

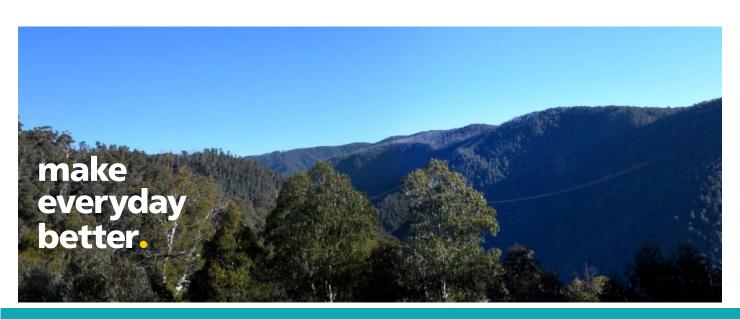
# **Snowy 2.0 Transmission Connection, Application Number SSI 9717**

Visual Impact Management Plan

Prepared for Transgrid Prepared by Beca Pty Ltd ABN: 85 004 974 341

7 August 2023

**Rev 13** 



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## **Revision History**

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Rev 09	Jason Snape Senior Environmental Business Partner, Transgrid	Amendments in response to DPE RFI- 58645208	31/05/2023
Rev 10	Tanvir Islam Environmental Business Partner, Transgrid	Amendments in response to DPE RFI- 59521706	29/06/2023
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## **Document Acceptance**

Action	Name	Signed	Date
Prepared by	Nigel Parker	Night ham.	1/12/2022
Reviewed by	George Woolford	Gunghharft	1/12/2022

# **Transgrid Approval**

Action	Name	Signed	Date
Approved by	Andrew Buttigieg	A. hittgier	07/08/2023

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This report has been prepared by Beca on the specific instructions of our Client. It is solely for our Client's use for the purpose for which it is intended in accordance with the agreed scope of work. Any use or reliance by any person contrary to the above, to which Beca has not given its prior written consent, is at that person's own risk.



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#### 1 Introduction

This Visual Impact Management Plan (VIMP) has been prepared to satisfy the Visual Amenity and mitigation requirements of the Infrastructure Approval (the Approval) granted by the Planning Minister of New South Wales, under the *Environmental Planning and Assessment Act 1979* for the Critical State Significant Infrastructure Development Snowy 2.0 Transmission Connection, Application Number SSI 9717.

This VIMP has been commissioned by Transgrid, the manager and operator of the major high-voltage electricity transmission network in New South Wales (NSW) and the Australian Capital Territory (ACT).

#### 1.1 Background

In 2020, Snowy Hydro Limited (SHL) obtained approval to expand the existing Snowy Mountains Hydro-electric Scheme (Snowy Scheme) by linking the existing Tantangara and Talbingo reservoirs through a series of underground tunnels and constructing a new underground hydro-electric power station (Snowy 2.0). Snowy 2.0 is expected to increase the generation capacity of the Snowy Scheme by almost 50 percent, providing an additional 2000 megawatts (MW) of generating capacity, and making approximately 350,000 megawatt hours (MWh) of large-scale storage available to the National Electricity Market (NEM).

To connect Snowy 2.0 to the NEM, a new transmission connection is required. NSW Electricity Networks Operations Pty Ltd as a trustee for NSW Electricity Operations Trust (known as Transgrid) received development approval on 2nd September 2022 under Part 5 Division 5.2 of the NSW Environmental Planning and Assessment Act 1979 (EP&A Act) for the construction and operation of the Snowy 2.0 Transmission Connection Project (the Project) to enable the grid connection of Snowy 2.0 to the NEM. The Project has been declared Critical State Significant Infrastructure (CSSI) under NSW State Environmental Planning Policy (State and Regional Development) 2011 a part of the CSSI declaration for the Snowy 2.0 and Transmission Project in Clause 9, Schedule 5.

Transgrid (the Proponent) has engaged UGL Projects Division (UGL) as the Principal Contractor to construct the Maragle 330kV Switching Station and 330kV Transmission Line Connection Project as part of the broader Snowy 2.0 Project.

#### 1.2 Purpose

This VIMP has been prepared in accordance with Conditions B34, B35 and B36 of the Approval to minimise the visual impact of permanent infrastructure associated with the Snowy 2.0 Transmission Connections project, such as:

- switchyards,
- substation,
- transmission line,
- towers, and
- the easement

The intent of the mitigation measures, identified within Conditions B34, B35 and B36 is to diminish the visual impact of these objects as far as is practicable on the surrounding natural landscape.

Following the Planning Secretary's approval, the VIMP will be implemented by Transgrid and UGL for the development in accordance with Condition B36.

## 1.3 Status and Risk Management

This VIMP presents the framework for minimising the potential intrusiveness associated with critical physical structures associated with the Maragle 330kV Switching Station and 330kV Transmission Line Connection project to the extent identified within Conditions B34, B35 and B36 of the Approval.



It is acknowledged that the proposal necessarily passes through areas of significant natural character and value. The conditions of approval have balanced this against the safety and security requirements of critical electricity transmission. These critical assets are in an area recently devastated by bushfires. As such, visual mitigation conditions have considered the risk of catastrophic vegetation loss in the event of another significant bushfire event in the area.

This VIMP sets out Transgrid's expectations of how UGL will balance mitigation measures identified in conditions *B34*, *B35* and *B36*, to minimise as far as is practical to do so, the visual impact of this important project on the natural landscape.

### 1.4 The Project Status

The Project is located within both Kosciuszko National Park (KNP) and Bago State Forest, approximately 47 kilometres (km) east of the township of Tumbarumba, NSW. An indication of Project location is included in **Figure 1-1** and **Figure 1-2**.

The key elements of the Project include:

- A new 330 kilovolt (kV) Switching Yard located within Bago State Forest and adjacent to Transgrid's existing Transmission Line 64 (Line 64);
- Two 330 kV double-circuit overhead transmission lines, approximately nine kilometres long, linking the Snowy 2.0 cable yard in KNP to the new substation;
- A short overhead transmission line connection between the substation and Line 64;
- Construction of new access tracks and upgrade of existing access tracks where required to facilitate the construction of the transmission lines and substation and service ongoing maintenance activities; and
- Establishment of temporary sites and infrastructure needed during construction including crane pads, site compounds, equipment laydown areas, and tensioning and pulling sites for the stringing of overhead conductors and earthwires.



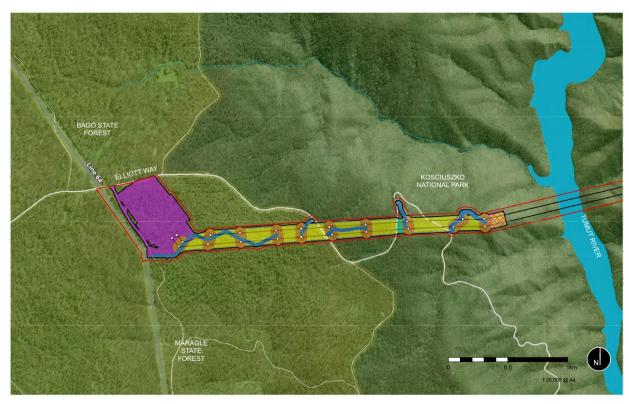


Figure 1-1: Plan of Proposed Transmission Corridor - Eastern Portion. Prepared by Jacobs, December 2021

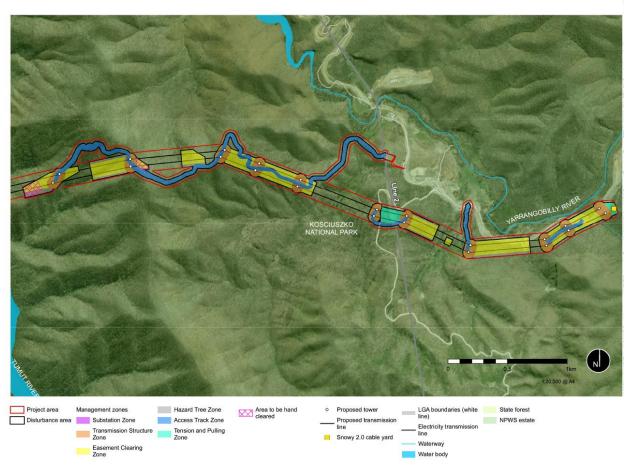


Figure 1-2: Plan of Proposed Transmission Corridor – Western Portion. Prepared by Jacobs, December 2021

## 2 Overview of Approval

The approved development consists of new 330 kilovolt (kV) transmission lines, associated substation and infrastructure connecting the Snowy 2.0 Main works to the electricity grid.

The approved project is located within KNP and Bago State Forest and traverses the Talbingo Reservoir, approximately 88 km southwest of Canberra. The landscape within the study area is topographically diverse and includes several existing high voltage transmission lines and water storage facilities that were established as part of the original Snowy Hydro Scheme.

The key elements of the project include:

- A new 500/330 kV substation located within the Bago State Forest adjacent to Transgrid's existing Line 64, which forms a 330 kV connection between Upper Tumut and Lower Tumut switching stations.
   The existing substation switchyard would occupy a footprint of approximately 300 metres (m) wide 600 m long inclusive of an approximate 25 m to 45 m wide cleared asset protection zone (APZ) surrounding the switchyard.
- Upgrade and widening of an existing access road off Elliott Way to the new substation including the construction of new driveways into the 330 kV and 500 kV switchyards.
- Two new 330 kV overhead double-circuit transmission lines from the Snowy 2.0 cable yard to the new substation:
- Total length of each line is approximately nine kilometres (km)
- Located in a transmission corridor ranging in width from approximately 120 m to 200 m
- Each line would comprise approximately 21 steel lattice structures up to 75 m in height
- All cables suspended across valleys will be highlighted with marker balls to meet CASA requirements
- Short overhead 330 kV transmission line connection (approximately 300 m in length) comprising both steel lattice structures and pole structures as required between the substation and Line 64.
- A short access track (Option B) to the transmission structures. An approximate 300 metres section of
  access track from the Ravine/Lobs Hole area towards Sheep Station Ridge would be realigned to link
  it with the construction compound and equipment laydown area. This area would be approximately
  100 metres x 50 metres and sited within the existing cleared area partially within the Snowy 2.0
  disturbance footprint adjacent to the newly built Ravine substation.
- An additional access track approximately 410 m in length would be required to provide vehicle access between Structure 5 and Structure 6.
- Ancillary activities, including the establishment of tensioning and pulling sites for conductor and earth wire stringing, crane pads, site compounds, and equipment laydown areas.



## 3 Scope

This VIMP seeks to discharge the following conditions as listed in Schedule 2 of the Approval:

#### **Visual Amenity**

- B34 Visual Appearance
- B35 Lighting
- B36 Visual Impact Management Plan

In meeting the specific performance measures and criteria of these conditions, all reasonable and feasible measures will be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any visual impact and associated material harm to the environment that may result from the construction, operation, rehabilitation, upgrading or decommissioning of the development in accordance with Condition A1.

The requirements listed in B34, B35 and B36 were developed from:

- The Landscape Character and Visual Impact Assessment Rev 04 prepared by Jacobs, December 2020 and the subsequent
- Supplementary Landscape and Visual Impact Assessment Rev 01 prepared by Landform Architects, March 2022.

This VIMP is not intended to and does not address rehabilitation, however it includes mitigation measures to minimise visual impacts. Rehabilitation works will be submitted separately as the Project Rehabilitation Management Plan.

The objectives of this VIMP are stated under Condition of Approval B34, B35 and B36, as follows:

Table 3-1: SSI-9717 Part B - Conditions of Approval Relevant to VIMP

Condition No.	Condition Requirement		
B34 (a)	take reasonable steps to minimise the visual impacts of the development;		
B34 (b)	ensure all transmission towers blend into the surrounding landscape as far as possible and minimises the potential for glare and reflection by either:		
B34 (b) (i)	painting towers with a colour that; and/or		
B34 (b) (ii)	pre-dulling towers with a finish that;		
B34 (c)	ensure the visual appearance of ancillary facilities (including paint colours), blends in as far as possible with the surrounding landscape; and		
B34 (d)	not mount any advertising signs or logos on site, except where this is required for identification or safety purposes		
B35 (a)	take all reasonable steps to minimise the off-site visual impacts of the development;		
B35 (b)	ensure that any external lighting associated with the development:		
B35 (b) (i)	is installed as low intensity lighting (except where required for safety or emergency purposes);		
B35 (b) (ii)	(ii) does not shine above the horizontal; and		
B35 (b) (iii)	(iii) complies with Australian/New Zealand Standard AS/NZS 4282:2019 – Control of Obtrusive Effects of Outdoor Lighting.		
B36 (a)	be prepared in consultation with FCNSW and the NPWS;		



B36 (b)	describe the measures that would be implemented to comply with condition B34 above; and
B36 (c)	include detailed plans for minimising the visual impacts of the following permanent infrastructure:
B36 (c)(i)	Maragle switchyard and substation;
B36 (c) (ii)	transmission line, towers and easement.

Refer to **Table 5-1** in Section 5 Visual Impact Management Measures for proposed mitigation measures.

The proposed measures outlined in **Table 5-1** align with the statements and directions the *Amendment Report Snowy 2.0 Transmission Connection Project by Transgrid, March 2022* as far as is relevant with regard the discharge of Approval conditions B34, B35 and B36.

Table 3-2: Landscape Character and Visual Impact. Amendment Report Mitigation Summary

ID	Impact	Timing	Measure	Plan
VIA1	Visual Impact from the Substation	Detailed Design	Detailed Design will consider the retention of existing vegetation to the greatest extent practicable south of Elliott Way and around the substation to ensure the potential visual impacts from Elliott Way are minimised.	Biodiversity Management Plan (BMP)
VIA2	Visual Impact	Construction	<ul> <li>a) All construction plant, equipment, waste and excess materials will be contained within the designated boundaries of the work site and will be removed from the site following the completion of construction.</li> <li>b) Stockpiles will be stabilised to</li> </ul>	Rehabilitation Management Plan (RMP)
			prevent erosion by wind and water and avoid the development of dust plumes adversely impacting air and visual quality	
			<ul> <li>c) On completion of the work disturbed areas will be stabilised and returned to as close to original condition</li> </ul>	
VIA3	Visual Impact	Pre- construction	a) The new structures will undergo accelerated ageing of the zinc galvanised coatings prior to erection to help reduce the visual impacts of the project	Construction Environmental Management Plan (CEMP)
			b) To assist with reducing the visual obviousness of the structures through Lobs Hole Ravine, five structure pairs (Structure pairs 1,2,3,7 and 8) will be painted olive green.	



## 4 Predicted Visual Impacts

Two key documents were developed during the environmental impact assessment process relevant to the assessment of visual impact and development of potential mitigation strategies. They are:

- Landscape Character and Visual Impact Assessment Rev 4 (Jacobs, Dec 2020); and
- Supplementary Landscape and Visual Impact Assessment Rev 1 (Landform Architects, Mar 2020)

In short, these documents found that areas potentially impacted by loss of landscape amenity or through impacted views would largely be limited to the following:

- views from short sections of Elliott Way to the west and south of the project,
- along some sections of the Lobs Hole-Ravine 4WD trail; and
- tracks that navigate the Kosciuszko National Park

The following table is taken from the *Landscape Character and Visual Impact Assessment* and summarises the impacts of the project from all identified viewpoints.

Table 4-1: Viewpoint and Visual Impact

Viewpoint	Category of Viewer	Approx. Distance to Project Elements	Sensitivity	Overall Visual Impact
Project Area West:				
VP 1 – Elliott Way transmission corridor	Vehicular traffic	300 m – Substation	Low	Low
VP 2 – Elliott Way / Boundary Road	Vehicular traffic	340 m – Nearest transmission corridor edge	High	Low - Moderate
VP 3 – Elliott Way	Vehicular traffic	Within transmission corridor. Approx. 140 m to nearest structure	High	Potentially positive  Moderate-High
VP 4 – Elliott Way	Park users, campers, vehicle rest area	760 m – Nearest structure	High	Negligible
Project Area East				
VP 5a – O'Hare's Campground	Campers, tourists, vehicular rest area	3.5 km - Suspended transmission lines	High	Nil
VP 5b – O'Hare's Campground boat ramp	Boat users	3.4 km – Suspended transmission lines	High	Nil
VP 6 – Wallace's Creek Lookout	Tourist stopping point	8.6 km – Nearest structure	High	Nil
VP 7 – Lobs Hole Ravine Road	Vehicular traffic	2.9 km - Nearest structure	High	Low - Negligible
VP 8 – Lobs Hole Ravine Road	Vehicular traffic	2.1km - Nearest structure	High	Low
VP 9 – Lobs Hole Ravine Road	Vehicular traffic	840m – Nearest structure	High	Low-Moderate
VP 10a – Mine Trail Campground	Camping users	Within transmission corridor. 170 m to nearest structure.	High	High



Viewpoint	Category of Viewer	Approx. Distance to Project Elements	Sensitivity	Overall Visual Impact
VP 10b - Near Mine Trail Campground	Camping Users	Within transmission corridor	High	High
VP 11 - Lobs Hole- Ravine Road: Ravine Campground	Vehicular traffic/ stopping location, camping	800 m – Nearest structure.	High	Moderate
VP 12 – Mine Trail Clearing	Vehicular traffic/stopping location	400m – Nearest structure	High	High
VP 13 – Lobs Hole- Powerline Road	Vehicular traffic	2.2 km – Nearest structure	High	Low - Moderate

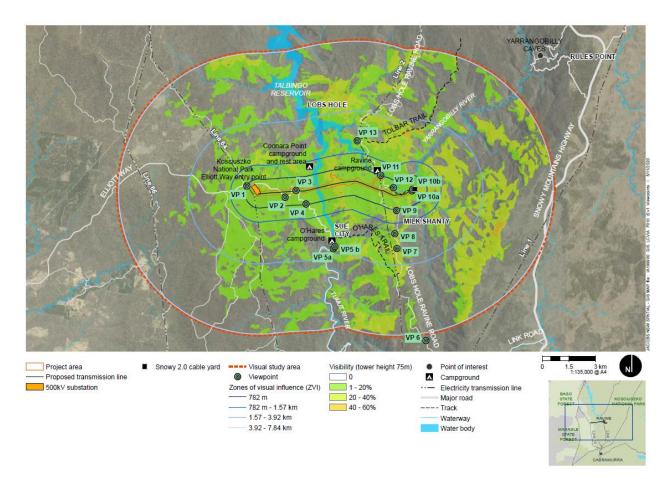


Figure 4-1: Viewpoint Location Plan. Prepared by Jacobs, December 2020

The impacts as assessed in the above reports to views and landscape areas from locations are summarised below in Sections 4.1, 4.2, 4.3 and 4.4.

## 4.1 Views Along Transmission Corridor

The Landscape Character and Visual Impact Assessment found that views along sections of the cleared transmission corridor would:

- have a higher level of impact than views perpendicular or oblique to the alignment
- contrast significantly with surrounding vegetation
- be accentuated by the transmission line infrastructure placed therein.



The report notes that clearing of canopy vegetation to views along the easements would modify the landscape character. The visual impacts would include the obviousness of the cleared vegetation as well as the insertion of the transmission line infrastructure.

The impact to locations perpendicular to the transmission corridor would take in features that define the character of the area such as topography, vegetation, ridgelines, open water and in some instances existing transmission lines, albeit modified to include new overhead transmission lines.

Mine Trail Campground was assessed as high sensitivity in the *Landscape Character and Visual Impact Assessment* and concluded that the area will likely not be used as a campground post-construction due to the positioning of the transmission corridor at this location. Vegetative screening was not capable in this circumstance, thus identifying the most effective mitigation measure as providing provisions for upgraded amenities elsewhere at Lobs Hole as part of the Snowy 2.0 site remediation works.

Overall, the reports conclude that:

"The greatest visual impact would occur where the creation of transmission corridors results in the clearing of vegetation in proximity to publicly accessible roads. These areas are generally in proximity to existing transmission crossings within the area."

Due to safe operating requirements such as the inclusion of fire break setbacks, the ability to mitigate or to provide vegetative screening in these corridors is limited. Rehabilitation planting is proposed where possible. However, to reiterate, this VIMP does not address rehabilitation.

#### 4.2 Elliott Way

Four viewpoints were identified within the *Landscape Character and Visual Impact Assessment* along the length of Elliott Way. The Impacts to Elliott Way would be largely limited to short sections that will experience three new transmission corridor crossings.

It is noted within the *Landscape Character and Visual Impact Assessment* that at viewpoint 3, a significant landscape change will occur, including the opening of views across the Talbingo Reservoir and a structure prominently sited near the road. There is little mitigation that can be implemented immediately adjacent to the road. However, mitigation measures acting as vegetative camouflage are recommended for towers seen at a distance both at this view and others.

Along the transmission corridor length, the *Landscape Character and Visual Impact Assessment* recommends transmission towers are either painted or pre-dulled so that the visual perceptibility of towers when viewed from a distance is diminished. This acts as an alternative camouflagemitigation tool. Whether towers are painted or otherwise pre-dulled would depend on the backdrop from the identified viewpoints with;

- Towers painted with a recessive colour where the backdrop is vegetated
- Pre-dulled steel towers where they are silhouetted against the sky

It is this recommendation that forms the reasoning behind Approval Condition B34.

#### 4.3 Lobs Hole Ravine 4WD Trail

In areas along the Lobs Hole-Ravine 4WD trail where project elements would be visible, views are often limited by intervening topography, existing vegetation or existing transmission infrastructure in the foreground.

The reports also notes that:

"Opportunities for the mitigation of visual impacts are limited due to the nature of the existing topography and vegetation limiting the introduction of landscape screening."





**Figure 4-2:** Visual Simulation from Viewpoint 9 Ravine Road. This image shows the transmission corridor in the background continuing up and over the ridgeline. The height of the towers is far greater than the surrounding vegetation. The image is typical of many of the viewpoints and illustrates why landscape screening would be ineffective. Image source: Landscape Character and Visual Impact Assessment (rev 0.04) prepared by Jacobs, December 2020.

Both the Landscape Character and Visual Impact Assessment and the subsequent Supplementary Assessment identify the painting and pre-dulling of the transmission towers as the most effective camouflage mitigation measure.

Where rehabilitation planting is appropriate such as at the Lobs Hole Ravine Road Campsite, this will be incorporated in the Project Rehabilitation Management Plan.

## 4.4 Maragle Switchyard

With regard the switchyard / substation, the report notes that:

"Views of the substation and lighting will be filtered by existing vegetation. The visual impact at this location is assessed as Low."

According to the Landscape Character and Visual Impact Assessment, due to the depressed relative level (RL) of the proposed switchyard in relation to the existing road and the existing vegetation, views of the switchyard will largely be restricted to those travelling down the proposed switchyard access road specifically for the purposes of visiting the facility. To that end mitigation measures are largely directed at improving amenity and considering State Forest values.

This VIMP proposes measures to improve the aesthetics of the facility as required by *Approval Condition B34*. It is noted however, that the switchyard compound is necessarily a utilitarian and functional compound with specific safety requirements and mitigation measures are therefore designed to comply with the required standards.

Opportunity for planting and rehabilitation to improve landscape character and further supplement existing vegetation surrounding the switchyard acting as a natural vegetative screen will exist. These are noted as low shrub and groundcover plantings within the *Amendment Report Mitigation Summary by Transgrid March 2022*. However, as mentioned above, such opportunities will be addressed in the Project Rehabilitation Management Plan.



## 5 Visual Impact Management Measures

In line with the proposals recommended in Landscape Character and Visual Impact Assessment Rev 04 prepared by Jacobs December 2020 and the subsequent Supplementary Landscape and Visual Impact Assessment Rev 01 prepared by Landform Architects March 2022, as described in Section 4, the following measures are proposed to discharge conditions.

Table 5-1: Compliance with Conditions of Approval

Condition	How Addressed
A1 In meeting the specific performance measures and criteria of this approval,	
all reasonable and feasible measures must be implemented to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction, operation, rehabilitation, upgrading or decommissioning of the development.	Refer Section 5.2, 5.3, 5.4, 5.5, 5.6 and CEMP
B34 (a) take reasonable steps to minimise the visual impacts of the development;	Refer to Sections 5.2, 5.3, 5.4, 5.5, 5.6
B34 (b) ensure all transmission towers blend into the surrounding landscape as far as possible and minimises the potential for glare and reflection by either:  (i) painting towers with a colour that; and/or (ii) pre-dulling towers with a finish that;	Refer to Sections 5.2 and 5.3
B34 (c) ensure the visual appearance of ancillary facilities (including paint colours), blends in as far as possible with the surrounding landscape; and	Refer to Section 5.6
B34 (d) not mount any advertising signs or logos on site, except where this is required for identification or safety purposes.	Refer to Sections 5.5 and 5.6
B35 (a) take all reasonable steps to minimize the off-site visual impacts of the development; and	Refer to Sections 5.2, 5.3, 5.4, 5.5, 5.6
B35 (b) ensure that any external lighting associated with the development:  (i) Is installed as low intensity lighting (except where required for safety or emergency purposes);  (ii) does not shine above the horizontal; and	Refer to Section 5.4
(iii) complies with Australian/New Zealand Standard AS/NZS 4282:2019 – Control of Obtrusive Effects of Outdoor Lighting	
B36 (a) be prepared in consultation with FCNSW and the NPWS;	Refer to Section 5.1, Appendix A – Letters of Approval, Appendix B – NPWS Record of Consultation Comments and Appendix C – FCNSW Record of Consultation Comments
B36 (b) describe the measures that would be implemented to comply with condition B34 above; and	Refer to Sections 5.1, 5.2, 5.3, 5.4, 5.5, 5.6



B36 (c) include detailed plans for minimising the visual impacts of the following permanent infrastructure:

(i) Maragle switchyard and substation;

(ii) transmission line, towers and easement.

Refer to Section 5.4 for Maragle Switchyard,
Refer to Sections 5.2 and 5.3 for transmission line and tower infrastructure

Table 5-2: Coordination with Amendment Report

ID Reference and Description	Coordination Reference
VIA1 Detailed Design will consider the retention of existing vegetation to the greatest extent practicable south of Elliott Way and around the substation to ensure the potential visual impacts from Elliott Way are minimised.	Refer to Section 5.4 for Maragle Switchyard
a) The new structures will undergo accelerated ageing of the zinc galvanised coatings prior to erection to help reduce the visual impacts of the project b) To assist with reducing the visual obviousness of the structures through Lobs Hole Ravine, five structure pairs (Structure pairs 1,2,3,7 and 8) will be painted olive green.	Refer to Sections 5.2 and 5.3

The measures proposed take the form of a specification to ensure that the conditions are undertaken and are successfully implemented according to best practice.

The continued performance of visual mitigation measures will be monitored through regular asset inspections, to be scheduled with Transgrid's Asset Maintenance team with the first inspection to be undertaken no later than ten years following completion of construction. Inspections will determine whether maintenance actions such as repainting or replacement are needed.

#### 5.1 Consultation

This VIMP has been prepared in consultation with the NSW National Parks and Wildlife Service (NPWS) and Forestry Corporation of New South Wales (FCNSW). The table below summarises the comments received and how these were addressed in this document.

Agency	Comment	How Addressed
NPWS	Provided in Appendix B.	Refer to actions for NPWS comments, addressed in Appendix B. All NPWS addressed without objection.
FCNSW	Provided in Appendix C.	FCNSW provided general comments, sufficiently addressed in VIMP.

#### 5.2 Painted Towers

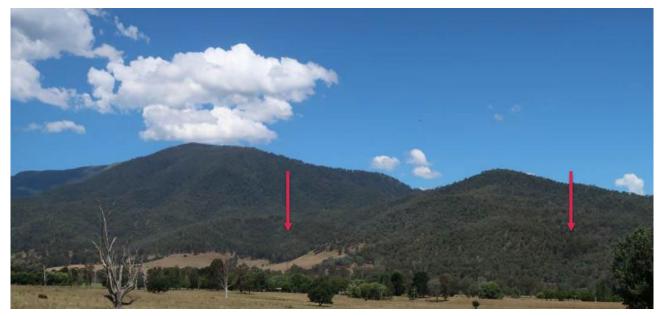
All transmission towers must be of steel lattice construction.

Steel lattice components of transmission towers must be painted olive green, where specified in **Table 5-3** to minimise any visual impacts that will occur from the construction and operation of the development.





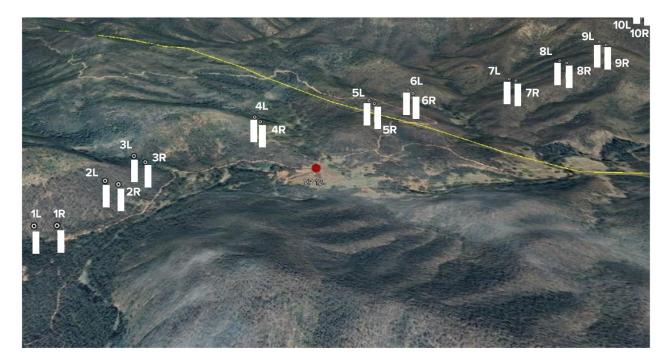
**Figure 5-1:** Existing example of transmission tower painted olive green. This image shows both the decreased perceptibility of the painted tower when placed against a vegetated background and the pronounced visual silhouette of the painted tower against the skyline. Image source: Supplementary Landscape and Visual Impact Assessment Rev 01 prepared by Landform Architects March 2022



**Figure 5-2:** Existing example of transmission line towers painted olive green. Mount Beauty transmission line - Alpine National Park. Red arrows indicate location of two transmission towers. The above photograph illustrates the decreased perceptibility of steel lattice transmission towers painted dark green against a vegetated slope. Image source: Supplementary Landscape and Visual Impact Assessment Rev 01 prepared by Landform Architects March 2022.



**Figure 5-3:** Visual simulation of lattice towers to be painted olive green to help make them recede into the background. The towers to the top left are 10L & 10R and run down to 6L & 6R. The only two pairs in this photo simulation which will be painted olive green will be pairs 7 and 8 (in yellow circle) as they have more of a vegetative background. The other 3 sets of towers 6,9 & 10 will have a dull grey treatment as their background has been assessed as predominantly visible against the sky. Lobs Hole Ravine Road indicative viewpoint. Image source: Landscape Character and Visual Impact Assessment Rev 04 prepared by Jacobs December 2020



**Figure 5-4:** Lobs Hole Ravine Transmission Towers as Identified with the Supplementary Landscape and Visual Impact Assessment Rev 01. Image Source: Supplementary Landscape and Visual Impact Assessment Rev 01.

Table 5-3: Recommended Treatment of Transmission Towers to Lobs Hole Ravine

Numbered Pairs	Background	Treatment type
1L & 1R	Vegetated Hills	Olive Green
2L & 2R	Vegetated Hills	Olive Green
3L & 3R	Vegetated Hills	Olive Green
4L & 4R	Part sky	Dull-Grey
5L & 5R	Sky	Dull Grey
6L & 6R	Sky	Dull Grey
7L & 7R	Vegetated Hills	Olive Green
8L & 8R	Vegetated Hills	Olive Green
9L & 9R	Sky	Dull Grey
10L & 10R	Sky	Dull Grey

An example colour swatch of proposed olive-green paint colour, AS2700 G25 Olive Green to be used for steel lattice components of transmission towers, as specified in **Table 5-3**, is provided in below in **Figure 5-5**.



**Figure 5-5:** Colour Swatch of Proposed Colour, olive-green, AS2700 G25 Olive Green. Colour appearance of above swatch differs depending on screen vibrancy and / or printer. A manufacturer's swatch must be reviewed by Contract Superintendent prior to application

For Dull-Grey Transmission Towers, refer to Section 5.3.

Paint is to be wet applied to the manufacturer's specification. Painted surfaces must receive a minimum 15-year warranty. Certification of warranty's must be submitted to the Superintendent for written approval.

The Contractor must submit a sample for approval. The sample will be a 250mm length of galvanised steel angle wet painted with the above colour for written approval by the Superintendent.



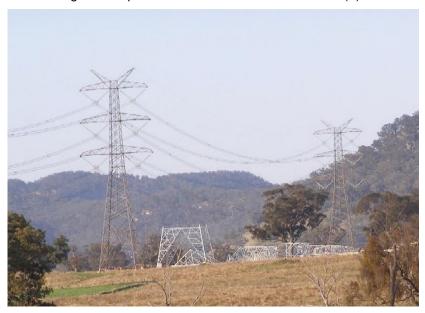
Maintenance of painted surfaces shall be to manufacturer's specification.

Regular asset inspections will be undertaken to determine repainting requirements for the 5 pairs of olivegreen towers in Lobs Hole. If repainting is required, measures will be taken to vacuum-extract any wirebrushing activity or similar removal approach used to ensure old paint chips do not contaminate the adjacent ground or become ingested by wildlife. Repainting of the other 16 pairs of towers shall not be required as the accelerated ageing of the zinc galvanized coating is not a surface application requiring renewal.

#### 5.3 Pre-Dulled Towers

All transmission towers must be of steel lattice construction.

All steel lattice components of transmission towers must be pre-dulled where not specified for painting within **Table 5-3** minimising the visual amenity harm, by blending in as far as reasonably possible with the surrounding landscape in accordance with Condition B34(b).



**Figure 5-6:** Pre-dulled towers with a galvanised tower under construction adjacent. The photograph illustrates the shine and potential reflection of a standard tower without treatment. Image source: Supplementary Landscape and Visual Impact Assessment Rev 01 prepared by Landform Architects March 2022





**Figure 5-7:** Pre-Dulled Towers against skyline; Painted towers against skyline with more dominant visual appearance. Image source: Supplementary Landscape and Visual Impact Assessment Rev 01 prepared by Landform Architects March 2022

Pre-Dulling of galvanised items shall be achieved through post-treatment application of an appropriate proprietary system. The Contractor may consider a zinc phosphate proprietary system applied to the manufacturer's recommendations.

The Contractor must submit a sample for approval. The sample will be a 250mm length of galvanised steel angle pre-dulled, to be submitted for written approval by the Superintendent and NPWS prior to installation of components.

## 5.4 Maragle Switchyard

As views to the Maragle Switchyard are filtered through existing vegetation pre-dulling of structures within the Maragle Switchyard will be limited. Pre-dulling of gantries and cut-in poles must be undertaken. No other galvanised steel lattice components need be pre-dulled.

Pre-Dulling of galvanised items shall be achieved through post-treatment application of an appropriate proprietary system. The Contractor may consider a zinc phosphate proprietary system applied to the manufacturer's recommendations.

The Contractor must submit a sample for approval. The sample will be a 250mm length of galvanised steel angle pre-dulled, to be provided for written approval by the Superintendent and NPWS prior to installation of components.

## 5.5 External Lighting

To ensure reasonable visual amenity mitigation steps have been incorporated and in accordance with Condition B35, where required, lighting associated with the development will be installed in compliance with Australian/New Zealand Standard AS/NZS 4282:2019 - Control of Obtrusive Effects of Outdoor Lighting as low intensity lighting (except where required for safety or emergency purposes) and will not shine above the horizontal toensure all off-site visual impacts are minimised during the construction and operation of the development.

Please see Table 3-2 for additional visual impact mitigation measures being implemented.

#### 5.6 Perimeter Fence to the Maragle Switchyard

All posts, beams, rails and framing of the perimeter security fence must be painted with an olive-green colour. Colour Reference: AS2700 G25 Olive Green

Paint is to be wet applied to the manufacturer's specification. Painted surfaces must receive a minimum of 15-year warranty. Certification of warranty's must be submitted to the Superintendent for written approval.

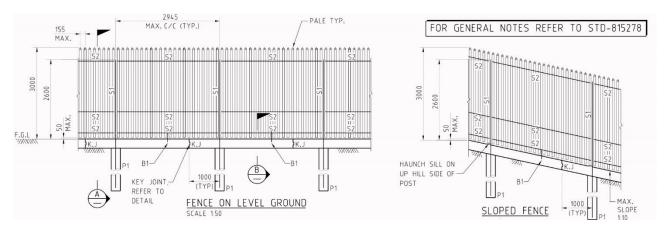
Fencing panels shall be palisade vertical railings, as specified in Figure 5-8.

Fencing must comply with *Transgrid Standard Drawing*, *Fences and Gates, Security Fencing, Palisade Fence Details – STD815283.* Only place mandatory safety and directional signs on fencing. No advertising signs may be placed on fencing.

Maintenance of painted surfaces shall be to manufacturer's specification.

Regular asset inspections, to be scheduled with Transgrid's Asset Maintenance team with the first inspection to be undertaken no later than ten years following completion of construction, will determine whether repainting is needed. If repainting is required, measures will be taken to vacuum-extract any wire-brushing, sanding activity or similar removal approach used so as to ensure paint chips do not contaminate the adjacent ground or become ingested by wildlife preventing and minimising any material harm to the environment.





**Figure 5-8:** Standard Palisade fence, to be painted olive green – Colour Reference: AS2700 G25 Olive Green. Reference: Transgrid Standard Drawing, Fences and Gates, Security Fencing, Palisade Fence Details – STD815283

## 5.7 Ancillary Buildings and Elements

All ancillary buildings and elements must be painted with an olive-green colour. AS2700 G25 Olive Green.

Paint is to be wet applied to the manufacturer's specification unless specified cladding is Colorbond. Where specified cladding material is Colorbond, colour will be applied by the manufacturer.

Painted surfaces must receive a minimum of 15-year warranty. Certification of warranty's must be submitted to the Superintendent for written approval.

Any joinery shall be a proprietary product of matching olive-green colour or painted with the same colour to the same specification as the rest of the building.

Only mandatory safety, identifying or directional signs may be placed on ancillary buildings. No additional signage for other purposes including advertising may be placed on buildings.

Maintenance of painted surfaces shall be to manufacturer's specification.

Regular asset inspections, as specified in Section 5.6, will determine whether repainting is needed. If repainting is required, measures will be taken to vacuum-extract any wire-brushing, sanding activity or similar removal approach used to ensure paint chips do not contaminate the adjacent ground or become ingested by wildlife.





Figure 5-9: Indicative examples of ancillary building typologies painted olive-green.

# 5.8 Rehabilitation Planting to Transmission Corridor, Lobs Hole Ravine Campsite and Maragle Switchyard

This VIMP does not address rehabilitation planting. This will be dealt with and submitted separately.

However, it is noted that the stand of trees along the road verge of Elliott Way will be retained to screen views of the substation from the road.



Refer to limitations of vegetation clearing under Conditions of Approval which ensure retention of vegetative screening adjacent to fully and partially cleared areas and associated permanent infrastructure. Clearing procedures are detailed within the Project Biodiversity Management Plan (BMP).



## 6 Document Review, Notification and Reporting Requirements

Document review, notification and reporting will be undertaken in accordance with the Project Environmental Management Strategy (EMS, Ref: 3200-0645-PLN-038-EMS), Construction Environmental Management Plan (CEMP) and Conditions of Approval.

#### 6.1 Document Review

In accordance with the EMS, CEMP and Condition C2, if necessary, the VIMP will be revised and approved to the satisfaction of the Planning Secretary within 3 months of the:

- (a) the submission of an incident report under condition C7;
- (b) the submission of an Independent Audit under condition C10;
- (c) the approval of any modification of the conditions of this approval; or
- (d) the issue of a direction of the Planning Secretary under condition A2 which requires a review.

## 6.2 Incident and Non-compliance notification

In accordance with the Project EMS, CEMP and Condition C7 of the Infrastructure Approval, the Planning Secretary and NPWS must be notified via the Major Projects website portal immediately after Transgrid becomes aware of an incident. The notification must identify the development (including the development application number and the name of the development if it has one) and set out the location and nature of the incident.

FCNSW will be notified immediately in writing once any activity is identified that is not in accordance with the conditions of consent approval and commitments made in the project EIS that may impact FCNSW operations, assets or infrastructure.

Non-compliances will be reported in accordance with Section 9 of the Project CEMP and Condition C8, C9 and C10. FCSW will be notified immediately in writing if any activities identified are not in accordance with the conditions of approval and may impact FCNSW operations, assets or infrastructure.

All written requirements of the Planning Secretary or relevant public authority, which may be given at any point in time, to address the cause or impact of an incident must be complied with, within any timeframe specified by the Planning Secretary or relevant public authority.

#### 6.3 Access to Information

In accordance with the EMS and Condition C11, this plan will be made publicly available on the Project (Transgrid) website following Planning Secretary approval.



# Appendix A – Letters of Approval



## Department of Planning and Environment



Oliver King
Project Director
The Trustee for the NSW Electrical Networks Operations
180 Thomas Street
Haymarket, NSW, 2000

18/11/2022

Subject: Staging Approval for Snowy 2.0 - Transmission Connection

Dear Mr. King

I refer to the Staging Approval Request Letter submitted in accordance with Schedule 2 Condition C3 of the Infrastructure Approval for the Snowy 2.0 - Transmission Connection (SSI-9717).

I note it is proposed that the delivery of the relevant plans and strategies be delivered in two stages and address the following activities:

- Stage 1 All activities associated with the construction and operation of infrastructure related to the 330 kV grid connection, including:
  - All civil works associated with the new substation in Bago State Forest and the construction/installation of infrastructure associated with the 330 kV component of the substation.
  - Two new 9 km long 330 kV double-circuit overhead transmission lines from the Snowy 2.0 cable yard in Lobs Hole, National Park to a new substation.
  - o 330 kV grid connection between the new substation and Transgrid's existing Line 64.
  - o Upgrade and widening of an existing access road off Elliott Way to the substation.
  - Ancillary construction activities, including the establishment of tensioning and pulling sites for conductor and earth wire stringing, crane pads, site compounds and equipment laydown areas, water extraction and the transport and haulage of equipment and waste to and from the project area.
- Stage 2 All activities associated with the construction and operation of infrastructure related to the 500 kV component of the substation, including:
  - The delivery of oversize/overmass (OSOM) components, construction/installation of infrastructure associated with the 500 kV component of the new substation in Bago State Forest (i.e. transformers, reactors, switchbays).

 The upgrade of roads and bridges to facilitate the transport of OSOM 500 kV componentry to the substation.

The Department has carefully reviewed the letter and is satisfied that it meets the requirements of the relevant conditions.

Accordingly, as nominee of the Planning Secretary, I approve the staged delivery of management plans.

However, the Department notes that the expectation is that the relevant management plan is updated to include the new stage as they are required rather than provision of separate management plans for each stage.

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

If you wish to discuss the matter further, please contact Wayne Jones on (02) 6575 3406.

Yours sincerely

Nicole Brewer

Director

**Energy Assessments** 

As nominee of the Planning Secretary

# Appendix B – NPWS Record of Consultation Comments





# **Snowy 2.0 Transmission Connection, Application Number SSI 9717**

Visual Impact Management Plan – Record of Amendments

Prepared for Transgrid Prepared by Beca Pty Ltd ABN: 85 004 974 341

4 August 2023

Rev<sub>02</sub>

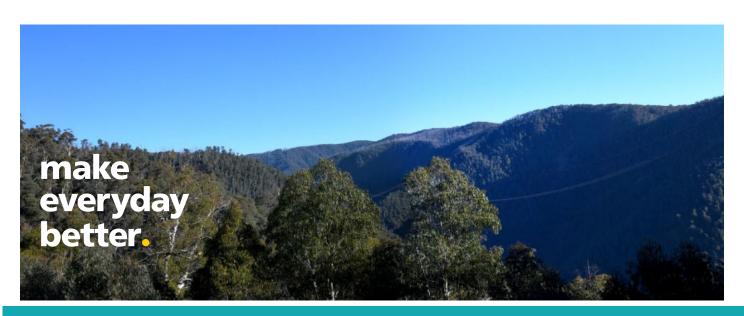


	Table of Amendments	
	Requested Amendment	Action
1.	"As such, visual mitigation conditions have considered the risk of catastrophic loss of key assets in the event of another significant bushfire event in the area."p2 What does this comment mean?	Sentence re-worded to clarify meaning as follows: "These critical assets are in an area recently devastated by bushfires. As such, visual mitigation conditions have considered the risk of catastrophic vegetation loss in the event of another significant bushfire event in the area."
2	Figure 1: This is an old figure of the project. Must use the current figures.p3	Figure 1 was replaced by Figures 1a and 1b from the Amendments Repor
3	This detail is old with the access tracks clarified within the Amendment Report section 3.1.3. The plan needs to be consistent with the current approved project.  "Construction of up to 10 km of new access tracks (Option A) or 8 km (Option B) to the transmission structures and upgrade to existing access tracks where required."  "Establishment of a helipad (approximately 30 m wide by 30 m long) to support the transmission line construction activities carried out at higher elevations."p4	Description of Project updated to reflect latest revision as per the Amendments Report
4	"B34 Visual Appearance, Visual Amenity" - Visual Amenity is not in the heading of B34 p5	Heading wording amended to correct order from CoA
5	"aterials, contsained "p6	Typo error – corrected materials, constrained
6	"rehabilitation. This will be covered in a separate VIMP that discharges Approval Condition B38 Additional Easement Rehabilitation Strategy." CoA B38 has nothing to do with the overall project rehabilitation it is dealt with under CoA B48 Rehabilitation Management Plan.p9	Text amended to omit incorrect reference
7	"Elliot Way"p9	Spelling corrected – Elliott Way
7. 8.	"outlined as part of a separate VIMP that discharges B38 Additional Easement Rehabilitation Strategy."p10 The wrong CoA is referenced here.	Text amended to omit incorrect reference
9.	"Park Values." p10 The switch yard is within State Forest not Kosciuszko National Park - therefore this should read State Forest Values	Text amended to read State Forest Values
10.	"discharges B38 Additional Easement Rehabilitation Strategy." p10 The wrong CoA is referenced.	Text amended to omit incorrect reference
11.	Table 4: Compliance with Approval. p11 Is Table 4 in the right part of the document?	Table considered to be in correct location. No change made
12	"Appendix B" p11	Appendix reference corrected to Appendix A
13	"All steel lattice components of transmission towers must be painted where the visual backdrop of the tower structure is vegetated. This shall include all towers to valley floors and slopes where the base of the tower is	Wording of proposal amended to match the Amendment Report



	at an RL 75m below the RL of the surrounding ridgelines."p12. The actual tower numbers that are to be painted are already known and clearly defined in Table 5. Suggest only using one set of criteria as per Table 5 rather than introducing RL as in this sentence which causes confusion.	
14	Will suspended cables across valleys be highlighted with markers for aircraft safety? If so what is the criteria for this? p11	Referred to project description on page 4. "All cables suspended across valleys will be highlighted with marker balls to meet CASA requirements"
15.	Need to clearly state which structures are circled in figure 6 to be painted green to ensure consistency with Table 5.p13	Image caption amended to make clear which towers are painted
16.	Need to clearly state what colour is being used. By providing for an 'equivalent' colour then the plan would need to be revised so that NPWS could comment on any 'equivalent' colour before it was used. p15	Wording changed to require a single colour
17	"Maintenance of painted surfaces shall be to manufacturer's specification."p15 Need to be consistent with CoA B34 (b) - it does not mention anything about visual backdrops or RL.	Additional clarification added into report
18	"The Contractor may consider a zinc phosphate proprietary system applied to the manufacturer's recommendations." P16 What other options may be considered? This sentence does not provide certainty.	Wording amended to make clear standard expected.
19	"All posts, beams and framing of the perimeter security fence must be painted with a dark olive-green colour" p17 What colour is the fencing material?	Additional note referring the reader to Figure 12 added, noting fencing panels are chainwire mesh
20.	"Ancillary Buildings"p17 What about other ancillary facilities such as access gates, track signage and the sheep station bridge?	Wording amended to cover all potential elements



<sup>\*</sup> All comments present within the Document Change Register (DCR) are present within this Appendix, however, they have been grouped and summarised within Appendix B to avoid duplication of comments - i.e. point 3 and 4 within DCR have been compiled into Point 3 within Appendix Table; DCR point 14 addressed in Point 7 within Appendix Table; DCR point 17/18 addressed in Point 15 within Appendix Table; DCR point 20/21/22/23 addressed in Point 17 within Appendix Table; DCR point 7/27 addressed in Point 6 within Appendix Table.

# Appendix C – FCNSW Record of Consultation Comments



There were no comments received from FCNSW as seen in figure below.

