

Hunter Valley Operations South - Modification 5

Response to submissions

Prepared for HV Operations Pty Ltd | June 2017



COAL
&
ALLIED

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Hunter Valley Operations South - Modification 5

Response to Submissions

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1 Context

1.1 Introduction

This Response to Submissions (RTS) report provides further information regarding Hunter Valley Operations South (HVO South) Modification 5 project (the proposed modification), responding to questions and concerns raised by community members, groups and government agencies. The report has been prepared by Coal & Allied and EMM Consulting Pty Limited (EMM).

This report formally responds to a letter from the NSW Department of Planning and Environment (DPE) dated 21 May 2017, requesting Coal & Allied address the issues raised during the public exhibition of the Environmental Assessment (EA) for the proposed modification. During the exhibition period (from 9 February to 10 March 2017) submissions were received from community organisations, individual members of the community, Singleton Council and other government agencies. These submissions, together with the DPE letter of request, are available on the DPE website:

- http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8223

The report also considers other questions and concerns raised about the proposed modification during consultation, particularly by neighbours and nearby community members. The additional information Coal & Allied gathered during these discussions been important in providing detail and context to issues and concerns raised. While not formally captured in the submission process, Coal & Allied recognises these issues and concerns are equally important and, accordingly, these have been incorporated into this report.

The RTS report is structured to provide context of the proposed modification and overview of stakeholder engagement (Chapter 1); and summary of feedback received including written submissions (Chapter 2). Chapter 3 provides a detailed description of the project design and options analysis processes. This responds to a number of community and government stakeholders who expressed an interest in further detail about the mine design process, including different options considered for elements, particularly the final void and overburden emplacement.

Chapters 4, 5 and 6 respond to issues raised in submissions and other feedback:

- Chapter 4 addresses concerns raised by HVO near neighbours;
- Chapter 5 responds to questions identified by government agencies; and
- Chapter 6 addresses issues raised in submissions by special interest groups and other members of the public.

Chapter 7 provides a conclusion to this report with a collation of each of the individual and special interest group submissions received in Appendix A.

The report has been submitted to the DPE which will make it publically available on its website and distribute it to government agencies and the Planning Assessment Commission (PAC) for consideration in the proposed modification's assessment and determination.

1.2 Overview of the proposed modification

Situated 24 kilometres north-west of Singleton, HVO is the oldest mine in Coal & Allied's portfolio, operating since 1949 (refer to Figure 1.1). HVO operates under two planning approvals, one for HVO North and one for HVO South, geographically divided by the Hunter River. However, the two function as an integrated operation, HVO, and provide work for approximately 1,500 employees and contractors.

HVO South is currently able to extract up to 16 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal and has project approval until 2030. HVO South comprises the Riverview, Cheshunt and South Lemington Pits 1 and 2 (yet to be mined), Lemington Coal Preparation Plant (LCPP) (yet to be constructed) and all related mining activities and infrastructure such as overburden and fine reject emplacement areas (refer to Figure 1.2).

The proposed modification will enable:

- the Cheshunt Pit to continue mining through the Riverview Pit, extracting the deeper Bayswater seam below the Vaux seam; and
- mining down to the base of the Vaux seam below the Bowfield seam in South Lemington Pit 2.

Mining of the deeper seams will occur within the existing State-approved disturbance footprint. This will avoid any direct impacts on aspects such as biodiversity and Aboriginal heritage. Design of the proposed modification within the constraints of the existing State-approved disturbance footprint necessitates an increase in height in some areas of the overburden emplacement up to 240m above Australian Height Datum (AHD), or an additional 80m to accommodate the additional volume of overburden material. The proposed modification has provided an opportunity to redesign the overburden emplacement strategy to incorporate micro-relief design techniques. Although the overburden emplacement will be higher in places, the final landform has been designed to look more consistent with natural landforms in the area.

The proposed modification also seeks to increase the maximum rate of extraction and processing from 16Mtpa to 20Mtpa of ROM coal during peak production.

1.2.1 Objectives

As described in the EA, the proposed modification will facilitate the extraction, processing and transportation of a state resource by an existing mining operation. This can be efficiently achieved because of the hundreds of millions of dollars invested in the operation and its existing access to product transport and distribution infrastructure such as road, rail and port. The proposed modification's objectives are to:

- enable the implementation of an efficient and flexible mine plan;
- add to the important regional and local economic and social benefits from the mine's operation;
- maintain the State-approved disturbance footprint;
- meet the State Environmental Planning Policy (Mining, Extractive Industries and Petroleum Production) 2007 (Mining SEPP) non-discretionary standards for noise and air quality amenity at all privately owned residences not already entitled to acquisition from surrounding mine operations;

- be largely consistent with environmental and social impacts approved under the project approval (PA 06_0261) such that the existing management controls implemented by HVO South require only minor amendments; and
- align with the principles of ecologically sustainable development, be consistent with the contemporary legislative requirements and meet all relevant government policies.

1.2.2 Project components

The application to modify the HVO South project approval (PA 06_0261) is to allow:

- the progression of mining to the base of the deeper Bayswater seam from Cheshunt Pit into Riverview Pit and mining to the base of the Vaux seam below the Bowfield seam in South Lemington Pit 2;
- a modification to the currently approved overburden emplacement strategy to enable an increase in height in some areas up to 240m AHD and incorporation of micro-relief to provide a more natural final landform;
- an increased rate of extraction from 16Mtpa to 20Mtpa ROM coal at peak production and an increased processing rate of coal extracted from HVO South from 16Mtpa to 20Mtpa of ROM coal across HVO coal preparation plants (CPPs); and
- the update of the Statement of Commitments within PA 06_0261 with removal of commitments that are redundant or inconsistent with measures prescribed in approved management plans. This includes the transition from prescriptive blasting conditions and replacement with contemporary outcome based conditions.

1.3 Need

The original application for PA 06_0261 in 2008 sought approval for the mining of all coal seams within HVO South to unlimited depth. This is consistent with Mining Lease (ML) 1634 issued under the *Mining Act 1992* (Mining Act) which covers the HVO South mining areas from surface to a depth of 900m (see Figure 1.3). Indicative mine plans presented in the ERM (2008) EA that accompanied the application assessed a mine design that extracted seams at varying depths in the respective pits (as described in Section 3.1.2 of the EA). The ERM (2008) EA sought to mine to unlimited depth, however approval was limited to the base of the Bowfield seam within South Lemington Pits; base of the Vaux seam within the Riverview Pit; and base of the Bayswater seam in the Cheshunt Pit as these were the depths assessed.

The proposed modification will enable the Cheshunt Pit to continue mining through the mined areas in Riverview Pit to extract the deeper Bayswater seam below the Vaux seam. It will also enable mining the deeper Vaux seam below the Bowfield seam in South Lemington Pit 2. The proposed modification is therefore consistent with the original intent that previously contemplated depth extensions at HVO South.

The proposed modification allows for the additional extraction of approximately 56.8Mt of ROM coal to be mined over the existing project approval time limit (23 March 2030) and within the approved disturbance footprint. The proposed increased rate of extraction from 16Mtpa to 20Mtpa of ROM coal during peak production provides HVO South with flexibility for production interactions with HVO North. It is also proposed to increase the processing rate of coal extracted from HVO South from 16Mtpa to 20Mtpa across HVO CPPs.

Mining of the deeper seams will occur within the existing disturbance footprint avoiding potential direct impacts on aspects such as biodiversity and Aboriginal heritage. It will, however, provide for the implementation of a mine plan that is efficient and flexible.

1.4 Stakeholder engagement

Coal & Allied is committed to engaging with the communities in which we operate playing a role in the long-term suitability of the region.

A stakeholder engagement strategy is in place for HVO. The key goals of the strategy are to ensure timely communication of relevant and clear information on operations, including development changes, and to create a process that provides opportunities for stakeholders to express their views and receive timely feedback on any matters raised.

Engagement tools implemented as part of this strategy include:

- HVO's Community Consultative Committee (HVOCCC) which is used to discuss mining operations and environmental performance, and comprises representatives of the community, Singleton Council and Coal & Allied;
- Regular letters to residents in the areas surrounding HVO which include updates from the General Manager on HVO's operations, environmental results and community programmes;
- One on one meetings with near neighbours and other stakeholders;
- A freecall information line (1800 727 745) to provide the community with the opportunity to provide feedback or gather information relating to Coal & Allied's operations in the Hunter Valley;
- Coal & Allied's website (www.riotinto.com) which contains information on mine operations and management, environmental monitoring results, project applications, community investment and engagement and contact details;
- Advertorials in the Singleton Argus and Hunter Valley News which provide information on Coal & Allied's mining operations, including upcoming projects such as the proposed modification; and
- Regular formal and informal updates to HVO employees from the General Manager and site leaders.

However, feedback received during the HVO South consultation process and through the CCC has indicated that we need to further improve our engagement to ensure near neighbours and local communities concerns are effectively heard and responded to. As described below we have sought to considerably increase our local engagement over the last six months and have incorporated this feedback into stakeholder engagement planning.

The EA describes Coal & Allied's early engagement with stakeholders, including Singleton Council and neighbours, during development of the mine plan and EA documentation. The following sections of this report describe the ongoing consultation and engagement that has occurred during and following the public exhibition period, as well as planned future engagement.

1.4.1 Engagement during public exhibition

During the EA public exhibition, Coal & Allied communicated with over 100 nearby residents of Jerrys Plains, Maison Dieu and Long Point; engaged individually with near neighbours; consulted with the HVOCCC and our workforce. Our aim was to describe the proposed modification clearly, explain the considerations and design options analysis, and discuss management and mitigation options.

Three community information sessions were held to support public exhibition of the EA: Jerrys Plains (4 February 2017), Maison Dieu (11 February 2017) and Long Point (17 February 2017). The sessions, attended by approximately 40 people, presented further information to the community through a range of posters, maps and Truescape visual interactive tools to view and provide feedback. A Truescape video showing the proposed modification is available for viewing at the link below on the DPE website, which is also provided in Appendix B of this RTS along with a screenshot.

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8223

A mine tour undertaken in conjunction with the Jerrys Plains session provided community members with a closer look at the operations, the pit location for the proposed modification and examples of HVO's rehabilitation activities.

At each of the community information sessions, community members were able to provide feedback on the proposed modification as well as operational matters and community and environmental aspects important to them. The two matters raised most at the three locations were air quality (dust) and noise, which is consistent with the matters raised in submissions for the proposed modification (further discussed in Chapters 4 and 6 of this RTS). These matters are also consistent with the key design principles considered during the development of the proposed modification (as outlined to Chapter 2 of this RTS).

Coal & Allied staff met individually with all interested near neighbours, continuing the engagement programme commenced during the early phases of mine design. Feedback provided by community members at these sessions has also helped HVO South identify ways it could improve amenity for nearest neighbours through the implementation of discretionary mitigation measures.

During public exhibition, technical specialists also met with local special interest groups, specifically the Hunter Valley Gliding Club and Glencore, to discuss matters specific to these organisations.

1.4.2 Engagement following public exhibition

Engagement has continued during the preparation of this RTS with activities focussed on engaging with near-neighbours and community groups who prepared a submission, or raised matters/queries regarding the proposed modification with Coal & Allied. This has focused on responding to and working with these stakeholders to further develop appropriate solutions and strategies that minimise negative impacts.

We contacted each individual near neighbour who made a submission as well as the Hunter Valley Gliding Club, and held meetings with a number of these to further discuss their concerns and ongoing mitigation options. We also continued to engage with other near neighbours who provided informal feedback through Coal & Allied's engagement programme on the proposed modification, with a focus on providing requested information and progressing management/mitigation activities.

Coal & Allied has now commenced implementation of a number of programmes which will be maintained:

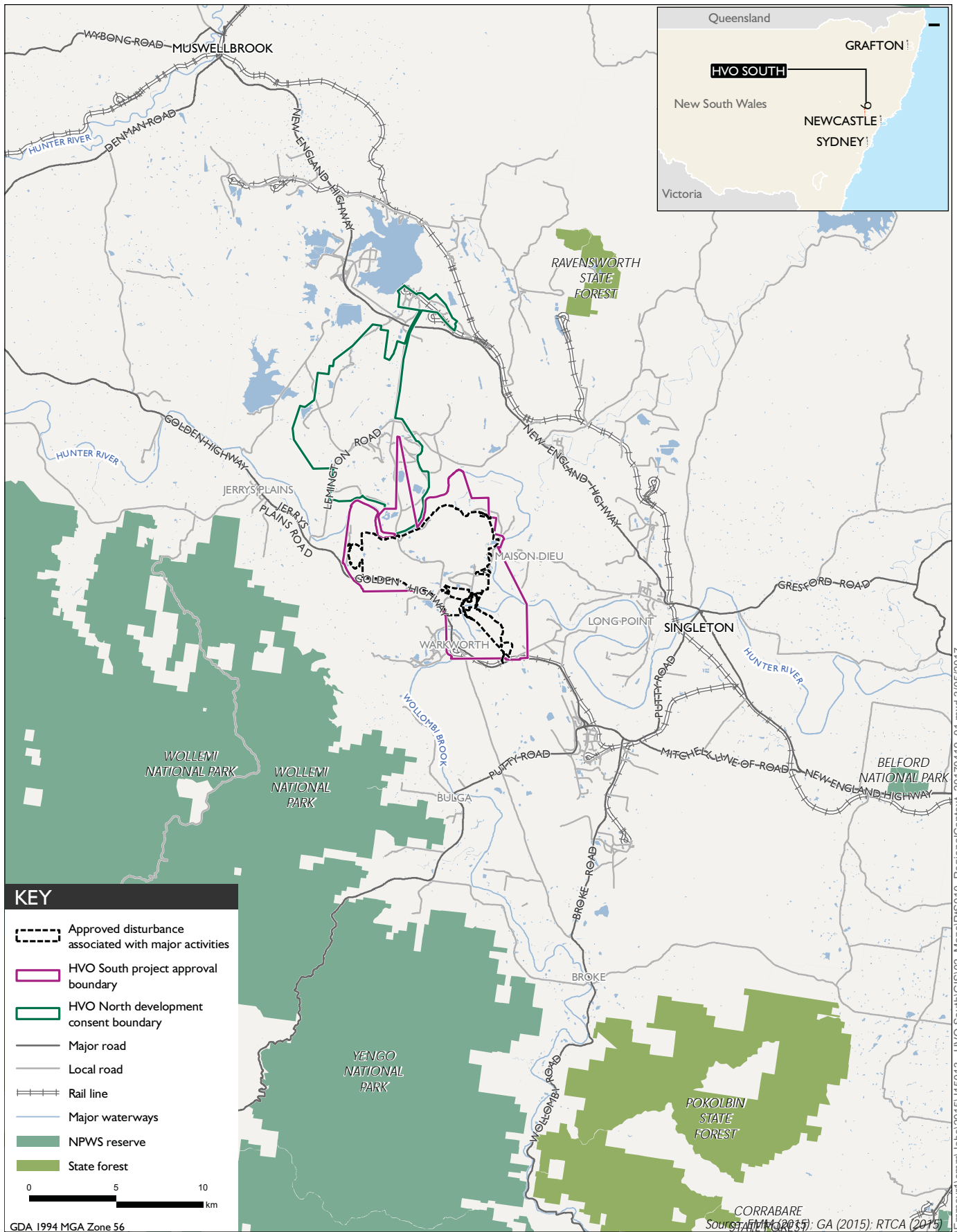
- HVO Near Neighbour Amenity Resource Fund – based on community feedback, this programme is currently targeting water tank cleaning for near neighbours;
 - provision of voluntary noise mitigation for identified properties in the Maison Dieu area; and
 - implementation of proactive mitigation measures at identified properties.
- In addition, Coal & Allied is exploring other mitigation and management measures to implement during emplacement construction based on feedback provided by the community during HVO's ongoing engagement activities. Measures include development of a specific environmental management during emplacement construction and supplementary environmental monitoring within the Maison Dieu area.
- We also recognise that some issues raised go beyond the scope of the proposed modification, such as local employment, the need to continue to improve our engagement, and building trust with our local communities. These matters have been interwoven into our operational engagement plans and community investment programmes that we implement for HVO on an ongoing basis.

1.4.3 Planned further engagement

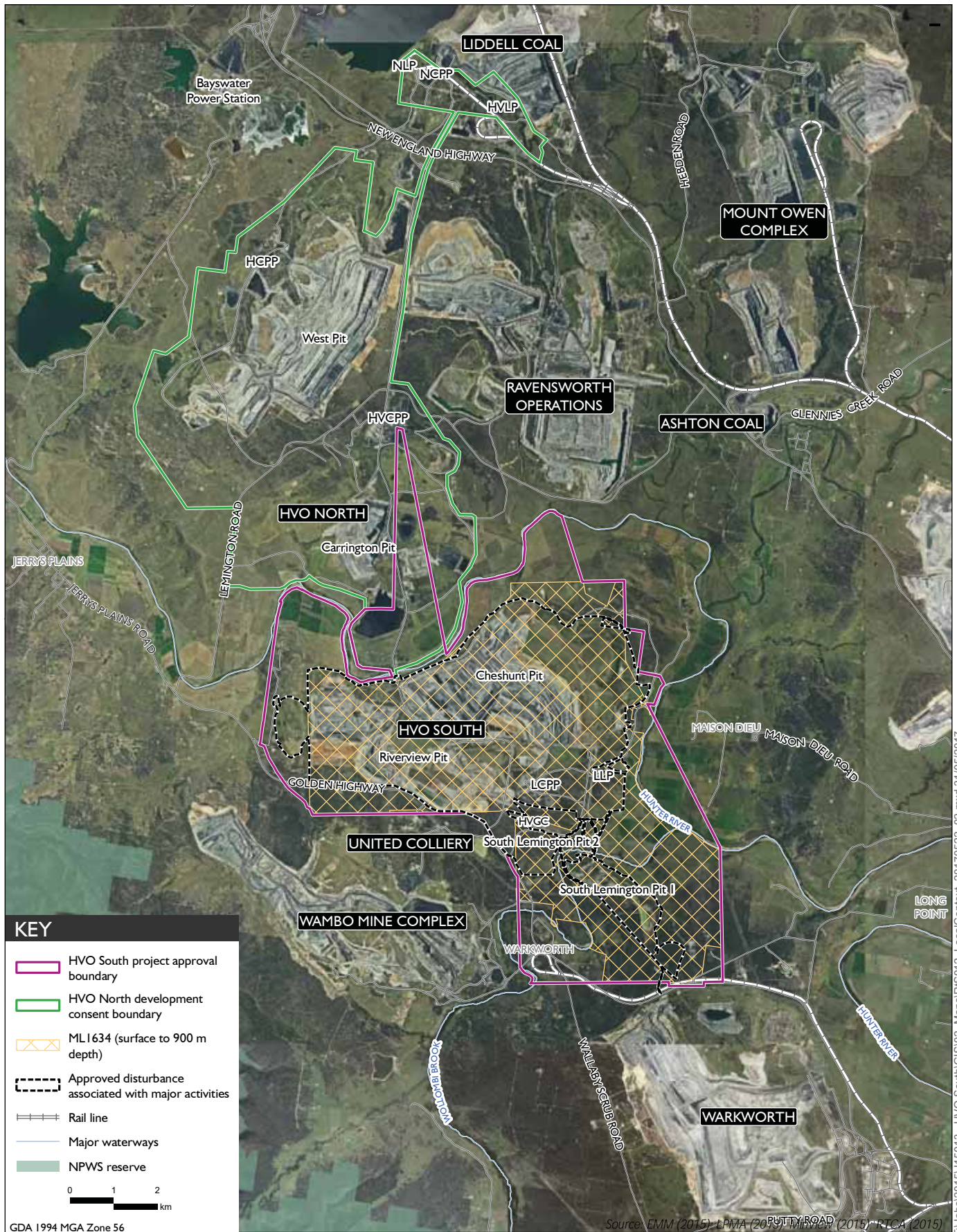
Coal & Allied will continue to engage with near-neighbours and stakeholders about HVO. We will maintain regular engagement with HVO's near neighbour communities of Jerrys Plains, Maison Dieu and Long Point through one-on-one meetings, public information sessions and near neighbour letters.

The HVOCCC continues to meet regularly. After each meeting, Coal & Allied will continue to distribute a letter summarising the information communicated at the meeting to near neighbours. These letters, as well as Coal & Allied's regular advertorial in local newspapers, will continue to provide updates to the community regarding the proposed modification.

Consultation with other stakeholder groups, including Singleton Council and the Hunter Valley Gliding Club, is ongoing. Coal & Allied continue to meet with representatives of the Hunter Valley Gliding Club on a monthly basis, to discuss club activities, provide operational updates and minimise impacts on operation of the club.



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HVO South mining lease
HVO South Modification 5
Response to submissions
Figure 1.3

2 Summary of feedback received

The EA was publically exhibited for four weeks from 9 February to 10 March 2017.

Feedback on the proposed modification was received via written submissions lodged to the DPE, as well as feedback directly to Coal & Allied. Both written submissions and direct feedback are summarised below, and have been considered in the preparation of this RTS.

2.1 Written submissions

Coal & Allied has closely reviewed all written submissions received on the HVO South Modification 5 EA, and we thank our neighbours, community groups, government and members of the public for taking the time to provide considered feedback on the proposed modification.

Submissions were received from the following government agencies, special interest groups (including businesses) and individuals. All submissions are available on DPE's website:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8223

- NSW Government agencies:
 - Office of Environment and Heritage (OEH);
 - Department of Primary Industries – Water (DPI Water);
 - Environment Protection Authority (EPA);
 - Department of Industry, Skills and Regional Development, Division of Resources and Energy (DRE);
 - Roads and Maritime Services (RMS); and
 - Hunter New England Health.
- Local government – Singleton Council;
- Special interest groups (six submissions received);
 - Hunter Valley Gliding Club;
 - Hunter Communities Network;
 - Hunter Environment Lobby;
 - Lock the Gate Alliance;
 - Singleton Shire Healthy Environment;
 - Glencore; and
- Individuals (32 submissions received).

The DPE, in its request to Coal & Allied to provide a response to submissions, also requested additional information on a number of matters. These have been addressed in Chapter 5.

2.1.1 Matters raised

Submissions from government agencies and Singleton Council are summarised and considered in Chapter 5.

Matters raised by HVO’s near neighbours are addressed in Chapter 4. Submissions in objection by individuals and special interest groups are collectively addressed in Chapter 6. Appendix A contains the matter raised in each of the individual and special interest group submissions.

Of the 38 public submissions received, 32 were from individuals and six were from special interest groups. Two were in support of the proposed modification; 32 objected; and four submissions provided comments and did not support or object to the proposed modification.

Figure 2.1 provides a summary of the issues and concerns raised in 32 objecting submissions.

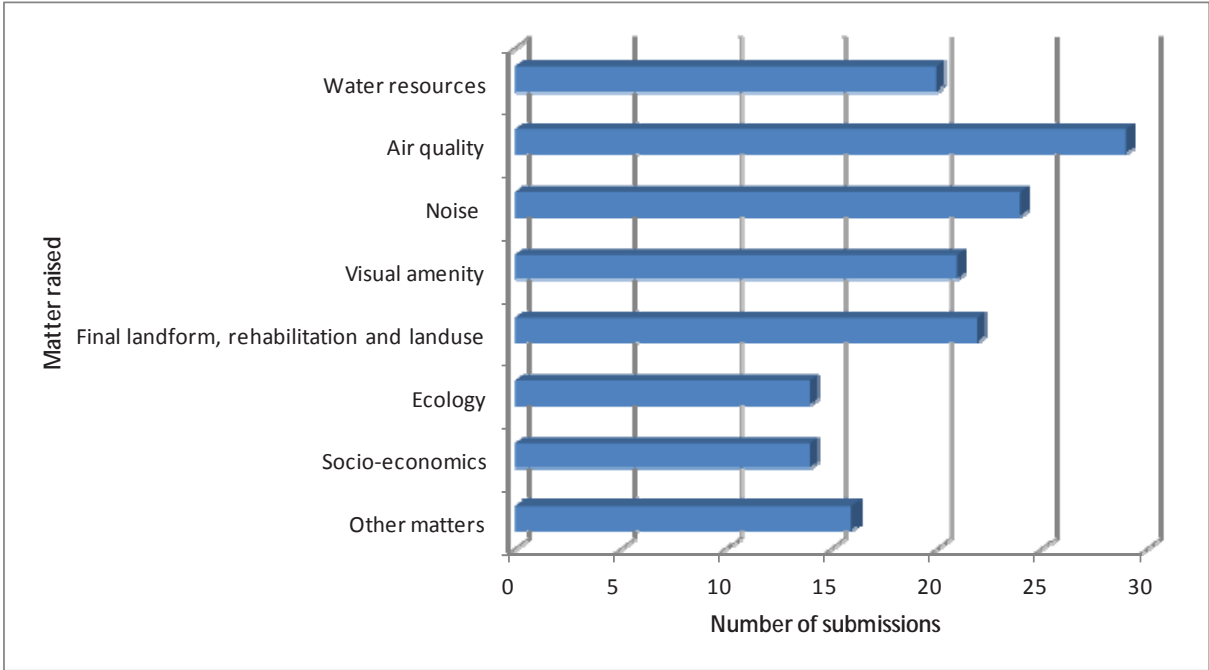


Figure 2.1 Matters raised in objection

As shown, air quality matters (29 submissions), noise (24 submissions), final landform and rehabilitation (22 submissions), visual amenity (21 submissions) and water (20 submissions) were most commonly raised.

This aligns with the DPE’s summary of the key themes raised by community to the proposed modification. Table 2.1 below identifies each theme and the location within this document where further information is provided.

Table 2.1 DPE summary of issues raised

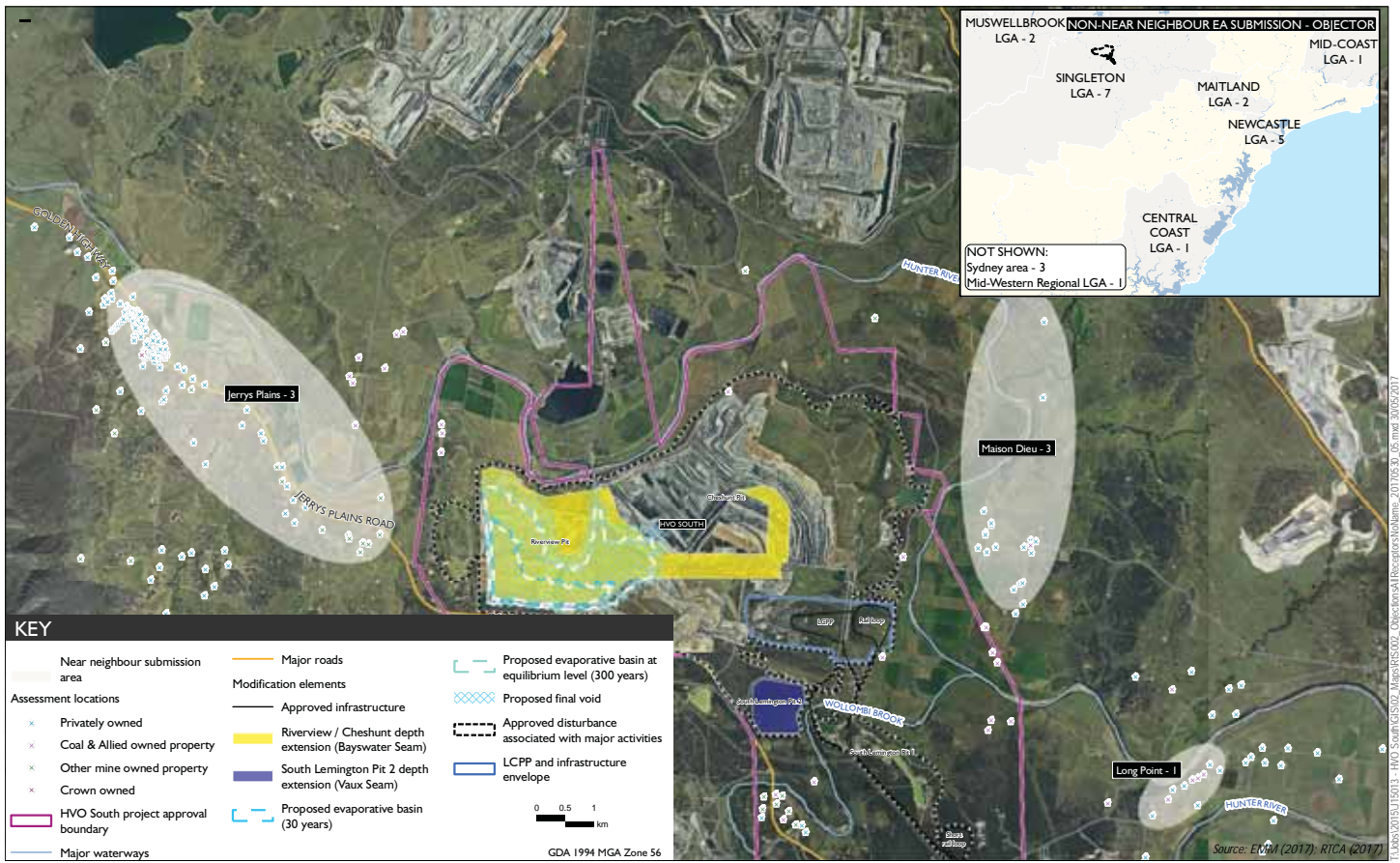
| Issue raised | RTS document reference |
|---|---|
| Increased noise, dust, blasting, visual amenity and health impacts | Sections 3.3.4, 4.2.1, 4.2.2, 4.2.3, 5.2.6, 5.5.1, 5.5.3, 5.6, 6.2.2, 6.2.3, 6.2.4 and 6.2.7.ii |
| Increased size of the final void and its function as a perpetual groundwater sink | Sections 3.3, 6.2.1.ii, 6.2.5.i, 6.2.5.iv and 6.2.5.v |
| Additional groundwater drawdown and potential impacts to groundwater dependent ecosystems | Sections 6.2.1.iii and 6.2.6 |
| Increased mine water discharges into the Hunter River | Section 6.2.1.1 |
| Cumulative impacts to the Hunter region | Sections 6.2.1.iv, 6.2.3.iii, 6.2.4.iii and 6.2.8.1 |
| Uncertainty surrounding flow-on public benefits | Sections 5.2.5, 6.2.7.i and 6.2.7.v |
| Increased greenhouse gas emissions | Section 6.2.2.iii |

Feedback from community members and government also highlighted that we need to better explain our mine design process, including the assessment of design options for the proposed modification, final void design process and overburden emplacement areas. Much of this work is done during early mine planning stages, and summarised in the EA. As we understand that our stakeholders are interested in understanding this process further, a detailed description is provided in Chapter 3 of this RTS.

2.1.2 Origin of submissions

As shown in Figure 2.2, a total of seven submissions were received from near neighbours (from a dataset of 221 identified near neighbour assessment locations) with a further seven from Singleton local government area (LGA). The distribution of the remaining submissions was:

- Newcastle LGA – five;
- Metropolitan Sydney – three;
- Maitland LGA – two;
- Muswellbrook LGA – two; and
- Central Coast LGA, Mid-Coast LGA and Mid-Western Regional LGA – one each.



Locations of submissions of objection
HVO South Modification 5
Response to submissions
Figure 2.2

2.2 Community feedback

During the public exhibition period Coal & Allied consulted with a range of stakeholders, particularly near neighbours, on the proposed modification. As outlined in Chapter 1 we hosted three community information sessions and a mine tour of HVO, and individually met with all neighbours interested in talking to us directly about the proposed modification. This enabled us to gather feedback about the issues most concerning the community and discuss opportunities to help manage and mitigate impacts.

At each of the community information sessions, community members were taken through the proposed modification and asked to provide feedback on the EA findings, proposed management and mitigation strategies and identify the importance of environment and community impacts.

The two concerns which were consistently raised as most important were dust/air quality and noise. Other issues raised included visual amenity; water quality particularly potential impacts on the Hunter River; changes to groundwater; and final landform including final void. We also received feedback applicable to our operations beyond the scope of the proposed modification, including improving our engagement strategies, local employment opportunities, and the need to build trust with our neighbours.

We recognise that not everyone will choose to make a public submission and therefore the feedback provided through these consultation activities has been included in preparing the RTS.

Furthermore, we appreciate those neighbours and community members who took the time to speak with us directly, and enable our team to fully understand their issues and concerns.

3 Project design and options analysis

Following feedback received through the submission process, the following sections provide further information on the design development and optimisation process, in particular the background to mining at HVO and its inherent constraints for mine planning, the design process undertaken and the key criterion for decision-making and explanation of the final void and overburden emplacement options considered.

3.1 Background

As described in Section 3.2.2 of the EA, the planned progression of mining is influenced by historical mining activities at HVO South. HVO South as it exists today has resulted from the amalgamation and extension of a number of separate mines. This was reflected by the numerous separate development consents that applied to HVO South (25 separate consents and 10 project modifications) that were consolidated under PA 06_0261.

As follows, a number of pits are mined concurrently at HVO South with each pit progressing extraction and emplacement in a particular direction assessed and approved in these separate development consents that were consolidated under PA 06_0261. The current (2016) directions of strip mining activities are shown within Figure 3.1. Due to the historical nature of amalgamation and extension, mining at HVO South occurs in a number of separate pits with different rates of advancement and subsequent rehabilitation.

The following sections describe the design considerations and optimisation processes Coal & Allied undertook in developing the proposed modification.

3.2 Design optimisation process

When designing the indicative mine plans for the proposed modification, HVO South underwent a mine plan review process which considered avoidance and minimisation of environmental and amenity impacts on surrounding sensitive receptors (primarily residences) as its guiding design principles.

Section 3.3 of the EA describes the opportunities and constraints analysis of conceptual mine plans undertaken by technical specialists for the proposed modification. The main objective of the analysis was to enable HVO to make informed decisions regarding the scope of mining activities to be addressed by the modification and for recommendations to be further considered in the mine planning process.

Specialists' recommendations formed the basis of a series of workshops between mine planners, approvals team and technical specialists to facilitate optimisation of the mine plan to avoid and minimise environmental and amenity impacts on surrounding properties, with particular focus given to noise, air quality and visual amenity. On completion of the preliminary final mine plan, technical specialists again reviewed the mine plans with consideration to potential impacts prior to their finalisation.



The extensive analysis resulted in considerable improvements in the mine plan design. To date, this design optimisation process has realised the following:

- no extension to approved mining disturbance areas and utilisation of the approved disturbance footprint by accessing the deeper coal seams;
- micro-relief incorporated into overburden emplacement area design with consideration given to sensitive residences to the west (Jerrys Plains) and east (Maison Dieu) as well as the Hunter Valley Gliding Club;
- 1. emplacement of the additional material within the Cheshunt emplacement area (and set back from the existing rehabilitated face) rather than in areas to the south which would have reduced views of the nearby Wollemi National Park for properties to the east of HVO South;
- 2. emplacement of material further north in the Cheshunt emplacement areas also results in reduced potential for noise and air quality impacts on properties to the east;
- mining strip alignment to minimise potential noise emissions received at Jerrys Plains;
- increased distance between the Hunter River and the proposed evaporative basin within the final void;
- minimisation of surface water catchment area draining to the final void; and
- reduction in the low-wall slope to increase post-mining land use options within the final void.

The analysis provided a platform for the later, detailed assessment of the key environmental matters contained within the EA.

3.3 Final void design principles and considerations

The following sections provide further information on the design process and considerations of the mine plan with respect to the final void, highwall and low-wall. Design considerations for overburden emplacement are presented in Section 3.4 which also relate to the final void options.

3.3.1 Background

Over time, progressive mine plan designs through the amalgamation and extension of a number of separate mines have enabled a single final void to be consolidated from an initial five separate final voids.

As stated in Sections 13.4 and 13.5 of the EA, a Final Void Management Plan and Mine Closure Plan will also be prepared in consultation with the relevant agencies at least five years prior to the completion of mining, as required by Conditions 37 and 38 Schedule 3 of the existing project approval (PA 06_0261), respectively.

Section 13.3.2 of the EA describes that the final void optimisation process considered the *Indicative Secretary's Environmental Assessment Requirements (SEARs) Guideline for State Significant Mining Developments* (DPE 2015a) and *Mine Application Guideline* (DPE 2015b). Further, in accordance with contemporary development consent conditions, the final void has been designed, where reasonable and feasible to:

- act as a groundwater sink and maximise groundwater flow across back-filled pits to the final void;
- minimise the size, depth, catchment and highwall instability; and
- have flood protection.

The outcomes of extensive review and analysis of the preliminary mine plans resulted in improvements in the mine plan design, particularly the final void including:

- increased distance between the Hunter River and the proposed evaporative basin in the final void;
- minimisation of surface water catchment area draining to the final void;
- reduction in surface area at the equilibrium level of the evaporative basin from 402ha to 349ha; and
- reduction in the low-wall slope angle to enable greater land use optionality within the final void.

The mine plan design was optimised to avoid and minimise impacts to surrounding receptors whilst remaining consistent with the objectives of relevant government policies, guidelines and contemporary conditions of approval as well as the currently approved mine plan.

Following extraction of coal from within the disturbance footprint, in-situ hard rock material is left in place as a safe and geotechnically stable highwall.

The final void design has been optimised within the scope of the current mine plan, assuming completion of mining at the end of the current approval period. It is recognised that the potential mine life for HVO, like many other mines in the Hunter Valley, extends beyond the current approval period, with a number of potential mine plan options.

Should future approval be sought to continue mining beyond 2030, extensive mine planning would be undertaken, and this would include review of and potential changes to design elements including the final void. Should the mine not progress beyond the current approval period, the final void would be as described.

3.3.2 Low-wall and highwall slope angles

It is acknowledged that the area of the proposed final void at natural surface level is larger than the approved final void. This is predominantly due to the gentler low-wall slope angle which enables micro-relief and, to a lesser extent, the deeper pit floor. The proposed final void, with a low-wall slope generally less than 10 degrees has an area of approximately 523ha from natural surface level of 70mAHD. This is compare to approved final void assessed by ERM (2008) has a low-wall slope of 14 to 18 degrees with an area of approximately 404ha from natural surface level of 70mAHD.

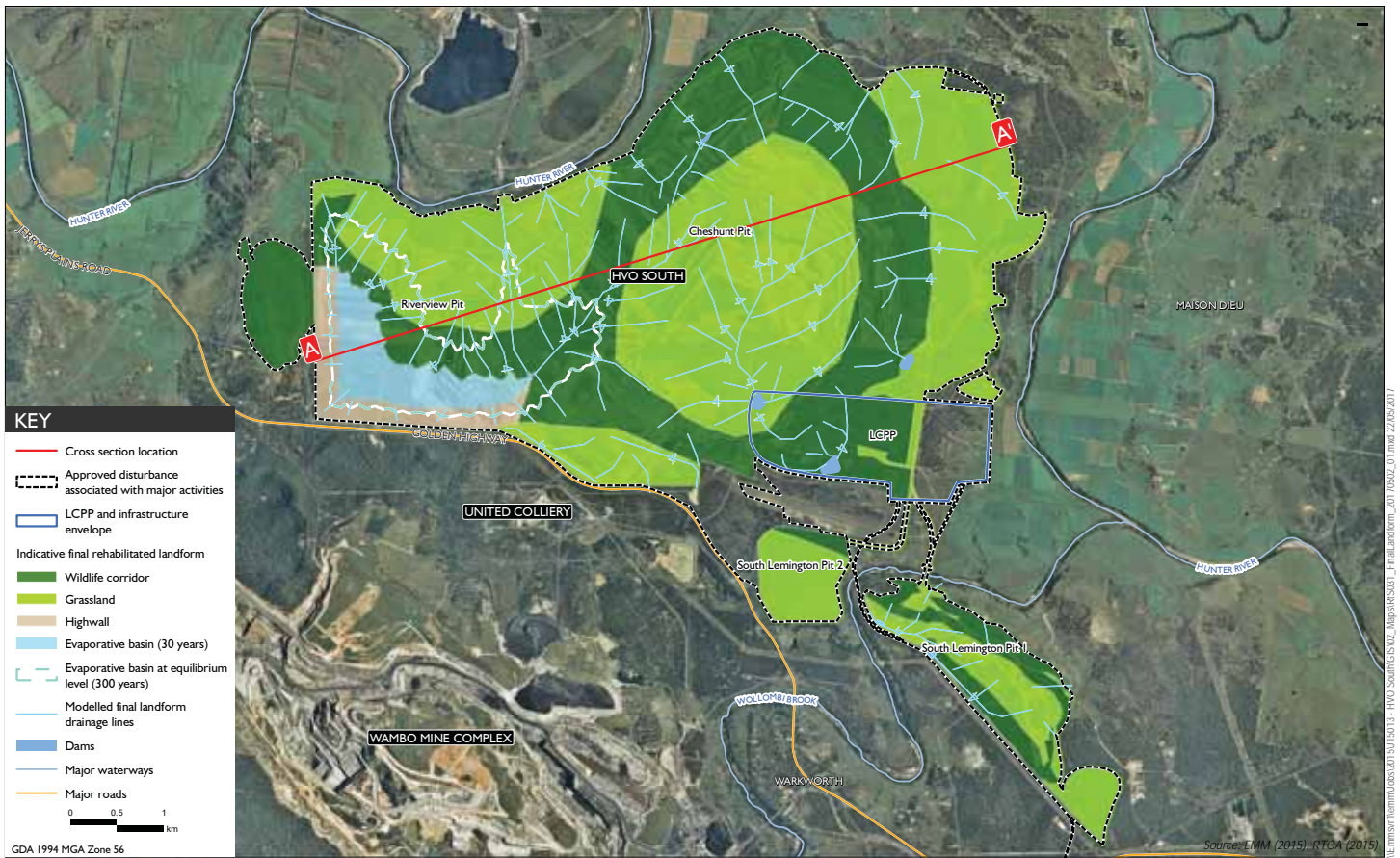
The overall angle of the highwall under the proposed modification is the same as the currently approved, which has an overall slope angle of 35 to 42 degrees with a maximum individual slope angle of 75 degrees.

Figure 3.2 shows the proposed indicative final landform and provides a cross-section location which is shown in Figure 3.3. Figure 3.3 provides both the stylised cross-section (originally shown in the EA as Figure 13.2) and a 1:1 scaled cross-section to represent the proposed indicative final landform. The 1:1 scaled cross-section provides additional context to the micro-relief and final void slope angles. It demonstrates the low-wall and highwall slope angles as well as the height/depth in context to the overall disturbance footprint.

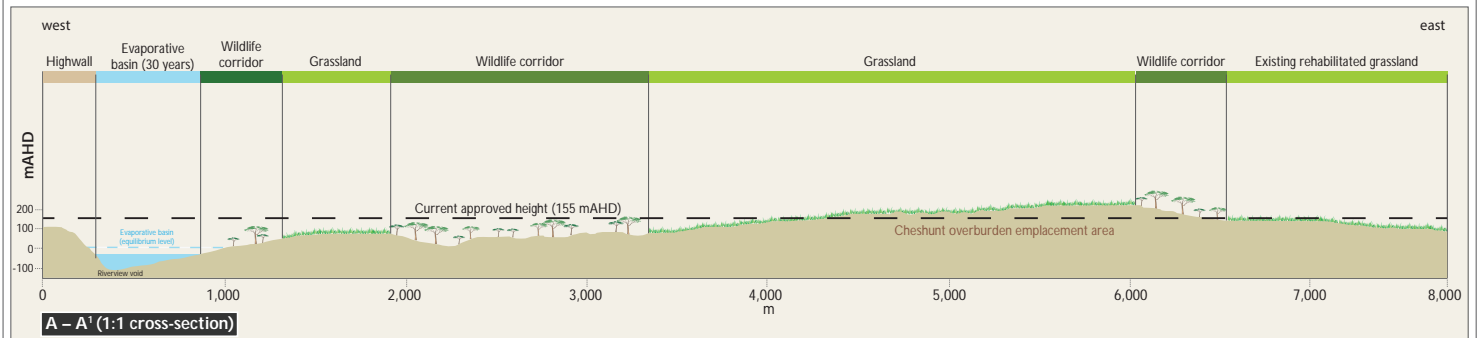
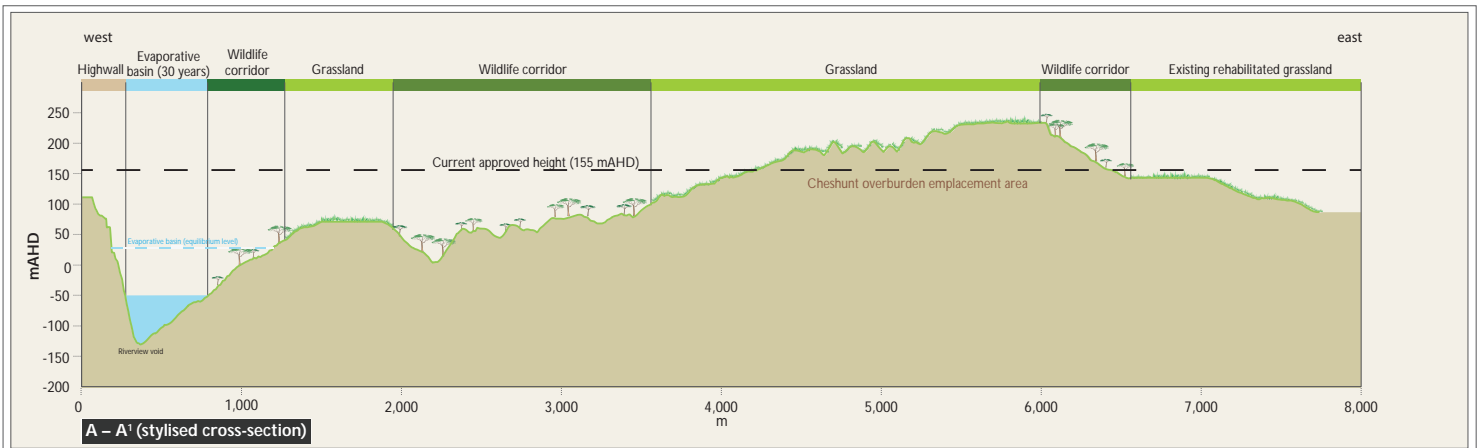
Further information regarding the final landform was also presented to the HVOCCC (shown in Appendix D of the EA). Coal & Allied presented additional cross-sections of the proposed final landform as well as the conceptual build of the Cheshunt overburden emplacement area.

In summary, the slope angles of the highwall under the proposed modification are consistent with those of the currently approved mine plan. Importantly, the design of the final void prioritised a reduction in overall slope angle for the low-wall in order to increase the area of useable land available for sustainable agricultural practices (consistent with the requirements of the *Synoptic Plan – Integrated Landscapes for Coal Mine Rehabilitation for the Hunter Valley of NSW* (the Synoptic Plan) (Department of Mineral Resources 1999)) in the short, medium and long-term.

This is described further in the following section.



Proposed indicative final landform and cross-section location
 HVO South Modification 5
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 Figure 3.2



| KEY | |
|--|------------------------------|
| ■ | Grassland |
| ■ | Wildlife corridor |
| ■ | Evaporative basin (30 years) |
| ■ | Highwall |

A – A' - Refer to Figure 3.2 of the RTS

3.3.3 Useable land

Useable area within the final void is land with slope less than or equal to 10 degrees. The useable area within the final void is intended to be available for agricultural practices consistent with the requirements of the Synoptic Plan (Department of Mineral Resources 1999).

The proposed modification's final void design has been optimised to maximise the useable land within the final void, improving post-mining outcomes. This is consistent with the approved design to meet the current approved final landform and land use objectives. The landform and land use is designed to meet the requirements of the Synoptic Plan (Department of Mineral Resources 1999) which aims to integrate biodiversity enhancement with sustainable agricultural practices.

As described in Chapter 13 of the EA, the slope of the low-wall has been substantially reduced from 14 to 18 degrees within the approved final landform generally less than 10 degrees under the proposed modification, enabling greater land use optionality. At the completion of mining, the proposed modification will provide approximately 400ha of useable land with a slope less than or equal to 10 degrees compared with 120ha under the current approval. The area of useable land reduces in the long-term as groundwater reaches equilibrium, however this design consideration allows for an increase of 150ha of useable land with a slope generally less than 10 degrees compared to the approved landform in perpetuity.

It is important to note that reductions to the maximum highwall slope angle have potential to encroach on and reduce the area of useable land within the final void. Design considerations and options to reduce the highwall slope angle and design constraints are discussed in the following section.

3.3.4 Highwall options and design constraints

As HVO has been operating since 1949, there are a number of existing operational constraints that heavily influence its mine plans. As a result, a number of pits are mined concurrently at HVO South with each pit progressing extraction and emplacement in a particular direction with different rates of advancement and subsequent rehabilitation assessed and approved in separate development consents consolidated under PA 06_0261. Figure 2.1 within this RTS displays the current directions of strip mining activities.

In addition to the aforementioned historical mining constraints, there are also significant infrastructure constraints (330kV transmission line and the Golden Highway) immediately to the south and west of the final void within Riverview Pit. This, in conjunction with the key design principles of avoiding and minimising environmental and amenity impacts on surrounding sensitive receptors, provided the framework for the development of the proposed mine plan to access the deeper coal seams.

This process enabled the final void to be further away from the Hunter River, comprise a reduced catchment area draining to the final void and achieve a reduction in the low-wall slope to enable greater land use optionality within the final void. The proposed mine plan also achieved the same overall highwall slope angles as the currently approved mine plan (overall 35 to 42 degrees and maximum individual 75 degrees angles) whilst accessing the deeper coal seams.

Opportunities for further refinement to the shape and angles of the highwall were investigated by mine planners. Immediately west and south of the existing Riverview Pit approved disturbance footprint are a 330kV transmission line and the Golden Highway (a major regional highway). Therefore, opportunities to further shape and reduce the slope angle of the highwall would need to be undertaken within the approved disturbance footprint to avoid additional significant closure cost to relocate affected infrastructure.

With these constraints identified, there are two primary techniques available to reduce maximum highwall slope angle; buttressing and blasting, which are briefly described below.

- Buttressing:
 - Overburden emplaced within the disturbance footprint is rehandled post-mining to fully buttress the insitu highwall.
 - The rehandled overburden material is generally removed from flatter areas as these areas are easier to access and more efficient to load and transport.
- Blasting:
 - At the completion of mining, the final highwall is drilled and blasted to form a batter slope angle of 37 degrees or shallower.
 - The space required to facilitate this method would require a combination of additional disturbance area and sterilisation of potential coal reserves.

In addition to these two methods, mine planners also investigated the potential to use a combination of the two, whereby blasting would be undertaken for the lower sections of the highwall and buttressing for the upper sections, in order to reduce additional disturbance and increase accessible reserves.

It is important to note that other operations, where maximum highwall slopes of 37 degrees have been proposed (eg Drayton South Coal Project), did not identify comparable constraints to the HVO South Project. Specifically, the adjacent infrastructure (Golden Highway and 330kV transmission lines) that constrain the operation's disturbance footprint, restrict blasting options, and significantly reduce vibration limits; increasing the difficulty and cost associated with additional and slope remediation. Further to this, the height of the highwall from crest to toe within the Drayton South Coal Project (150m) is significantly less than the proposed modification (275m), which would further increase the difficulty and cost.

Specifically:

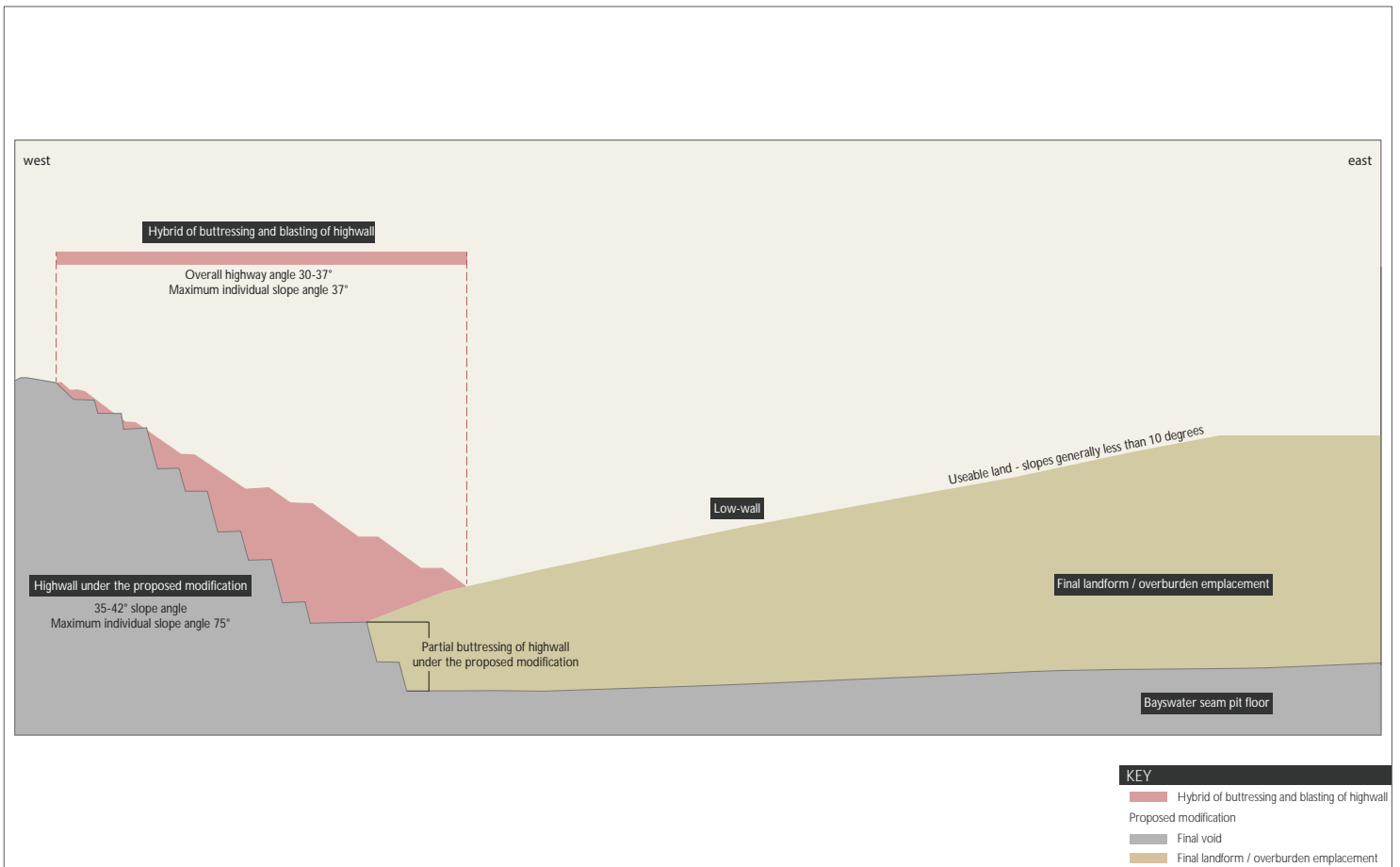
- Buttressing would require an additional eight years of activity post-mining to create a highwall angle of 37 degrees or less, which would result in increased noise and dust emissions and amenity impacts during this period. This method would also result in a larger surface catchment area draining to the final void and reduce the amount of useable land available in the short, medium and long-term as the overburden material to be used for buttressing would be taken from the flatter low-wall areas (reducing the area of land sloping at less than 10 degrees) by increasing the footprint of the steeper highwall). This method is expected to increase remediation costs by \$225 million.
- Blasting the highwall to create a slope of 37 degrees or less, would sterilise up to 15.8Mt of ROM coal reserves (due to infrastructure and disturbance constraints). Similar to buttressing the highwall, blasting the highwall would also reduce the amount of useable land available in the short, medium and long-term as the shallow sloped low-wall area would be reduced to accommodate the refined highwall angle. This method is expected to increase remediation costs by \$575 million (inclusive of the sterilised coal reserves).

- A hybrid of buttressing and blasting the highwall to an angle of 37 degrees or less would require an additional 6.5 years of activity post mining; continuing the noise and dust emissions and amenity impacts during this period. Similar to the buttressing or blasting, a combination of the two methods would result in a larger surface catchment area draining to the final void and reduce the amount of useable land available in the short, medium and long-term as the overburden material to be used for buttressing would be taken from the flatter low-wall areas (reducing the area of land sloping at less than 10 degrees; by increasing the footprint of the steeper highwall). This method is expected to increase remediation costs by \$292 million.

Figure 3.4 shows the highwall and final void under the proposed modification. This figure shows that the proposed modification already comprises a significant amount of buttressing above the pit floor and a number of safety benches on the exposed insitu highwall to achieve the desired overall 35 to 42 degree highwall slope angle, whilst also creating a gentler low-wall slope increasing the useable land available post-mining and reducing the surface catchment draining to the final void compared to the approved final landform.

It is considered that implementation of the available options to create a highwall of 37 degrees or less within the final void at Riverview Pit under the proposed modification is not viable due to the significant additional cost required to implement. Additionally, the increased noise, dust and visual amenity impacts on surrounding receptors and reduced final land use capability are inconsistent with the guiding design principles to avoid and minimise environmental impacts whilst maximising the areas available for post mining use.

In summary, the final void design under the proposed modification provides for considerable improvements compared to the approved final landform whilst ensuring the highwall is safe and stable.



3.4 Overburden emplacement areas

3.4.1 Design considerations for overburden emplacement

As noted in Section 3.2 of this RTS, a guiding principle of the preliminary mine plan design was the avoidance and minimisation of environmental and amenity impacts on surrounding sensitive receptors. This process considered the potential views of the overburden emplacement areas from surrounding properties, particularly those at Maison Dieu to the east, Jerrys Plains to the west and Camberwell to the north-east. This process established height thresholds for emplacement within the footprint where these areas became visible to sensitive receptors. During this process, consultation was undertaken with some residents regarding their existing and future views of HVO South overburden emplacement areas.

In addition to the proposed modification, five alternative options were designed to accommodate the additional volume of overburden material to access the deeper coal seams. These options also comprised different locations for the final void. These alternative overburden emplacement design options are shown in Figures 3.5 to 3.9 (along with the proposed modification shown in Figure 3.10) and are described below:

- Alternative design option #1 – comprised the majority of the overburden emplacement activity within a 504ha area of the Cheshunt overburden area with a proposed maximum height of approximately 225mAHD. The nearest sensitive receptors to the emplacement activities are those within Maison Dieu (approximately 3km to the east) and Camberwell (approximately 6km to the north-east). The final void would be within Riverview Pit, similar to the location under the proposed modification.
- Alternative design option #2 – comprised three main areas of overburden emplacement activity including a 217ha area of the Cheshunt overburden area (with a maximum height of 230mAHD), 129ha area of south-east Riverview overburden area (with a maximum height of 150mAHD) and a 36ha area of western Riverview overburden area (with a maximum height of 150mAHD). The nearest sensitive receptors to the emplacement activities are those within Maison Dieu, Warkworth (approximately 5km to the south), Camberwell and Jerrys Plains (approximately 10km to the west), respectively. The final void would be in a similar location to the current approved mine plan.
- Alternative design option #3 – comprised the majority of overburden emplacement activity within Cheshunt and Riverview overburden areas (total area of 999ha with a maximum height of 225mAHD) towards the Hunter River. The nearest sensitive receptors to the emplacement activities are those within Maison Dieu, Camberwell and Jerrys Plains. The final void would be within the south-eastern part of Riverview Pit.
- Alternative design option #4 – comprised two main areas of overburden emplacement activity within 289ha of Cheshunt overburden area (with a maximum height of 250mAHD) and 464ha of Riverview overburden area (with a maximum height of 230mAHD). The Riverview overburden area would extend beyond the existing approved disturbance footprint and beyond the now-rehabilitated Western Out-of-Pit emplacement area. The nearest sensitive receptors to the emplacement activities are those within Maison Dieu, Camberwell and Jerrys Plains. The final void would be within the south-eastern part of Riverview Pit and Cheshunt Pit.

- Alternative design option #5 – comprised three main areas of overburden emplacement activity including a 296ha area of the Cheshunt overburden area (with a maximum height of 225mAHD), 254ha area of Riverview overburden area (with a maximum height of 225mAHD) and a 40ha area of South Lemington Pit 2 overburden area (with a maximum height of 225mAHD). The nearest sensitive receptors to the emplacement activities are those within Maison Dieu, Warkworth and Jerrys Plains, respectively. The final void would be in a similar location to the current approved mine plan.
- The preferred option developed for the proposed modification focussed overburden emplacement activities with the northern areas of the Cheshunt overburden area comprising an area of 417ha and a maximum height of 238mAHD. The nearest sensitive receptors to the emplacement activities are those within Maison Dieu and south of Camberwell village. The final void is within the south-western corner of Riverview Pit.

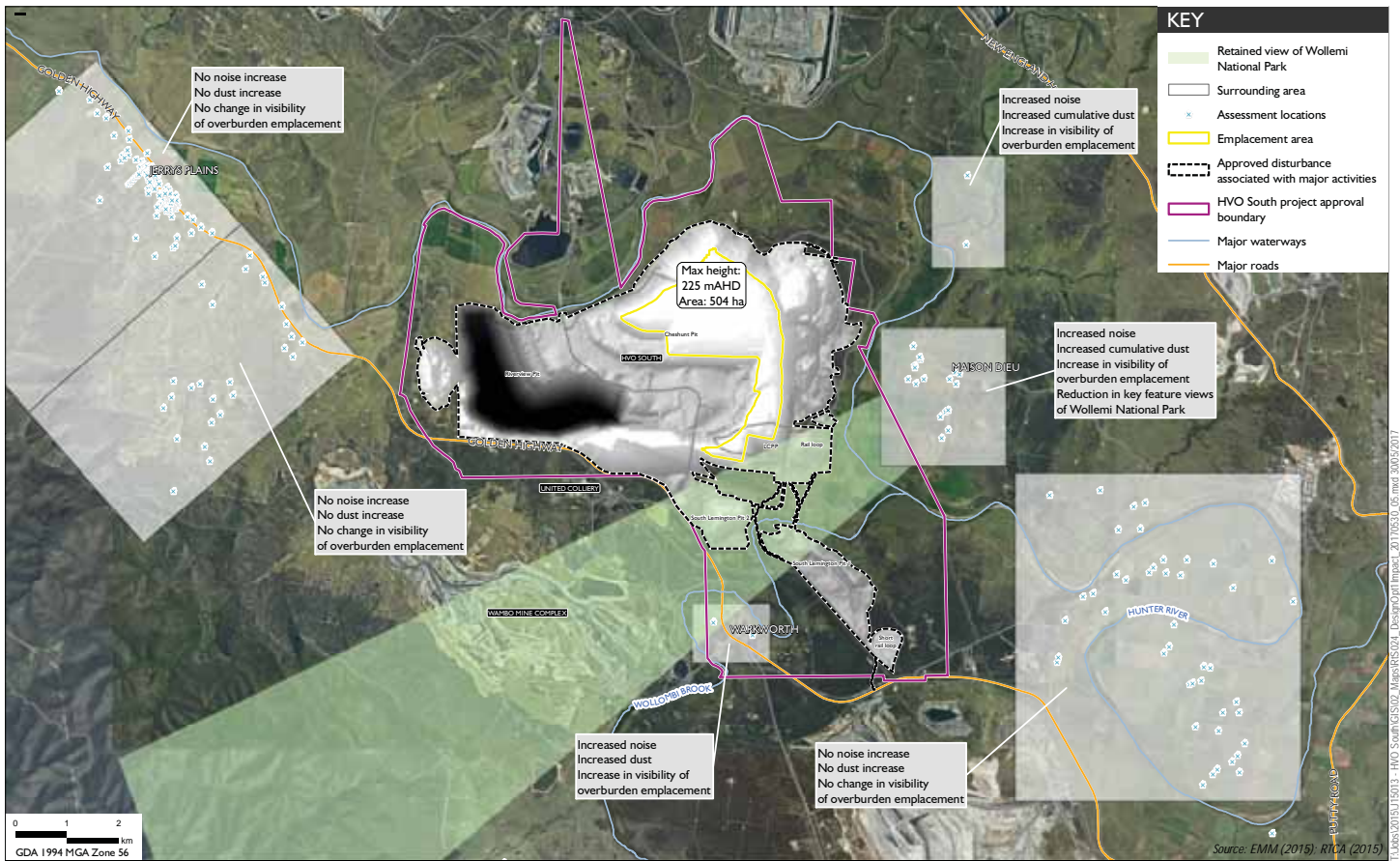
Figures 3.5 to 3.10 demonstrate the high level analysis undertaken for each available design option with key principles of avoiding and minimising environmental and amenity impacts for surrounding receptors. The outcomes of this analysis are provided in Table 3.2.

Table 3.1 High level analysis of overburden emplacement design options to surrounding receptors

| Matter | Design #1 (Figure 2.5) | Design #2 (Figure 2.6) | Design #3 (Figure 2.7) | Design #4 (Figure 2.8) | Design #5 (Figure 2.9) | Proposed modification (Figure 2.10) |
|--|---|---|---|---|---|---|
| <i>Visual</i> | | | | | | |
| Retained view of Wollemi National Park | Views retained for southern half of Maison Dieu sensitive receptors | Views retained for majority of Maison Dieu sensitive receptors | Views retained for southern half of Maison Dieu sensitive receptors | Views retained for southern half of Maison Dieu sensitive receptors | Views retained for small southern area of Maison Dieu sensitive receptors | Views retained for all Maison Dieu sensitive receptors |
| Visibility of overburden emplacement areas | Visible to sensitive receptors within: <ul style="list-style-type: none"> • south of Camberwell village • Maison Dieu • Warkworth village • | Visible to sensitive receptors within: <ul style="list-style-type: none"> • south of Camberwell village • Maison Dieu • north of Jerrys Plains village • south of Jerrys Plains village | Visible to sensitive receptors within: <ul style="list-style-type: none"> • south of Camberwell village • Maison Dieu • north of Jerrys Plains village • south of Jerrys Plains village | Visible to sensitive receptors within: <ul style="list-style-type: none"> • south of Camberwell village • Maison Dieu • north of Jerrys Plains village • south of Jerrys Plains village | Visible to sensitive receptors within: <ul style="list-style-type: none"> • south of Camberwell village • Maison Dieu • north of Jerrys Plains village • south of Jerrys Plains village • Long Point • Warkworth village • | Visible to sensitive receptors within: <ul style="list-style-type: none"> • south of Camberwell village • Maison Dieu • south of Jerrys Plains village |
| <i>Dust</i> | | | | | | |
| Likely increase in dust given proximity to sensitive receptors | Likely increase in dust for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • Warkworth village • south of Camberwell village | Likely increase in dust for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • south of Camberwell village • north of Jerrys Plains village • south of Jerrys Plains village • Warkworth village | Likely increase in dust for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • south of Camberwell village • north of Jerrys Plains village • south of Jerrys Plains village • Warkworth village | Likely increase in dust for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • south of Camberwell village • north of Jerrys Plains village • south of Jerrys Plains village • Warkworth village | Likely increase in dust for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • Warkworth village • south of Camberwell village • north of Jerrys Plains village • south of Jerrys Plains village | Possible increase in dust for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • south of Camberwell village |

Table 3.1 High level analysis of overburden emplacement design options to surrounding receptors

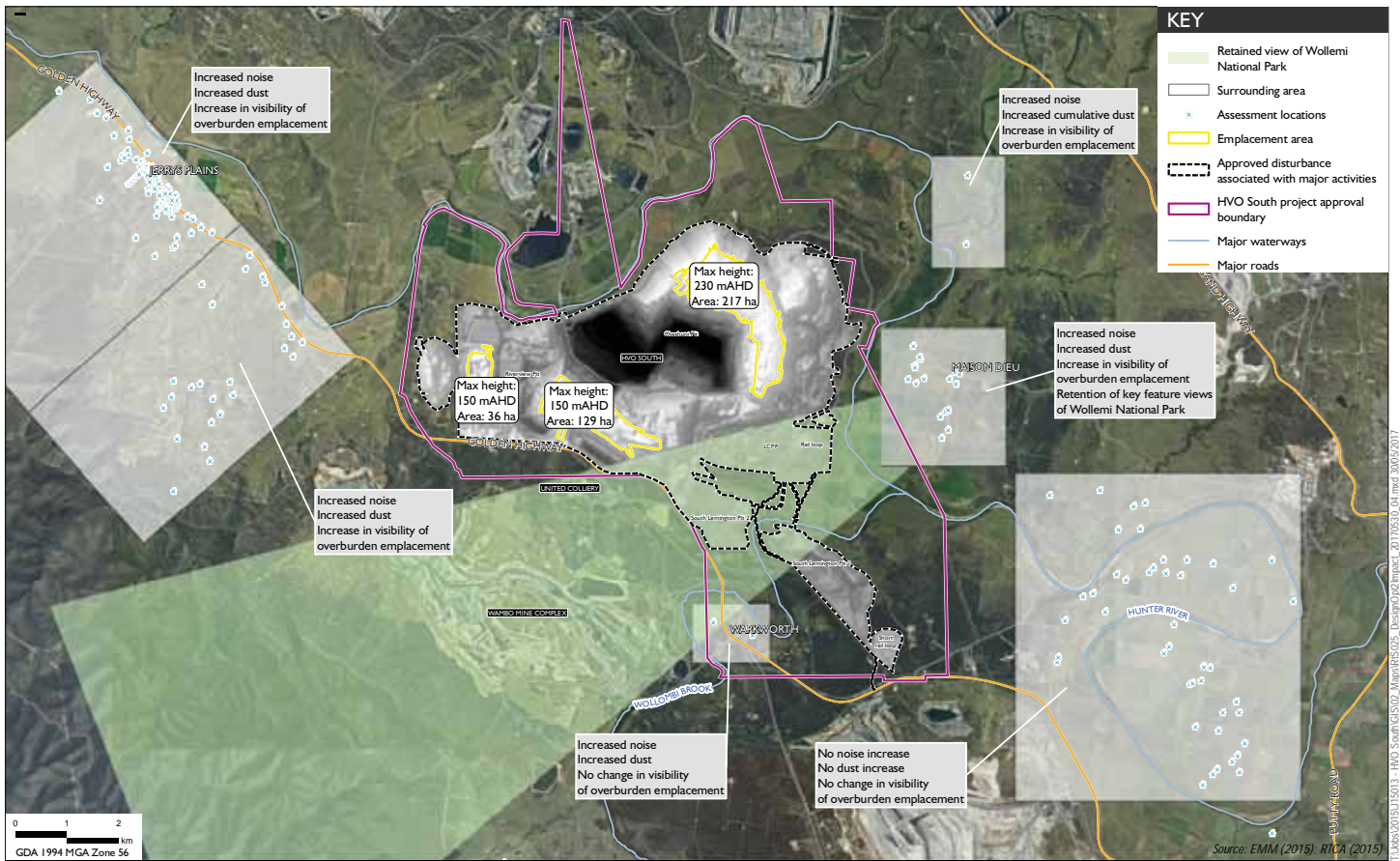
| Matter | Design #1 (Figure 2.5) | Design #2 (Figure 2.6) | Design #3 (Figure 2.7) | Design #4 (Figure 2.8) | Design #5 (Figure 2.9) | Proposed modification (Figure 2.10) |
|---|--|--|--|--|--|---|
| | | | | | <ul style="list-style-type: none"> • Long Point | |
| <i>Noise</i> | | | | | | |
| Likely increase in noise given proximity to sensitive receptors | Likely increase in noise for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • Warkworth village • south of Camberwell village | Likely increase in noise for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • south of Camberwell village • north of Jerrys Plains village • south of Jerrys Plains village • Warkworth village | Likely increase in noise for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • south of Camberwell village • north of Jerrys Plains village • south of Jerrys Plains village • Warkworth village | Likely increase in noise for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • south of Camberwell village • north of Jerrys Plains village • south of Jerrys Plains village • Warkworth village | Likely increase in noise for sensitive receptors within: <ul style="list-style-type: none"> • Maison Dieu • Warkworth village • south of Camberwell village • north of Jerrys Plains village • south of Jerrys Plains village • Long Point | Likely increase in noise for sensitive receptors within Maison Dieu <ul style="list-style-type: none"> • |



Overburden emplacement area design high level analysis - option #1

HVO South Modification 5
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Figure 3.5

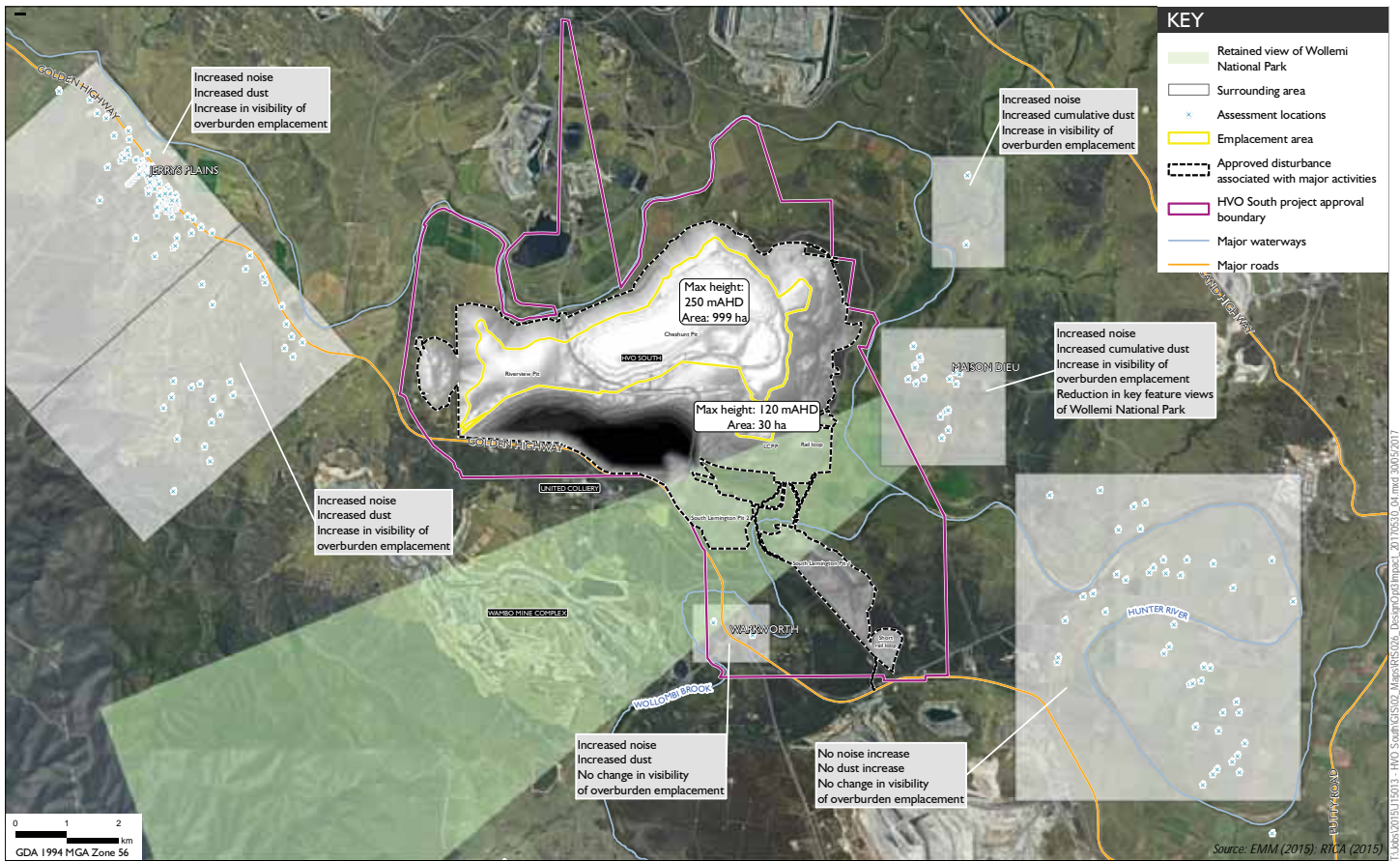


Overburden emplacement area design high level analysis - option #2

HVO South Modification 5

Response to submissions

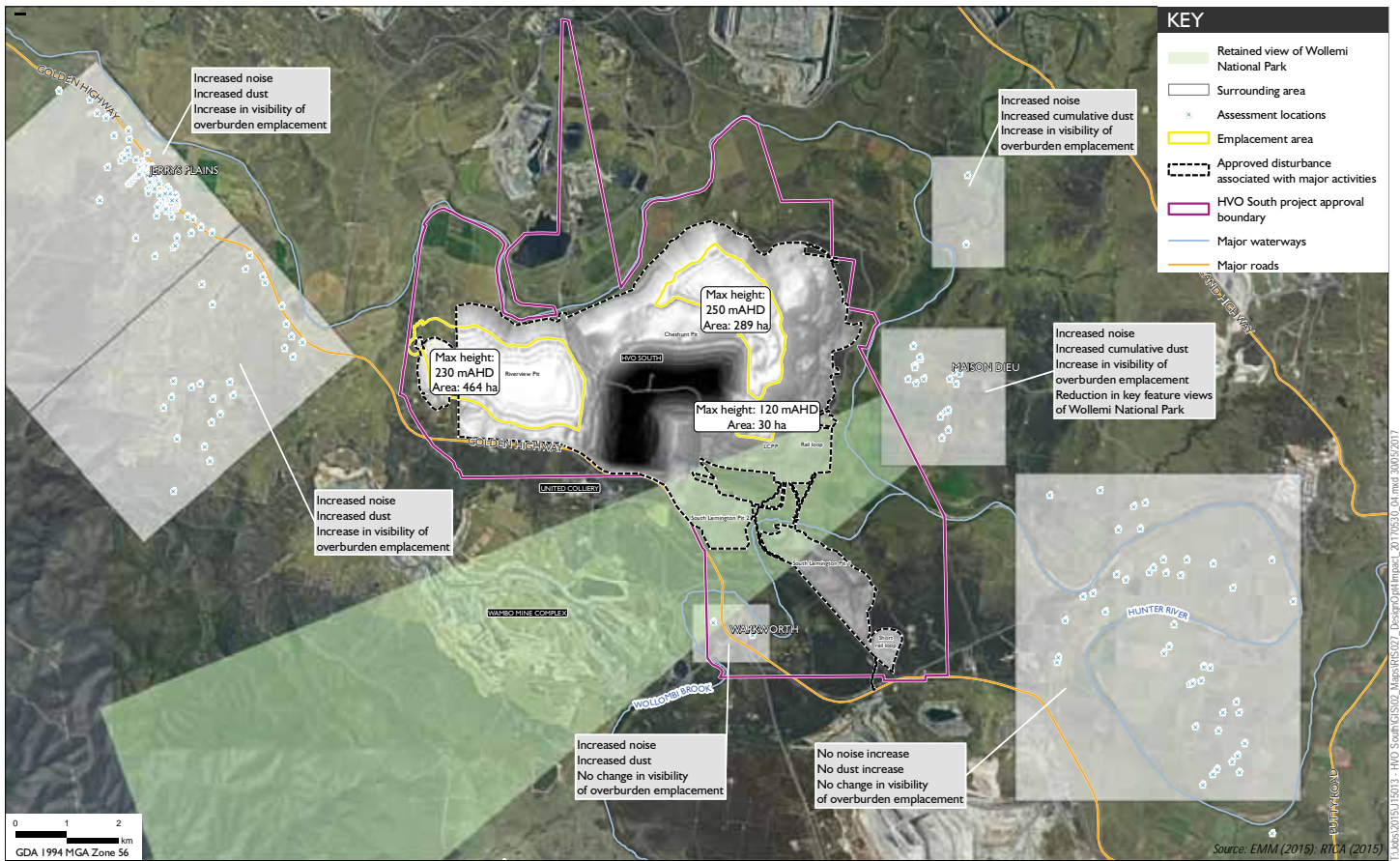
Figure 3.6



Overburden emplacement area design high level analysis - option #3

HVO South Modification 5
Response to submissions

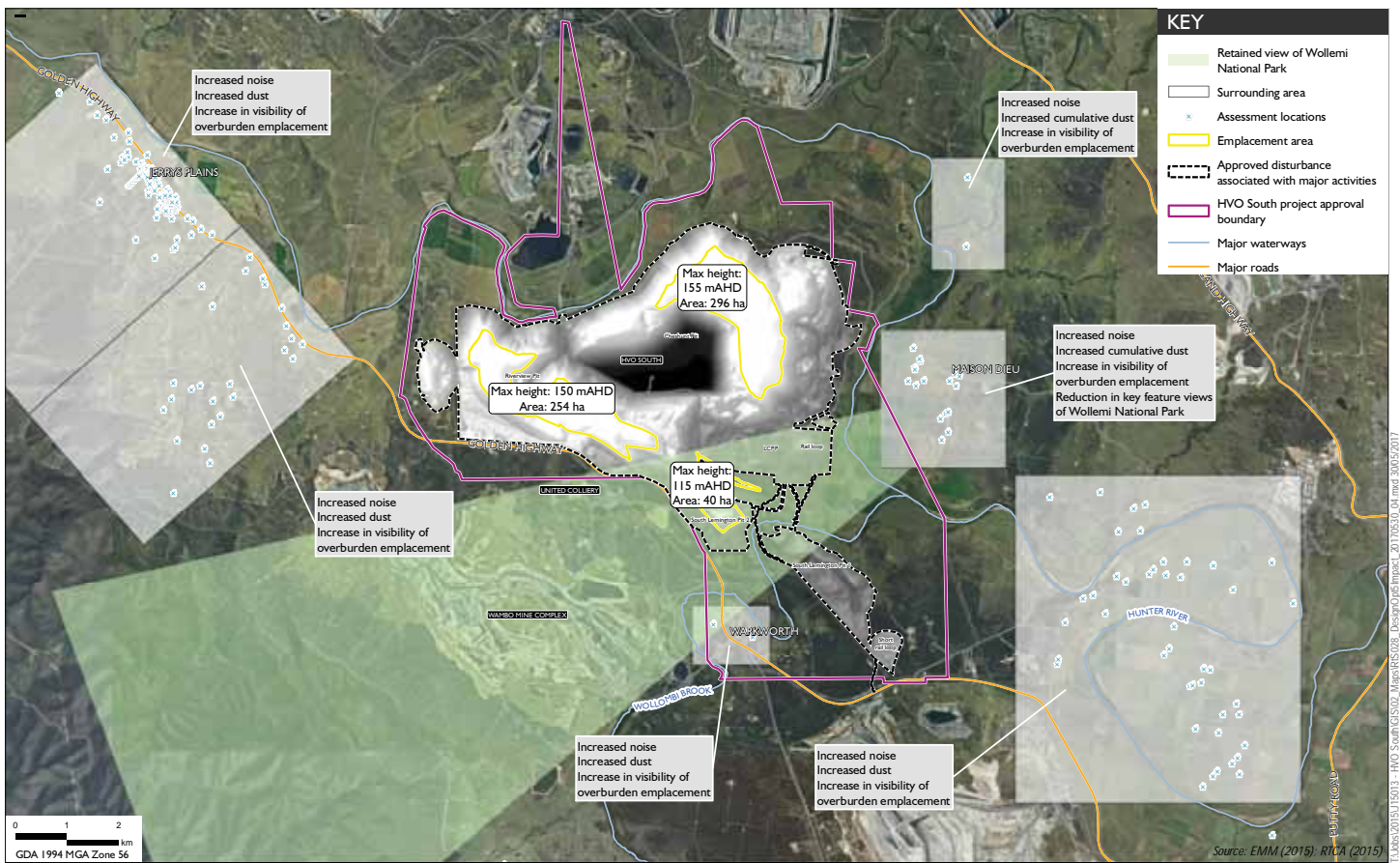
Figure 3.7



Overburden emplacement area design high level analysis - option #4

HVO South Modification 5
Response to submissions

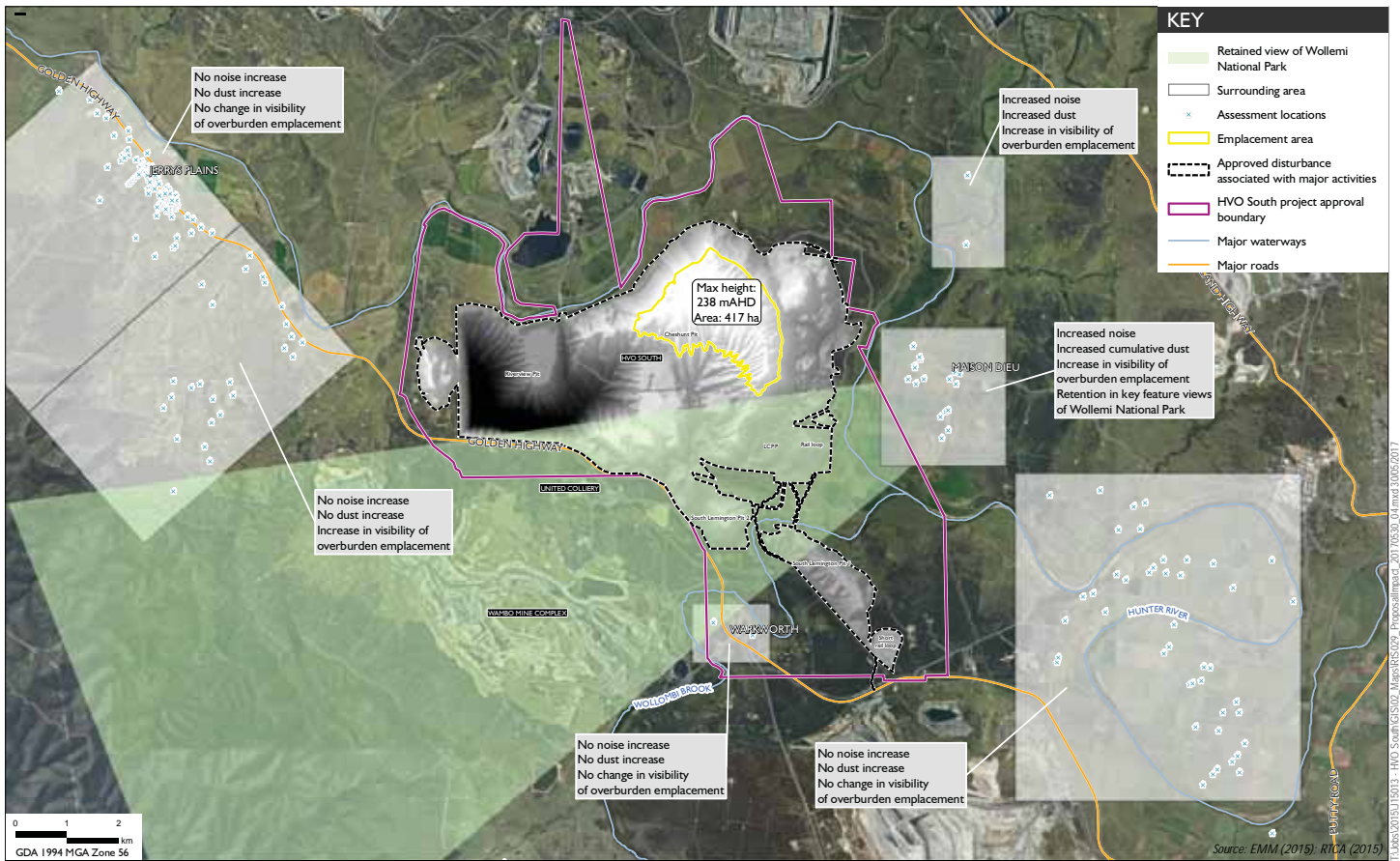
Figure 3.8



Overburden emplacement area design high level analysis - option #5

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Figure 3.9



Overburden emplacement area design high level analysis - proposed modification

HVO South Modification 5

Response to submissions

Figure 3.10

Overall, the preliminary noise, dust and visibility analysis of alternative overburden emplacement options #1 to #5 determined that these available options were unsuitable, primarily due to potential significant noise and dust impacts on surrounding receptors in Maison Dieu to the east and Jerrys Plains village to the west. These options also did not provide for greater preservation of existing key landscape views of Wollemi National Park which have been highlighted as particularly important by residents east of HVO South in Maison Dieu.

This analysis indicates that the proposed modification represents a balance of the visibility of the overburden emplacement areas (predominantly to the east) and minor increases in noise and dust emissions to surrounding receptors able to be managed through existing management measures and processes implemented at HVO South.

4 Near neighbour feedback and submissions

4.1 Introduction

HVO's near neighbours, businesses and groups in the communities of Maison Dieu, Jerrys Plains, Camberwell, Long Point and the rural surrounds are most important stakeholders for our mine. They see firsthand how we manage and operate our mine and often experience the greatest amenity impacts of mining.

During the proposed modification we have communicated with over 100 near neighbour residents through written updates, individual meetings, community BBQ events and a mine tour. As outlined in Chapter 1, we continue to encourage our near neighbours to contact us with any questions or issues.

As previously noted and shown in Figure 2.1, seven submissions from the 221 near-neighbour assessment locations and a further seven from the broader Singleton LGA were received regarding the proposed modification.

However, we know this does not mean our other neighbours have no issues and concerns. We appreciate the many neighbours who have provided feedback directly to Coal & Allied, and this has been similarly considered in preparing this RTS.

In collating all feedback we have identified a number of key themes concerning our neighbours, as shown in Figure 4.1 below. Our neighbours tell us that noise and dust are their greatest concerns, and to a lesser extent visual amenity and landform.

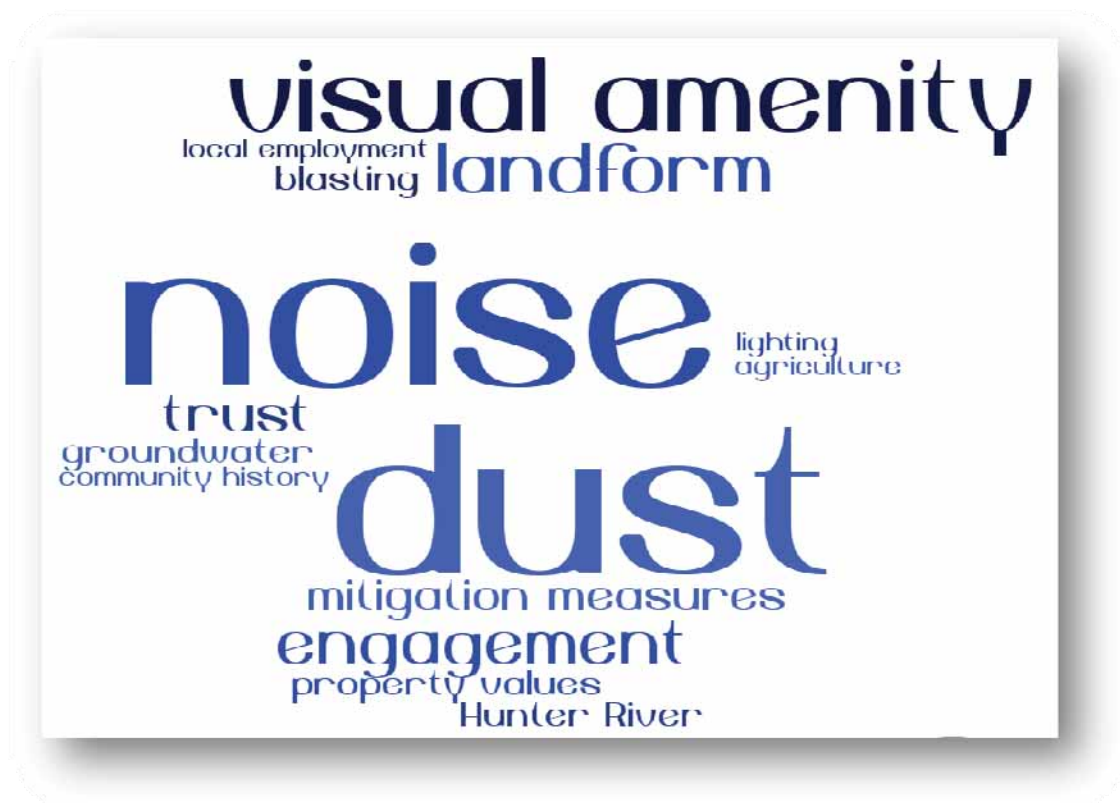


Figure 4.1 Key themes and concerns of HVO near neighbours

We will keep working with our neighbours on these matters, and a summary of relevant information is included in the following section.

Community members also spoke to us about our engagement and trustworthiness as a neighbour. HVO has taken this feedback onboard, and we know that continued stakeholder feedback will help us know if we are improving in these areas.

4.2 Response to key issues

4.2.1 Air quality and dust impacts

A number of near neighbours have raised concerns about air quality, specifically levels of dust and the impact of this on their houses, drinking water quality and agricultural businesses.

Air quality is described in detail in Chapter 8 of the EA with a technical study provided in Appendix F. This demonstrates that, compared with existing emissions, the proposed modification's emissions would be of a generally similar extent for 24 hour and annual average PM₁₀.

- The proposed modification will move more dust-generating material than the existing operations due to the additional overburden emplacement activities and increased mining rate, however it is important to note that there would not generally be an equivalent increase in dust impacts. For example, some receptors will experience less impact as the mine moves further away or activity moves deeper below the surface to access the deeper seams.

The modelling within the air quality study (Appendix F of the EA) shows that the proposed modification will satisfy the Mining SEPP non-discretionary standards for the privately owned dwellings which are not already entitled to acquisition from neighbouring mines.

However, while modelling results satisfy the Mining SEPP non-discretionary standard and indicate that the mine will operate within compliance requirements, HVO South is a large operation and even low levels of dust may affect the amenity of our closest neighbours. We want to help reduce the negative effects of HVO South's presence where possible.

HVO will continue to implement its *Air Quality and Greenhouse Gas Management Plan for Hunter Valley Operations* (Rio Tinto Coal Australia 2014) to ensure that dust generating activities will minimise dust generation and resultant off-site effects to surrounding receivers. Measures include the use of water carts to manage wheel-generated dust, altered or reduced operations in periods of high winds, use of lower/more protected overburden emplacement locations during adverse weather conditions and use of meteorological forecasting to guide mining operations.

In March 2017, HVO South initiated a Near Neighbour Amenity Resource Fund. Based on feedback from neighbours, this fund is currently providing free drinking water tank cleaning for neighbours in the areas of Long Point, Maison Dieu and Jerrys Plains. We are keen to keep talking with our neighbours and understand if there are other practical activities we could consider to help address their concerns relating to dust and air quality.

Coal & Allied is exploring other mitigation and management measures to implement during emplacement construction, based on feedback from our near neighbours. Measures being considered include development of a specific environmental management plan during emplacement construction and supplementary environmental monitoring within the Maison Dieu area.

4.2.2 Noise and vibration

i Noise impacts, including cumulative impacts

Noise is a key theme in feedback from our neighbours. Concerns include current levels of noise experienced, how this impacts on lifestyle, and potential for increased noise as a result of the proposed modification. Some neighbours have also provided feedback about existing noise mitigation measures, and the ongoing adequacy of these under the proposed modification.

The noise study prepared for the proposed modification (see Section 7 of the EA and associated technical study in Appendix E) demonstrates that the proposed modification will result in lower noise contribution at Maison Dieu residences, which reduces further as it progresses from Stage 1 to Stage 4 (ie westward and away from these properties). Noise to the west assessment locations (ie Jerrys Plains Road) is predicted to marginally increase. While levels are not significantly different to the current approved operations, we will continue to try to minimise noise experienced through actions such as operational management during adverse weather.

HVO is just one mine operating in the region, and our neighbours have raised understandable concerns about cumulative noise impacts. The EA considered these cumulative effects and found that the modification is not predicted to materially alter the cumulative noise given the contributions effects described above.

However, while noise levels are not predicted to significantly increase beyond current emissions (and in some cases levels are expected to decrease) and modelling shows that operations will meet requirements of the INP and Mining SEPP non-discretionary standards. Coal & Allied realises that our neighbours may perceive even low levels of noise to be a nuisance.

We will continue to seek feedback from our neighbours and identify if there are other practical ways assistance could be provided in reducing noise concerns. HVO is also exploring options for voluntary noise mitigation for identified properties. Following feedback from our neighbours Coal & Allied is exploring other mitigation and management measures to implement during emplacement construction. For example, HVO plans to supplement its noise monitoring programme with additional attended monitoring in the Maison Dieu area. This will increase verification of the effectiveness of HVO's site based operational controls for noise while the emplacement is being constructed.

Community members raised concerns about impacts during this period, and reflected on experienced during previous emplacement development periods. Measures being considered include development of a specific environmental management during emplacement construction and supplementary environmental monitoring within the Maison Dieu area.

ii Increase in blasting impacts

A number of neighbours have discussed blasting and vibration with Coal & Allied. One submission raised concerns about effects at their property due to blasting activities at HVO South from 1998 to 2015.

Coal & Allied recognises that blasting, which is essential to mining, can be a nuisance or concern to the community. Blasting activities are managed under blasting procedures in HVO's Blast Management Plan (BMP) HVO-10-ENVMP-SITE-E6-004.

We continue to take all blasting and vibration complaints seriously, and conduct detailed assessment of potential ground vibration damage due to the operations with independent reports for neighbours within the notification radius of 2km. We will also look at how we can help reduce issues associated with vibration as part of other property mitigation works.

4.2.3 Visual amenity and landform

i Landform

Neighbours have spoken with Coal & Allied about changes to their views and visual amenity, particularly associated with overburden emplacement.

As a number of neighbours noted both through submissions and in discussions with Coal & Allied, the proposed modification will introduce an increase in the elevation of parts of the currently approved final landforms. In the short-term, this would also result in an increase in the exposure time in some areas to establish the increased elevations. As reiterated through submissions, some residences will observe higher overburden emplacements of up to approximately 240mAHD in some areas.

Coal & Allied acknowledges these concerns which reaffirm feedback from the community early in the process. We also appreciate feedback from our neighbours about the visual features that are most important to them, such as views to the Wollemi Ranges.

Visual amenity has formed a key design criterion for the modification, as outlined in Chapter 3 of this RTS. The design and options analysis process considered the potential views of overburden emplacement areas from surrounding residences, particularly those at Maison Dieu to the east and Jerrys Plains to the west. Based on feedback from neighbours, preservation of existing views of dominant natural features within the visual catchment, such as the Wollemi National Park, was a key principle. During the options analysis process, consultation was undertaken with some affected residents regarding their existing and future views of HVO South overburden emplacement areas. Photomontages were prepared to demonstrate the potential changes to the viewshed at locations surrounding HVO South.

Unfortunately, it was not possible to eliminate visual changes for all surrounding neighbours. Of the six options considered, and as shown in Figures 3.5 to 3.10, the proposed modification offered a balance between disposing the additional volume of overburden material within the constraints of the existing approved footprint of disturbance while minimising visual impacts on near neighbours.

We recognise that some neighbours may be concerned by the changes they will experience, and we will continue speaking with individual property owners about ways we can reduce the impacts they experience. A detailed rehabilitation plan will be developed and communicated to near neighbours describing how and when emplacements will be progressively constructed and rehabilitated including the landform design.

ii Lighting

Lighting is a concern primarily of residents immediately surrounding a mine site. HVO, as a 24-hour operation, requires significant lighting, and sometimes the placement of lighting can be a nuisance for near neighbours.

To minimise this nuisance, HVO implements a number of visual and lighting management procedures in accordance with the existing project approval (PA 06_0261), the approved Rio Tinto Coal Australia's accredited ISO 14001 EMS which forms part of the Health, Safety, Environment and Quality (HSEQ) Management System, relevant plans, procedures and monitoring programmes. One tool available for neighbours is the 24-hour complaints hotline. When lighting complaints are received via this method, operational staff are able to identify the concerning light tower, and look at options to relocate it or adjust lighting.

4.3 Hunter Valley Gliding Club

4.3.1 Introduction

The Hunter Valley Gliding Club owns a parcel of land within the HVO South project approval boundary. The land has been used as a gliding club since the mid-1960s. As noted in their submission, the Hunter Valley Gliding Club is used by its members every weekend as well as for two-week periods at different points during the year. We thank the Hunter Valley Gliding Club for providing this information, which was incorrectly represented in the EA.

Coal & Allied and the Hunter Valley Gliding Club have an existing agreement. The agreement acts as a negotiated noise agreement and a negotiated air quality agreement in accordance with Conditions 2 and 19 of the existing project approval (PA 06_0261), respectively. The agreement is supported by an Amenity Management Plan, prepared in accordance with Condition 49 of the existing project approval (PA 06_0261).

The Amenity Management Plan outlines the management and monitoring measures and notification procedures to manage potential impacts on the use of the facilities by members of the Hunter Valley Gliding Club.

Coal & Allied welcomes the submission prepared by the Hunter Valley Gliding Club regarding the proposed modification. Coal & Allied recognises the Hunter Valley Gliding Club as an important stakeholder and commenced additional consultation to build on its existing relationship to work through the matters raised in its submission. Coal & Allied met with the Hunter Valley Gliding Club on 5 May 2017 to discuss their submission and these discussions remain ongoing. A summary and an initial response to the Hunter Valley Gliding Club submission are provided below.

4.3.2 Dust generation

The Hunter Valley Gliding Club submission noted that it had not been identified as a sensitive receptor in the EA, and noted that it has not been afforded acquisition rights by any mining operation. On this basis, Hunter Valley Gliding Club disagreed with the conclusions in the EA that no additional private dwellings are impacted that are not already afforded acquisition rights.

The Hunter Valley Gliding Club noted its concern about the potential health impact to its members, requesting that modelling results for Hunter Valley Gliding Club as a sensitive receptor should be provided to enable consideration of health impacts to members and allow informed decisions about mitigation and management.

Coal & Allied recognises the Hunter Valley Gliding Club as a near neighbour. In response to its submission, we have updated the air quality modelling results in Figure 8.2 and Figure 8.3 of the EA to show the location of the Hunter Valley Gliding Club. These updated figures are included in Figures 4.2 and 4.3 of this RTS and have been provided to representatives of the Hunter Valley Gliding Club.

In regard to air quality and overall health, by far the most dominant determining factor is the annual average PM_{2.5} level that the individual is exposed to. A person's exposure will be largely affected by the air quality where the individual spends most of their time, such as at home or work and it may be useful to note that for coal mines, PM_{2.5} is a relatively low subset, generally less than 5 per cent, of the total dust generated.

It is anticipated that members of the Hunter Valley Gliding Club participating in events at the airstrip would be for a short period in any year when the club hosts events. For these reasons, comparing the maximum predicted levels at the Hunter Valley Gliding Club airstrip with the impact assessment criteria will not be especially informative or indicative of any member's individual health effects due to the proposed modification.

Dust modelling results for the proposed modification show that Stage 3 has greater impacts at Warkworth village, which is likely due to greater levels of mining activity nearby Warkworth and hence the Hunter Valley Gliding Club. This scenario is thus selected for closer evaluation and comparison with the available data.

The 'uncontrolled' annual average PM_{2.5} dust level near the Hunter Valley Gliding Club hangar due to the proposed modification is predicted to be 8.5µg/m³. This is not a particularly high level given the close proximity of the activities, and will vary up and down day to day, and due to the mitigation controls put in place by the mine when the club operates. By way of comparison, over the last six years (2011-2016) ambient annual average PM_{2.5} levels in Muswellbrook and Singleton are approximately 9.2 and 7.8µg/m³, and in the three months over winter time are 13.2 and 9.3 µg/m³, respectively.

It is important to note that the results are for 'uncontrolled' emissions, and do not show the reduced dust levels that would be achieved by using the approved dust mitigation controls, such as curbing dusty activities that may be causing undue impact on the glider club during a scheduled club day as outlined in the Amenity Management Plan.

The Amenity Management Plan forms part of an agreement between Coal & Allied and the Hunter Valley Gliding Club that documents the management measures and notification procedures to be implemented when HVO South are in proximity to the Hunter Valley Gliding Club and will continue to be used for the proposed modification.

4.3.3 Noise impacts

The Hunter Valley Gliding Club submission identified concerns that it has not been modelled as a receptor for the proposed modification. As a result, predicted noise levels at this location are not provided within the noise and vibration study and therefore impacts are not able to be accurately assessed by the group. Hunter Valley Gliding Club requested noise modelling be carried out to understand the potential impacts due to the proposed modification.

In response to this request Coal & Allied has updated the noise modelling results in Figure 7.1 of the EA to show the location of the Hunter Valley Gliding Club. The updated figure is included in Figure 4.4 of this RTS and has been provided to the Hunter Valley Gliding Club for their information.

The predicted noise levels for the Hunter Valley Gliding Club are provided below:

- Stage 1 – 36 to 43 dB LAeq,15min
- Stage 2 – 52 to 53 dB LAeq,15min
- Stage 3 –49 to 50 dB LAeq,15min
- Stage 4 –48 to 49 dB LAeq,15min

The existing Amenity Management Plan applicable to the Hunter Valley Gliding Club was prepared in accordance with Conditions 47 to 49 of Schedule 3 of the project approval (PA 06_0261), including the noise criteria of 55 dB L_{Aeq,15min} at the club building and surrounds. The modelled results are below this level.

Notwithstanding this, the Amenity Management Plan forms part of an agreement between Coal & Allied and the Hunter Valley Gliding Club. The Amenity Management Plan documents the management measures and notification procedures to be implemented when HVO South are in proximity to the Hunter Valley Gliding Club and will continue to be used for the proposed modification. As mentioned above, discussions remain ongoing with the Hunter Valley Glider Club to implement the current Amenity Management Plan and consider any other matters identified by the Club relating to current and future operations.

4.3.4 Aviation hazards

The Hunter Valley Gliding Club submission raised concern that the increased height of the landform may pose an aviation hazard for its members.

Coal & Allied recognises these concerns and confirms that safety of people is our overriding priority.

The Amenity Management Plan provides a good framework for ensuring the safety of people within the obstacle limitation surface (OLS). The Amenity Management Plan meets the requirements of Condition 47 of the existing project approval (PA 06_0261), in particular the interaction of mining and the useable length of the runway, interference with flight paths, and the guidelines of the Department of Aviation.

The Civil Aviation Service Authority (CASA) defines an OLS as ‘conceptual (imaginary) surfaces associated with a runway, which identify the lower limits of the aerodrome airspace above which objects become obstacles to aircraft operations.’

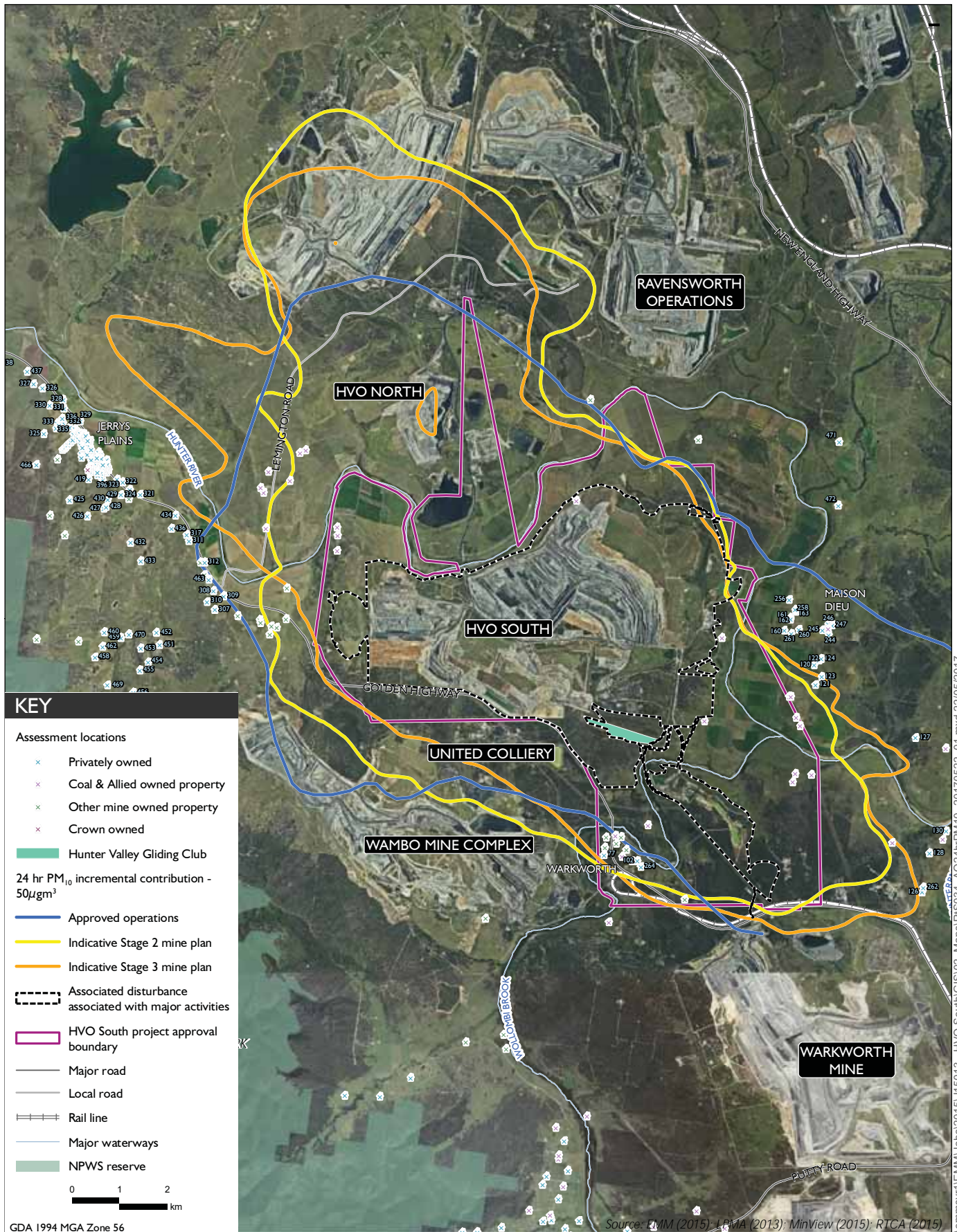
Consistent with the requirements of the Amenity Management Plan, the landform of the proposed modification has been designed with consideration of the OLS and the Hunter Valley Gliding Club. Similar to the current approved operations, pre-strip mining operations using trucks and electric shovels/excavators or loaders will be undertaken to lower the final overburden emplacement surface to below the OLS. No permanent structures, overburden emplacement areas or final landform will be above the OLS. Strict management and appropriate notification, in accordance with the Amenity Management Plan, will be afforded to the Hunter Valley Gliding Club should Coal & Allied request permission to breach the OLS at nominated times and locations, however these will be restricted to short-term intrusions by equipment and dragline spoils.

The Hunter Valley Gliding Club submission also noted that the current agreement with Coal & Allied states that overburden would not be imported into South Lemington Pit 2 from other areas within HVO South. As described in Section 3.2.2 of the EA, overburden emplacement will occur behind the progression of mining within South Lemington Pit 2, meeting the commitment outlined in the current agreement.

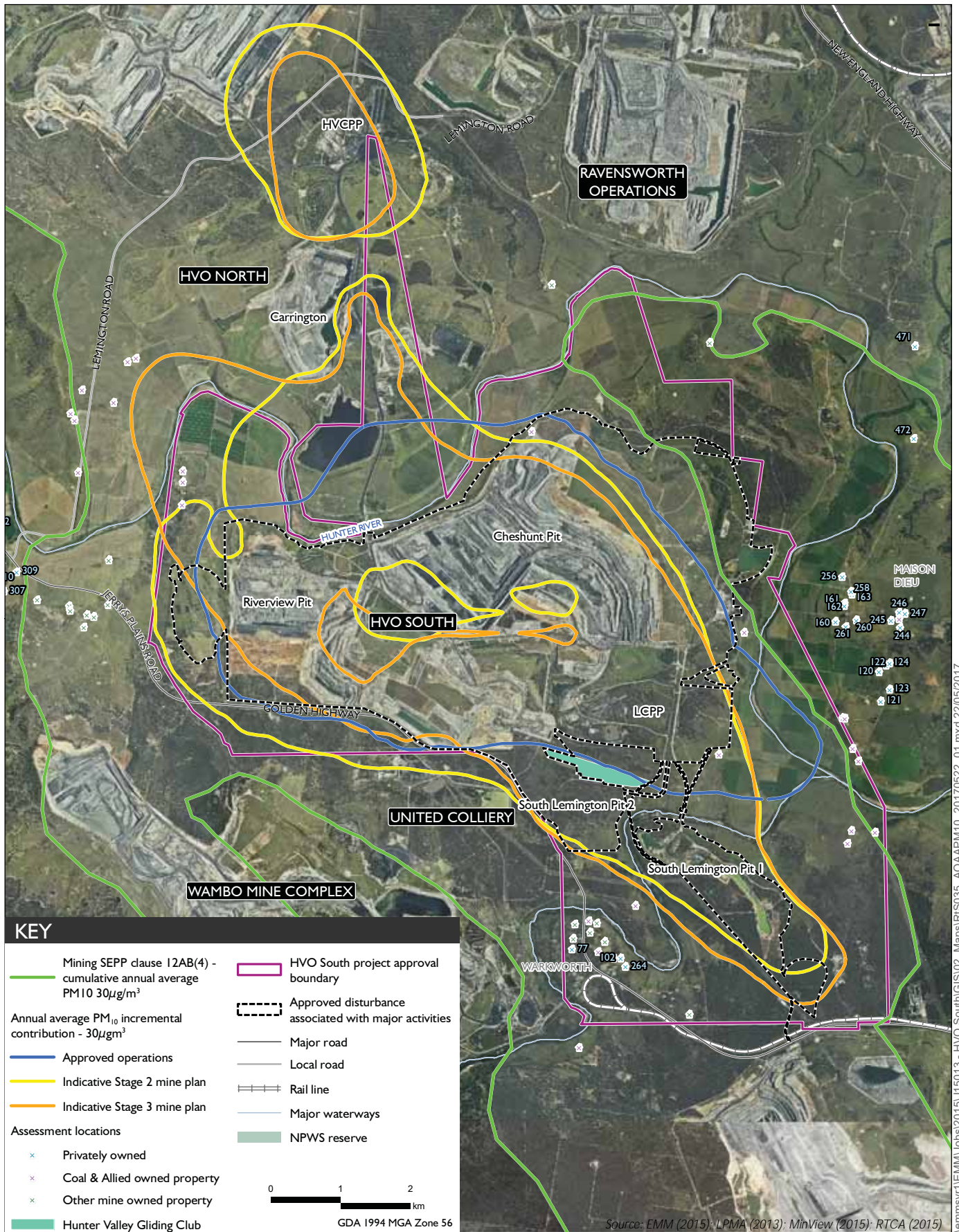
4.4 Glencore

A submission from Glencore Coal Assets Australia Pty Limited (Glencore) noted the HVO South project approval boundary in respect of its overlap with adjacent land held by Glencore Coal (NSW) Pty Limited and the Construction, Forestry, Mining and Energy Union (CFMEU), forming part of a separate project approval.

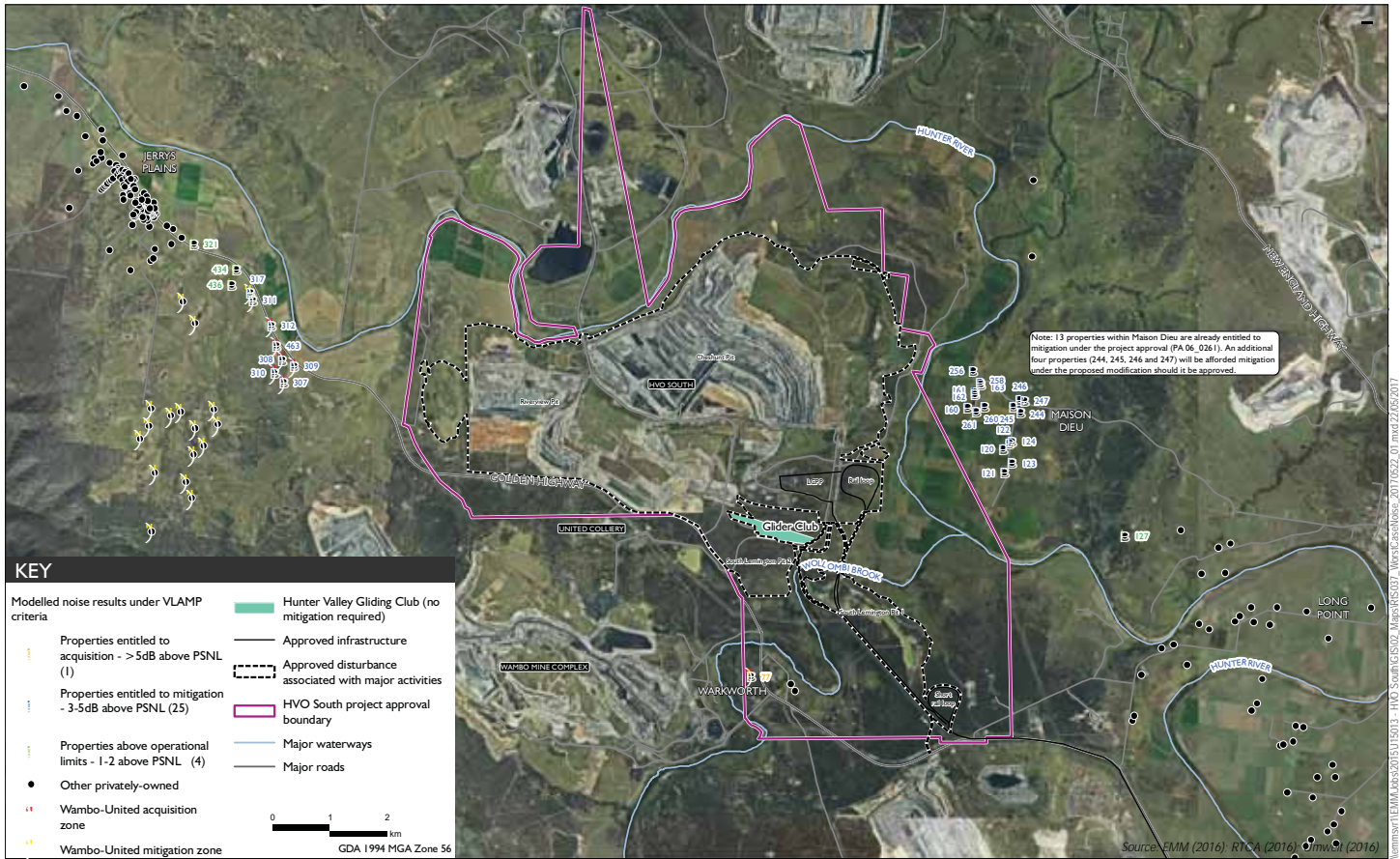
It is acknowledged that there is no commercial arrangement between Glencore and Coal & Allied; no mining would occur unless a commercial agreement was in place.



Comparison of approved and proposed incremental 24 hr PM₁₀ concentrations
 HVO South Modification 5
 Response to submissions
 Figure 4.2



Comparison of approved and proposed incremental annual average PM₁₀ concentrations
 HVO South Modification 5
 Response to submissions
 Figure 4.3



All stages worst case day, evening and night time operational noise results – INP weather
 HVO South Modification 5
 Response to submissions
 Figure 4.4

