6 May 2020

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Greg Doyle
General Manager
Wollongong City Council
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Wollongong DC NSW 2500

Dear Greg,

RE: DENDROBIUM MINE – PLAN FOR THE FUTURE: COAL FOR STEELMAKING (SSD 8194) – WOLLONGONG CITY COUNCIL RESPONSES

Thank you for the provision of Wollongong City Council's comments received on the Dendrobium Mine – Plan for the Future: Coal for Steelmaking Submissions Report, dated 4 March 2020.

South32 notes Council's response, and in particular Council's recognition of the importance of the Project to the Illawarra economy and local steel production.

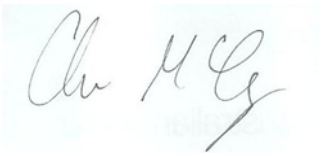
Please find below in Attachment 1 South32's responses to residual concerns raised by Council in its submission on the Submissions Report, as well as comments provided in its submission on the Project EIS.

We hope that the following responses resolve the residual concerns raised by Council in these submissions.

If you have any queries please don't hesitate to contact me (Chris.McEvoy@south32.net or 0407 060 163).

Yours sincerely

SOUTH32 LIMITED



Chris McEvoy
Approvals Manager
Dendrobium Next Domain Project

ATTACHMENT 1
RESPONSE TO WOLLONGONG CITY
COUNCIL COMMENTS

WOLLONGONG CITY COUNCIL – SUBMISSIONS REPORT RESPONSES

Comment 1

Wollongong City Council (WCC) stated:

> *Council remains concerned about the extent of subsidence related impacts upon watercourses and coastal upland swamps due to the current proposed mine layout, especially the 305 metre widths of the proposed longwalls.*

South32 Response

South32 notes that WCC recognises the importance of the Project to the local Illawarra economy and to the BlueScope Steelworks, and acknowledges concerns raised regarding potential subsidence impacts to watercourses and Upland Swamps.

South32 has designed the Project mine layout to reduce the likelihood of potential subsidence impacts to named watercourses and key stream features, as well as positioning surface works to avoid directly impacting Upland Swamps.

Setbacks from named watercourses (i.e. the Avon River, Cordeaux River and Donalds Castle Creek) have been designed such that predicted Project-related closure is restricted to an additional 200 mm at these watercourses (Section 6.5.3 of the Submissions Report).

The application of these setbacks as a design tool to reduce the likelihood of potential subsidence impacts has been successfully used at Dendrobium Mine to date. The overall effect of these setbacks is that there is a low likelihood (less than 10%) that physical impacts (e.g. fracturing of bedrock) would occur along the small sections of these watercourses located within 400 m of the longwalls (Section 6.5.3 of the Submissions Report).

In addition, South32 has identified and avoided the direct undermining of key stream features along the Avon River, Cordeaux River, Donalds Castle Creek and the unnamed drainage lines located above the Project longwalls. As a direct result of these setbacks, there is a low likelihood that these key stream features would experience physical impacts as a result of the Project (Section 6.5.3 of the Submissions Report).

Notwithstanding, if physical damage to named streams and key stream features occurs as a result of Project-related subsidence impacts, South32 has committed to implementing remediation techniques to repair the damage, where possible (Section 6.5.3 of the Submissions Report).

While it is not economically feasible to avoid the undermining of all Upland Swamps located within the Project area, a number of design considerations have been incorporated by South32 for the Project to avoid potential subsidence impacts (Section 6.9.3 of the Submissions Report):

- selection of Project Area 5 and Area 6 as opposed to Area 4 (due to the large number of swamps located within Area 4);
- siting surface infrastructure to avoid direct impacts to Upland Swamps (other than minor disturbance associated with the installation of monitoring equipment); and
- the various mine design constraints (i.e. setbacks from dam walls, reservoir full supply levels, named watercourses and key stream features) would result in the direct avoidance of a number of Upland Swamps.

Residual impacts to Upland Swamps would be offset consistent with Government policy. Since lodgement of the EIS, South32 has purchased freehold land ('the Offset Property') which predominately comprises mapped upland swamp vegetation communities. It is expected the Offset Property will provide greater than 90% of the State and Federal offset liability for upland swamps (Section 6.9.3 of the Submissions Report).

While South32 considered various mining geometries in design of the Project, including panel widths of less than the proposed 305 m wide panels, experience at the Dendrobium Mine and other mining operations shows that surface impacts related to subsidence (e.g. at watercourses and Upland Swamps) can occur regardless of panel width, and at panel widths significantly narrower than 305 m (Section 6.5.3 of the Submissions Report).

Accordingly, adverse environmental impacts are still anticipated for reduced longwall widths down to approximately 150 m.

In regard to Upland Swamps, no material difference in the potential for impacts to Upland Swamps associated with alternative longwall layouts is expected (Section 6.9.3 of the Submissions Report).

Therefore, the continuation of 305 m wide panels avoids further Project value loss and coal sterilisation when compared to mining with narrower longwall panels (e.g. due to reduced operational costs and increased coal recovery), and is consistent with previous mining experience at the Dendrobium Mine.

Comment 2

WCC stated:

> *Council is also specifically concerned about the cumulative loss of water to reservoirs, creeks and upland swamps in the Greater Sydney Water Catchment due to mining activities.*

South32 Response

South32 recognises the importance of the Metropolitan Special Area to the water supply system and the potential impact the Project may have on the availability of water resources within the catchment.

The Project EIS predicted potential maximum Project-related and cumulative surface water losses of approximately 1,935 ML/annum and 3,330 ML/annum, respectively. However, these predictions are considered to be a conservative estimate of the maximum losses over the life of the Project, noting the groundwater model adopted a number of conservative model assumptions (Section 6.3.4 of the Submissions Report).

The risk of actual surface water losses being significantly greater than those predicted from the groundwater model, therefore, can be considered low.

Cumulative losses from the Sydney Drinking Water Catchment were considered by the IEP, with the Part 2 report (IEP, 2019) noting that estimates of cumulative losses are “low” when compared to other components of the drinking water network (emphasis added):

> *The* [surface water] *losses referred to in Section 3.2.3* ***are low*** *compared to other components of Sydney’s supply and demand, for example recent losses from the Dendrobium, Russell Vale and Wongawilli mines of less than 8 ML/day on average compare to the Sydney Desalination Plant capacity of approximately 250 ML/day (Sydney Desalination Plant, 2019) and estimated leaks from the Sydney Water supply infrastructure of approximately 130 ML/day (Sydney Water, 2018).*

Overall, it is predicted the Project would result in a negligible impact to the yield of the Metropolitan Special Area.

Notwithstanding, South32 has committed to implement or fund works such that the Project results in net gain to Sydney’s drinking water supplies from subsidence-related surface water losses from the Metropolitan Special Area, including:

- beneficial use of mine water to reduce existing demands on the drinking water system, and/or funding or implementing works that reduce existing losses (e.g. pipe losses or evaporation);
- payment to WaterNSW for the maximum predicted take;
- holding of sufficient licenses to account for this take.

This commitment is consistent with the recommendations of the IEP in regard to potential offset measures, which have been accepted by the NSW Government.

Comment 3

WCC stated:

> *Council notes that the Minister for Planning and Open Spaces in late 2019 indicated that a moratorium would take place on any new coal mining project in the Special Areas of the Greater Sydney Water Catchment until such time as a government response was provided to the second report of the Independent Expert Panel for Mining in the Catchment. In this regard, Council is unaware that the NSW Government has yet provided its official response to the report's findings and recommendations.*

South32 Response

South32 understands that this comment is addressed to the NSW Government, however, notes that the NSW Government has stated that it accepts all 50 recommendations of the IEP in a media release dated 18 April 2020.

Comment 4

WCC stated:

> *Further, one of the recommendations in the second report of the Independent Expert Panel for Mining in the Catchment was that an inter-agency working group be set up, in order the identify what the 'acceptable' level of surface water loss due to mining would be …*
>
> *Therefore, in Council's view, the project should not be determined until such time as the NSW Government review occurs on the cumulative impacts of mining in the Greater Sydney Water Catchment and the NSW Government determines what the 'acceptable' level of surface water loss from mining projects to the catchment is.*

South32 Response

South32 understands that this comment is addressed to the NSW Government, however, notes that the NSW Government has stated that it accepts all 50 recommendations of the IEP in a media release dated 18 April 2020. The NSW Government has established an inter-agency taskforce to address the Government's action plan to address these recommendations.

Comment 5

WCC stated:

> *… a proper independent assessment of the Dendrobium mine project is recommended to be completed either by the Independent Expert Panel for Mining in the Catchment or by alternate independent expert reviewers.*

South32 Response

South32 notes that the Project has or would be reviewed by a number of independent experts, which is likely to include the following:

- independent expert peer review of the Project EIS Surface Water Assessment and Groundwater Assessment (completed as part of the EIS);
- review of the Project by DPIE-Water, WaterNSW, the IESC and any other independent experts engaged by the Department; and
- ultimately, referral of the Project to the Independent Planning Commission for review and determination.

The IEP has already completed a review into the mining operations of both the Dendrobium Mine and Metropolitan Mine, which included a number of recommendations of relevance to the Project, such as proposed offset measures for surface water losses (which are consistent with the offset measures proposed by the Project [Section 6.3.4 of the Submissions Report]).

South32 would continue to support the Department during its assessment of the Project, as well as engaging with independent experts as required.

Comment 6

WCC stated:

> *… the Response to Submissions report does not adequately address the downstream greenhouse gas emissions relating to approximately 40% of the coal from the project, which would be sent to elsewhere in Australia or rest of the world.*

South32 Response

The Council's resolution to declare a climate emergency is noted, including the Council's commitment to net zero emissions for Wollongong by 2050, and net zero emissions for the Council by 2030.

The impact of a particular project to anthropologic climate change is proportional to its contribution to global greenhouse gas emissions. Scope 3 emissions from the end use of Project coal are quantified in Appendix I of the EIS, and represent a negligible contribution to global greenhouse gas emissions.

It should be noted the Dendrobium Mine is an existing operation with existing customers. The Project does not seek to change the currently approved mining rate at the Dendrobium Mine. Accordingly, greenhouse gas emissions associated with the end of use of coal from the Project represent a continuation of current emissions, which would already be accounted for in the emissions inventories of Australia and export destination countries.

Scope 3 emissions associated with the end-of-use coal would be managed by the facility that generates the emissions, either in Australia (i.e. where these emissions would continue to be part of Australia's *Paris Agreement* obligations) or overseas (where they would continue to be managed by the emissions reduction targets of the relevant country).

South32 would continue to manage its direct contribution to Australian greenhouse gas emissions inventories (i.e. Scope 1 and 2 emissions) through participation in the National Greenhouse and Energy Reporting Scheme (NGERs), as well as other applicable government initiatives and policies implemented to manage emissions at the national level under Australia's progressive Nationally Determined Contributions.

Consistent with the Dendrobium Mine, the Project would continue to operate in consideration of the objectives of South32's company-wide Climate Change Strategy (Section 6.15.3 of the Submissions Report) and annual *Our Approach to Climate Change* report. This includes a goal of of achieving net zero emissions by 2050, consistent with the goal of the Council for Wollongong.

WOLLONGONG CITY COUNCIL – EIS RESPONSES

Comment 7

WCC stated:

> *Currently, the coal mined at Dendrobium (Wongawilli seam) is blended with coal from South32 Appin's mine (Bulli seam) to produce the 'Illawarra Blend' which is purchased by local and international steelmakers. However, it is unclear whether South 32 will continue to produce the 'Illawarra Blend' since the Bulli seam coal in the subject Dendrobium project (Area 5) appears to be the same composition as the Bulli seam coal from Appin mine.*

South32 Response

South32 regularly consults with its customers in regard to the properties of the coal produced at the Dendrobium Mine and for the Project.

Project Area 5 proposes to mine the Bulli Seam, while Area 6 (to be extracted after Area 5) proposes to mine the Wongawilli Seam.

Metallurgical coal (also known as coking coal) is the raw material essential for the manufacture of 'virgin iron' and steel (also known as 'primary steelmaking' or 'integrated steelmaking') (Section 6.1.3 of the Submissions Report). Therefore, regardless of the metallurgical coal blend that the Project would provide, the Project is vital to allowing the existing arrangement between the Dendrobium Mine and the BlueScope Steelworks to continue.

The importance of a local metallurgical coal supply to the ongoing viability of the BlueScope Steelworks is outlined by the Australian Competition and Consumer Commission, the importance of the Project to the Steelworks is noted by BlueScope Steel themselves in their submission provided on the Project EIS (Section 6.1.3 of the Submissions Report).

Comment 8

WCC stated:

> *… the current mine layout for the project is likely to cause a number of adverse issues and impacts. These issues are discussed in detail in the following parts of this submission. In Council's view, the issues warrant a major redesign of the mine layout.*

South32 Response

Please refer to response to Comment 1 above.

Comment 9

WCC stated:

> *However, Council is not aware of any successful remediation strategies in the southern coalfield for coastal upland swamps damaged by subsidence related impacts. Therefore, in Council's view, the protection of the coastal upland swamps from subsidence related impacts is considered of critical importance. Further, Council does not consider that biodiversity offsetting (due to subsidence related impacts to upland swamps) is appropriate. The long term preservation of upland swamps is considered the most appropriate response. Accordingly, a redesign of the mine layout for Areas 5 & 6 is warranted, in order to ameliorate the subsidence related impacts on the upland swamps.*

South32 Response

South32 has designed the Project in consideration of the avoidance of Upland Swamps. In particular, the Project does not seek to mine Area 4 given the relatively higher concentration of Upland Swamps in this area.

It is not considered feasible to avoid the undermining of all Upland Swamps. The consequences of the 'no Project' scenario (i.e. the forgoing of significant net socio-economic benefits to the NSW and regional economies) is considered in the EIS.

The Project seeks to offset residual impacts to swamps consistent with Government policy (please refer to response to Comment 1 above regarding avoidance of Upland Swamps and proposed offsetting measures).

In regard to swamp remediation, South32 is undertaking research into swamp rehabilitation in accordance with the Area 3B SMP Approval conditions.

Comment 10

WCC stated:

> *… Council is concerned about the extent of subsidence related impacts upon streams and coastal upland swamps within the project area as a result of the proposed mine layout for Areas 5 & 6. Council is specifically concerned about the cumulative loss of water to reservoirs, creeks and upland swamps due to mining activities. Council does not want to see any further water losses to reservoirs, creeks and upland swamps as a result of mining activities.*

South32 Response

Please refer to responses to Comments 1, 2 and 9 above.

Comment 11

WCC stated:

> *Therefore, Council requests that the project for Dendrobium Mine (Areas 5 & 6) be considered by the Independent Expert Panel for Mining in the Catchment, as a precautionary peer review measure … The Independent Expert Panel for Mining in the Catchment should review the proposal's potential impact upon the quantity and quality of water available in the catchment for drinking water supplies in reservoirs and for the health of the creeks and upland swamps. The Panel is also requested to consider the cumulative impact that the proposed Dendrobium Mine extension and other coal mines have on drinking water supplies and the health of the creeks and upland swamps in the Greater Sydney Water Catchment Special Areas.*

South32 Response

Please refer to response to Comment 5 above.

Comment 12

WCC stated:

> *The HHA report (page i) notes that the Dendrobium Colliery Pit Top is to be upgraded, expanded and parts decommissioned. The report further notes that the concept design has not been developed but then states "however based on the conceptual design it is unlikely that the heritage values of the Nebo Colliery would be significantly impacted by the project". Therefore, Council requests that concept plans for the Dendrobium Colliery Pit Top be provided to Council for heritage comment.*

South32 Response

South32 will provide any relevant concept plans for the Dendrobium Pit Top works to Council for heritage comment in addition the Conservation Management Plan (CMP) for the Project.

The Dendrobium Pit Top is currently the active pit top facility for the Dendrobium Mine. The Project would result in the continued use of the Dendrobium Pit Top. As such, the Project represents continued and adaptive use wholly consistent with the nature of the item, which is an operational colliery.

As described in the Historic Heritage Assessment (Appendix G of the EIS), detailed construction plans and designs for the proposed works at the Dendrobium Pit Top have not been undertaken.

However, an assessment of potential impacts to historic heritage was undertaken based on the initial conceptual works proposed, which include upgrades, expansions and decommissioning of portions of the existing Dendrobium Pit Top. Section 3.4.5 of the Project EIS describes these activities in more detail, which would include:

- extension and relocation of bathhouses, locker facilities and administration buildings;

- construction of additional car-parking facilities on the southern side of Cordeaux Road (south of the Dendrobium Pit Top);
- other minor upgrades and augmentation; and
- decommissioning and removal of any infrastructure no longer required.

These works are also described in more detail in the Historic Heritage Assessment (Appendix G of the EIS). South32 would provide details to Council of detailed construction and design plans for the Dendrobium Pit Top works once finalised.

South32 notes that the Heritage Council NSW supports the preparation of a CMP for the Project, which would provide detail for the management of the Nebo Colliery heritage values during the Project.

Consistent with the recommendations of Niche (2019), heritage conservation management measures for the Dendrobium Pit Top would include:

- Building form – building form would, where practicable, be consistent with the existing Dendrobium Pit Top structures.
- Fabric – building materials, where appropriate to building function, would be in keeping with existing Dendrobium Pit Top building materials and building fabrics.
- Archival recording – any significant heritage items not previously identified via previous archival records undertaken during 2001 and 2003 would be recorded if they are subject to modification or potential damage or demolition.

Comment 13

WCC stated:

> *The concept plans should be supported by a Heritage Impact Statement to address the heritage impact of the proposed works to the pit top and to consider the following matters:*
>
> - *Which buildings have heritage significance?*
> - *How the expansion and redevelopment will impact on these values and any archaeological potential? E.g. The former Pioneer Kerosene Works (which may not be mapped accurately on the LEP and requires further investigation).*
> - *Which infrastructure is planned to be decommissioned and removed?*
> - *How are the potential impacts to values and significance of the Colliery and Kembla Heights CA minimise by the design?*

South32 Response

The CMP for the Project would provide details for the management of the Nebo Colliery heritage values during the Project. The CMP would include details of the items listed above by Council and updated in consideration of comments received from Council and Heritage Council NSW in regard to the proposed works.

As described above, a Historic Heritage Assessment (Appendix G of the Project EIS) was prepared for the Project, which considered the following:

- the nature and extent of proposed works based on the initial conceptual information provided;
- identification of listed items of historic heritage at the Dendrobium Pit Top (i.e. the Nebo Colliery); and
- an assessment of potential impacts to listed items of historic heritage at the Dendrobium Pit Top.

Please see responses to Comment 12 above for further detail in regard to planned works at the Dendrobium Pit Top.

Comment 14

WCC stated:

> *The proposed car parking area requires the demolition of a shed that is currently housing the decommissioned collection of the Mt Kembla Mining Museum. The historical significance of this shed has, at this stage, not been established.*

South32 Response

The Historic Heritage Assessment (HHA) (Appendix G of the EIS) noted the presence of a modern corrugated iron building at the site of the proposed Dendrobium Pit Top Carpark Extension, however, did not identify this site as an item of listed heritage significance.

It is noted that the majority of heritage items within the shed have been relocated to an alternative storage facility by the heritage society, and South32 would assist in the removal and relocation of remaining items. South32 would consult with Council in regard to these works.

Comment 15

WCC stated:

> *The HHA report also recommends that a Conservation Management Plan (CMP) be developed prior to the commencement of any works. However, the CMP should be prepared at this stage of the assessment process, in order to ensure that any project approval is consistent with the recommendations of the CMP and allows for heritage impacts to be adequately considered.*

South32 Response

Management plans for the Project will be developed subject to the conditions of any approval for the Project.

As described above, a CMP would be prepared for the Project before construction works commence at the Dendrobium Pit Top, which would provide detail for the management of the Nebo Colliery heritage values during construction and operational activities associated with the Project. The CMP would be prepared in accordance with the conditions of any approval for the Project.

Comment 16

WCC stated:

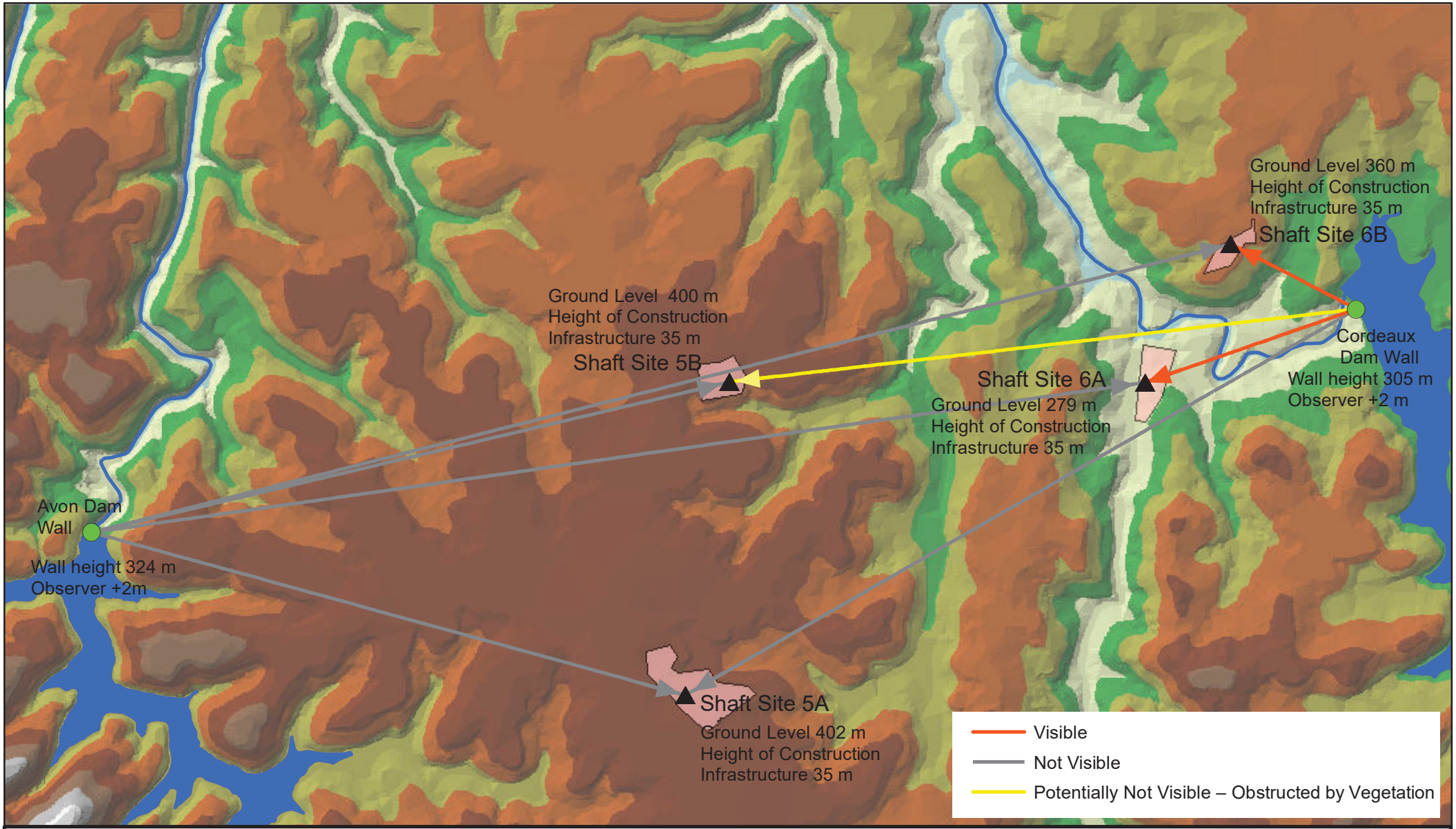
> *The impacts of the proposed 15 metre high ventilation shafts on the Illawarra Escarpment Conservation Area are not addressed in the HHA report … In Council's view, a comprehensive visual impact assessment should be prepared and included as part of the EIS.*

South32 Response

The Illawarra Escarpment Conservation Area is more than 10 km away from the proposed ventilation shaft sites for the Project.

The potential visual impacts of the proposed ventilation shaft infrastructure on identified items of historic heritage are described in the Historic Heritage Assessment (Appendix G of the Project EIS), in particular, from the Avon and Cordeaux dam walls, which are approximately 4.5 km and 1 km away from the closest proposed ventilation shaft sites, respectively.

The basis for the assessment of potential visual impacts by Niche (2019) is illustrated in Figures 7, 8 and 9 of Appendix G of the EIS (reproduced below), and shows that the dam walls were selected as the viewpoints for the assessment as they are the publicly accessible recreational areas with potential views of the infrastructure.



SOUTH32
Illawarra Coal

Line of Sight from Avon and Cordeaux Dams to Construction Infrastructure (source: Illawarra Coal)

Dendrobium Plan for the Future: Coal for Steelmaking. Historical Heritage Assessment

FIGURE 7

0 500 1,000 2,000 3,000 Metres

Dendrobium Mine Plan for the Future

Visibility Analysis
Proposed Ventilation Shaft Sites
Construction Infrastructure Visibility

Date: 09 October, 2018
Author: B. Moylan
Approved: G.Brassington

Version 4
Horizontal Datum
MGA - Zone 56

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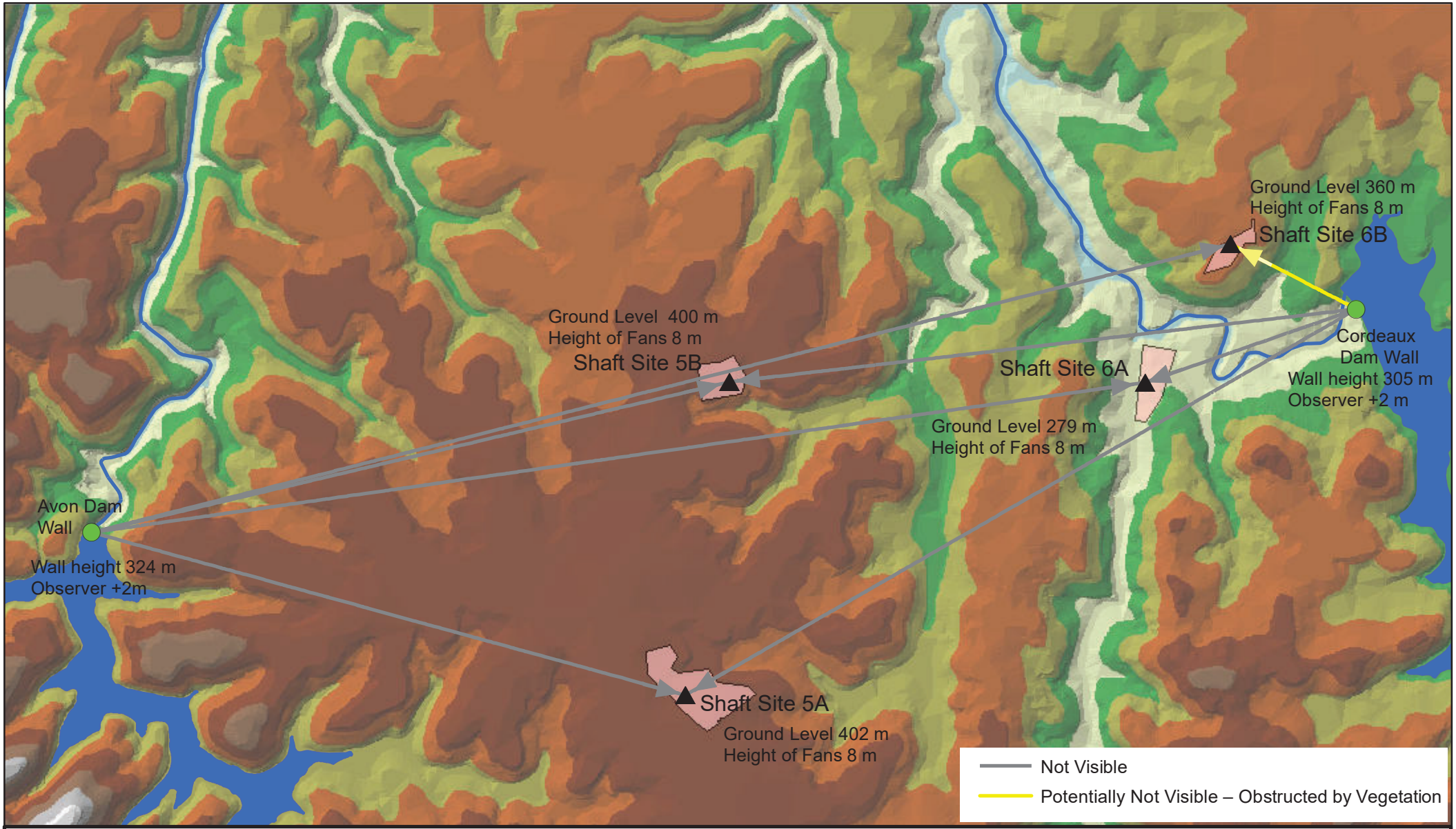

SOUTH32
Illawarra Coal

Line of Sight from Avon and Cordeaux Dams to fans
(Source: Illawarra Coal)

Dendrobium Plan for the Future: Coal for Steelmaking. Historical Heritage Assessment

FIGURE 8

0 500 1,000 2,000 3,000 Metres

Dendrobium Mine Plan for the Future
Visibility Analysis
Proposed Ventilation Shaft Sites
Fans Visibility

Date: 09 October, 2018
Author: B. Moylan
Approved: G.Brassington

Version 4
Horizontal Datum
MGA - Zone 56

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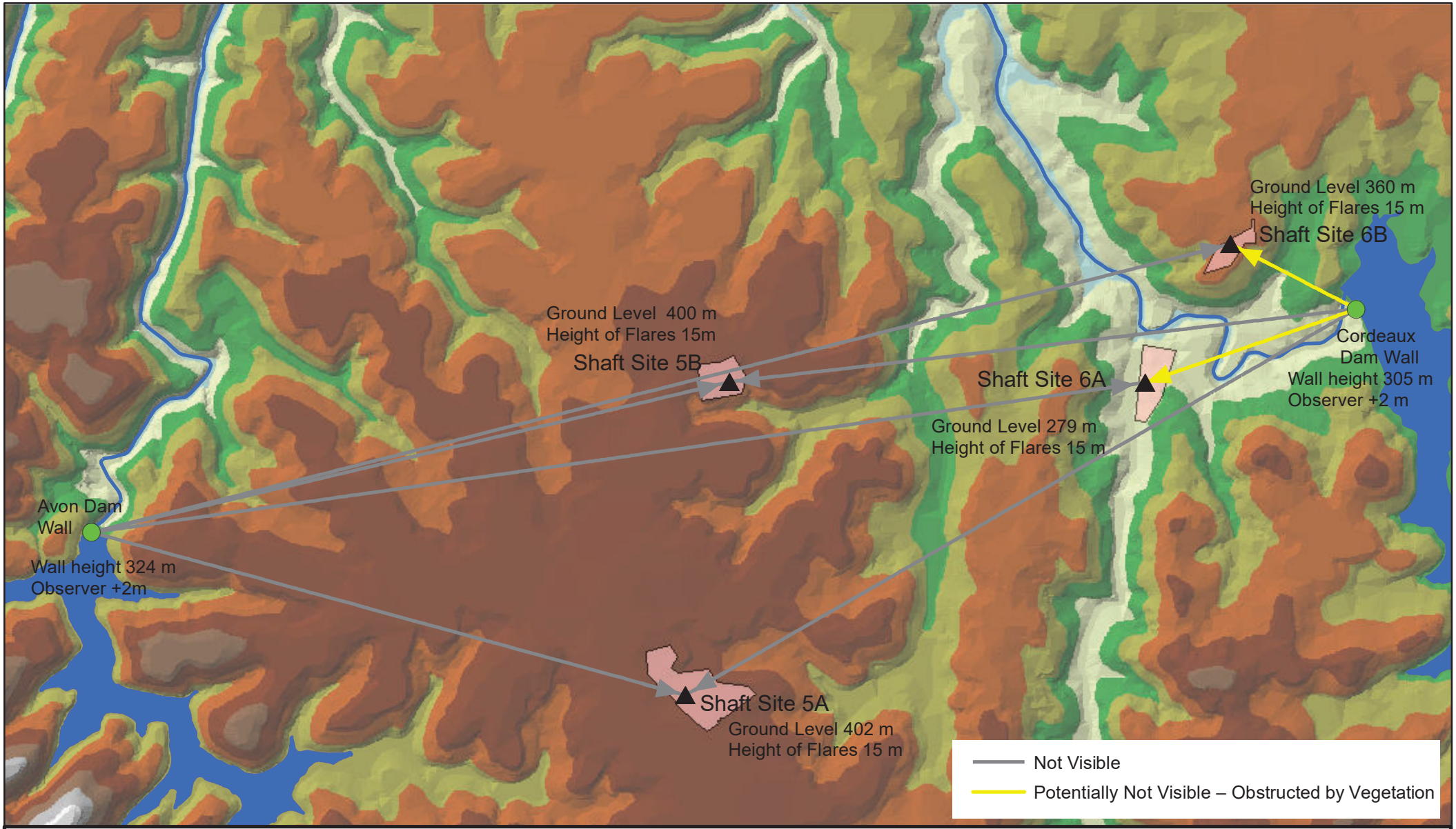

SOUTH32
Illawarra Coal

Line of Sight from Avon and Cordeaux Dams to Flares (source: Illawarra Coal)

Dendrobium Plan for the Future: Coal for Steelmaking. Historical Heritage Assessment

FIGURE 9

0 500 1,000 2,000 3,000 Metres

Dendrobium Mine Plan for the Future

Visibility Analysis
Proposed Ventilation Shaft Sites
Flares Visibility

Date: 09 October, 2018
Author: B. Moylan
Approved: G.Brassington

Version 4
Horizontal Datum
MGA - Zone 56

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Other viewpoints have not been considered on the basis that, with the exception of access tracks surrounded by dense vegetation, there are no other publicly accessible viewpoints of the proposed ventilation shafts, including from locations within the Illawarra Escarpment Conservation Area.

As such, it is anticipated that the Project ventilation shaft sites would have negligible visual impact on the Illawarra Escarpment Conservation Area.

Comment 17

WCC stated:

> *Table 22 in the report also notes that 17 sites will be directly impacted by longwall mining, whilst another 41 sites will be indirectly impacted. This equates to 58 sites in total for the subject area. The executive summary of the report notes that "All sites (58) may be subject to some subsidence impacts from the project." However, in Part 12.5.1, the report notes that 43 of the total 57 recorded Aboriginal sites are in the angle of draw for the subject site and are expected to be impacted. Therefore, an inconsistency exists in the actual total number of sites, which should be clarified.*

South32 Response

The Aboriginal Cultural Heritage Assessment (ACHA) (Appendix F of the Project EIS) identified 58 recorded Aboriginal cultural heritage sites within the surveyed area for the Project.

These sites were identified via systematic survey (informed by the predictive model and designed in consultation with the Registered Aboriginal Parties [RAPs], consistent with relevant guidelines) and a search of the Aboriginal Heritage Information Management System to identify known Aboriginal heritage records.

The potential impacts of the Project on these sites have been assessed in consideration of comments made by RAPs throughout the consultation process completed as part of the Project ACHA.

It is noted that due to the location of the identified sites in relation to the Project area, there is the potential for all 58 Aboriginal cultural heritage sites to be impacted by subsidence (i.e. as they are located directly above or proximal to the longwalls).

The *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011) requires that impacts are defined as both direct (i.e. an activity physically impacts an object or place) and indirect (i.e. secondary consequences to an object or place, stemming from an activity) harm to Aboriginal objects and places be assessed for potential impacts.

Of these 58 Aboriginal cultural heritage sites, 43 sites are located within the 35° angle of draw for the Project. Grinding groove and sandstone shelter sites located outside the 35º angle of draw and other Aboriginal cultural heritage site types such as isolated artefacts are unlikely to experience direct or indirect impacts as a result of longwall mining.

Comment 18

WCC stated:

> *Table 20 in the report notes that the site known as "Upper Avon 47" is rated as "High Scientific" value and is likely to experience 50 mm of subsidence related impacts. It is unclear why sites with much higher impacts as per the same Table (Table 20) are not noted in Part 12.3.2 as experiencing subsidence impacts. Part 12.3.2 of the report should be reviewed and the impacts of the predicted subsidence made clearer. Sites with "moderate" and "high" scientific value should not be impacted.*

South32 Response

As described above, there is the potential for all 58 Aboriginal cultural heritage sites to be impacted by subsidence (i.e. as they are located directly above or proximal to the longwalls).

Section 12.3.2 of the ACHA (Appendix F of the Project EIS), and specifically Table 20, provides a list of all sites anticipated to experience subsidence impacts (i.e. 58 Aboriginal heritage sites) and provides subsidence predictions for each site.

It is not considered reasonable to avoid undermining all Aboriginal heritage sites within Area 5 and Area 6. The nine sites assessed as having moderate or high scientific significance would experience potential for partial loss of value (aesthetic/visual) due to predicted subsidence effects.

As described in Section 6.11.3 of the Submissions Report, South32 would prepare an Aboriginal Heritage Management Plan (AHMP) for the Project, which would include details of relevant management measures and monitoring for Aboriginal heritage sites. The AHMP would incorporate the recommendations of the ACHA (Appendix F of the EIS), which were prepared in consultation with the RAPs, who would be given opportunity to provide comments on the draft AHMP (see response to Comment 23).

Comment 19

WCC stated:

> *The rating of "low" sites is also questionable given the amount of sites listed as "low" scientific significance. It is recommended that explanations be provided for each of the 58 sites that detail why each individual site is listed as either "low", "moderate" or "high" scientific significance.*

South32 Response

The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Australia ICOMOS, 2013) (The Burra Charter) and the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011) provide definitions of Aboriginal cultural heritage significance which were applied to the significance assessment undertaken for the Aboriginal cultural heritage sites identified within the Project area.

The statements of significance for the Aboriginal cultural heritage sites were prepared in consideration of comments received from the RAPs throughout the consultation process. Further detailed information for each Aboriginal cultural heritage site was not included in the EIS upon request of the RAPs.

The archaeological significance of the 58 known Aboriginal cultural heritage sites identified during surveys for the Project ACHA is summarised as follows:

- 49 were assessed as being low scientific significance;
- 3 were assessed as being of moderate scientific significance; and
- 6 were assessed as being of high scientific significance.

Assessment of the cultural heritage significance of the Aboriginal cultural heritage sites considered comments received from the RAPs throughout the consultation process (Appendix F of the EIS). It is noted that the RAPs identified that all Aboriginal heritage sites have cultural significance.

Comment 20

WCC stated:

> *Part 12.5 of the report (which deals with the cumulative impacts of the project) states the project will only "directly harm only a relatively small number of sites" and that "there is no significant detrimental effect to quality or benefit that the Aboriginal history and archaeology of the subject area may provide to future generations." However, subsidence related impacts (either directly or indirectly) to 100% of sites cannot be considered a small number. Accordingly, it is considered that this part of the report fails to provide an adequate assessment of the cumulative impacts of the project. Subsidence related impacts to such a large number of sites is also not considered an acceptable Aboriginal Heritage outcome.*

South32 Response

South32 acknowledge that all 58 Aboriginal heritage sites have the potential to be impacted by subsidence due to the location of the identified sites in relation to the Project area (i.e. as they are located directly above or proximal to the longwalls).

The Project would result in a minor increase to cumulative potential impacts to Aboriginal cultural heritage of the region, noting that Aboriginal heritage items in the area have had a limited impact due to restrictions to access associated with the Metropolitan Special Area.

This is supported by monitoring of sites within the Southern Coalfield, which shows that of the 61 rock-based Aboriginal cultural heritage sites that have been subject to subsidence-related movements due to the Dendrobium Mine, only three have been impacted.

Comment 21

WCC stated:

> *Council considers that a major redesign of the project mine layout for Areas 5 & 6 is required, in order to mitigate the subsidence impact upon the majority of Aboriginal sites within the subject area. This would also necessitate a revised Aboriginal cultural heritage assessment report to be prepared and assessed.*

South32 Response

Please refer to the responses to Comments 18 and 20.

Comment 22

WCC stated:

> *The design of ventilation shaft locations and infrastructure should avoid harm to known sites. However, no overlay of known sites and the location of ventilation shafts is provided. It is noted that one site is located within close proximity.*

South32 Response

The proposed surface infrastructure for the Project has been designed to avoid identified sandstone shelters, axe grinding grooves and other natural landscape features.

Of the 58 Aboriginal cultural heritage sites identified within the study area, only one site (newly recorded site Dendrobium AGG-1 [AHIMS ID #52-2-4468]) was located in close proximity to Ventilation Shaft Site No 5B, however, this site would not be directly disturbed.

The location and design of ancillary infrastructure (e.g. access tracks, Project power and/or water supply infrastructure) required progressively over the life of the Project is flexible and would be located to avoid Aboriginal cultural heritage sites as far as practicable.

A figure showing the location of the known Aboriginal cultural heritage sites has not been provided with the EIS upon request of the RAPs (so site details are not publicly available), however, South32 can provide a version of this figure to Council separately.

Comment 23

WCC stated:

> *Following the redesign of the mine layout (to reduce the impact upon the majority of the 58 Aboriginal sites), an Aboriginal Heritage Management Plan should be developed for the project.*

South32 Response

South32 would prepare an AHMP for the Project. The AHMP would be developed prior to any Project-related works that would potentially harm Aboriginal cultural heritage sites.

The AHMP would incorporate the recommendations of the ACHA (Appendix F of the EIS), which were prepared in consultation with the RAPs.

The details of the subsidence monitoring program for Aboriginal cultural heritage sites would be outlined in the AHMP and detailed in Extraction Plans for the Project, including site specific TARPs. Monitoring of potential impacts to Aboriginal cultural heritage sites would be conducted prior to and following subsidence from longwall mining (which would include the 43 grinding groove and sandstone shelter site types identified within the 35º angle of draw for the Project).

Ongoing consultation would be undertaken with the RAPs over the life of the Project, including Aboriginal representation during archaeological fieldwork (e.g. assessment of proposed ancillary infrastructure). In addition, the RAPs and DPIE-BCD would be given the opportunity to provide comments on the draft AHMP prior to submission to DPIE for approval.

Comment 24

WCC stated:

> *Council notes that a further Aboriginal Cultural Heritage Assessment Report (ACHAR) is being prepared by WaterNSW, although it is unclear what this is in relation to. This document should be prepared prior to any approval so that the recommendations of the report can be meaningfully considered. This ACHAR should be provided to Council for comment.*

South32 Response

South32 understands this comment is addressed to the NSW Government and WaterNSW.

Comment 25

WCC stated:

> *The Social Impact Assessment prepared by Elliot Whiteing notes that "the project adopted detailed avoidance, mitigation and management measure to reduce potential impacts on Aboriginal heritage" however no measures (apart from existing monitoring) are outlined in the Aboriginal Cultural Heritage Report. It is unclear what these measures are or how the key values noted in Part of the SIA including "protection of cultural heritage sites and artefacts" is being upheld?*

South32 Response

Please see response to Comment 22 in regard to avoidance of Aboriginal cultural heritage sites for the Project.

Recommended management measures for Aboriginal cultural heritage sites are described in Section 13 of the ACHA (Appendix F of the EIS), which were prepared in consultation with the RAPs. As described previously (response to Comment 23), South32 will prepare an AHMP for the Project, incorporating these recommended management measures.

Comment 26

WCC stated:

> *The issue of access to cultural sites for the Traditional owners and Indigenous groups should be addressed.*

South32 Response

It should be noted the Project area is subject to the access restrictions of the Metropolitan Special Area.

Ongoing consultation would be undertaken with the RAPs over the life of the Project, including Aboriginal representation during archaeological fieldwork (e.g. assessment of proposed ancillary infrastructure).

The AHMP would include a protocol to allow for Aboriginal community access to Aboriginal cultural heritage sites (e.g. for cultural reasons, or, as part of scheduled field activities) subject to the access requirements of WaterNSW.

Comment 27

WCC stated:

> *The recommended actions in part 4.4.5 and 4.4.6 relating to Indigenous employment and training opportunities should be integrated as key conditions on any future project approval (should the project ultimately be approved). Further, a procurement policy that encourages the engagement of Indigenous businesses should be adopted.*

South32 Response

South32 has committed to supporting Indigenous employment, as well as Indigenous businesses, which also act as a source of employment for Indigenous people by identifying and engaging with Indigenous businesses and targeting 2.5% Indigenous employment in the Project workforce (consistent with the recommendations of the Social Impact Assessment [Appendix K of the Project EIS]) (Section 6.20.4 of the Project EIS).

Comment 28

WCC stated:

> *A redesign of the project mine layout for Areas 5 & 6 is considered warranted, in order to mitigate the subsidence impact upon the Giant Burrowing Frog and Littlejohn's Tree Frog species …*

South32 Response

Please see response to Comment 1 in regard to avoidance and minimisation of potential impacts to watercourse and Upland Swamps.

Potential impacts to these species will be offset consistent with Government policy.

Comment 29

WCC stated:

> *In Council's view, the integrity of the Maldon-Dombarton Rail Corridor should be preserved. Therefore, Council requests that an appropriate management plan and monitoring program be developed to manage subsidence related impacts on the Maldon-Dombarton Rail Corridor, in consultation with the Australian Rail Track Corporation (ARTC).*

South32 Response

Construction of the Maldon-Dombarton Rail Corridor ceased in 1988. The recommendations of the Subsidence Assessment prepared for the EIS are proposed to be implemented to minimise any impacts to future use of the corridor:

> *It is recommended that periodic visual inspections of the disused railway corridor are undertaken during active subsidence. The larger surface cracking in the embankment and cutting should be remediated if there is potential for long term erosion. With the appropriate management strategies in place, it is unlikely that there would be more than negligible impacts on the use of the corridor due to the proposed mining.*
>
> *If the railway were to be completed prior to active subsidence, a management plan should be developed similar to the approved management plans for the Main Southern Railway at Appin and Tahmoor Collieries. The plan should include preventive measures and monitoring during active subsidence so that the railway could be maintained in safe and serviceable conditions during and after the mining period.*

Comment 30

WCC stated:

> *… Council is of the view that any new mining project (including the subject Dendrobium extension project) should thoroughly review its likely operational performance, in order to ameliorate any potential climate change impacts by minimising greenhouse gas (GHG) emissions.*

South32 Response

South32 would operate the Project to minimise direct (Scope 1) greenhouse gas emissions as far as possible, in particular through maximising gas flaring to convert methane to carbon dioxide.

South32 regularly reviews energy supply options to identify sustainable supplies and methods to reduce greenhouse gas emissions, as well as investing in energy efficiency initiatives to continue to support viable renewable energy schemes. The Project would allow South32 to continue their support for these initiatives.

South32 would implement greenhouse gas minimisation measures (i.e. flaring) to convert the methane to carbon dioxide, as methane gas has 21 times the Global Warming Potential of carbon dioxide.

Project-specific greenhouse gas minimisation measures would be described in a Greenhouse Gas and Energy Efficiency Management Plan for the Project.

Furthermore, South32's Company-wide Climate Change Strategy and annual *Our Approach to Climate Change* report reflects key strategies of the Paris Agreement, as they include:

- The target of staying below a baseline Scope 1 greenhouse gas emissions level (established based on financial year 2015) until 2021 (i.e. company-wide peak emissions would be reached between 2015 and 2021).
- Consideration of decarbonisation opportunities such as gas drainage, ventilation air methane utilisation and/or destruction.
- Reviewing greenhouse gas emissions every five years from 2021 to achieve a goal of net zero greenhouse gas emissions by 2050 (including carbon offsetting for any residual emissions).

Comment 31

WCC stated:

> *Further, Section 4.15(1)(a) of the Environmental Planning & Assessment Act 1979 requires the consent authority, in determining a development application, to take into consideration the provisions of any environmental planning instrument. In this regard, the Mining SEPP applies to this project.*
> *…*
> *In this regard, the EIS provides a brief outline of applicable state and national policies, programs and guidelines pertaining to greenhouse gas (GHG) emissions. However, it is considered that the consent authority (Minister for Planning or delegate) is not in a position to properly assess as to whether the project complies with or addresses the various international, state and national policies, programs and guidelines pertaining to GHG emissions given the brevity of information provided.*

South32 Response

South32 acknowledges that Clause 14(2) of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007* applies to the Project, and currently requires the consent authority to consider downstream emissions of development for the purposes of mining, petroleum production or extractive industry, having regard to any applicable State or national policies, programs or guidelines.

A greenhouse gas emissions assessment was undertaken for the Project, and is provided in Section 6.21 and Appendix I of the Project EIS. South32 has also considered greenhouse gas abatement measures and relevant state or national policies, programs and guidelines, as described above (response to Comment 6) and in Sections 6.21 and 9.3 of the Project EIS.

Accordingly, the greenhouse gas emissions assessment for the Project as well as consideration of these policies would be considered by the consent authority (i.e. the IPC) for the Project.

Comment 32

WCC stated:

> *Further, the EIS does not provide any specific details of carbon capture and storage or offsetting the GHG emissions of the development by increasing the removal of GHGs in the atmosphere by establishing sinks, such as reafforestation or afforestation of land. The Dendrobium project is not carbon neutral and the EIS does not propose to balance the GHG source emissions with removals by sinks. The EIS also fails to provide calculations and detailed assessment on the thermal coal component with regard to GHG emissions over the life of the project.*

South32 Response

Estimates of Project-related Scopes 1, 2 and 3 greenhouse gas emissions include both thermal and metallurgical product coal components, and are detailed in Section 6.17 of the Project EIS as well as the Air Quality and Greenhouse Gas Assessment (Appendix I of the Project EIS).

Currently, there is no requirement for individual projects to be carbon neutral under existing government policy or legislation.

Notwithstanding, emissions associated with the Project would be managed at a global scale in accordance with Australia's obligations under the *Paris Agreement*.

The Project's Scope 1 and Scope 2 emissions (i.e. direct greenhouse gas contributions) would continue to be regulated under the safeguard mechanism of the Australian Government's *National Greenhouse and Energy Reporting Act,* 2007.

It is noted that the NSW Government has released the *Net Zero Plan Stage 1: 2020-2030* which acknowledges the ongoing contribution of mining (NSW Government, 2020):

> *New South Wales' $36 billion mining sector is one of our biggest economic contributors, supplying both domestic and export markets with high quality, competitive resources. Mining will continue to be an important part of the economy into the future and it is important that the State's action on climate change does not undermine those businesses and the jobs and communities they support.*

Consistent with the Dendrobium Mine, the Project would continue to operate in consideration of the objectives of South32's company-wide Climate Change Strategy (Section 6.15.3 of the Submissions Report) and annual *Our Approach to Climate Change* report.

It is noted that South32's company policy reflects the goals of the NSW Government, including South32's goal of achieving net zero emissions by 2050.

Measures to reduce Project-related emissions are described above in the response to Comment 30.

References

Australia International Council on Monuments and Sites (2013). *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance.*

Independent Expert Panel for Mining in the Catchment (2019b). *Report of the Independent Expert Panel for Mining in the Catchment: Part 2 – Coal Mining Impacts in the Special Areas of the Greater Sydney Water Catchment*. Prepared for the NSW Department of Planning, Industry and Environment.

Niche (2019) *Dendrobium Mine Plan for the Future: Coal for Steelmaking: Historical Heritage Assessment.*

NSW Government (2020) *Net Zero Plan Stage 1: 2020-2030.*

Office of *Environment* and Heritage (2011). *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW.*