposed peak traffic generation only.

# Table 4.10Response to community submissions regarding transport

Summary of submissions	Response
	Outside of the peak traffic generation period (two to three months) for segment factory, compliance is predicted for day and night on all road segments.
	Proposed segment factory only (PBS vehicles – nine segments per truck)
	As a result of utilisation of PBS vehicles for segment transfer capable of carrying nine segments per vehicle, the number of heavy vehicles required for segment transport in reduced significantly. Accordingly, assessment of day ( $L_{Aeq,15hour}$ ) and night ( $L_{Aeq,9hour}$ ) traffic noise predictions confirm compliance with the <2 dB allowance criterion for all road segments likely to be used by vehicles associated with the proposed segment factory.
	Public safety
	Public safety impacts of the project traffic would be managed through the life of the project. Operational management measures for public safety, such as a drivers code of conduct, would be included in the traffic management plan, developed and agreed to with RMS. Further discussion of public safety is provided in the section below.
Public safety	The safety impacts of project traffic will be managed throughout the life of the project. Operational
Two submissions raised concerns regarding public safety. In particular, they raised concerns about interactions between the public and heavy vehicle traffic generated by the project. Matters raised included potential safety impacts to road users across the transport route as well as safety impacts to pedestrians within Cooma township.	management measures for public safety, such as a drivers code of conduct will be developed and included in a traffic management plan. Snowy Hydro and FGJV would work with relevant road authorities (SMRC and RMS) to agree and implement these strategies during the construction and operational phase of the proposed segment factory.
	A road safety audit was also undertaken of the haul route between the site of the proposed segment factory and the construction sites within KNP. As outlined in Section 3.3.1 Snowy Hydro is working with RMS to address the findings of the road safety audit.
Intersection upgrades	The proposed intersection upgrades are detailed in Section 3.1.2 above.
One community submission raised concerns that proposed intersection upgrades would include installation of traffic lights within Cooma township and would have unacceptable impacts to amenity.	
Traffic volumes	In the period since the public exhibition of the EIS the predicted traffic generated by the project has been
One submission raised concerns regarding the traffic volumes presented in the EIS. This submission stated the following regarding proposed traffic volumes:	significantly reduced. The revised traffic volumes are provided in Section 3.1.1.
"the average daily project traffic along Sharp Street will include 208 heavy vehicles and the peak daily traffic will include 390 heavy vehicles. These are one-way movements – almost all heavy vehicles	

## Table 4.10 Response to community submissions regarding transport

Summary of submissions	Response
will have a return journey. In total, therefore, Sharp Street will have to cope with over 400 daily heavy vehicle movements on average across the project and almost 800 daily heavy vehicle movements at the peak of the project.	
The traffic assessment notes approximately 20% of project traffic would be at night. Taking 80% of the traffic and based on 10 hours of daytime, at average times, there would be over 30 heavy vehicles along Sharp Street every hour. At peak times, 60 heavy vehicles.	
THAT MEANS EVERY TWO MINUTES ON AVERAGE, AND EVERY MINUTE AT PEAK TIMES, THERE WILL BE A HEAVY VEHICLE ALONG SHARP STREET. CURRENTLY, THERE ARE ALMOST NO HEAVY VEHICLES.	
This is a huge difference to the environment, amenity and safety of Sharp Street."	
Transport route	An alternative route for heavy vehicles between the proposed segment factory and the Snowy 2.0
Two submissions argued that the proposed transport route was not acceptable and suggested options for alternate routes. Some They identified a route using Shannons Flat Road and Bobeyan Road to bypass Cooma township.	construction sites within KNP which bypasses Cooma has been investigated by Snowy Hydro in consultation with SMRC and the State Government. This route includes Yallakool, Mittagang, Shannons Flat and Bobeyan roads. Use of this alternative route by heavy vehicles generated by the proposed segment factory would likely require upgrade works including:

- minimal road widening where required;
- the sealing of Shannons Flat and Bobeyan roads; and
- upgrades to the intersections of Bobeyan Road and Snowy Mountain Highway, Yallakool Road/Polo Flat Road and Monaro Highway.

The investigation into the alternative transport route is intended to reduce impacts during peak traffic flows on the Monaro and Snowy Mountains highways. If used, this alternative route would reduce traffic volumes generated by the proposed segment factory in Sharp Street in Cooma, including during peak holiday periods.

It should be noted that the use of the alternate transport route does not form part of the project, and therefore approval is not being sought for the use of the route at this stage. Should the alternate transport route be upgraded to the standard required approval would be sought separately.

# 4.3.2 Amenity

Responses to amenity related comments within community submissions are provided in Table 4.11.

## Table 4.11 Response to community submissions regarding amenity

Summary of submissions	Response	
Adequacy of noise assessment Two submissions raised concerns regarding the adequacy of the noise	The NVIA provided in the EIS for the proposed segment factory provides details of the baseline noise monitoring undertaken for the project.	
assessment, specifically that the assessment did not adequately characterise existing noise levels in Cooma township, especially during the night. Some submissions raised concerns regarding the adequacy of the noise assessment, specifically that it was confined to the immediate surrounds of the segment factory, where it should have assessed noise impacts to the whole town of Cooma. One submission suggested that additional noise assessment is required to establish the impact of the segment factory on the whole town of Cooma.	Background noise surveys were undertaken to establish the existing ambient noise environment of the area, unattended noise surveys and operator attended aural observations were conducted at monitoring locations as guided by the procedures described in Australian Standard AS 1055-1997 - <i>Acoustics - Description and Measurement of Environmental Noise</i> . Noise monitoring was conducted at four noise monitoring locations considered to be representative of the range of noise levels likely to be experienced by residential assessment locations in the vicinity of the site. The logger locations were selected after inspection of the site and its surrounds, giving due consideration to other noise sources which may influence the readings (eg domestic air-conditioners), the proximity of assessment locations to the site, security issues for the noise monitoring device and gaining permission for access from the residents or landowners. Background noise	
	surveys were undertaken over a week-long period and recorded typical noise levels for day, evening and night periods.	
	The impact assessment of construction and operational noise did not identify potential impacts likely to exceed the relevant noise impact criteria at locations outside the range of the background noise monitoring locations. The noise monitoring locations selected are considered to provide a suitable characterisation of the existing noise environment.	
Operational noise impacts	Operational noise impacts were assessed in the NVIA provided in the EIS for the proposed segment factory.	
Two submissions raised concerns regarding the operational noise impacts of the segment factory. Matters raised include the 24/7 hours of operation of the segment factory and concerns about the use of noisy equipment and machinery during operations.	The assessment found that project noise trigger levels (PNTLs) would be satisfied at all assessment locations during daytime operations. A 2 dB exceedance of the PNTL was predicted at one assessment location (R16) on Carlaminda Road during evening/night operations and after the implementation of all feasible and reasonable mitigation measures.	
One submission stated that operation of the segment factory during the night would have unacceptable noise impacts on residents of Cooma.	Operational noise sources contributing to the exceedance of the PNTL included the operation of a front-end loader near the precast building feeding the CBP hopper with raw materials, forklift trucks transferring	
One submission raised concerns that the operational noise impacts of the segment factory will change the land use of the Polo Flat from light to because inductrial	segments from the precast building to temporary storage areas, and low-loader movements for transfer of segments to main storage area. However, this exceedance would be considered negligible, would not be discernible by the average listener, and would therefore not warrant mitigation at the assessment location	
incury industrial.	The modelling of intermittent (L <sub>Amax</sub> ) noise events confirmed compliance with the sleep disturbance screening level of 52 dBA for all assessment locations.	

# Table 4.11 Response to community submissions regarding amenity

Summary of submissions	Response
Two submissions also raised concerns about proposed mitigations for operational noise impacts. These submissions argued that the design of the segment factory should be revised or that additional acoustic treatments should be applied to mitigate operational noise impacts.	<ul> <li>The following mitigation measures are proposed to monitor and manage operational noise impacts:</li> <li>The EMP would include measures to monitor operational noise levels during commissioning (or within 3 months of operation) to validate the predicted noise levels. The EMP would also include a review of noise mitigation measures and site management to reduce levels where required.</li> <li>There will be regular consultation with the residents at assessment location R16, including notification prior to commencement of operation.</li> </ul>
Traffic noise impacts	A response to predicted road traffic noise associated with the proposed segment factory is provided in Table
Two submissions argued that the project generated traffic including heavy vehicles will result in unacceptable noise impacts within Cooma township. These submissions also raised concerns about the 24/7 operation of the segment factory and potential for night-time traffic noise impacts.	4.4 and Table 4.10.
General amenity impacts	As described in the sections above operational noise impacts are expected to result in an exceedance of the
Two submissions noted that noise resulting from the segment factory will have unacceptable impacts on the amenity of Cooma township.	relevant noise impact criteria at one residential receiver on Carlaminda Road (R16). Construction noise from the project is predicted to satisfy NMLs at all assessment locations for standard construction hours except at
These submissions primarily raised concerns regarding the impact of the segment factory operations and traffic noise on Cooma township.	exceedance of 2 dB is considered to be negligible as changes to noise levels +/-2 db are not discernible to the average noise receiver.
	Construction noise levels outside of standard construction hours (ie Saturday morning from 7 am to 8 am and Saturday afternoon from 1 pm to 5 pm) are predicted to satisfy NMLs at all assessment locations except at three residences located to the south-east of the site on Carlaminda Road (R15, R16 and R17), where exceedances of 2 - 7 dB were predicted during out-of-hours work periods. The predicted construction noise impacts outside of standard construction hours would only occur for a limited period and would occur during the day (5 hours on a Saturday 7 am to 8 am and 1 pm to 5 pm for a period of about 3.5 months). Therefore, the construction noise exceedances at the three residences on Carlaminda Road are unlikely to result in significant impacts.
	Without the use of PBS vehicles, traffic noise impacts are expected to discrete sections of the transport route for a limited period of peak traffic lasting for approximately 2-3 months. With the use of PBS vehicles, the project is expected to comply with road noise criteria in the RNP.
	Overall noise impacts exceeding the relevant impact assessment criteria are only predicted to occur on a small number of discrete locations and will be temporary only. Therefore, the noise impacts of the project will not have unacceptable levels of impact on Cooma township.

# 4.3.3 Project design

Responses to project design related comments within community submissions are provided in Table 4.12.

## Table 4.12 Response to community submissions regarding the project design

Summary of submissions	Response
<b>Disturbance footprint</b> One submission requested clarification of how the project disturbance footprint was calculated. This submission was concerned about potential impacts to the KNP and sought to clarify that road upgrade within KNP were considered.	No road upgrade works within KNP are proposed as part of the application for the proposed segment factory. All road upgrades within KNP for Snowy 2.0 are proposed under the Main Works application. The disturbance area assessed by the EIS for the proposed segment factory consists of the area subject to clearing and ground disturbance at the Polo Flat site only. The disturbance area is the extent of construction works required to build the proposed segment factory.

## 4.3.4 Approvals process

Responses to comments within community submissions on the approval process are provided in Table 4.13.

## Table 4.13 Response to community submission regarding the approvals process

Summary of submission	Response
Level or quality of engagement One community submission raised concern regarding the quality of engagement experienced at the project information briefing in Cooma on 17 October 2019. This submission also raised concerns that summaries of the EIS technical reports were not available during the information briefing.	The project briefing and materials on 17 October 2019 were provided by DPIE, not Snowy Hydro. During the public exhibition period several impact assessment technical outcomes were provided for public review in a summarised format. An EIS summary was made available for public review both online and in hard copy. Numerous hard copies were made available at the Cooma library and the SMRC building.

# 4.3.5 Economic impacts

Responses to comments within community submissions on economic impacts are provided in Table 4.14.

## Table 4.14 Response to community submission regarding economic impacts

Summary of submission	Response
Economic benefits	As stated in EIS, operation of the segment factory will provide significant benefits to the local economy.
One submission noted that the segment factory will have a positive impact on the town of Cooma via increased employment and residents.	During construction, the estimated direct and indirect local economic impact will include:
	<ul> <li>\$8 M in annual direct and indirect output output or business turnover;</li> </ul>
	<ul> <li>\$3 M in annual direct and indirect value added;</li> </ul>
	<ul> <li>\$1 M in annual direct and indirect household income; and</li> </ul>
	46 direct and indirect jobs.
	During operation, the estimated direct and indirect local economic impact will include:
	<ul> <li>\$147 M in annual direct and indirect output or business turnover;</li> </ul>
	<ul> <li>\$46 M in annual direct and indirect value-added;</li> </ul>
	<ul> <li>\$21 M in annual direct and indirect household income; and</li> </ul>
	252 direct and indirect jobs.

# 4.3.6 Social impacts

Responses to comments within community submissions on social impacts are provided in Table 4.15.

## Table 4.15 Response to community submission regarding social impacts

Summary of submission	Responses
Local employment of workers One submission noted that the workforce should be locally employed from such towns as Cooma, Jindabyne and Berridale.	As stated in the EIS, approximately 80% of the construction and operational workforce is expected to be sourced locally from Cooma or surrounding localities. This means that approximately 24 out of the 30-person construction workforce and 100 out of the 125-person operational workforce will be sourced locally.

## 4.3.7 Main Works application

As previously mentioned, many of the submissions received raised matters beyond the scope of the application for the proposed segment factory. These submissions raised matters related to the Main Works application including concerns about the strategic justification for the Snowy 2.0 Main Works as well as the impacts of the Main Works within KNP including biodiversity, water and recreational impacts. All matters raised in submissions on the application for the proposed segment factory regarding the Main Works application have been raised in submissions received through the public exhibition of the Main Works EIS. These matters will therefore be addressed in the RTS to Main Works.

# 5 Updated evaluation and conclusions

The development of Snowy 2.0 will help meet the future needs of the changing NEM and is consistent with Commonwealth and NSW strategic planning and policy objectives, including the NSW Renewable Action Plan. With the planned retirement of coal-fired generation and new renewable generation coming online, the development of Snowy 2.0 will underpin the stability and reliability of the NSW electricity market and the broader NEM and ensure an orderly transition in a cost-effective way. Overall, the project will provide:

- 2,000 MW of dispatchable generating capacity and approximately 350,000 MWh of storage available to the NEM, enough to ensure the stability and reliability of the NEM even during prolonged weather events, such as wind or solar 'droughts';
- increased security and reliability of supply, firm capacity for more variable and lower energy costs which will ultimately benefit consumers; and
- social and economic benefits to the region.

The proposed segment factory is critical to realise the potential benefits of Snowy 2.0, as it would produce concrete segments that are required to line the tunnels being excavated for the project.

In developing Snowy 2.0, Snowy Hydro and FGJV considered a range of alternative designs, layouts and locations for the proposed segment factory. In developing the layout of the factory, a DIAA process was undertaken with the guiding principles of avoiding and minimising environmental impacts where possible. Ultimately, the site and layout of the proposed segment factory was determined to be the preferred option because of the economic benefits the factory will make to the local community and the way it responds to the environmental conditions of the site and its surrounds.

Snowy Hydro's consultation on Snowy 2.0 with key stakeholders and the community commenced in mid-2017 and is ongoing. The results of stakeholder engagement for the proposed segment factory undertaken before publication and exhibition of the EIS indicated that, in general, all stakeholders are supportive of the project due to the economic and social benefits that it would bring to the local area. These views were confirmed by the economic assessment that supported the EIS which demonstrates that the proposed segment factory would generate \$8 M in business turnover and 46 direct and indirect jobs during the construction phase, and \$147 M in business turnover annually and 252 direct and indirect jobs during the operational phase.

Notwithstanding the above, some stakeholders raised concerns regarding potential impacts associated with the proposed segment factory, particularly impacts associated with the increase in traffic movements.

The EIS for the proposed segment factory was placed on public exhibition for a period of 28 days, between 10 October and 6 November 2019. In response, a total of 33 submissions were received including 26 submissions from the community, six from NSW government agencies and one from SMRC. Of the 26 community submissions, 22 related to Snowy 2.0 Main Works rather than the proposed segment factory. Of the four community submissions that related to the proposed segment factory three were characterised as providing comments and one was characterised as providing support.

The key issues raised in the four community submissions on the proposed segment factory related to potential transport impacts, amenity impacts and social and economic benefits. The matters raised in the submissions relating to Main Works will be addressed in the RTS on that project.

The six submissions from NSW government agencies provided comments on the proposed segment factory, and the submission from SMRC provided support. The comments from the agencies principally requested additional information on areas related to their area of jurisdiction.

Since exhibition of the EIS for the proposed segment factory there have been some refinements to the project, including:

- a reduction in predicted traffic movements generated by the proposed segment factory;
- resolution on external road upgrades required for the proposed segment factory and Snowy 2.0 Main Works;
- a change in the layout of the proposed segment factory to reflect noise modelling reported within the EIS; and
- clarification around need for onsite soil testing.

As stated in Section 3.2, the EIS for the proposed segment factory, and its supporting technical assessments, were based on predicted operational project-generated traffic volumes that are double those now proposed. Accordingly, predicted operational project-related traffic volumes would now be half of those previously reported and assessed. Further reductions in traffic volumes would be achieved if approvals are granted for the PBS vehicles designed to transport the segments to the construction sites in KNP.

The reduction in predicted traffic generated by the proposed segment factory would lead to a reduction in a range of impacts predicted in the EIS, including traffic, noise, air quality and social impacts.

Consistent with the principles of ecologically sustainable development, the proposed segment factory has been designed to avoid and minimise impacts where possible. Through the implementation of proposed mitigation, management and offsetting measures, the EIS and this RTS demonstrates that the proposed segment factory could be undertaken without any significant impacts on the local environment. As such, the proposed segment factory is considered to be in the public interest.

Appendix A

# Submissions summary

						Transpo					Biodi		Heritage								Other					Project	Wat	er Bey	ond scope
				Adequacy of	Increased proportion	Impact to					Weeds and	Adequacy of	Adequacy of			Operational		General	Traffic	Noise			Level and	Approval					Access to
	Reference			assessment/	of heavy vehicle	existing road	Road	Transport	Public	Traffic	invasive	assessment/	assessment/s		Economic	noise	Adeaucy of	amenity	noise	specific			uality of p	rocess and		Disturbance	Site w	ater Main work	s recreational
Submitter	number	Location	Group View	urvey	traffic in Cooma	network	upgrades	route	safety	numbers	species	survey	urvey	Workforce	benefits	impacts	assessment	impacts	impacts	impacts	Waste .	Air en	ngagement c	ompliance	Contamination	footprint D	sign manage	ment submission	areas in KNP
TfNSW	A1		State government Commen	t 1			1																						
RMS	A2		State government Commen	t 1						1																			
BCD	A3		State government Commen	t								1	1																
SMRC	A4		Local government Support				1				1										1				1		1		
EPA	A5		State government Commen	t																1		1		1					
DPI	A6		State government Commen	t																									
DPIE-Water & NRAR	A7		State government Commen	t																							1		
Brian Swan	C001	Wilberforce	Individual Object																									1	
Ron Salz	C002	Leura	Individual Object																									1	
Barbara Briggs	C003	Cremorne	Individual Object																									1	
Ann Sharp	C004	Not stated	Individual Object																									1	
Eamonn Culhane	C005	Earlwood	Individual Object																									1	
Melissa Benyon	C006	Mount Fair	Individual Object																									1	
Stephanie Rushton	C007	Chisholm	Individual Object																										1
Digby Hughs	C008	Manly	Individual Object																									1	
Dr Helen Stevens	C009	Caves Beach	Individual Object																									1	
Gavin Imhof	C010	Lane Cove	Individual Object																									1	
Jeff Hart	C011	Kingston	Individual Commen	t																									1
Julie Ho	C012	Port Macquarie	Individual Commen	t																								1	
Louise Blampied	C013	Adaminaby	Individual Commen	t																									1
Louise Jenkins	C014	Cooma	Individual Commen	t		1	1	1	1						1				1	1			1			1			
Name withheld	C015	Balnarring	Individual Object																									1	
Name withheld	C016	Cooma	Individual Commen	t				1	1																				
Name withheld	C017	Illawong	Individual Object																									1	
Name withheld	C018	Murwillumbah	Individual Object																									1	
Name withheld	C019	Newport	Individual Commen	t																									1
Name withheld	C020	The Ponds	Individual Support											1															
Name withheld	C021	Warwick Farm	Individual Commen	t																									1
Name withheld	C022	Wolstonecraft	Individual Object																									1	
Name withheld	C023	Bulli	Individual Object																									1	
Robert Jenkins	C024	Cooma	Individual Commen	t 1	1	1		1	1	1						1	1	1	1	1								1	
Ronald Watts	C025	Chatswood	Individual Object																									1	
Roslyn Watts	C026	Caniaba	Individual Object																									1	
TOTAL				3	1	2	3	3	3	2	1	1	1	1	1	1	1	1	2	3	1	1	1	1	1	1	1 1	18	5
State government				2	0	0	2	0	0	1	1	1	1	0	0	Ó	0	0	0	1	1	1	0	1	1	0	1 1	0	0
Local government				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 0	0	0
Individual				1	1	2	1	3	3	1	0	0	0	1	1	1	1	1	2	2	0	0	1	0	0	1	0 0	18	5

Appendix B

# **Register of submitters**

Group	Reference	Name	Where issues are
	number		addressed (section)
State government	A1	Transport for NSW	4.2.6
State government	A2	Roads and Maritime Services	4.2.5
		Biodiversity and Conservation	
State government	A3	Division, South East	4.2.2
Local government	A4	Snowy Monaro Regional Council	4.2.1
State government	A5	Environment Protection Authority	4.2.4
State government	A6	Department of Primary Industries	4.2.3
		Department of Industry NRAR and	
State government	A7	Water	4.2.7
Individual	1	Brian Swan	Beyond scope
Individual	2	Ron Salz	Beyond scope
Individual	3	Barbara Briggs	Beyond scope
Individual	4	Ann Sharp	Beyond scope
Individual	5	Eamonn Culhane	Beyond scope
Individual	6	Melissa Benyon	Beyond scope
Individual	7	Stephanie Rushton	Beyond scope
Individual	8	Digby Hughs	Beyond scope
Individual	9	Dr Helen Stevens	Beyond scope
Individual	10	Gavin Imhof	Beyond scope
Individual	11	Jeff Hart	Beyond scope
Individual	12	Julie Ho	Beyond scope
Individual	13	Louise Blampied	Beyond scope
			4.3.1
			4.3.2
			4.3.3
			4.3.4
Individual	14	Louise Jenkins	4.3.5
Individual	15	Name withheld	Beyond scope
Individual	16	Name withheld	4.3.1
Individual	17	Name withheld	Beyond scope
Individual	18	Name withheld	Beyond scope
Individual	19	Name withheld	Beyond scope
Individual	20	Name withheld	4.3.6
Individual	21	Name withheld	Beyond scope
Individual	22	Name withheld	Beyond scope
Individual	23	Name withheld	Beyond scope
			4.3.1
			4.3.2
Robert Jenkins	24	Name withheld	
Ronald Watts	25	Name withheld	Beyond scope
Roslyn Watts	26	Name withheld	Beyond scope

Appendix C

# Updated mitigation measures

The mitigation measures outlined in the EIS for the proposed segment factory have been revised to address changes as a result of this RTS.

These mitigation measures will be incorporated into the detailed design and construction of the proposed segment factory, and into the EMP or sub-plans as relevant. A summary of mitigation measures is provided in Table C.1.

#### ID# Impact/risk **Mitigation measures** Area Transport Traffic controls TRA01 • Traffic controls would be implemented during the construction of the intersection of the access road with Polo Flat Road. Community TRA02 • Community consultation, notifying communities and emergency services notification would be undertaken for any disruptions to traffic and access restrictions required by the project. Management TRA03 • The EMP would set out guidelines, general requirements and procedures to plan be used when construction and operational activities impact on existing traffic arrangements. Dilapidation TRA04 • A dilapidation survey will be completed before the project commences. A survey subsequent dilapidation survey will be carried out at completion of the project and impacts to the road pavement will be rectified. Noise and Construction NV001 • The EMP for the proposed segment factory would describe how vibration noise and construction noise would be managed where predicted noise levels are vibration above the NMLs. It would outline measures to monitor construction noise at early stages to validate the predictions. • Residents at assessment locations (R15, R16 and R17) would be notified prior to construction. Operational NV002 • The EMP would include measures to monitor operational noise levels during noise commissioning (or within 3 months of operation) to validate the predicted noise levels. The EMP would also include a review of noise mitigation measures and site management to reduce levels where required. The residents at assessment location R16 would be notified prior to commencement of operation. Landscape and Surface LV01 • The use of non-reflective paint on buildings should be used where possible visual reflectivity to avoid glare and surface reflectivity. Surface I V02 • The use of dark colours should be used where possible as they are usually reflectivity better absorbed within natural areas. Greys and charcoal colours generally provide less visual contrast to the colours of the Australian landscape and complement the hues of the alpine environment. Surface LV03 • The use of textures on large surfaces is recommended where possible to reflectivity reduce the contrast between built elements and the surrounding (textured) natural environment and reduce the potential for glare. • Lighting would be designed in accordance with AS4282-1997 Control of LV04 Lighting obtrusive effects of outdoor lighting to minimise light spill. Air quality Dust from roads AIR01 All paved roads would be routinely cleaned by a street sweeper (water flushing and sweeping) as required. Diesel AIR02 • The idling of diesel equipment would be minimised. particulates **Biodiversity** Native BIO01 • The patches of retained native grassland located within the site would be grasslands fenced with a post and wire fence and signed as "No-go zones -Environmentally sensitive areas". BIO02 The access road interfacing with the retained native grassland to the south Native grasslands would be fenced with a post and wire fence and signed as "No-go zones -Environmentally sensitive areas".

## Table C.1 Summary of mitigation measures

# Table C.1 Summary of mitigation measures

Area	Impact/risk	ID#	Mitigation measures
	Native grasslands	BIO03	<ul> <li>The retained native grassland within the site would be actively managed to reduce indirect impacts and retained the native grassland structure, including implementation of a weed monitoring and control program.</li> </ul>
	Weed management	BIO04	<ul> <li>A chain link fence surrounding the site, or similar, would be fitted with shade cloth, or similar, to prevent and minimise spread of weeds into the site.</li> </ul>
	Weed management	BIO05	<ul> <li>A weed wash-down station would be constructed and operated at a suitable location on the site. Wash-down of vehicles will be completed before and after any movements on site to prevent the spread of weeds during the construction phase.</li> </ul>
	Weed management	BIO06	<ul> <li>A weed monitoring and control program would be implemented in accordance with NSW WeedWise (DPI 2019) which would include:</li> </ul>
			<ul> <li>management of weeds across Lot 14;</li> </ul>
			<ul> <li>active and intensive control within 50 m of the disturbance footprint within Snowy Hydro owned land; and</li> </ul>
			<ul> <li>removal and appropriate disposal of weeds, including infested topsoil, to an appropriate disposal facility or buried so they do not pose a risk of germination.</li> </ul>
	Inductions	BIO07	The site induction for employees and contractors would contain material:
			<ul> <li>informing them of the potential presence of Striped Legless Lizard, Grassland Earless Dragon and other threatened flora and fauna species; and</li> </ul>
			<ul> <li>procedures to be implemented should the Striped Legless Lizard, Grassland Earless Dragon be found during works.</li> </ul>
	Clearing	BIO08	<ul> <li>Clearing of all exotic and native vegetation would be undertaken in accordance with the procedure set out in Section 7.3 of the BDAR.</li> </ul>
Contamination	Remediation	CON01	<ul> <li>Due to the presence of ACM fragments on the surface of the site, it is recommended that a surface clearance (emu-bob or similar) is undertaken prior to construction activities.</li> </ul>
	Imported fill	CON02	Any fill materials imported to the site would be certified as VENM or ENM.
	Unexpected finds	CON03	<ul> <li>The EMP should contain an unexpected finds protocol including procedures in the event that potentially contaminated land is identified. Where signs of contamination are identified, construction work within the affected areas would cease until a contamination assessment was undertaken to advise the need for further investigation or remediation.</li> </ul>
	Handling of waste	CON04	<ul> <li>The EMP should contain procedures for handling and storing waste, including handling of potentially or known contaminated material and protocols for waste classification and disposal.</li> </ul>
	Consultation with SMRC	CON05	The project will liaise with SMRC regarding the disposal of ACM waste from the site prior to construction of the proposed segment factory.
Soils	Soil resource	SOI01	<ul> <li>Soils with a seed bank of African Lovegrass should be disposed off-site or buried so they do not pose a risk of germination.</li> </ul>
	Soil resource	SOI02	<ul> <li>Soil requirements for landscaping and/or rehabilitation would be accurately determined before construction works begin. Since African Lovegrass impacts are widespread to soils onsite, landscaping rehab is unlikely to use this original soil and will be subject to detailed design.</li> </ul>

# Table C.1 Summary of mitigation measures

Area	Impact/risk	ID#	Mitigation measures
	Soil resource	SO103	<ul> <li>An inventory of soil stripped would be prepared, so that contaminated material is identified for removal and if any significant deficit is identified, additional material can be sourced prior to landscaping and/or rehabilitation.</li> </ul>
	Topsoil	SOI04	<ul> <li>Topsoil management would include the following measures:</li> </ul>
	management		<ul> <li>stripped topsoil would be stockpiled separately from subsoil stockpiles where possible and practical;</li> </ul>
			<ul> <li>topsoils would be stockpiled using methods and machinery that limit the amount of compaction so as to avoid structural decline;</li> </ul>
			<ul> <li>stockpiles would be placed away from water discharge zones where they are not disturbed by other activities, where possible;</li> </ul>
			<ul> <li>topsoils to be maintained for an extended period of time (eg greater than20 days) may be sprayed with a bonding agent or seeded with appropriate species and monitored for weed management; and</li> </ul>
			stockpiles would be clearly signposted.
	Landscaping and/or rehabilitation	SO105	<ul> <li>The following measures are designed to minimise the loss of soil during respreading on landscaped and/or rehabilitated areas and promote successful vegetation establishment:</li> </ul>
			<ul> <li>soil would be respread in even layers at a thickness appropriate for the intended use;</li> </ul>
			<ul> <li>topsoil would be compacted firmly but not excessively and left slightly rough (light cultivation after reinstatement may be required) to provide a suitable seed bed for revegetation;</li> </ul>
			<ul> <li>as soon as practicable after respreading, a sterile cover crop (or other form of cover if a cover crop is unsuitable) should be established to limit erosion and soil loss;</li> </ul>
			<ul> <li>if fertiliser is applied to aid in the reestablishment of cover it should contain as a minimum nitrogen, phosphorous, potassium and sulfur (based on the soil laboratory analysis); and</li> </ul>
			<ul> <li>where vegetative cover has not been established the use of other cover may include mulching (organics or rocks), geofabrics (eg jute matting) or soil binding agent until suitable cover is achieved</li> </ul>
	Erosion	SO106	<ul> <li>Erosion and Sediment Control Plans (ESCPs) would be prepared for the construction phase of the project.</li> </ul>
Water	Flooding	WM01	<ul> <li>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:</li> </ul>
			<ul> <li>waste and hazardous materials will be located outside the 1% AEP extent;</li> </ul>
			<ul> <li>habitable buildings, electrical wiring and equipment will be located</li> <li>500mm above the 1% AEP level; and</li> </ul>
			<ul> <li>non-habitable building floor level will be a minimum of 300mm above the 1% AEP.</li> </ul>
	Flooding	WM02	Future detailed design would have consideration to:
			<ul> <li>minimising adverse offsite flooding impacts to the extent practicable for events up to and including the 1% AEP; and</li> </ul>
			<ul> <li>Incorporating the flood risk controls outlined in WM02 above.</li> </ul>

# Table C.1 Summary of mitigation measures

Area	Impact/risk	ID#	Mitigation measures
	Drainage	WM03	Snowy Hydro will work with SMRC to provide an interallotment 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.
Social	Access to housing	SOC01	<ul> <li>Provision of temporary accommodation at the Pacific Hills site in Cooma, if approved (a separate DA would be lodged for the accommodation at this site).</li> </ul>
	Access to housing	SOC02	<ul> <li>Prior to site establishment, confirm that no homeless people are living on site and if they are, provide early notification of works.</li> </ul>
	Access to adequate	SOC03	<ul> <li>Provision of training and apprenticeships for local youth and people aged over 50.</li> </ul>
	employment		<ul> <li>Implementation of a School Based Apprenticeship Training Pilot Program.</li> </ul>
	Public safety	SOC04	<ul> <li>Work with road authorities such as SMRC and RMS to implement and/or advocate for measures to reduce potential impacts to public safety as a result of increased traffic movements.</li> </ul>
Economics	Local employment	ECO01	<ul> <li>Consideration would be given to local employees where they have the required skills and experience.</li> </ul>
	Potential business	ECO02	<ul> <li>Collaboration would be undertaken with SMRC, economic development organisations, local chambers of commerce and State Government to:</li> </ul>
	impacts		<ul> <li>inform local business of the goods and services required, service provision opportunities and compliance requirements of business to secure contracts;</li> </ul>
			<ul> <li>encourage local business to meet the requirements for the supply of contracts; and</li> </ul>
			<ul> <li>develop relevant networks to assist qualified local and local businesses tender for provision of goods and services to support the factory.</li> </ul>
Heritage	Unexpected finds	HER01	As part of the EMP for the proposed segment factory, a protocol will be prepared which documents the process to be undertaken should any items of Aboriginal heritage be unexpectedly found during the construction phase.

Appendix D

# Revised traffic noise assessment




Ground floor, 20 Chandos Street St Leonards NSW 2065 PO Box 21 St Leonards NSW 1590

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6 December 2019

To:Brett McLennanFrom:Carl FokkemaSubject:Revised traffic noise assessment - proposed segment factory

Dear Brett,

This memo provides a revised traffic noise assessment for the proposed segment factory based on revised traffic volumes detailed in the Segment Factory Response to Submissions.

# 1 Original traffic noise calculations

Polo Flat NVIA – Original Calculations (Cumulative Snowy 2.0 + PF)

### Table 1.1 Road traffic noise calculations, Day (7am to 10pm)

ID	Approximate distance from nearest carriageway	Road segments	Exis	sting move	ments <sup>1</sup>	Existing plus project movements			Noise level increase due
			Total	%HV	Calculated level, L <sub>Aeq,15hour</sub>	Total	%HV	Predicted level, L <sub>Aeq,15hour</sub>	to the Project, L <sub>Aeq,15hour</sub>
Cooma 1	20m	Snowy Mountains Highway (south)	4648	12	62.5	5131	17	63.0	0.5
Cooma 2	14m	Monaro Highway (north)	6150	23	66.4	6674	26	66.7	0.3
Cooma 3 <sup>2</sup>	14m	Polo Flat Road (north)	1744	43	67.4	2103	45	68.4	1.0
Cooma 4 <sup>2,3</sup>	60m	Polo Flat Road (south)	2041	49	59.4	2375	44	59.8	0.2
Cooma 5 <sup>2,4</sup>	240m	Monaro Highway (south)	2391	39	53.5	2493	40	53.9	0.3

Notes: 1. Existing movements are based on 2018/2019 long-term road traffic counts. Refer TIA (SCT 2018/2019) for detail.

2. Cooma 3, Cooma 4 and Cooma 5 utilise FHWA prediction methodology due to low traffic volumes (<200vehicle/hr).

3. Closest house for this road segment is on Dangelong Lane.

4. 100km/h zone south of Cooma between Saleyards Road and Schmidt Quarry - closest house.

Assessment of day ( $L_{Aeq,15hour}$ ) traffic noise predictions confirm compliance with the <2dB allowance criterion for all road segments likely to be used by vehicles associated with the segment factory.

ID	Approximate distance from nearest carriageway	Road segment	Existing movements <sup>1</sup>			Existing plus project movements			Noise level increase due
			Total	%HV	Calculated level, L <sub>Aeq,9hour</sub>	Total	%HV	Predicted level, L <sub>Aeq,9hou</sub>	to the Project, L <sub>Aeq,9hour</sub>
Cooma 1	20m	Snowy Mountains Highway (south)	196	14	49.9	319	34	55.4	5.5 <sup>6</sup>
Cooma 2	14m	Monaro Highway (north)	239	30	55.9	372	40	59.1	3.2 <sup>6</sup>
Cooma 3 <sup>2</sup>	14m	Polo Flat Road (north)	118	55	59.0	208	55	61.4	2.4 <sup>6</sup>
Cooma 4 <sup>2,3</sup>	60m	Polo Flat Road (south)	128	59	50.3	211	43	51.2	0.9
Cooma 5 <sup>2,4</sup>	240m	Monaro Highway (south)	104	45	42.7	130	48	43.9	1.2

#### Table 1.2 Road traffic noise calculations, Night (10pm to 7am)

Notes: 1. Existing movements are based on 2018/2019 long-term road traffic counts. Refer TIA (SCT 2018/2019) for detail.

2. Cooma 3, Cooma 4 and Cooma 5 utilise FHWA prediction methodology due to low traffic volumes (<200vehicle/hr).

3. Closest house for this road segment is on Dangelong Lane.

4. 100km/h zone south of Cooma between Saleyards Road and Schmidt Quarry - closest house.

5. Greater than 2dB increase, however less than baseline NSW, RNP criteria of LAeq,9hr 55dBA.

6. Exceedance of +2dB increase and baseline NSW, RNP criteria of  $L_{Aeq,9hr}\,55dBA.$ 

Assessment of night ( $L_{Aeq,9hour}$ ) traffic noise predictions confirm compliance with the <2 dB allowance criterion for Polo Flat Road (south) and Monaro Highway (south).

For Snowy Mountains Highway (south) and Polo Flat Road (north) the predicted increase in road traffic noise levels is 5.5 dB and 2.4 dB respectively, resulting in an exceedance of RNP requirements given existing traffic noises level are above the baseline criterion of 55 dB(A). The 0.4 dB exceedance of baseline criterion of 55 dBA for Snowy Mountains Highway (south) and 0.4 dB exceedance of <2 dB allowance criterion for Polo Flat Road (north) occurs during proposed peak traffic generation only. Similarly, for Monaro Highway (north) an exceedance of 1.2 dB of the <2 dB allowance criterion is predicted for the closest residence during the peak traffic generation period comprising up to 9 HV movements per hour.

Peak traffic volumes represent a snapshot in time for the Snowy 2.0 project to assess the worse-case scenario and incorporates an additional 20% allowance as a safety margin as adopted by FGJV. Peak volumes are anticipated for a discrete period of 2-3 months. For the majority of the project life outside of this peak period, average daily volumes are typically 30% lower for LV and 50% lower for HV and would comply with the RNP requirements. For more detail refer to Traffic Impact Assessment – Proposed segment factory – Polo Flat (SCT, 2019).

# 2 Amended traffic noise calculations

# Amended Traffic Calculations– Polo Flat ONLY

### Table 2.1 Road traffic noise calculations, Day (7am to 10pm)

ID	Approximate distance from nearest carriageway	Road segments	Exi	sting move	ments <sup>1</sup>	Existing plus project movements			Noise level increase due
			Total	%HV	Calculated level, L <sub>Aeq,15hour</sub>	Total	%HV	Predicted level, L <sub>Aeq,15hour</sub>	to the Project, L <sub>Aeq,15hour</sub>
Cooma 1	20m	Snowy Mountains Highway (south)	4648	12	62.5	4777	14	62.7	0.1
Cooma 2	14m	Monaro Highway (north)	6150	23	66.4	6413	24	66.5	0.2
Cooma 3 <sup>2</sup>	14m	Polo Flat Road (north)	1744	43	67.4	2073	44	68.3	0.9
Cooma 4 <sup>2,3</sup>	60m	Polo Flat Road (south)	2041	49	59.4	2255	44	59.4	0.0
Cooma 5 <sup>2,4</sup>	240m	Monaro Highway (south)	2391	39	53.5	2412	38	53.8	0.3

Notes: 1. Existing movements are based on 2018/2019 long-term road traffic counts. Refer TIA (SCT 2018/2019) for detail.

2. Cooma 3, Cooma 4 and Cooma 5 utilise FHWA prediction methodology due to low traffic volumes (<200vehicle/hr).

3. Closest house for this road segment is on Dangelong Lane.

4. 100km/h zone south of Cooma between Saleyards Road and Schmidt Quarry – closest house.

Assessment of day ( $L_{Aeq,15hour}$ ) traffic noise predictions confirm compliance with the <2dB allowance criterion for all road segments likely to be used by vehicles associated with the segment factory.

# Table 2.2 Road traffic noise calculations, Night (10pm to 7am)

ID	Approximate distance from nearest carriageway	Road segment	Exi	sting move	ments <sup>1</sup>	Existing plus project movements			Noise level increase due
			Total	%HV	Calculated level, L <sub>Aeq,9hour</sub>	Total	%HV	Predicted level, L <sub>Aeq,9hou</sub>	to the Project, L <sub>Aeq,9hour</sub>
Cooma 1	20m	Snowy Mountains Highway (south)	196	14	49.9	231	24	52.6	2.75
Cooma 2	14m	Monaro Highway (north)	239	30	55.9	307	32	57.3	1.3
Cooma 3 <sup>2</sup>	14m	Polo Flat Road (north)	118	55	59.0	200	54	61.2	2.26
Cooma 4 <sup>2,3</sup>	60m	Polo Flat Road (south)	128	59	50.3	181	41	50.4	0.1
Cooma 5 <sup>2,4</sup>	240m	Monaro Highway (south)	104	45	42.7	109	43	42.7	0.0

Notes: 1. Existing movements are based on 2018/2019 long-term road traffic counts. Refer TIA (SCT 2018/2019) for detail.

2. Cooma 3, Cooma 4 and Cooma 5 utilise FHWA prediction methodology due to low traffic volumes (<200vehicle/hr).

3. Closest house for this road segment is on Dangelong Lane.

4. 100km/h zone south of Cooma between Saleyards Road and Schmidt Quarry - closest house.

5. Greater than 2dB increase, however less than baseline NSW, RNP criteria of LAeq,9hr 55dBA.

6. Technical 0.2dB exceedance of +2dB increase and baseline NSW, RNP criteria of LAeq,9hr 55dBA.

Assessment of night ( $L_{Aeq,9hour}$ ) traffic noise predictions confirm compliance with the <2 dB allowance criterion for Monaro Highway (north), Polo Flat Road (south) and Monaro Highway (south).

For Snowy Mountains Highway (south) predicted levels exceed the <2dB allowance, however the noise level is level than the baseline criterion of 55 dB(A) and accordingly satisfied the NSW RNP requirements

Polo Flat Road (north) is predicted to increase road traffic noise levels by 2.2 dB, resulting in an exceedance of RNP requirements given existing traffic noises level are above the baseline criterion of 55 dB(A). The 0.2 dB exceedance of the <2 dB allowance criterion for Polo Flat Road (north) occurs during proposed peak traffic generation only.

#### Amended Traffic Calculations- Polo Flat ONLY with PBS vehicles

ID	Approximate distance from nearest carriageway	Road segments	Existing movements <sup>1</sup>			Existing plus project movements			Noise level increase due
			Total	%HV	Calculated level, L <sub>Aeq,15hour</sub>	Total	%HV	Predicted level, L <sub>Aeq,15hour</sub>	to the Project, L <sub>Aeq,15hour</sub>
Cooma 1	20m	Snowy Mountains Highway (south)	4648	12	62.5	4707	13	62.6	0.1
Cooma 2	14m	Monaro Highway (north)	6150	23	66.4	6343	23	66.5	0.1
Cooma 3 <sup>2</sup>	14m	Polo Flat Road (north)	1744	43	67.4	2002	42	67.9	0.6
Cooma 4 <sup>2,3</sup>	60m	Polo Flat Road (south)	2041	49	59.4	2255	44	59.4	0.0
Cooma 5 <sup>2,4</sup>	240m	Monaro Highway (south)	2391	39	53.5	2412	38	53.8	0.3

#### Table 2.3Road traffic noise calculations, Day (7am to 10pm)

Notes: 1. Existing movements are based on 2018/2019 long-term road traffic counts. Refer TIA (SCT 2018/2019) for detail.

2. Cooma 3, Cooma 4 and Cooma 5 utilise FHWA prediction methodology due to low traffic volumes (<200vehicle/hr).

3. Closest house for this road segment is on Dangelong Lane.

4. 100km/h zone south of Cooma between Saleyards Road and Schmidt Quarry – closest house.

Assessment of day ( $L_{Aeq,15hour}$ ) traffic noise predictions confirm compliance with the <2dB allowance criterion for all road segments likely to be used by vehicles associated with the segment factory.

#### Table 2.4 Road traffic noise calculations, Night (10pm to 7am)

ID	Approximate distance from nearest carriageway	Road segment	Exis	sting move	ments <sup>1</sup>	Existing plus project movements			Noise level increase due
			Total	%HV	Calculated level, L <sub>Aeq,9hour</sub>	Total	%HV	Predicted level, L <sub>Aeq,9hou</sub>	to the Project, L <sub>Aeq,9hour</sub>
Cooma 1	20m	Snowy Mountains Highway (south)	196	14	49.9	213	17	51.0	1.1
Cooma 2	14m	Monaro Highway (north)	239	30	55.9	289	28	56.5	0.5
Cooma 3 <sup>2</sup>	14m	Polo Flat Road (north)	118	55	59.0	183	50	60.4	1.4

#### Table 2.5 Road traffic noise calculations, Night (10pm to 7am)

ID	Approximate distance from nearest carriageway	Road segment	Exis	sting move	ments <sup>1</sup>	Exis	ting plus moveme	Noise level increase due	
			Total	%HV	Calculated level, L <sub>Aeq,9hour</sub>	Total	%HV	Predicted level, L <sub>Aeq,9hou</sub>	to the Project, L <sub>Aeq,9hour</sub>
Cooma 4 <sup>2,3</sup>	60m	Polo Flat Road (south)	128	59	50.3	181	41	50.4	0.1
Cooma 5 <sup>2,4</sup>	240m	Monaro Highway (south)	104	45	42.7	109	43	42.7	0.0

Notes: 1. Existing movements are based on 2018/2019 long-term road traffic counts. Refer TIA (SCT 2018/2019) for detail.

2. Cooma 3, Cooma 4 and Cooma 5 utilise FHWA prediction methodology due to low traffic volumes (<200vehicle/hr).

3. Closest house for this road segment is on Dangelong Lane.

4. 100km/h zone south of Cooma between Saleyards Road and Schmidt Quarry - closest house.

Assessment of night ( $L_{Aeq,9hour}$ ) traffic noise predictions confirm compliance with the <2dB allowance criterion for all road segments likely to be used by vehicles associated with the segment factory.

# 3 Summary

#### 3.1.1 Traffic noise impacts – segment factory traffic only (standard trucks)

Utilising standard trucks (three segments per truck) confirms:

DAY

Compliance on all assessed road segments

NIGHT

Compliance with <2dB increase for:

Monaro Highway (north);

Polo Flat Road (south); and

Monaro Highway (south).

Exceedance of <2dB increase but less than RNP baseline level of 55dBA

Snowy Mountains Highway (south)

Exceedance of <2dB increase and RNP baseline level of 55dBA

Polo Flat Road (north)

Technical exceedance of 0.2dB of <2dB increase (peak period)

Outside of peak traffic generation compliance for all assessed road segments.

#### 3.1.2 Traffic noise impacts – segment factory traffic only (PBS trucks)

Utilising PBS trucks (9 segments per truck) confirms compliance for both Day and Night traffic assessment periods on all assessed road segments.

Yours sincerely

11-

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# **OFFICE LOCATIONS**

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