VISUAL IMPACT ASSESSMENT

Upper Bunyan Gravel Pit

August 2020

Project Number: 20-261

BEGA • BRISBANE • CANBERRA • GOLD COAST • NEWCASTLE • SYDNEY • WAGGA WAGGA
W. www.nghconsulting.com.au

DOCUMENT VERIFICATION

Project Title:	Upper Bunyan Gravel Pit
Project Number:	20-261
Project File Name:	Upper Bunyan Gravel Pit VIA_final_v1

Revision	Date	Prepared by	Reviewed by	Approved by
Draft v1	7/07/2020	Jane Blomfield Johanna Duck	Zeina Jokadar	Brooke Marshall
Final v1	19/08/2020	Jane Blomfield	Minor changes	

NGH Consulting prints all documents on environmentally sustainable paper including paper made from bagasse (a by-product of sugar production) or recycled paper.

W. www.nghconsulting.com.au

E. ngh@nghconsulting.com.au

BEGA - ACT & SOUTH EAST NSW
Suite 11, 89-91 Auckland Street (PO Box 470) Bega NSW 2550 **T.** (02) 6492 8333

NEWCASTLE - HUNTER & NORTH COAST
Unit 2, 54 Hudson Street
Hamilton NSW 2303 **T.** (02) 4929 2301

BRISBANE
Suite 4, Level 5, 87 Wickham Terrace
Spring Hill QLD 4000 **T.** (07) 3129 7633

SYDNEY REGION
Unit 18, Level 3, 21 Mary Street
Surry Hills NSW 2010 **T.** (02) 8202 8333

CANBERRA - NSW SE & ACT
8/27 Yallourn Street (PO Box 62)
Fyshwick ACT 2609 **T.** (02) 6280 5053

WAGGA WAGGA - RIVERINA & WESTERN NSW
Suite 1, 39 Fitzmaurice Street (PO Box 5464)
Wagga Wagga NSW 2650 **T.** (02) 6971 9696

GOLD COAST
PO Box 466
Tugun QLD 4224 **T.** (07) 3129 7633

BEGA • BRISBANE • CANBERRA • GOLD COAST • NEWCASTLE • SYDNEY • WAGGA WAGGA

W. www.nghconsulting.com.au

ABN 31 124 444 622 ACN 124 444 622

TABLE OF CONTENTS

FIGURES

TABLE

ACRONYMS AND ABBREVIATIONS

ABS	Australian Bureau of Statistics
BLM	Bureau of Land Management
DEM	Digital Elevation Model
EIS	Environmental Impact Statement
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
JRPP	Joint Regional Planning Panel
LCU	Landscape Character Units
LMZ	Landscape Management Zones
km	kilometres
m	Metres
NSW	New South Wales
OEH	(NSW) Office of Environment and Heritage, formerly Department of Environment, Climate Change and Water, now Biodiversity Conservation Division.
SMRC	Snowy Monaro Regional Council
ZVI	Zone of Visual Influence

1. INTRODUCTION

1.1. BACKGROUND

Snowy Monaro Regional Council (SMRC) have approval to expand the existing Upper Bunyan Gravel Pit, located 12 Kilometres (km) north of Cooma, NSW (Lot 159 DP 724552). The project was assessed as Designated Development under *Environmental Planning & Assessment Act 1979* (EP&A Act), an Environmental Impact Statement (EIS, NGH 2015) was prepared and approved by the Joint Regional Planning Panel (JRPP) on 1st April 2016.

A Modification Application is in progress to modify some of the approval conditions. One of these is visual impact mitigation.

A Visual Impact Assessment (VIA) was undertaken as part of the EIS (NGH, 2015). The VIA found the expansion of the Upper Bunyan Gravel Pit would increase an existing industrial view that lessens the visual character of the area. The degree to which it is visible to nearby residents however, and the duration that it would be viewed by passing motorists was assessed as relatively low. The impacts were considered manageable within the implementation of the following mitigation measures:

- A vegetation buffer would be planted in stages to correspond with the staged expansion areas. The trees are to be planted in conjunction with extraction Stages 1 and 2.
- Native tree species appropriate to the local area would be used.
- Removal of trees to be minimised.
- All machinery and equipment associated with gravel pit operations would be parked within the existing pits and extraction areas.
- Rapid implementation of rehabilitation actions (refer to Section 6.1), for areas where extraction has ceased. New areas should not be expanded until funds and planning for exhausted areas can be demonstrated.

The rehabilitation strategy identified that a detailed Rehabilitation Plan would be developed, in accordance with the strategy. The key focus of the rehabilitation plan was control of erosion and weed infestation, and the incorporation of the planting of a visual screen adjacent to the Monaro Highway. The primary purpose of the screen was identified as mitigating visual amenity and dust impacts to the highway (NGH, 2015).

In addition to the mitigation measures outlined in the EIS (NGH, 2015). The JRPP provided conditions of approval. One of the conditions of the approval included:

> *20) The '50 metre tree buffer' area, shown in Figure 2-3 of the approved Environmental Impact Statement, is to be extended along the full length of the northern and western boundary of the site. A one (1) metre high earthen mound is to be constructed adjacent to the boundary of the site within the '50 metre tree buffer' area. Plans of the modified '50 metre tree buffer' area and mound are to be provided within the required Biodiversity Offset and Rehabilitation Plans. The establishment of the '50 metre tree buffer' area is to be completed prior to any extractive works occurring on the site.*
>
> *Reason: To ensure the extractive industry is visually screened from the Monaro Highway.*

SMRC identified that the installation of a '50m tree buffer' along the entire length of the northern and western boundary of the gravel pit would not be practicable or beneficial for the existing environment or local community. Therefore, SMRC are seeking a modification of the conditions to remove this condition of approval. SMRC's stated reasoning for its removal included:

- The majority of the northern and western boundary, approximately 1,750m, is Natural Temperate Grassland (refer to Figure 2-1). Therefore, trees or large trees required for screening are unlikely to grow in this location. The tree buffer would additionally have no biodiversity or ecological benefits for

the Natural Temperate Grassland. Office of Environment and Heritage (OEH, now known as Biodiversity and Conservation Division) supports not placing trees within the grassland area. OEH staff attended the site on 23rd April 2018 confirming the site was Natural Temperate Grassland and that the planting of trees within it would impact the natural integrity of the landscape. Additionally, outlined that previous tree planting experiences on the Monaro in natural grassland area may have been unproductive as trees and shrubs have low likelihood of establishing. OEH has recommended planting in the north eastern corner of the site which would provide a better ecological outcome and would provide screening for receivers along the highway. OEH's letter is provided in Appendix A.

- Planting of trees in this location would not be a benefit to the council or local community due to the costs including time required to maintain the tree cover as screening in an area that is not likely to naturally have trees. Therefore, these trees are likely to require more effort to maintain their survival.
- The other portion of the western boundary that is not Natural Temperate Grassland, is identified as Snow Gun Woodland with existing trees. The placement of a tree buffer here would provide no additional visual screening to what is already current in this portion of the boundary. A tree buffer would also be a contrast to this sparse woodland landscape.
- The placement of a tree buffer along the entire length of the western boundary is not in accordance with the reason for the condition of approval : *To ensure the extractive industry is visually screened from the Monaro Highway.* The western boundary is the furthest boundary from the Monaro Highway and would not provide any screening for receivers along the highway.

1.2. PURPOSE OF THIS REPORT

NGH have been engaged by SMRC to consider both the original visual assessment and the proposed JRPP conditions of approval in light of the points raised above. Specifically, the purpose of this additional VIA is to:

1. Review EIS to understand the initial impact assessment findings and mitigation recommendations.
2. Update the assessment to include:
    a. Ground validation to reflect current conditions onsite.
    b. Consideration of any new receivers and specifically objecting receivers.
    c. Viewshed map
    d. Application of systematic assessment framework.
3. Provide recommendations as to the:
    a. Significance of the visual impact and need for mitigation
    b. Appropriateness of mitigation options including screening

The mitigation measures for screening have considered:

- Condition of approval 20 by JRPP (2018) including 50m tree buffer along the full length of the northern and western boundary in addition to the 50m tree buffer along the eastern boundary as proposed in the EIS (NGH, 2015).
- The 50m tree buffer along only the eastern boundary as proposed in the EIS (NGH, 2015).
- OEH's recommended planting in the north eastern corner (OEH, 2018).

With regard to mitigation options, visual impact mitigation strategies are considered warranted where the sensitivity to change in visual amenity and landscape character is likely to be moderate to high. These would include stakeholders with long duration views of the proposal, such as locations where stakeholders would gather or would be concentrated in numbers. For the Bunyan Gravel Pit this is limited to residences and private business. There are 46 residences within 2km of the proposal site. Motorists along the Monaro Highway would have nearfield views of the active gravel pit areas, albeit of short duration, and therefore are likely to have moderate sensitivity to change. Stakeholders with short duration views of the gravel pit, would have low sensitivity to any changes in visual amenity and the landscape character as such these stakeholders are not considered further in this assessment.

2. PROPOSED ACTIVITY

The approved expansion and activities at the Upper Bunyan Gravel Pit have not changed since the preparation for the EIS (NGH, 2015). Below is a summary of the proposed activity from Section 2.3 of the EIS.

The Upper Bunyan Gravel Pit is located in the locality of Bunyan approximately 12km north of Cooma. The current gravel pit area is near the end of its life, with a capacity of two years remaining at current extraction rates. With expansion however, the gravel pit would continue to be used by council for road construction and maintenance activities for an additional 20 years. The gravel pit has potential to have an extraction rate of approximately 20,000 tonnes per year. The site does not operate under an Environmental Protection Licence, being below the 30,000 tonne per year trigger. SMRC has determined that aggregate that is suitable for road building is located in areas adjacent to the existing pit.

SMRC propose to purchase 85 hectares of land adjacent to the existing operations, Lot 160 DP 724552. Aggregate would be extracted within 20 hectares of the land parcel. The new extraction area would occur in five stages. The residual area (65 hectares) would be considered for use as a biodiversity offset area.

The five stages of new extraction areas are outlined in (Figure 2-1). The first two stages, Stage 1 (S1) and Stage 2 (S2) involves expanding the operation to the south. Stage 3 (S3) involves expanding the operation 40 metres west of the existing active area of the gravel pit and Stage 4 (S4) involves expanding the operation to the north. Stage 5 would join the western boundary of Stage 3 and would expand the gravel pit further west. Total hectares of each stage are shown in Table 2-1.

Table 2-1 Extraction stages and areas

Stage	Approximate areas (hectares)
Stage 1	2.55
Stage 2	1.44
Stage 3	1.88
Stage 4	4.06
Stage 5	3.87
Total	13.8

Extraction at each area would commence once the resources in each previous stage have been exhausted. While the duration of extraction in each stage depends on demand, Stage 1 and Stage 2 operations are expected to take a minimum of five years each.

No staff amenities or water supply are considered to be required or are proposed.

The expansion and operation of the gravel pit would involve the following general activities:

- Removal of trees from the extraction area
- Construction of soil and water management devices, including a sediment detention ponds where applicable.
- Extraction of material using a front-end loader
- Screening and stockpiling of material onsite
- Loading into haul trucks, prior to use

Current operation of the gravel pit involves a maximum of 5 staff members per day onsite. The following machinery are used onsite:

- Front end loaders
- Truck & dog
- Bulldozer
- Tipper trucks
- Screening equipment
- 4WD vehicles for staff

Once activities are completed in an area, progressive stabilisation and rehabilitation would be carried out for the purpose of:

- Reshaping to achieve stable landforms
- Rehabilitating landforms

Rehabilitation (in accordance with the rehabilitation strategy provided in Appendix A of the EIS, NGH, 2015) would include the planting of trees within a 50m buffer area adjacent to the Monaro Highway. Two areas have been identified north and south of the site (refer Figure 2-1). Planting would be undertaken prior to or concurrent with the commencement of the relevant extraction stages:

- The southern area, prior to or concurrent with the development of Stages 1 and 2.
- The northern area, prior to or concurrent with the development of Stage 4.

No crushing or blasting is currently undertaken onsite. With the possible exception of blasting, no change is proposed to the methods or rate of extraction. The proposal is simply to follow the resource into adjoining areas.

SMRC has not yet commenced extraction within the new approved expansion areas.

2.1. TERMINOLOGY

Terminology used in this report includes:

Study Area	Defined as Upper Bunyan Gravel Pit and surrounding suburbs.
Extraction areas	The area of land that will experience works related to the proposal and any additional infrastructure required for the operation of the proposal.
Proposed activity	All infrastructure and activities required for the construction and operation of the proposal.
Proposal site	All land within the affected lot boundaries.
Landscape Character Unit (LCU)	LCUs take into account topography, vegetation, land use, and other distinct landscape features. They are a way to categorise the existing scenic quality of the receiving environment and consider the ability of the environment to absorb visual change at the landscape scale.
Visual sensitivity	Visual sensitivity is subjective but can be discussed in terms of factors such as whether the view relates to recreational or work environments, or whether the view is experienced continuously or intermittently.

Zone of Visual Influence (ZVI)	ZVI modelling uses GIS modelling and topography to determine areas that would be shielded from views of infrastructure at the proposal site. It does not take into account existing or proposed screening features such as vegetation or built structures.

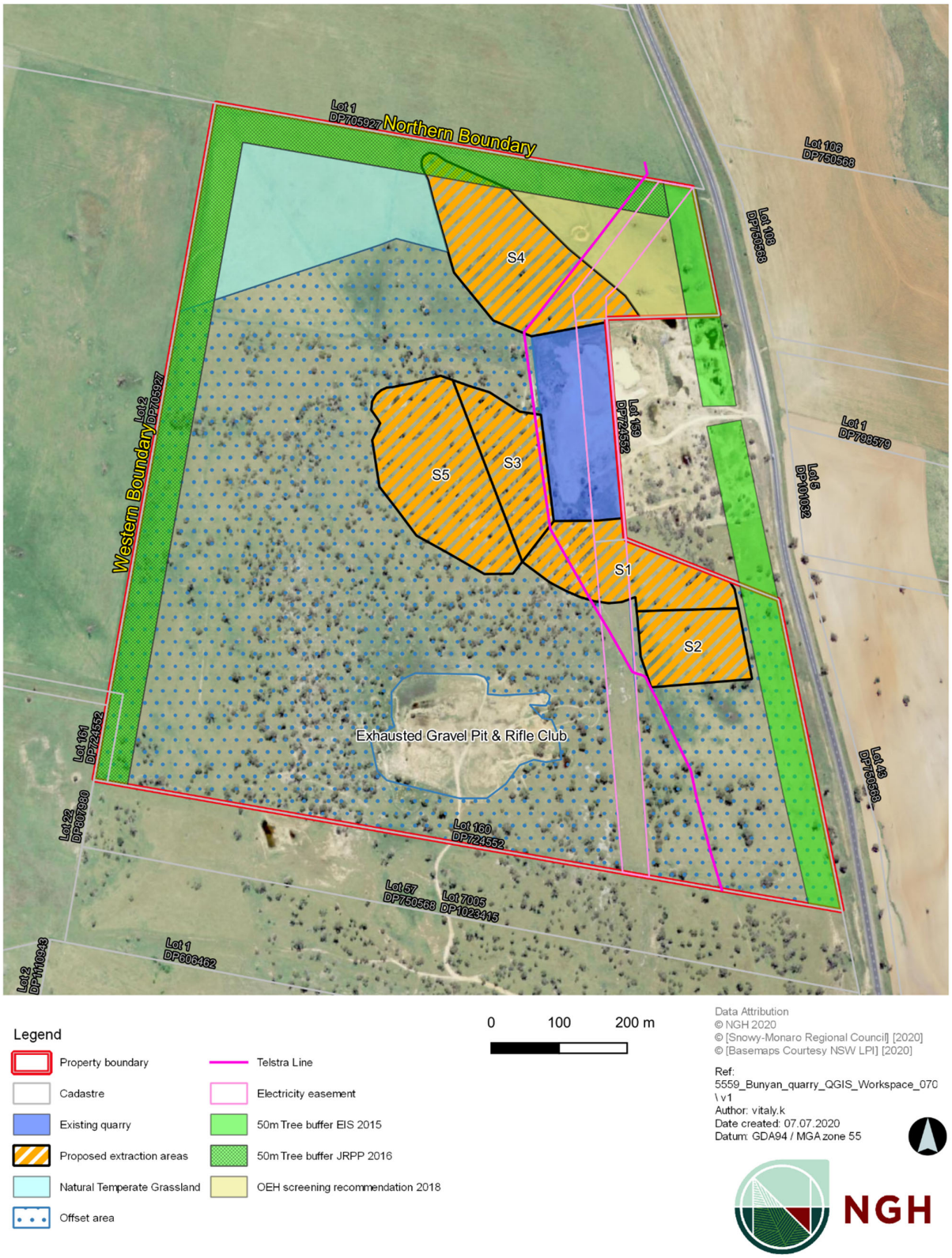


Figure 2-1 Extraction area showing staging and the proposed screening options.

3. APPROACH

This additional Visual Impact Assessment has been completed in the following stages:

1. Review impact assessment findings and mitigation recommendations of the EIS (NGH,2015).
2. Background investigations, including viewshed modelling.
3. Field survey including ground truthing and photography of key viewpoints.
4. Review community consultation that has been undertaken for the project.
5. Impact assessment – updating on the EIS (NGH,2015) assessment.
6. Development of a visual impact mitigation strategy.

3.1. REVIEW EIS VIA

During this stage the impact assessment findings and mitigation recommendations of the EIS will be reviewed and understood. This will form the basis of updating the assessment as per the stage 2-6 outlined below. The review and findings of the EIS VIA (NGH, 2015) is provided in Section 1.1.

Stages 2-6 outlined below are in addition to what was completed as part of the VIA within the EIS (NGH, 2015). The VIA as part of the EIS was a general impact assessment of the proposal on the landscape and locality. The approach within this VIA is more detailed and systematic looking at specific viewpoints and receivers within the locality. It is more detailed and systematic through:

- The use of viewshed modelling to determine areas in which views of the gravel pit may be visible.
- A ground truthing field survey at specific viewpoints.
- An impact assessment from multiple viewpoints that considers specific receivers within the locality.
- The use of criteria for assessing the scenic quality, sensitivity, proximity, contrast and visual impact at each viewpoint.

3.2. BACKGROUND INFORMATION

Background investigations included identifying key landscape features within the locality that may be affected by the visual characteristics of the proposed gravel pit expansion. This was done using existing literature and aerial photos.

Mapping and modelling were undertaken to:

- Identify Landscape Character Units (LCUs) within 7km of the gravel pit. This was done based on aerial imagery and later validated with field inspection. LCUs are a way to summarise differences in landscape amenity and the visual sensitivity of different areas.
- Define areas in which the proposed gravel pit expansion areas may be visible, using Zone of Visual Influence (ZVI) modelling. A map identifying the ZVI (or viewshed) of the proposed gravel pit expansion areas was produced. This method models the proposed gravel pit expansion area heights against topographic information to determine areas in which views of the gravel pit may be visible. As the proposed activity is to extract below the existing ground level the height of the gravel pit was modelled at 0.5m high and the height of the viewer (i.e. sensitive receiver) was modelled at 1.3 high. Topography was based on a 1-2m resolution Digital Elevation Model (DEM). The modelling undertaken based on all the expansion areas of the gravel pit plus a 50m buffer. Modelling does not take into account screening that may be provided by existing vegetation or structures. Due to their temporary nature, this VIA and modelling hasn't taken into

consideration stockpiles that would be created and removed from site or used as part of landscaping or stormwater management during the expansion.
- Identify key viewpoints such as major travel routes, potential receivers (dwellings and other structures), and built up areas. These excluded areas deemed not to be visible from the ZVI modelling.
- Understand the feasibility of screening to mitigate visual impacts.

The ZVIs for the foreground (2km) and middle ground (7km) are provided in Figure 5-1 and Figure 5-2.

The results were used to focus the field survey in areas where the proposal would be most visible.

3.3. FIELD SURVEY

With reference to the background information above, field surveys were undertaken to:

- Ground validate current conditions onsite and any changes since the EIS VIA (NGH, 2015).
- Validate and document the existing LCUs in the study area.
- Provide photographs from representative viewpoints within the LCUs, including foreground, middle ground and background viewpoints.
- Understand the likely extent of visibility and sensitivity of the LCUs to views of the proposed gravel pit expansion.

The fieldwork was undertaken by a Senior Environmental Consultant and taking approximately 6 hours. It consisted of driving along publicly accessible roads, investigating and documenting dominant visual character elements and potential views to the gravel pit. Photographs were taken at representative locations. No residences were specifically targeted however, nearby roadside viewpoints have been tagged 'residential' where they occur near a residence.

Representative viewpoint locations and their associated LCUs are provided in Figure 5-2. These are photos undertaken as part of the 2020 site inspection.

3.4. COMMUNITY CONSULTATION

No further community consultation has been undertaken as part of this VIA. NGH has reviewed all the submissions received for the project and proposed modification specifically identifying any raised visual concerns.

3.5. IMPACT ASSESSMENT

As discussed, this impact assessment is in addition to what was completed for the EIS (NGH, 2015). The approach within this VIA is more detailed and systematic looking at specific viewpoints and receivers within the locality than what was undertaken as part of the EIS (NGH, 2015).

The impact assessment methodology used in this VIA is based on the Bureau of Land Management (BLM) Visual Resource Management System, developed by the BLM, US Department of the Interior (n.d). The BLM developed a systematic process to analyse the visual impact of proposed developments. The basic philosophy states that the degree to which a development affects the visual landscape depends on the visual contrast imposed by the proposed gravel pit expansion.

Key steps undertaken to assess the visual impact are as follows:

- Define Landscape Management Zones (LMZs) for the representative viewpoints, based on:
    - The scenic quality of the study area's LCUs.
    - The expected sensitivity at representative viewpoints.

    - The proximity of each representative viewpoint.
- Evaluate the degree of contrast the gravel pit expansion would result in at representative viewpoints in consideration of the management objectives of the relevant LMZ.
- Determine the acceptability of the contrast with the management objectives of the relevant LMZ; this is the resultant visual impact, rated as high, medium or low.

The criteria for scenic quality, sensitivity, proximity, contrast and visual impact are included in the assessment, below.

This assessment has only considered impacts that are likely to be medium to high. Mitigation measures are considered warranted for 'high impact' receivers, for whom unmitigated impacts are considered greater than what is acceptable. For 'medium impact' receivers, the contrast is considered acceptable. For 'low impact' receivers, the contrast is considered low or not perceived.

4. EXISTING ENVIRONMENT

4.1. PROPOSAL SITE AND SURROUNDS

The proposal site is located on the Monaro Plains which is characterised by undulating topography and mosaic of cleared plains and sparsely wooded slopes and more densely wooded ridge tops. The plains and lower slopes are mostly utilised for agriculture and evidence of medium to large scale cropping and extensive grazing is present in the landscape. The visual values of the area to receivers, including locals and motorists, would be open paddocks with the backdrop of mountains.

The existing gravel pit is close the Monaro Highway and changes the landscape from an agricultural landscape to industrial. Broad access tracks, sediment detention ponds, piles of materials (rocks, aggregate, timber), construction equipment and rubbish are present in the active gravel pit area. Although it is visible from the Monaro Highway when travelling in both directions, the pits are not prominently visible as the excavation works occur below ground level and the visibility of the site is obstructed by a vegetation buffer of at least 30 metres between the road and existing pits, which comprises of scattered regrowth of Eucalypt trees and poplars and woodland vegetation is present within the adjoining land to the south and north of the site.

The proposal site is Crown Land and accessed via Monaro Highway. It is currently leased for agricultural grazing. An exhausted gravel pit is located to the south-west of the current operations. It was utilised by Transport for NSW and has not been in use for at least five years. It has been rehabilitated. The exhausted gravel pit is utilised by a rifle club.

A 132Kv powerline and easement is located through the proposal site. It is parallel to the Monaro Highway, approximately 230 to 300 metres to the west. An underground telecommunication cable also traverses the site. Figure 2-1 shows the location of both services.

Lands immediately surrounding the site to the east, south and west are predominately used for agriculture (extensive grazing of sheep and cattle). The Bunyan Airfield is immediately north of the subject site.

An exhausted gravel pit is located on the western side of the Monaro Highway 1.7km to the south. This gravel pit is much more obvious within the landscape than the subject gravel pit from the road. The locality of Bunyan, consisting mostly of rural residences, is located 2.5km south of the siteValues of the community. The Murrumbidgee River is 3.8km west of the site.

4.2. COMMUNITY CONSULTATION FINDINGS

The key concerns of the submissions related to visual impacts as well as the proposed modifications to the conditions in relation to visual screening and offset areas. These submissions have been reviewed and NGH understand the concerns to be:

- Adverse visual impact on enjoyed views from residential properties.
- The proposed impact after the deletion or modification of conditions.
- Plant species chosen for any screening.

4.3. LANDSCAPE CHARACTER UNITS

Four key LCUs were identified within 7km of the proposal site:

1. Agricultural (grazing lands and cropping lands, with low density dwellings and sheds).
2. Industrial / commercial facilities (existing gravel pit and Bunyan airfield).
3. Forest (surrounding ranges, including reserves and recreational areas).

4. Large Lot Residential and village (locality of Bunyan, Binjura and northern outskirts of Cooma).

The scenic quality was rated in each LCU as follows:

- A high scenic quality rating describes areas with outstanding, unusual or diverse features.
- A moderate scenic quality rating applies to areas with the features and variety normally present in the character type.
- A low scenic quality rating is given for areas lacking features and variety.

These four LCUs are characterised below.

Landscape Character Unit – Agriculture

Visual features

The pastures with scattered trees are of low relief to undulating. Pastures are generally native, and transition from dull green through to beige and brown with the season and weather conditions. Some irrigated crops are located to the north of the study area and along Cooma Creek in the east of the study area. The irrigate crops are a contrast green to the non-irrigated crops. Scattered trees are either at low density or isolated remnants of open woodland. The scattered trees are more dominant along watercourses, roads and around dwellings. The pastures are mostly grazed, cropped green paddocks are rare in the landscape. The grazed paddocks and more intensively cleared area have less variety. Rocky outcrops are also dominant on the top of ridges and rises in the landscape.

Unsealed roads and bare paddocks are light beige to dark brown. Local roads are curving, reflect the undulating terrain.

Residences within this landscape are sparsely distributed and commonly associated with additional landscape plantings and outbuildings (sheds, yards). Low paddock fencing and electricity lines break up the organic pattern of the terrain with linear features.

In the flat areas, views would be expansive across the landscape. While in the undulating areas views can either be restricted or expansive depending on the viewer's location within dips or rises. This is consistent across the entire study area, i.e. within the foreground, middle ground and background.

Scenic quality

Scenic quality is generally considered moderate. Elements have subtle variety and contrast and feature naturally pleasing element such as the ranges and scattered native vegetation remnants. Built elements are primary production related.

This LCU is common in the study area but has features and variety. The proposal site is located within this LCU.

Landscape Character Unit – Industrial / commercial facilities

Visual features

The proposal site is part of this LCU it has been previously disturbed by agricultural activities including grazing, dam construction and some clearing (for powerline easement and access) and past extractive activities. It is also visible from the Monaro Highway when travelling in both directions but is not prominent in the landscape due mostly to the existing gravel pit layout which results in excavation below ground level and has provided for a vegetation buffer of at least 30m between the road and existing pits. Scattered regrowth of Eucalypt trees and poplars occur along the roadside boundary of the gravel pit and woodland vegetation is present within the adjoining land to the south and north. The access tracks are unsealed.

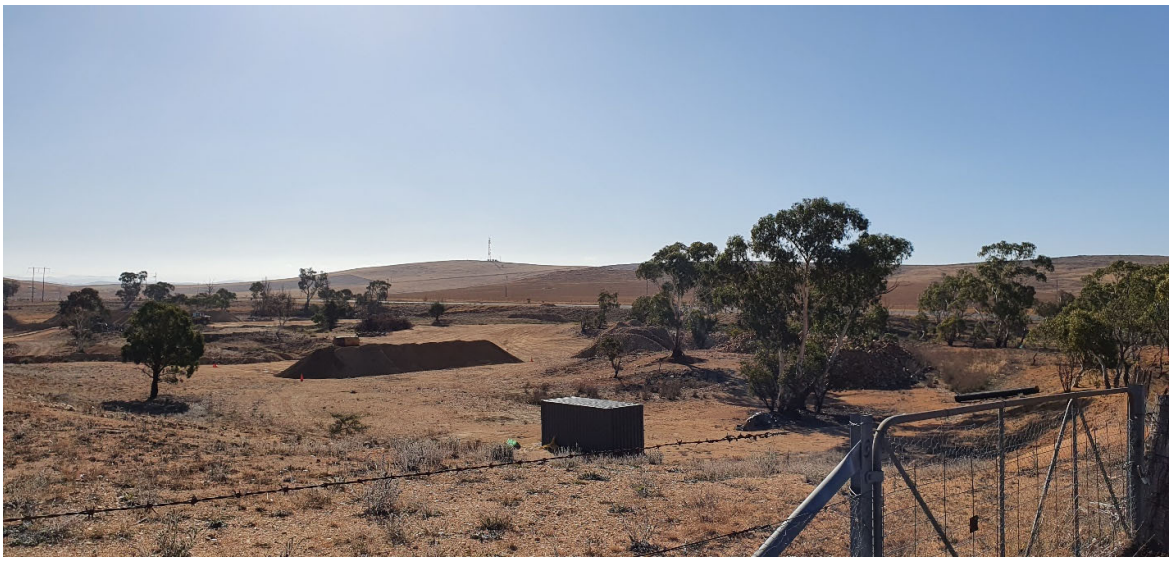
An exhausted gravel pit is also located on the western side of the Monaro Highway 1.7km to the south. This gravel pit is obvious within the landscape as it has been cut into the side of a hill and has limited screening from the Monaro Highway.

The Bunyan Airfield directly north of the proposal site is part of the this LCU, however it could also be part of the agricultural LCU. The airfield has four well maintained grass runways and buildings at the back of the site, identified as R7 on Figure 5-2. The airfield is privately owned by the Canberra Gliding Club.

Scenic quality

Scenic quality is considered low, these being commercially focused and having less variety and visual interest. They are disturbed or maintained compared to the Agriculture LCU.

This LCU is not common in the study area.



Landscape Character Unit – Forested ranges

Visual features

The vegetated ranges to the west, south and east of the proposal site provide a dominant visual element to the study area. The colour is from dusky green blue to grey. This LCU is in contrast to the low open expanses of the agriculture landscape.

The Binjura Nature Reserve is located west and south west of the site. The reserve is traversed by the Murrumbidgee River. The reserve has little public use due to no public vehicular access as it is surrounded by private land and its inaccessibility from the topography (NPWS, 2011). SMRC has a reserve along Shannons Flat Road and approximately 6km south west of the proposal site. The Murrumbidgee River Reserve includes a picnic area, barbecues and toilets. There no walking tracks advertised.

Due to the distance and topography the gravel pit is not visible from these reserves.

Limited public roads traverse these ranges within the study area.

Scenic quality

Scenic quality is generally moderate. Colour variation is low. Forms are generally uniform, lacking variety. Areas that appear untouched by settlement provide a pleasing visual contrast to the agricultural, rural residential and commercial LCUs.

This LCU is common in the study area.

Landscape Character Unit – Large lot residential and village

Visual features

Binjura is a locality approximately 6.8km north west of Cooma. It had a population of 321 people in 2016 (ABS, 2016). It is dominated by large lot residences that contain residences, sheds, vegetation screening, hobby farms and paddocks. The Binjura Reserve provides a good backdrop for these residences. It is more populated and dominated by residences than the Agricultural LCU. There is no or limited community facilities other picnic areas located along the Cooma Creek and Murrumbidgee River. The main roads are sealed, and minor local roads are unsealed.

This LCU also includes the outskirts of northern Cooma. It is dominated by dwellings that are brick or timber. Colours vary from sandstone, blue, white to grey. Other built forms include fences, water tanks and

sheds. Vehicles, yards and gardens produce a residential character. Views to the surrounding ranges and woodlands are visible.

Scenic quality

Scenic quality is considered high. These areas have variety in colour and form. They contribute to a unique historic character type framed by ranges in the distance. Built elements and the recreational area contribute to the character type. The character is important in defining the history of land use in the local area.

This LCU is common in the study area.

5. POTENTIAL IMPACT

5.1. EVALUATION CRITERIA

To quantify the visual impact of a development the following criteria are considered:

- Visual sensitivity
- Visual effect
- Viewpoint analysis using computer modelling and ground truthing of the resulting map.

The evaluation of impact or risk analysis methodology, to determine the potential visual impact, is explained below.

5.1.1. Visual sensitivity

Visual sensitivity is a measure of how critically a change to the existing landscape is viewed by people from different areas. The assessment is based on the number of people affected, land use, and the distance of the viewer from the development (EDAW, 2000). Sensitivity ratings are defined as high, moderate or low and a typical example of how the type of use and proximity affects the potential sensitivity are shown in Table 5-1.

Table 5-1 Visual sensitivity criteria.

Land use	**Distance zones**				
	Foreground		**Middle Ground**		**Background**
	0-1km	1-2km	2-4.5km	4.5-7km	>7km
Tourist/Recreation	High	High	High	Moderate	Low
Residential: Rural or Urban	High	High	High	Moderate	Low
Main Travel Corridor	Moderate	Moderate	Low	Low	Low
Minor/Local Roads	Moderate	Moderate	Low	Low	Low
Railway Line (Freight)	Low	Low	Low	Low	Low
Industrial Areas	Low	Low	Low	Low	Low

5.1.2. Visual effect

Visual effect is the interaction between a proposal and the existing visual environment. It is often expressed as the level of visual contrast of the proposal against its setting or background in which it is viewed. The visual effects are assessed as:

- Low visual effect occurs when a proposal blends in with its existing viewed landscape due to a high level of integration of one or several of the following: form, shape, pattern, line, texture or colour. It can also result from the use of effective screening often using a combination of landform and landscaping.
- Moderate visual effect: occurs where a proposal is visible and contrasts with its viewed landscape however, there has been some degree of integration (e.g. good siting principles employed, retention of significant existing vegetation, provision of screen landscaping, appropriate colour selection and/or suitably scaled development).
- High visual effect: results when a proposal has a high visual contrast to the surrounding landscape with little or no natural screening or integration created by vegetation or topography.

Visual impact is the combined effect of visual sensitivity and visual effect. Various combinations of visual sensitivity and visual effect would result in differing visual impacts as suggested in Table 5-2 (URBIS, 2009).

Table 5-2 Visual impact criteria

Visual sensitivity levels	**Visual effect zone**		
	High	**Moderate**	**Low**
High	High	High	Moderate
Moderate	High	Moderate	Low
Low	Moderate	Low	Low

5.1.3. Viewpoint analysis

The ZVI modelling (provided as Figure 5-1 and Figure 5-2) assumes the height of the gravel pit as 0.5m high and the height of the viewer (i.e. sensitive receiver) as 1.5m high. The modelling undertaken based on all the expansion areas of the gravel pit plus a 50m buffer. The visibility is then modelled based on the number of points of the infrastructure block that can be seen. 100% means all points can be seen and equates to the highest visibility. The lowest score is 0%; none of the points of the infrastructure block can be seen.

Representative viewpoints in the study area include travel routes such as roads, waterways, residential areas, houses and farmland. Representative viewpoints within each LCU were identified on the ground using ZVI modelling to ensure all viewpoints are located in the 'viewshed' of the gravel pit expansion; that is, viewpoints were not selected in areas predicted to be shielded from views of the gravel pit expansion by topography.

Nine representative viewpoints were identified using the ZVI mapping (refer to Table 5-3 and Figure 5-2). The predicted sensitivity of each viewpoint can be determined, considering its proximity to the proposal site and factors such as use, scenic quality and regional significance. The viewpoints were taken from publicly accessible roads within the study area. Table 5-3 provides the evaluation of the representative viewpoints

(V1-V7) based on their land use and proximity (sensitivity), the visual effect and ground truthing of the ZVI modelling resulting in a visual impact rating.

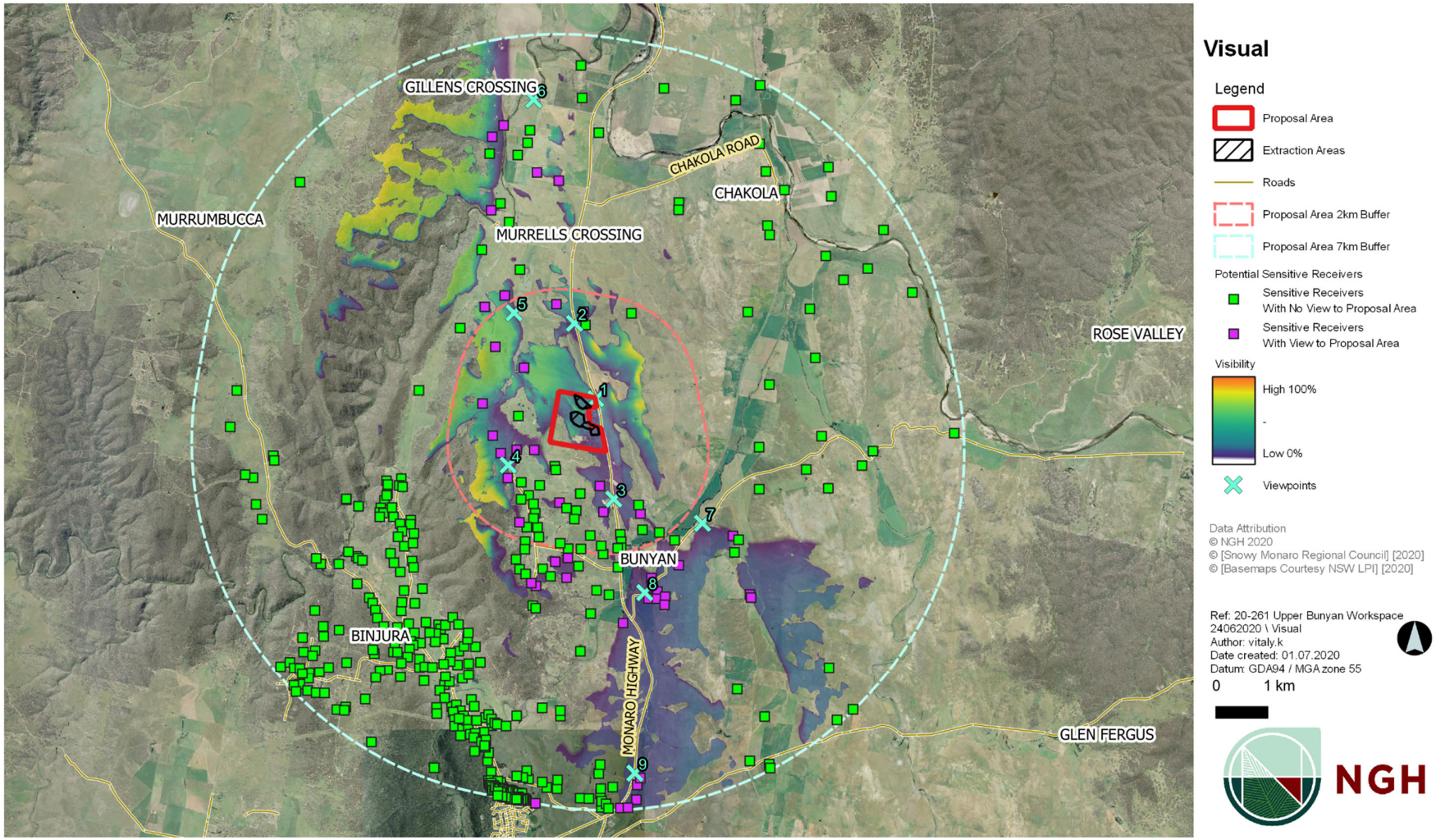


Figure 5-1 ZVI showing existing residential receivers and local roads and the low visibility of the gravel pit expansion to these within 7km.

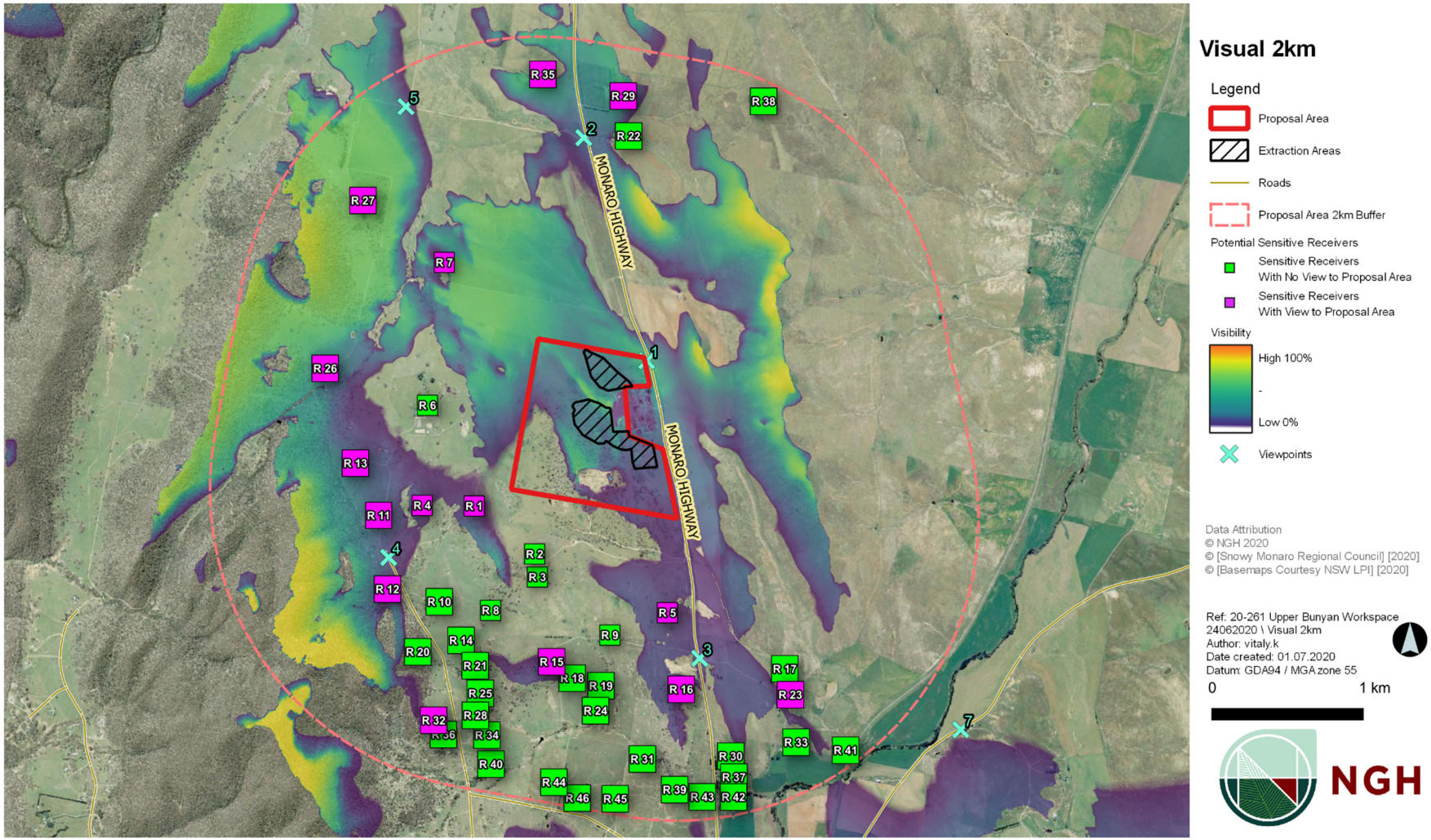


Figure 5-2 ZVI showing existing residential receivers and local roads and the low visibility of the gravel pit expansion to these within 2kms.

Table 5-3 Visual impact at representative viewpoints of the proposed gravel pit expansion

Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
1	Agriculture	Public Road	Traffic along Monaro Highway	Foreground	**Moderate** (due to the location of a main travel corridor within 0-1km)	**Moderate** (initial valuation based on a review of aerial photos. The colour effect of the landscape and low scale of the gravel pit providing some degree of integration).	The ground truthing (and panorama from the representative viewpoint, provided below, for the traffic moving along the highway) shows they would have a short duration view (driving views at typical speed of up to 100km/hr) the gravel pit has minimal intrusion and a greater degree of integration than aerial photos show. The colour, form and texture of the gravel pit provide a high level of integration with the existing landscape (typical dry grassland and grassy woodland vegetation) resulting in a visual effect downgraded to low, this in combination with the moderate result for sensitivity results in an overall rating of **Low Visual Impact.** The 50m wide tree corridor required along the eastern boundary would further integrate the gravel pit with the surrounding landscape. **No additional mitigation measures are required.**
Refer to 1 on Figure 5-2. Looking south west from north east corner of gravel pit 							

Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
2	Agriculture	Public Road	Traffic along Monaro Highway, users of Bunyan Airfield, three residents at the junction of Murrells Road and Monaro Highway.	Foreground	**High** (based on R29 and R35 located a distance of approximately 1.5-1.8km from the Gravel pit)	**Moderate** (initial valuation based on a review of aerial photos. The colour effect of the landscape and low scale of the gravel pit providing some degree of integration).	The ground truthing and panorama from the representative viewpoint, provided below, for receivers R29 and R35 shows that views of the gravel pit actually form part of the middle ground due to landscape factors forming part of the undulating land leading into the range in the background and views of the sky. Therefore, the proximity and sensitivity are downgraded to a middle ground type effect that has a High-Moderate rating. As per viewpoint 1 the visual effect is downgraded to Low. As such, the combination of a high-moderate result for sensitivity with the low visual effect results in an overall rating of **Moderate-Low Visual Impact.** The 50m wide tree corridor required along the eastern boundary would further integrate the gravel pit with the surrounding landscape. Additional screening is recommended along the northern boundary in the proximity of the Stage 4 expansion area. **Additional mitigation measures recommended.**

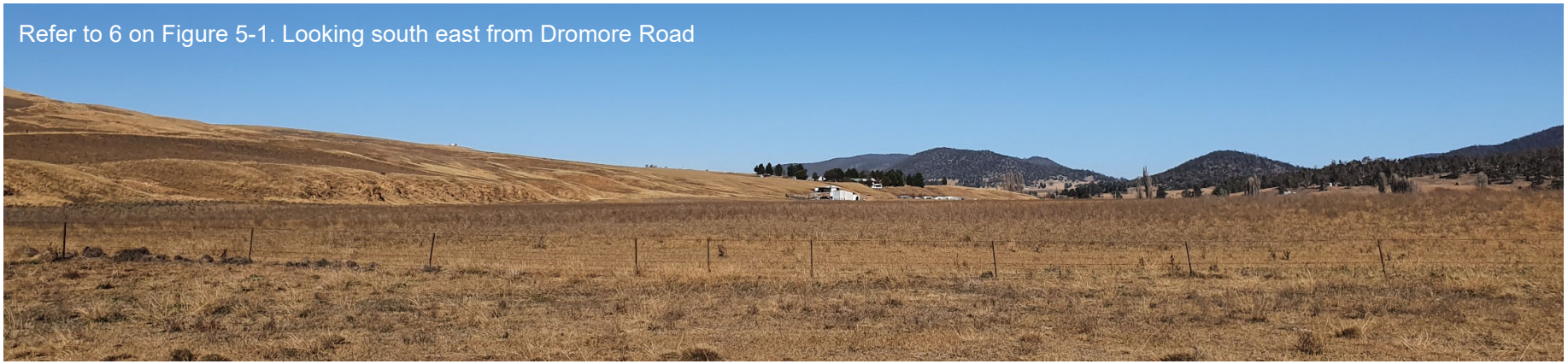
Refer to 2 on Figure 5-2. Looking south west from Monaro Highway and Murrell Road intersection

Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
3	Agriculture	Public Road	Traffic along Monaro Highway	Foreground	**Moderate** (due to the location of a main travel corridor within 0-1km)	**Low** (initial valuation based on a review of aerial photos. The low scale of the gravel pit providing a high degree of integration).	The ground truthing and panorama from the representative viewpoint for these receivers (includes R5, R16 and R23) provided below shows that there are no views of the gravel pit resulting in a **Low or negligible visual impact**. **The proposal is unlikely to be discernible. No mitigation measures are required**.

Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
4	Large lot residential and village	Public Road	Traffic and residents along Bunyanvale Road	Foreground	**High** (based on R1, R4, R6, R11, R12, R13, R15 and R 32 located approximately 1-1.8km from the gravel pit)	**Low** (initial valuation based on a review of aerial photos. The low scale of the gravel pit and likely screening providing a high degree of integration).	The ground truthing and panorama from the representative viewpoint, provided below is for receivers R1, R4, R6, R11, R12, R13, R15 and R 32. The panorama shows that there are no views of the gravel pit due to the low scale of the extraction areas, siting of the gravel pit on the eastern and north eastern slopes of the hill and due to the undulating topography. The receivers that were identified in the viewshed as having potential views of the gravel pit expansion, R1, R4, R11 and R12 are unlikely to have views due to topography as discussed above but also due to the existing vegetation. There is a well-established and effective visual screen up to 200m wide in places blocking views. Therefore, the sensitivity rating is downgraded from high to low. As per viewpoint 1 the visual effect is downgraded to Low Resulting in a **Moderate visual impact.** **The proposal is unlikely to be discernible. No mitigation measures are required.**

Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
5	Agriculture	Public Road	Local traffic and residents along Murrell Road	Foreground	**High** (based on R6, R7, R26 and R27 located a distance of approximately 2-2.2km from the Gravel pit)	**Moderate** (initial valuation based on a review of aerial photos. The colour effect of the landscape and low scale of the gravel pit providing some degree of integration).	The viewshed shows that R6 would not have views for the gravel pit due to topography. There may be views from the Canberra Gliding Club (R7), but the land use is not considered to be a sensitive receiver for the purpose of this visual assessment and a low sensitivity rating is applicable. The ground truthing and panorama from the representative viewpoint, provided below, for receivers R26 and R27 shows that there are no views of the gravel pit due to distance and topography. From the aerial imagery and site inspection, receivers R26 and R27 have existing vegetation screening at their residences further blocking views. Therefore, the sensitivity rating and visual effect is downgraded to Low, resulting in a **Moderate visual impact.** **The proposal is unlikely to be discernible. No mitigation measures are required.**

Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
6	Agriculture	Public Road	Local traffic and residents along Dromore Road	Middle Ground	**Moderate** (based on receivers located a distance of approximately 6km from the Gravel pit)	**Low** (initial valuation based on a review of aerial photos. The low scale of the gravel pit and likely screening providing a high degree of integration).	The ground truthing and panorama from the representative viewpoint, provided below is for the receivers located a distance of approximately 6km from the gravel pit. The Panorama shows that there are no views of the gravel pit due to distance and topography (blocking views), therefore, the sensitivity rating is downgraded to Low, resulting in a **Low visual impact.** **The proposal is unlikely to be discernible. No mitigation measures are required.**



Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
7	Agriculture	Public Road	Local traffic and residents along Rose Valley Road. Residents between Rose Valley Road and Numeralla Road	Middle Ground	**High** (based on receivers located a distance of approximately 2.5km from the Gravel pit)	**Low** (initial valuation based on a review of aerial photos. The low scale of the gravel pit and likely screening providing a high degree of integration).	The ground truthing and panorama from the representative viewpoint, provided below, is for the receivers located a distance of approximately 2.5km from the gravel pit. The panorama shows that there are no views of the gravel pit due to topography (blocking views), and a riparian corridor of vegetation, which is a well-established and effective visual screen. Therefore, the sensitivity rating is downgraded to low, resulting in a **Low visual impact.** **The proposal is unlikely to be discernible. No mitigation measures are required.**

Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
8	Agriculture	Public Road	Local traffic and residents along Rose Valley Road. Residents between Rose Valley Road and Numeralla Road	Middle Ground	**High** (based on receivers located a distance of approximately 3km from the Gravel pit)	**Low** (initial valuation based on a review of aerial photos. The low scale of the gravel pit and likely screening providing a high degree of integration).	The ground truthing and panorama from the representative viewpoint, provided below is for receivers at a distance of approximately 3km from the gravel pit. The panorama shows that there are no views of the gravel pit due to topography (blocking views), and a riparian corridor of vegetation, which is a well-established and effective visual screen. Therefore, the sensitivity rating is downgraded to low, resulting in a **Low visual impact.** **The proposal is unlikely to be discernible. No mitigation measures are required.**

Refer to 8 on Figure 5-1. Looking north from Rose Valley Road

Viewpoint ID	LCU	View location	Representative receivers	Proximity	Sensitivity	Visual effect	Visual Impact
9	Agriculture	Public Road	Traffic along Monaro Highway leaving Cooma	Middle Ground	**Low** (due to the location of a main travel corridor within 6km)	**Low** (initial valuation based on a review of aerial photos. The low scale of the gravel pit providing a high degree of integration).	The ground truthing and panorama from the representative viewpoint for the main travel corridor leaving Cooma shows that there are no views of the gravel pit due to topography of the land (blocking views) and roadside vegetation (a well-established and effective visual screen) resulting in a **Low visual impact**. **The proposal is unlikely to be discernible. No mitigation measures are required.**

Refer to 9 on Figure 5-1. Looking north from Monaro Highway on the outskirts of Cooma

5.1.4. Visual impact assessment results

This visual assessment has been prepared using an assessment of zoning, mapping resources, location of dwellings and other potentially visually sensitive sites. The assessment has considered the worst-case scenario using terrain modelling, specifically to view the potential for visual impacts for the local community. A site inspection was undertaken to consider the development site from a number of representative viewpoints with images taken from public roads to understand the landscape that the development site is located within.

The visual sensitivity ranges from low to high in the nine representative viewpoints. High and moderate sensitivity are for viewpoints within 2km of the proposal site and include residences. Which are all viewpoints except VP9, which is over 6km from the proposal site. However, the majority of receivers within 2km range of the proposal would have limited sensitivity, or as shown in most cases in the ZVI modelling no visibility, of the expanded gravel pit (refer to Figure 5-2).

Overall, the development is considered to have high integration with the surrounding landscape, resulting in a low visual effect. Based on the ground truthing the visual effect was downgraded from moderate to low. The low visual effect in the landscape would be due to the following reasons:

- Minimal contrast in colour with the landscape due to dryland grasses having a similar colour to the quarried material. Noting that although grasses can green with rain, rainfall in the area is limited and generally not a common occurrence, grasses present will also yellow/brown after fresh growth.
- The topography limiting or completely blocking views from a significant area surrounding the gravel pit.
- The siting of the gravel pit on the eastern and north eastern slopes of the hill.
- The proposed expansion areas having a more natural less uniform boundary (shape and form) and would provide a softening of the gravel pit edge, considered to be dissimilar to the first stages that had more uniform boxed boundaries.
- Established vegetation (trees) providing an effective screen including:
    - Vegetation within the gravel pit site that is to remain in perpetuity (as an offset site) that is in some areas 200m wide.
    - Vegetation on surrounding lots.
    - Roadside vegetation.
    - Vegetation around dwellings.
    - Vegetation along riparian corridors.

The visual assessment concluded:

- There were no areas that were considered to have high visual impacts, and therefore no mitigation measures required as it is considered that only high visual impacts must be mitigated/require design changes to reduce impacts.
- There are three viewpoints with a moderate visual impact including viewpoints 2, 4 and 5. However, it was considered unlikely that viewpoints 4 and 5 would have views due to existing screening and topography. They are only moderate visual impact due to the high sensitivity of the rural residences. While viewpoint 2 include receivers R29 and R35 have potential to have views of the gravel pit expansion areas, specifically the north eastern corner and stage 5 area. Although the proposed gravel pit expansion is considered to have good visual integration, safeguards have been included to provide assurance about further minimisation of visual impacts. This includes additional screening to what was outlined in the EIS (NGH, 2015).
- Viewpoints 1, 3, 6, 7, 8 and 9 were assessed to have a low visual impact due to the topography, and vegetation resulting in high integration or no views. Specifically, for viewpoint 1, it was identified that the proposed 50m wide tree corridor required as part of the EIS (NGH, 2015)

along the eastern boundary would further integrate the gravel pit with the surrounding landscape.

A summary of the impact conclusions is provided below:

High visual impact

The proposed gravel pit expansion would have no areas of high visual impact due to the screening provided by topography, distance and the low number of residents and speed travelled on the main road passing next to the site. Visual impact mitigation measures are not considered warranted.

Medium visual impact

Viewpoints 2, 4 and 5 was assessed as a moderate visual impact. The viewpoints are located along the Monaro Highway and within the locality of Bunyan and Binjura. They represent motorists travelling along the Monaro Highway, users of Bunyan Airfield, two residents to the north of the site at the junction of Murrells Road and Monaro Highway and residents located along Bunyanvale Road to the west of the site. Both Bunyanvale Road and Murrells Road are no through roads and are likely to be limited to local residents. The traffic is expected to be low. As discussed in Table 5-3 and above the views of the gravel pit are limited by the existing topography, vegetation and speed of travelling motorists. No mitigation is considered to be required for viewpoints 4 and 5. Safeguards, however, have been proposed by the applicant that would further integrate the gravel pit expansion into the landscape for viewpoint 2.

Although surrounding land is zoned R5, large lot residential, it is not considered to be warranted to include measures for an unknown development that may or may not occur in the future. It is expected that as part of any planning proposal as outlined in the NSW Governments *A guide to preparing planning proposals* (DPE, 2018) that matters of visual impacts for any future development would need to be addressed by the applicant of that development. To expect the proponent of the gravel pit to anticipate what development would be determined by the Department of Planning, Industry and Environment Minister via the Gateway determination process would not be appropriate. To expect the proponent of the gravel pit to address impacts on existing developments as discussed in this VIA is considered reasonable and warranted. If a planning proposal was undergoing the planning process and the decision was imminent and outcome expected to result in an approval of a residential subdivision, it would be reasonable for this to need analysis of future dwelling location against the computer modelling and ground truthing to properly assess mitigation requirements for any known future development.

Low visual impact

The remaining six viewpoints were assessed to have a low visual impact. These viewpoints were assessed as low visual impact due to the undulating terrain, and existing vegetation between the site and receivers. Mitigation measures are not required for these locations.

6. MITIGATION MEASURES

6.1. EIS MITIGATION MEASURES

This VIA has reviewed the mitigation measures proposed for the gravel pit expansion. The EIS (NGH, 2015) mitigation measures are considered still warranted and appropriate for the proposal. The safeguards and mitigation measures to address visual impacts included:

- A vegetation buffer would be planted in stages to correspond with the staged expansion areas. The trees are to be planted in conjunction with extraction Stages 1 and 2.
- Native tree species appropriate to the local area would be used.
- Removal of trees to be minimised.

- All machinery and equipment associated with gravel pit operations would be parked within the existing pits and extraction areas.
- Rapid implementation of rehabilitation actions (refer to Section 6.1), for areas where extraction has ceased. New areas should not be expanded until funds and planning for exhausted areas can be demonstrated.

Council's attention is also drawn to the rehabilitation strategy found in Appendix A of the EIS, specifically to the following:

> **Extraction areas**
>
> Once activities are completed in an extraction stage, progressive stabilisation and rehabilitation would be carried out to:
>
> - Reshape to achieve stable landforms
> - Rehabilitate landforms
>
> Progressive rehabilitation ensures that disturbed landforms are quickly stabilised to resist erosion and weed infestation and return to productive ecological function. Rehabilitation would commence within three months of completion of a stage. All planting would be completed within the following 24-month period with ongoing site monitoring undertaken to determine success rate and the need for re-planting.
>
> Extraction should not commence in new stages until a detailed rehabilitation plan and sufficient funds (or guarantee of funds) to rehabilitate the new area is in place. This will assist in rapid, progressive rehabilitation.
>
> *Landforms*
>
> The landforms must designed to be:
>
> - Stable, resisting landslips and erosion.
>
> The soils have been noted as susceptible to erosion. Stabilisation will be made more difficult by their infertility and low available water-holding capacity. It is likely that stabilisation will require physical strategies to assist replanting, such as land forming swales to trap nutrients and physical barriers to reduce erosion such as jute matting, rock, timber or mulch.
>
> - Suited to their intended end land use: revegetation.
>
> The site and surrounds are densely infested with the noxious weed African Lovegrass and are unlikely to offer quality grazing pasture, as a long-term plan for the site. It is proposed that the aim of the final landform should reflect the need to control erosion and assist in preventing the proliferation of African Lovegrass. Tree and shrub plantings would provide resistance to weed infestation. Landforms should contain swales that trap water and nutrient in order to 'feed' new plantings. Topsoil is expected to be limited and will need to be managed carefully to create a soil surface that will encourage native regeneration. Inputs of soil and mulch may be required to assist restoration of soil fertility. It is noted that African Lovegrass has a particular advantage over native species in poor soil conditions.
>
> *Species*
>
> Species to be used for rehabilitation would be consistent with those that naturally occur within the Snow Gum – Candle bark woodland community and would be in line with the scientific determination

for the community. Species may include Ribbon Gum, Snow Gum, Bursaria[1], Silver Wattle (*A. dealbata*) and Australian Blackwood (*A. melanoxylon*).

Planting of sterile cover crops may also be considered as a short-term stabilisation strategy, depending on the timing of the works. This would assist in stabilisation and introducing additional nutrients to the soil.

Replanting

- Native trees, shrubs and understorey plantings would reflect the current site species list, set out above.
- Preparation would be required prior to replanting. Additional topsoil may be required to be sourced. Tube stock may be required to be ordered in advance. Plantings should be watered until established (NGH, 2015).

6.2. CONSIDERATION OF ADDITIONAL MITIGATION MEASURES

The resulting impacts as described above and importantly are considered to result in no significant impacts to existing residential developments, and does not adversely impact other areas where people would gather or would be concentrated in numbers such as private business buildings and motorists who may view the active gravel pit areas.

In addition to the EIS (NGH, 2015) mitigation measures outlined above, this VIA recommends the following measures:

- In addition to the 50m tree buffer along the highway, Council will undertake further canopy and understorey planting north of the existing gravel pit. There are existing mature trees in this locality indicating this would have been Tablelands Snow Gum Grassy Woodland. Staff from the OEH has been onsite and are in full support of this option. Refer Attachment A, letter of support from OEH.
- Council would establish an earth bund around the existing gravel pit site to offer visual screening of the extractive industry. Fast growing understory native plants (*Acacia* species) could be planted at the base of the bund.

As part of the approval the JRPP provided the following condition of the approval:

> *20) The '50 metre tree buffer' area, shown in Figure 2-3 of the approved Environmental Impact Statement, is to be extended along the full length of the northern and western boundary of the site. A one (1) metre high earthen mound is to be constructed adjacent to the boundary of the site within the '50 metre tree buffer' area. Plans of the modified '50 metre tree buffer' area and mound are to be provided within the required Biodiversity Offset and Rehabilitation Plans. The establishment of the '50 metre tree buffer' area is to be completed prior to any extractive works occurring on the site.*
>
> *Reason: To ensure the extractive industry is visually screened from the Monaro Highway.*

Based on the findings of this VIA, the extension of the tree buffer along the entire length of the northern and western boundary is not considered warranted. Some additional screening is required along the northern boundary, which aligns with the advice from OEH. However, this additional screening will also meet the reason for JRPP Condition of Approval 20 '*To ensure the extractive industry is visually screened from the Monaro Highway'.* The additional screening along the northern boundary will visually screen the extractive industry from the highway and receivers along the highway specifically R2 and R35.

[1] It is noted this species is not in the determination.

It also is agreed with OEH that protection of existing vegetation on the western slopes is of greater importance due to the extensive screening it already provides. As part of the JRPP condition of approval, this vegetation would be impacted to provide a screen. In addition to the biodiversity benefits, leaving this vegetation as is would provide a softening of views, by providing a natural background to the gravel pit site from dwellings located to the west where partial distant (middle ground) views of the gravel pit may be possible.

The planting of native grasses on the proposed earth bunding around the gravel pit edge may be more appropriate than (*Acacia* species) and would provide for:

- Softening the edge of the gravel pit in areas where less trees are present.
- Colours and textures that would match the surrounding vegetation.

This would also result in further integration of views of the gravel pit in the landscape from moderate visual impact areas consistent with the assumed purpose of the proposed planting of (*Acacia* species).

7. CONCLUSION

The purpose of this additional VIA was to:

1. Review EIS to understand the initial impact assessment findings and mitigation recommendations.
2. Update the assessment to include:
    a. Ground validation to reflect current conditions onsite.
    b. Consideration of any new receivers and specifically objecting receivers.
    c. Viewshed map
    d. Application of systematic assessment framework.
3. Provide recommendations as to the:
    a. Significance of the visual impact and need for mitigation
    b. Appropriateness of mitigation options including screening

The VIA as part of the EIS (NGH, 2015) was a general impact assessment in regard to the proposal on the landscape. This VIA has verified the impact assessment and conclusions of the VIA prepared as part of the EIS in 2015 were appropriate. The expansion of the Upper Bunyan Gravel Pit would increase an existing industrial view that lessens the visual character of the area. The degree to which it is visible to nearby residents however, and the duration that it would be viewed by passing motorists is expected to be relatively low. The impacts were considered manageable with the implementation mitigation measures.

The approach within this VIA is more detailed and systematic than the the VIA as part of the EIS (NGH, 2015). This additional VIA has assessed the visual impact of the proposal at specific viewpoints and receivers within 7km of the proposal site. It is more detailed and systematic through:

- The use of viewshed modelling to determine areas in which views of the gravel pit may be visible.
- A ground truthing field survey at specific viewpoints.
- An impact assessment from multiple viewpoints that considers specific receivers within the locality.
- The use of criteria for assessing the scenic quality, sensitivity, proximity, contrast and visual impact at each viewpoint.

This revision was triggered by SMRC seeking a modification of the conditions of approval for the project, specifically:

> *20) The '50 metre tree buffer' area, shown in Figure 2-3 of the approved Environmental Impact Statement, is to be extended along the full length of the northern and western boundary of the site. A*

one (1) metre high earthen mound is to be constructed adjacent to the boundary of the site within the '50 metre tree buffer' area. Plans of the modified '50 metre tree buffer' area and mound are to be provided within the required Biodiversity Offset and Rehabilitation Plans. The establishment of the '50 metre tree buffer' area is to be completed prior to any extractive works occurring on the site.

Reason: To ensure the extractive industry is visually screened from the Monaro Highway.

SMRC are seeking a modification of the conditions to remove this condition of approval. The reason for its removal includes:

- The majority of the northern and western boundary, approximately 1,750m, is Natural Temperate Grassland (refer to Figure 2-1). Therefore, trees or large trees required for screening are unlikely to grow in this location. The tree buffer would additionally have no biodiversity or ecological benefits for the Natural Temperate Grassland. Office of Environment and Heritage (OEH, now known as Biodiversity and Conservation Division) supports not placing trees within the grassland area. OEH staff attended the site on 23rd April 2018 confirming the site was Natural Temperate Grassland and that the planting of trees within it would impact the natural integrity of the landscape. Additionally, outlined that previous tree planting experiences on the Monaro in natural grassland area may have been unproductive as trees and shrubs have low likelihood of establishing. OEH has recommended planting in the north eastern corner of the site which would provide a better ecological outcome and would provide screening for receivers along the highway. OEH's letter is provided in Appendix A.
- Planting of trees in this location would not be a benefit to the council or local community due to the costs including time required to maintain the tree cover as screening in an area that is not likely to naturally have trees. Therefore, these trees are likely to require more effort to maintain their survival.
- The other portion of the western boundary that is not Natural Temperate Grassland, is identified as Snow Gun Woodland with existing trees. The placement of a tree buffer here would provide no additional visual screening to what is already current in this portion of the boundary. A tree buffer would also be a contrast to this sparse woodland landscape.
- The placement of a tree buffer along the entire length of the western boundary is not in accordance with the reason for the condition of approval : *To ensure the extractive industry is visually screened from the Monaro Highway.* The western boundary is the furthest boundary from the Monaro Highway and would not provide any screening for receivers along the highway.

This additional visual assessment concluded:

- There were no areas that were considered to have high visual impacts, and therefore no mitigation measures required as it is considered that only high visual impacts must be mitigated/require design changes to reduce impacts.
- There are three viewpoints with a moderate visual impact including viewpoints 2, 4 and 5. However, it was considered unlikely that viewpoints 4 and 5 would have views due to existing screening and topography. They are only moderate visual impact due to the high sensitivity of the rural residences. While viewpoint 2 include receivers R29 and R35 have potential to have views of the gravel pit expansion areas, specifically the north eastern corner and stage 5 area. Although the proposed gravel pit expansion is considered to have good visual integration, safeguards have been included to provide assurance about further minimisation of visual impacts. This includes additional screening to what was outlined in the EIS (NGH, 2015).
- Viewpoints 1, 3, 6, 7, 8 and 9 were assessed to have a low visual impact due to the topography, and vegetation resulting in high integration or no views. Specifically, for viewpoint 1, it was identified that the proposed 50m wide tree corridor required as part of the EIS (NGH, 2015) along the eastern boundary would further integrate the gravel pit with the surrounding landscape.

Therefore the mitigation measures outlined in the EIS (NGH, 2015) were still applicable with the addition of some extra screening along the north eastern corner boundaries within the proximity of the Stage 5 extraction area (refer to Figure 2-1). The mitigation measures include:

- A vegetation buffer would be planted in stages to correspond with the staged expansion areas. The trees are to be planted in conjunction with extraction Stages 1 and 2.
- Native tree species appropriate to the local area would be used.
- Removal of trees to be minimised.
- All machinery and equipment associated with gravel pit operations would be parked within the existing pits and extraction areas.
- Rapid implementation of rehabilitation actions (refer to Section 6.1), for areas where extraction has ceased. New areas should not be expanded until funds and planning for exhausted areas can be demonstrated.
- In addition to the 50m tree buffer along the highway, Council will undertake further canopy and understorey planting north of the existing gravel pit. There are existing mature trees in this locality indicating this would have been Tablelands Snow Gum Grassy Woodland. Staff from the OEH has been onsite and are in full support of this option. Refer Attachment A, letter of support from OEH.
- Council would establish an earth bund around the existing gravel pit site to offer visual screening of the extractive industry. Fast growing understory native plants (Acacia species) could be planted at the base of the bund.

Based on the findings of this VIA, which has included additional assessments since the EIS, the extension of the tree buffer along the entire length of the northern and western boundary as per the JRPP Condition of Approval 20 is not considered warranted. Some additional screening is required along the northern boundary, which aligns with the advice from OEH. However, this additional screening will also meet the reason for JRPP Condition of Approval 20 '*To ensure the extractive industry is visually screened from the Monaro Highway'.* The additional screening along the northern boundary will visually screen the extractive industry from the highway and receivers along the highway specifically R2 and R35.

Also, that protection of existing vegetation on the western slopes is of greater importance due to the extensive screening it already provides. In addition to the biodiversity benefits, leaving this vegetation as it would provide a softening of views, by providing a natural background to the gravel pit site from dwellings located to the west where partial distant (middle ground) views of the gravel pit may be possible.

8. REFERENCES

ABS, 2016, Binjura Population, accessed online June 2020 from https://quickstats.censusdata.abs.gov.au/census_services/getproduct/census/2016/quickstat/SSC10370

DPE 2015, *A guide to preparing planning proposals*. State of New South Wales through the NSW Department of Planning and Environment December 2018, Sydney NSW.

EDAW (Australia) Pty Ltd, 2000, '*Section 12 – Visual Assessment', The Mount Arthur North Coal Project: Environmental Impact Statement*, URS Australia Pty Ltd, Prepared for Coal Operations Limited.

NGH, 2015, *Bunyan Gravel Pit Environmental Impact Statement*, report prepared for SMRC.

NPWS, 2011, *Binjura Nature Reserve Plan of Management*

OEH, 2018, *Bunyan Quarry tree planting requirements*, letter to SMRC

Urbis, 2009, *Berrybank Visual Impact Assessment* - Final Report, Australia.

APPENDIX A OEH LETTER

NSW GOVERNMENT | Office of Environment & Heritage

10.2015.498.1
DOC18/276495

Ms Pam Vipond
Environmental Project Officer
Snowy-Monaro Council
pam.vipond@snowymonaro.nsw.gov.au

Dear Ms Vipond

Bunyan Quarry - tree planting requirements

Thank you for meeting with OEH staff (John Briggs and Suzie Lamb) on site on 23 April 2018 to discuss the best use of revegetation works on the Bunyan Quarry offset site. These OEH staff were also involved in the earlier negotiations for the offset site.

OEH understands that through the project approval process, one of the conditions of consent by the SE JRPP was a requirement to plant trees along the northern and western sides of the site (approximately 1750m in length). Following the recent on-site inspection, OEH has concluded that approximately two thirds of the northern boundary is in an area that would have naturally been grassland, rather than a treed area. The historic 'natural tree line' is most likely to have come close to the eastern third of the northern boundary. This is evidenced by the scattered mature trees still present in the north-east section of site. OEH also considers that the western boundary of the site also runs through an area that was treeless natural grassland.

OEH acknowledges that the grassland areas within the offset and on adjoining areas are now significantly degraded due to the invasion of exotic African Love Grass. However, in order to maintain the natural landscape integrity, OEH does not support planting of trees within areas that were likely to have been natural grassland. OEH also understands from previous tree planting experiences on the Monaro, that planting trees within areas of natural grassland may be unproductive as trees and shrubs have a low likelihood of establishing.

OEH considers a better ecological outcome along the northern side of the offset could be achieved by planting additional trees and shrubs within the current/natural woodland area (see map for location of potential stage 1 planting area). Such plantings would need to avoid the transmission line area. This would provide good screening of the current quarry site, both from the adjoining Monaro Highway and from the section of the Monaro Highway to the north where there is currently a line of sight to the existing quarry. Such a planting would also help in the restoration of the important Snow Gum Woodland endangered ecological community in this area.

If/when section S4 is quarried in the future, a second stage of planting could be planted along the north-east boundary of that pit to enhance the existing natural remnant woodland that occurs between the stage 4 pit and the northern boundary (see map for potential stage 2 planting area).

PO Box 733 Queanbeyan NSW 2620
11 Farrer Place Queanbeyan NSW 2620
Tel: (02) 6229 7188 Fax: (02) 6229 7001
ABN 30 841 387 271
www.environment.nsw.gov.au

OEH considers such a planting would achieve a better ecological outcome for the endangered Snow Gum woodland - and also achieve at least an equally effective screening compared to the currently proposed plantings along the northern boundary.

In regard to the western boundary, there already is an extensive and heavily wooded area of native vegetation between the western edge of the extended gravel pit (stage 5). This is at least 200m wide and already acts as a visual screen for areas to the west of the quarry site. Planting of the western boundary is unlikely to increase the visual screen in this area.

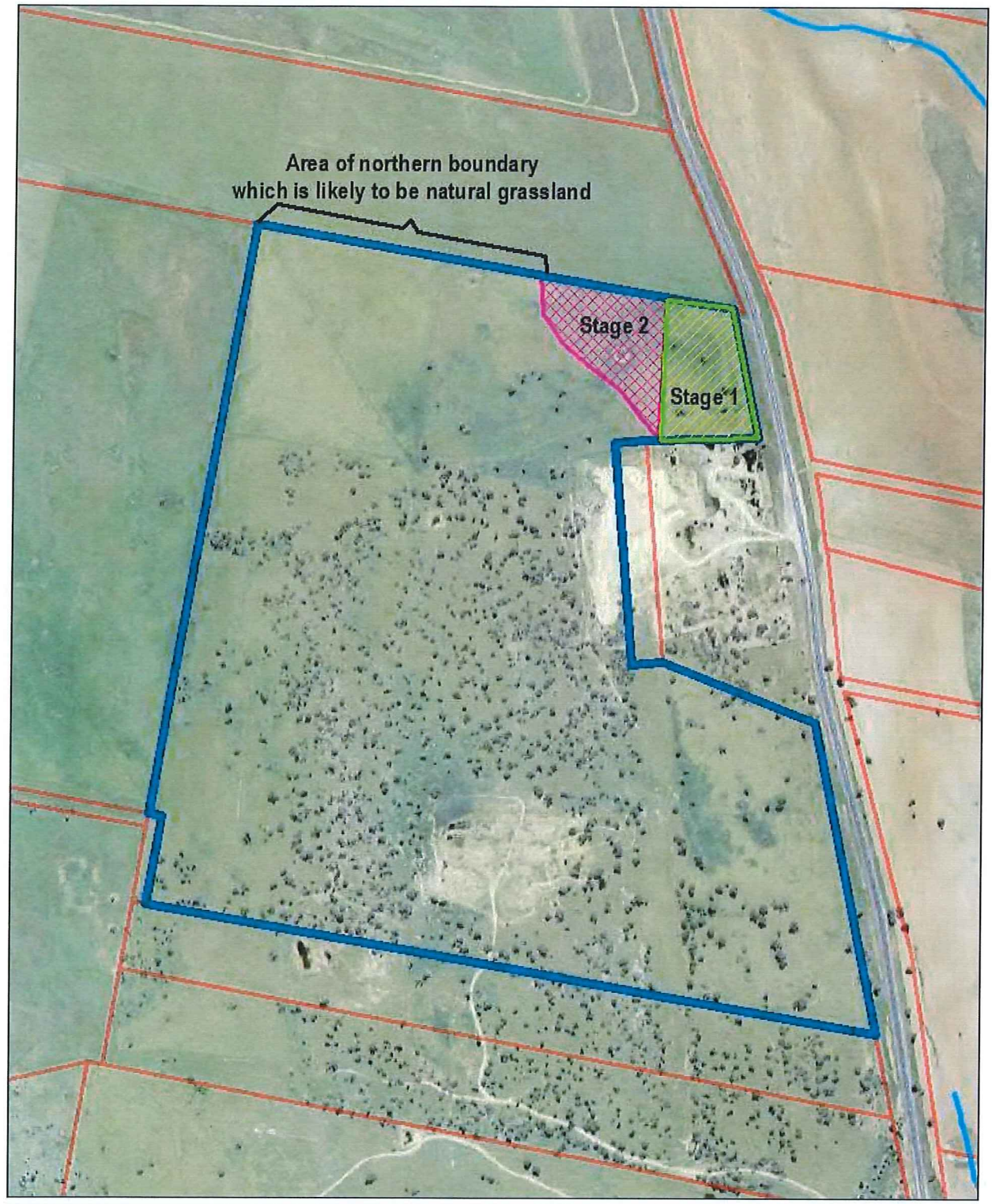
If you have any questions, please feel free to contact John Briggs on 6229 7108.

Yours sincerely,

29/5/18

ALLISON TREWEEK
Senior Team Leader - South East Planning
Regional Operations Division

Map 1: OEH's recommended planting areas for stage 1 and 2



Bunyan Quarry - Offset site advice

Legend

- Bunyan Quarry Lot
- OEH recommended stage 2 planting area
- OEH recommended stage 1 planting area

N 0 0.1 0.2 km

Datum/Projection: GCS GDA 1994

NSW GOVERNMENT Office of Environment & Heritage