Before the Hearing Panel appointed by Canterbury Regional Council and Selwyn District Council

IN THE MATTER OF The Resource Management Act 1991 AND

IN THE MATTER OF Applications CRC184166, CRC200500, CRC201366, CRC201367, CRC201368, CRC203016, CRC214320 and CRC214321 by Bathurst Coal Limited for a suite of resource consents to operate, rehabilitate and close the Canterbury Coal Mine.

SUMMARY STATEMENT

SECTION 42A REPORTING OFFICER CANTERBURY REGIONAL COUNCIL WETLANDS – PHILIP GROVE

DATED: 28 OCTOBER 2021

INTRODUCTION

- 1. My full name is Philip Bryce Grove. I am employed by Environment Canterbury Regional Council as a Science Team leader. My qualifications are MSc and PhD in botany. I am a member of the Environmental Institute of Australia and New Zealand, a professional body for environmental practitioners.
- 2. While this is a Council Hearing, I acknowledge that I have read the Environment Court's Code of Conduct for Expert Witnesses as contained in section 7 of the Environment Court Practice Note 2014, and have complied with it in the preparation of this summary.

SCOPE OF REPORT

- 3. This report is an addendum to my primary Section 42A report which is included as Appendix 9 of the Section 42A Officer's Report circulated on 24 September 2021. The purpose of this addendum is to provide a summary of my report and respond to matters raised in the Applicant's evidence, the presentations of expert witnesses and the Ecology Joint Conferencing.
- 4. In preparing my report, I have reviewed the following information:
 - a. Land use consent application to undertake earthworks at the Canterbury Coal Mine, 6 March 2018.

- b. Application for consent to discharge treated mine water into Tara Stream; and to take, use and divert surface water and groundwater, 20 September 2019.
 - i. Aquatic Baseline Assessment of Ecological Values of Streams in the Wainiwaniwa Valley. Golder Associates. February 2014.
 - *ii.* Canterbury Coal: ELF Project. Bush Gully Assessment. Waterways Consulting Ltd. August 2016.
 - iii. Ecological significance assessment of Tara Stream, the North ELF and Bush Gully Stream. Boffa Miskell. February 2017.
 - *iv.* Canterbury Coal Mine: Tara Stream Sediment Retention Pond Ecological Assessment. November 2017.
 - v. Environmental Management Plan. October 2018.
- c. CRC184166, CRC201366, CRC201367, CRC201368, CRC200500 Further information response, 20 December 2019, including follow up questions of clarification via email.
 - *i.* Canterbury Coal Mine RFI Response: Ecological Impact Assessment Report. Boffa Miskell. March 2019.
- d. CRC184166, CRC201366, CRC201367, CRC201368, CRC200500, CRC203016 Request for further information and additional resource consents, 31 August 2020.
 - i. Response to Ecan RFI. The Ecology Company. August 2020.
- e. Bathurst Coal Limited, Canterbury Coal Mine Addendum AEE for Closure and Rehabilitation, 6 April 2021.
 - *i.* Canterbury Coal Mine Wetland Management Plan, Malvern Hills Coalgate. The Ecology Company. March 2021.
- f. Submissions received from the Department of Conservation, Te Taumutu Rūnanga, Environmental Defence Society, Forest and Bird, Malvern Hills Protection Society and Selwyn Waimakariri Greens.
- g. Statement of evidence and summary statement of Gary Neil Bramley (Ecology) for Bathurst Coal Limited.
- h. Statement of evidence and summary statement of James Andrew Griffiths (Hydrology) for Bathurst Coal Limited.
- *i.* Statement of evidence and summary statement of Michael Harding for Selwyn District Council.

SECTION 42A REPORT SUMMARY

- 5. Key conclusions from my s42A report were:
 - a. The wetland compensation package proposed by the applicant is insufficient compensation for the acknowledged loss/direct removal of 1.42 ha of ecologically wetland habitats.

- b. I considered that the wetland compensation package should also acknowledge and compensate for adverse effects on remaining NW seepage wetlands where catchment area has been reduced due to mining activities.
- c. Ecological monitoring of the 'raised spring' is required as its future is uncertain. The wetland compensation package should include a 'bond' for further compensation if adverse effects on extent and/or values of the 'raised spring' wetland are detected.

MATTERS RAISED IN EVIDENCE

6. A response to my s42A report was included in the matters raised in the evidence of Dr Bramley (ecology) and Dr Griffiths (hydrology) for the applicant. I provide further comment on key matters of agreement and disagreement in their evidence by topic below. Some of these matters were further addressed in the Ecology Joint Witness Conferencing session. I also provide some comment on matters raised in evidence of other CRC witnesses and by Mr Harding for Selwyn District Council.

Ecological significance of removed seepage wetlands and level of effect

- 7. Dr Bramley has calculated that 1.42 ha of seepage wetlands have been removed due to CCM activities (Section 31 of his evidence). However, Dr Bramley also states that retrospective consent is only required for 1.17 ha seepage wetland removal. CRC and SDC consent planners disagree. They consider that total area of seepage wetlands removed and requiring retrospective consent to be in the range 1.2-1.4 ha.
- 8. Dr Bramley considered that the removed seepage wetlands would have been ecologically significant because they satisfied criterion 6 of the CRPS ecological significance assessment criteria. (Section 36 of his evidence. I note in his summary statement of evidence he qualified this to say "would likely have been significant.")
- 9. I agree that the removed seepage wetlands were significant under this criterion. However, as discussed in my s42A evidence, I also consider that the removed wetlands would have met CRPS significance criteria 1, 3 and 8. Deficiencies in the ecological survey information provided by the applicant preclude a comprehensive significance assessment, but a site (seepage wetlands in this instance) only needs to meet one of the criteria to be considered 'significant'.
- 10. The CRPS requires that areas identified as ecologically significant will be protected to ensure no net loss of indigenous biodiversity or indigenous biodiversity values as a result of land use activities (Policy 9.3.1(3)). NPS-FM policy 6 is that there is no further loss of extent of natural wetlands. These national and regional policies provide the context for my assessment of effects on wetlands.
- 11. In assessing the effects of wetland removal, Dr Bramley states that he has adopted the methodology set out in the 'EIANZ guidelines' for ecological impact assessment (Roper Lindsay et al. 2018). The guideline authors are consultant ecologists who are members of the Environmental Institute of Australia and New Zealand (EIANZ).
- 12. I am also a member of EIANZ. However, I consider that use of these guidelines, both in this consent application and more generally, is problematic. It is important to note that the EIANZ guidelines are not a statutory document and have not been endorsed for use by Councils, the Ministry for the Environment, the Department of Conservation, or the New Zealand Ecological Society.

- 13. In assessing effects of proposed, or in this case retrospective, activities on ecologically significant wetland habitats, the focus should be on the specific elements which give the habitat 'significance', and specific effects of the activities on each of these elements. As has been discussed, because of deficiencies in the applicant's ecological information we do not know what all the significant ecological features of these habitats were before their removal. What we do know, however, is that 1.2-1.4 ha area of ecologically significant seepage wetland habitats with native vegetation cover were removed. Direct loss of this area and type of wetland habitat is a clear and obvious adverse effect (noting there could also be others).
- 14. As has been noted by Mr Harding, Dr Bramley does not present the analysis which led to his conclusion (Sections 36-37 of his evidence) as to the 'low value' of removed seepage wetlands; his comments here are largely speculative and based, again, on what is acknowledged to be poor quality ecological information.
- 15. I also consider that the 'EIANZ approach' followed by Dr Bramley one of aggregating to provide an 'overall' score of 'ecological value', and assessing this in the context of a similarly generalised and subjective 'magnitude of effect' score (Sections 36-37; 40-42 of his evidence) contradicts basic principles of impact management (e.g. Maysek et al. 2018).
- 16. Similarly, Dr Bramley provides no data or evidence to support his assertion (Section 41 of his evidence) that the permanent loss of these seepage wetlands is of "negligible magnitude" at the scale of the Whitecliffs Ecological District. To support this claim, he would need to provide data on total natural extent of seepage wetlands in Whitecliffs ED together with data on their current extent and condition across the district. This has not been done. The Land Cover Database (LCDB) is not an appropriate tool to determine extent of seepage wetlands (or wetland habitats more generally) in Whitecliffs ED; the thematic and spatial resolutions of LCDB are too low to describe local- or ecological district-scale patterns and trends in vegetation cover and habitats (Dymond et al. 2017; Monks et al. 2019).
- 17. The apparent assumption, in this section of Dr Bramley's evidence, that all other seepage wetlands in the ecological district are in good health, and that the CCM wetland removal is therefore of little consequence, is also inconsistent with other parts of his evidence (e.g. Sections 27, 48, 60, 104) where he states that other land uses (farming and forestry) have had or will have adverse effects on wetland habitats in Whitecliffs ED and that only 3% of the ED is legally protected.
- 18. For these reasons, I disagree with the aggregated, generalised assessments of wetland 'ecological value', 'magnitude of effect' and 'level of effect' provided in Section 42 of Dr Bramley's evidence. I also consider that EIANZ assessments of 'ecological value' are not actually relevant to RMA resource consent applications. I still believe that direct removal of 1.2 1.4ha of ecologically significant seepage wetland habitats is a 'Severe' level of effect, as it has resulted in total or near total loss of significant ecological values from these areas.
- 19. In my view, the difference of opinion between Dr Bramley and myself over the level of effect of seepage wetland removal is not down to a matter of 'scale' of assessment. Rather, it is that the context for my assessment is national and regional policies and objectives for protection of wetlands, significant biodiversity and ecosystems (as laid out in the various statutory documents); whereas the basis for Dr Bramley's assessment was his application of the (non-statutory and in my opinion flawed) EIANZ ecological impact assessment guidelines.

Effects on hydrology of remaining NW seepage wetlands and the 'raised spring'

- 20. My views on the effects of hydrological changes to remaining seepage wetlands NW of the MOA follow the evidence of CRC hydrologist Dr Fouad Alkhaier. Remaining NW seepages which have been affected by removal of the upper slopes of the catchment area are shown in Figures 1-4 of Dr Alkhaier's s42A evidence. Dr Alkhaier's opinion is that these seepage wetlands are fed only by surface and shallow sub-surface run-off. Dr Alkhaier concluded that for these seepage wetlands, MOA excavations have reduced the contributing area of the upslope catchment by about a half. This means that the seepage wetlands within this catchment area are now receiving only half of their former surface and shallow subsurface flow.
- 21. While not the same impact as the complete removal of other seepage wetlands within the MOA and North ELF, I still consider the hydrological change described by Dr Alkhaier will result in adverse effects on ecology of these remaining seepage wetlands. I estimate the approximate extent of hydrologically- and therefore ecologically-affected seepage wetlands to be about 0.35 ha.
- 22. In Section 57 of his evidence, Dr Griffiths states that the seepage areas and wetlands on the north side of the Moa boundary have continued to exist despite a reduction in the surface water catchment area. These comments appear to be observational rather than informed by any baseline survey and subsequent monitoring. I agree with Mr Harding that adverse effects on these wetlands could be gradual rather than immediate and take time to manifest. So, following the advice of CRC hydrologist Dr Alkhaier, I still consider there will be an adverse effect and that this needs to be considered in the 'compensation package' for effects on wetlands.
- 23. With regard to effects of MOA earthworks on hydrology of the 'raised spring', Dr Alkhaier considers the future of this ecologically important wetland is uncertain. He has therefore recommended a focused monitoring programme for the raised spring wetland.
- 24. This monitoring will require a detailed baseline survey to establish the extent of the raised spring wetland, its elevation profile, vegetation composition, and the state and condition of its underlying peat substrate, with follow-up surveys of the same to assess change. Key parameters for peat monitoring should include moisture levels and changes in peat decomposition. Elevation monitoring across the raised spring will also be critical as any measured reduction in height of wetland profile would indicate drying out and/or decomposition of the peat substrate, which would in turn indicate a fundamental alteration of wetland hydrology and ecology.

Boron risk to aquatic and wetland habitats in Tara Stream and Bush Gully Stream

- 25. In Section 98-102 of his evidence, Dr Bramley provides comment on the Boron risk to Tara and Bush Gully Streams. My CRC colleagues Dr Massey and Dr Meredith will respond to this and other related evidence from applicant witnesses. I will just make some more general comments in relation to Tara Stream ecology.
- 26. I would describe Tara Stream gully below the MOA as an intermittent stream ecosystem with some associated riparian wetland vegetation rather than just as a 'wetland'. Dr Meredith has discussed how the bed of Tara Stream is dominated by soft sediment and sparsely vegetated, with a narrow band of denser riparian/wetland vegetation on the stream margins. However, as has also been discussed by a

number of expert witnesses, the ecology of Tara Stream has not been well described in information from the applicant.

- 27. I note that Dr Bramley's assessment of effects of boron relates only to plants and does not address other components of aquatic and wetland biodiversity/ecology such as microbes, insects and fish. His assessment of effects on plants is also of a general nature and not specific to the Tara Stream habitat (a narrow linear stream gully) and its associated vegetation.
- 28. If BCL is seeking to use wetland vegetation to uptake boron (and other contaminants) from mine water discharges, I consider that this would be best done through a (designed-for-purpose) constructed wetland system, rather than relying on a natural waterbody.

Impact management for effects on wetlands - offsetting vs compensation

- 29. In Section 42 of his evidence, Dr Bramley states that the in his view "very low" level of effect on seepage wetlands would not warrant "extensive offset or compensation actions" following the EIANZ approach. If Dr Bramley's view is that compensation actions are not warranted in this situation, then by extension I can see that any offer of compensation from the applicant would be more than adequate, in his opinion.
- 30. As has been discussed at this hearing already, I disagree with Dr Bramley's premise of 'very low level of effect'. I therefore consider that the compensation offered (now restricted to native planting and weed control on the North Property), while ecologically worthwhile in itself, is not adequate compensation for direct loss of seepage wetlands which has occurred.
- 31. I also do not agree with Dr Bramley that loss of quantum of wetland habitat can be satisfactorily offset or compensated by improvements in 'quality' of an equivalent area of existing/remaining wetland habitats elsewhere. Dr Bramley's position is inconsistent with national objectives for no further net loss of wetland extent. If generally applied, Dr Bramley's approach will result in a race to the bottom with the progressive and ongoing loss of wetlands (and other ecologically significant habitats) 'offset' or 'compensated' by management actions on a continually shrinking area of potential 'restoration' sites. I do not consider this a sustainable approach to management of New Zealand's remaining wetland habitats, or indigenous ecosystems and biodiversity more generally.
- 32. As discussed in my S42A evidence, and given that we are dealing with a retrospective consent application where the preferred 'avoid, remedy, mitigate' options in the impact management hierarchy are not possible, I consider that the direct loss of wetland habitats should be offset or compensated by restoration or recreation of new replacement wetland habitats (i.e. where they don't currently exist). Ideally, in terms of the hierarchy, this would be a true 'offset', that is a 'like for like' replacement of an equivalent area and type of seepage wetland habitat. However, I appreciate there are uncertainties with the success or efficacy of such an undertaking. And there is also, yet again, insufficient information on the ecology of the seepage wetlands pre-removal to inform a true 'offset'.
- 33. Therefore, as has been generally agreed in the 'Offset and Wetlands' Conferencing notes, we are in a situation of needing to consider 'compensation' options for effects of seepage wetland removal. I am still of the opinion that the 'compensation package' should include re-creation of at least an equivalent area of new wetland habitat to that lost, together with a range of other wetland protection/enhancement actions.

- 34. I agree with Mr Harding that, to adequately compensate for this loss, a larger area of indigenous vegetation and habitat and the ecological processes upon which they depend, should be restored and protected. I also consider that effects from mining activities on hydrology and ecology of *c*. 0.35ha remaining seepage wetlands NW of the MOA, and effects of past mine discharges down Tara Stream should be part of the 'compensation package'.
- 35. The high ecological significance of the raised spring is not in dispute. Dr Bramley has repeatedly pointed out the risk to this area (and other sensitive habitats) from future farming or forestry land uses. Securing long-term protection of the raised spring, and I would suggest the surrounding seepage wetlands, would therefore also seem to be obvious candidates for inclusion in the compensation package.

EXPERT CONFERENCING – OFFSET AND WETLANDS

- 36. Mr Harding, Dr Bramley, Dr Griffiths and I participated in an ecology expert conferencing session on 18 October 2021. Dr Bramley circulated a signed copy of conference notes to all participants on 25 October. I assume these have been provided to the hearing panel and others.
- 37. I will just comment on or reiterate a couple of matters from the conferencing notes that were not addressed in Dr Bramley's summary statement and presentation. First, it was agreed that there is very ecological little information about what has been removed (from the MOA and North ELF). Second, it is the experience of all ecologists involved that, unfortunately, we cannot rely on consent conditions and associated management plans to deliver the ecological outcomes sought. I understand that CRC staff have prepared a report on history of compliance breaches at CCM, but it is a widespread problem. Our preference, as recorded in the conferencing notes, is for 'upfront' compensation before activation of consent. This should include legal protection of significant areas and payment of a bond to fund necessary management actions if consent conditions are not complied with.
- 38. I disagree with Dr Bramley, as stated in Section 32 of his summary evidence, that Mr Harding and I have "likely overstated the ecological value and context of the affected wetlands". We have made no comment on 'ecological value'; rather we have assessed 'ecological significance' in the context of CRPS and Selwyn District Plan objectives and policies, and for that reason come to a different conclusion from Dr Bramley.
- 39. I also consider that Dr Bramley's comment (Section 32 of summary evidence) on Mr Harding's suggested compensation package being "disproportionately punitive relative to the scale of effects" as outside the brief of an ecology expert witness.

CONCLUSIONS

- 40. I disagree with Dr Bramley's concluding statement that the proposed North Property 'restoration' is appropriate or adequate compensation for the direct loss of seepage wetland habitats.
- 41. I consider that adverse effects and potential adverse effects on remaining seepage wetlands and the raised spring NW of the MOA, and effects of past (and potentially

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ongoing) discharges into Tara Stream should also be addressed through a 'package' of remediation, mitigation and compensation actions.

Date:

Signed:

28 October 2021

Name:

Philip Grove Science team leader Environment Canterbury

References

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